



STORMWATER POLLUTION PREVENTION PLAN

For

**Trailside Estates at Somers
Reynolds Drive
Town of Somers, New York**

May 10, 2024

Revised November 20, 2025



Applicant Information:

Parkview B & G, LLC
57 Route 6
Suite 207
Baldwin Place, NY, 10505

Note: This report in conjunction with the project plans make up the complete Stormwater Pollution Prevention Plan.

Prepared by:
Insite Engineering, Surveying & Landscape Architecture, P.C.
3 Garrett Place
Carmel, New York 10512

CONTENTS

1.0	INTRODUCTION	1
1.1	Project Description	1
1.2	Existing Site Conditions (Pre-Development)	1
1.3	Proposed Site Conditions (Post Development)	2
2.0	STORMWATER MANAGEMENT	2
2.1	Chapter 10: Enhanced Phosphorus Removal Standards	5
2.2	NYSDEC Runoff Reduction Volume (RR _v)	5
2.3	NYSDEC Water Quality Volume (WQ _v)	7
2.4	NYSDEC Stream Channel Protection Volume (CP _v)	9
2.5	NYSDEC Overbank Flood Control (Q _p), and Extreme Flood Control (Q _f)	10
2.6	NYCDEP Requirements	10
3.0	STORMWATER CONVEYANCE SYSTEM	12
4.0	EROSION AND SEDIMENT CONTROL	12
4.1	Temporary Erosion and Sediment Control Facilities	13
4.2	Permanent Erosion and Sediment Control Facilities	14
5.0	IMPLEMENTATION AND MAINTENANCE	14
5.1	Construction Phase	14
5.2	Soil Restoration	15
5.3	Long Term Maintenance Plan	17

APPENDICES

Appendix A	RR _v Calculations
Appendix B	Pre-Development Computer Data
Appendix C	Post-Development Computer Data
Appendix D	NYSDEC SPDES for Construction Activities Construction Site Logbook
Appendix E	Project and Owner Information
Appendix F	NYSDEC Stormwater Management Practice Construction and Maintenance Checklists
Appendix G	Hydrodynamic Separator Sizing and Maintenance
Appendix H	Jellyfish Filter Sizing, Maintenance and Specifications
Appendix I	Temporary Sediment Trap Sizing Calculations
Appendix J	Swale Sizing Calculations
Appendix K	Pipe Sizing Calculations
Appendix L	Draft Stormwater Maintenance Agreement
Appendix M	Porous Paver Patios Sizing and 10-Year Routing Calculations

FIGURES

Figure 1:	Location Map
Figure 2:	Pre-Development Drainage Map
Figure 3:	Post-Development Drainage Map

1.0 INTRODUCTION

1.1 Project Description

The subject project is located on two adjacent parcels totaling 56.8± acres on Reynolds Drive in the Town of Somers. The parcel and its surroundings are delineated on the attached Location Map (Figure 1). The property is designated as Tax Map Numbers 4.20-1-12 and 15.08-1-4 and is located in the R80 zoning district. The property is currently undeveloped and consists of wooded areas. Stormwater runoff on the existing property drains to the east, reaching culverts that pass underneath the North County Trailway. The project proposes to develop the site with 81 town houses, paved roadways and parking areas, and a recreation center. It is proposed to capture and treat the stormwater runoff associated with the proposed improvements. The project site is located in the Amawalk Reservoir Watershed.

The following permits are required for the project:

PERMIT	STATUS
TOWN OF SOMERS	
Planning Board: Subdivision, Site Plan, Steep Slopes, Wetland, Tree Removal, and Stormwater Permits	Pending
Town Board: Zone Text Amendment & Rezone and Water & Sewer District Expansion	Pending
WESTCHESTER COUNTY DEPARTMENT OF HEALTH	
Subdivision Approval	Not Yet Submitted
Sewer and Water Main Approval	Not Yet Submitted
WCBOL District Boundary Modification	Pending
NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION	
SWPPP Approval	Not Yet Submitted
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION	
SWPPP General Permit Coverage (GP-0-25-001)	Not Yet Submitted

There are no known enforcement actions, and no lawsuits or administrative proceedings, commenced against the applicant, or any principle affiliate of the applicant, for any alleged violations of law related to the applicant of this site, in the past five years preceding this application.

1.2 Existing Site Conditions (Pre-Development)

The subject property is located in the Town of Somers at the end of Reynolds Drive. The site is currently undeveloped and the ground cover consists of mostly wooded areas. There is an existing wetland centrally located throughout the property. The wetland generally drains from north to south and discharges off of the property through culverts under the North County Trailway.

The stormwater runoff from the existing property in the area of the proposed improvements generally drains from west to east towards the onsite wetland. The stormwater analysis included in the subject SWPPP utilizes two design points. The design points can be seen on Figures 2 and 3 of this report and are identified as Design Point 1 and Design Point 2. Design Point 1 is located at a culvert which goes under the North County Trailway and is along the southern outlet of the existing onsite stream. Design Point 2 is located at a culvert which goes under the North County Trailway and services a brook outlet to the northeast of the property. The design points are used to assess the stormwater runoff from the property and any potential impacts from the proposed development to the existing natural resources on the property. The Pre-Development Drainage Map (Figure 2 of this report) shows the locations of the two Design Points, which stay consistent through the post-development condition, as shown on Figure 3. The pre-development contributing areas to the Design Points are identified as subcatchments PRE 1 and PRE 2.

The soils located within the project site consist of hydrologic soil groups “B”, “C”, and “D”. The designations of the onsite soils located within the proposed limits of disturbance consist of Charlton Fine Sandy Loam (ChB, ChC, ChD, ClB, ClC), Charlton Loam (ClD), Leicester Loam (LcA, LcB), Paxton Fine Sandy Loam (PnB, PnC), Ridgebury Loam (RgB), Udorthents (Ub), Urban Land (Uf), Woodbridge Loam (WdA), and Water (W) as identified on the Soil Conservation Service Web Soil Survey. The soil boundaries are shown on Figures 2 and 3 of this report.

1.3 Proposed Site Conditions (Post Development)

The proposed project includes the construction of 81 town houses, paved roadways and parking areas, and a recreation center. Mitigation for the newly created impervious surfaces will be provided in the form of proposed stormwater management practices (SMP's) discussed further in later sections of this report. The proposed SMP's will be designed to capture and treat runoff from the impervious surfaces associated with the proposed improvements including the town houses, paved roadways, and parking areas.

It is proposed to maintain the existing drainage patterns on the site to the maximum extent practical in the proposed condition to minimize the impact to the existing downstream wetland. Stormwater treatment for the subject development will be accomplished through the implementation of subsurface infiltration systems, infiltration basins, micropool extended detention pond, wet swales, and proprietary stormwater management practices prior to the discharge to existing downstream wetland. The stormwater treatment practices have been sized to capture and treat the Water Quality Volume from the proposed improvements.

The stormwater runoff from the proposed impervious surfaces within subcatchment 1.3S, 1.5S and 1.6S is to be sent to one of two proposed subsurface infiltration systems. Flow splitters are proposed upstream of each infiltration system, discharging the Water Quality Volume (WQv) to the infiltration system while allowing larger storm events to bypass the systems. Pretreatment for each infiltration system is proposed to be provided by a hydrodynamic separator.

The stormwater runoff from the proposed impervious surfaces within subcatchment 1.7S and 2.1S is to be sent to one of two proposed infiltration basins. A pretreatment basin is proposed upstream of each infiltration basin to provide pretreatment and act as a flow splitter, discharging the WQv to the basin while allowing larger storm events to bypass the system.

The stormwater runoff from the proposed impervious surfaces of each building rooftop within subcatchment 1.9S are to be treated by the porous pavement patios adjacent to their respective buildings. These porous pavement practices have been sized to provide treatment for the entire WQv of the adjacent rooftops as well as providing storage for the 10-year design storm event.

To meet the NYCDEP stormwater requirements, two practices in series are proposed to treat the stormwater runoff from the proposed impervious surfaces within subcatchment 1.1S, 1.2S, 1.8S, and 2.2S. A variety of treatment trains generally consisting of wet swales, proprietary stormwater management practices and a stormwater pond are proposed.

As shown in the following sections of this report, the stormwater quality and quantity for the proposed development have been mitigated in accordance with the NYSDEC design standards. Additionally, an erosion and sediment control plan has been prepared in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, in order to protect the existing waterbodies and drainage features during construction activities and in the post-development condition.

2.0 STORMWATER MANAGEMENT

The proposed stormwater management system for the Trailside Estates at Somers project has been designed to meet the requirements of local, regional, and state stormwater ordinances and guidelines,

including but not limited to the Town of Somers, NYCDEP and the NYSDEC. Specifically, the following codes / regulations have been used to design this SWPPP:

- *NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activities, General Permit GP-0-25-001 (GP-0-25-001).*
- *NYCDEP Rules and Regulations for the Protection from Contamination, Degradation, and Pollution of the New York City Water Supply and its Sources (Rules and Regulations).*
- *Town of Somers Town Code, Chapter 93 – Stormwater Management and Erosion and Sediment Control.*

Since the subject project proposes the disturbance of more than 1 acre, coverage under the New York State Department of Environmental Conservation (NYSDEC) SPDES General Permit for Stormwater Discharges from Construction Activities (GP-0-25-001) is required.

This SWPPP was previously part of an application to a government entity prior to the effective date of January 29, 2025 of the GP-0-25-001 and as such the 2015 edition of the NYSDEC *New York State Stormwater Management Design Manual* (Design Manual) will be utilized in order to meet the design requirements, including the requirements listed in Chapter 10: *Enhanced Phosphorus Removal Standards* (Chapter 10) which was referenced for the design of the proposed stormwater collection, conveyance and treatment system. The Design Manual specifies five design criteria that are discussed in detail below. They are Runoff Reduction Volume (RR_v), Water Quality Volume (WQ_v), Stream Channel Protection Volume (CP_v), Overbank Flood Control (Q_f), and Extreme Storm Control (Q_p). The first two requirements relate to treating water quality, while the latter pertains to stormwater quantity (peak flow) attenuation.

With regard to NYCDEP requirements, Section 18-39 of the Rules and Regulations requires a SWPPP Approval for this project. This project meets three (3) of the thresholds that require SWPPP approval from the NYCDEP. For further discussion on NYCDEP requirements, refer to Section 2.6 below.

Where WQ_v/RR_v treatment is required, the following post construction stormwater management practices are proposed for the project:

Table 2.0.1 – Proposed SMP Design Criteria Summary Table

SMP ID	Proposed Subcatchment	NYSSMDM Ch. 6 Design Designation	NYSDEC Uniform Stormwater Sizing Criteria Satisfied	NYCDEP Requirement Satisfied
1.1P	1.1S	O-2 Wet Swale	WQ _v	First Practice In Series.
1.2P	1.2S	P-1 Micropool Extended Detention Pond	WQ _v , CP _v , Q _p , Q _f	Second Practice In Series
1.2F		Contech Jellyfish Filter	WQ _v	First Practice In Series.
1.3P	1.3S	I-4 Subsurface Infiltration System	WQ _v , RR _v , CP _v , Q _p , Q _f	Only Practice Required to be Provided
1.5P	1.5S			
1.6P	1.6S			
1.7P	1.7S	I-2 Infiltration Basin	WQ _v , RR _v , CP _v , Q _p , Q _f	Only Practice Required to be Provided
1.8P	1.8S	O-2 Wet Swale	WQ _v	Second Practice In Series
1.8F		Contech Jellyfish Filter	WQ _v	First Practice In Series.
1.9P	1.9S	Porous Pavers	WQ _v , RR _v	Only Practice Required to be Provided
2.1P	2.1S	I-2 Infiltration Basin	WQ _v , RR _v , CP _v , Q _p , Q _f	Only Practice Required to be Provided
2.2P	2.2S	O-2 Wet Swale	WQ _v	Second Practice In Series
2.2F		Contech Jellyfish Filter	WQ _v	First Practice In Series.

To address stormwater quantity requirements of the NYSDEC, the “HydroCAD” Stormwater Modeling System,” by HydroCAD Software Solutions LLC in Tamworth, New Hampshire, was used to model and assess the peak stormwater flows for the subject project. HydroCAD is a computer aided design program for modeling the hydrology and hydraulics of stormwater runoff. It is based primarily on hydrology techniques developed by the United States Department of Agriculture, Soil Conservation Service (USDA, SCS) TR-20 method combined with standard hydraulic calculations. For details on the input data for the subcatchments and design storms, refer to Appendices A through C and for the supporting data relative to the soils breakdown within the overall contributing area shown in the HydroCAD analysis, see Appendix A of this report:

The input requirements for the HydroCAD computer program are as follows:

Subcatchments (contributing watershed/sub-watersheds)

- Design storm rainfall in inches
- CN (runoff curve number) values which are based on soil type and land use/ground cover
- Tc (time of concentration) flow path information

Flow Splitters / Subsurface Infiltration System

- Surface area at appropriate elevations
- Flood elevation
- Outlet structure information

The following is a general description of the input data used to calculate the pre- and post-development stormwater runoff values. For detailed information for each subcatchment and pond, see Appendices B&C. The precipitation values for the 1-Year, 10-Year, 100-Year 24-hour design storm events and rainfall distribution curves utilized for this report were obtained from the information provided by Northeast Regional Climate Center(NRCC) and the Natural Resources Conservation Service(NRCS) which is available online at www.precip.eas.cornell.edu. The values provided for all design storms analyzed are listed below.

Design Storm	24-Hour Rainfall
1-Year	2.76"
10-Year	5.04"
100-Year	9.10"

Table 2.1 – Project Ground Cover and Associated Curve Numbers (CN)

Land Use/Ground Cover	CN Value
>75% Grass Cover, Good, HSG B	61
>75% Grass Cover, Good, HSG C	74
Woods/grass comb. Good, HSG B	58
Woods, Good, HSG B	55
Woods, Good, HSG C	70
Woods, Good, HSG D	77
Impervious Surfaces	98

The CN (runoff curve number) values utilized in this report were referenced from the USDA, SCS publication *Urban Hydrology for Small Watersheds*.

Porous paver patios will be utilized for areas where a portion of the proposed town home roofs are unable to be conveyed to the other proposed stormwater treatment practices. Generally, each instance of this occurring will have the same total impervious area being conveyed to a porous paver patio. Due to the small area of each porous paver patio and tributary area a separate model was generated. A single porous paver patio and its tributary areas has been modeled and the values obtained will be applied for each occurrence of the porous paver patios. Additional calculations and HydroCAD model are provided in Appendix M to verify the 10-year design storm is contained within the porous paver patio's storage volume as well as WQv storage as required by the Design Manual.

2.1 Chapter 10: Enhanced Phosphorus Removal Standards

As noted above, the New York City East of Hudson Watershed has been identified in the SPDES General Permit GP-0-25-001 as a watershed requiring compliance with the Enhanced Phosphorus Removal Standards when post-construction stormwater management practices are proposed. Chapter 10 establishes four goals to meet sizing performance standards:

- Goal 1: Reducing Runoff Volumes
- Goal 2: Effective Bypass Treatment
- Goal 3: Achieving Effluent Concentrations for Particulate Phosphorus
- Goal 4: Achieving Effluent Concentrations for Dissolved Phosphorus

In order to achieve the first goal, the site design shall, "assess the feasibility of hydrological source controls and reduce the total water quality volume by source control, implementation of green infrastructure, or standard SMP's with RR_v capacity, according to the process defined in Chapters 3 and 4 of the Design Manual. Each plan must include a rationale for acceptance and rejection of the various controls." A discussion on RR_v can be found in section 2.2 below. The use of infiltration practices (classified as Standard SMP's with RR_v capacity) has been maximized, specifically subsurface infiltration systems and infiltration basins were selected to the maximum extent practical to treat the stormwater runoff from the proposed impervious surfaces and satisfy RR_v minimum requirements. As such, Goal 1 has been achieved in this SWPPP.

Goal 2 cites that proposed stormwater management practices should achieve less than 15% effective treatment bypass of the long-term runoff volume. Chapter 10 further notes this goal is satisfied by capturing and treating the 1-year 24-hour design storm. The NYSDEC stormwater quality treatment practices proposed for this have been designed in accordance with Chapter 10 by utilizing the 1-yr, 24-hour design storm to generate the WQ_v / RR_v. As such, Goal 2 has been achieved in this SWPPP.

Achieving effluent concentrations for particulate phosphorus, Goal 3, is satisfied by achieving an 80% net removal of particulate phosphorus for a median influent concentration of 0.5mg/l. Chapter 10 states that through designing proposed SMP's in accordance with Section 10.4 this goal will be achieved. The proposed infiltration systems, infiltration basins, micropool extended detention pond and Jellyfish Filter have been designed in accordance with Section 10.4 of Chapter 10 thus satisfying the requirements of this goal.

Goal 4, achieving effluent concentration for dissolved phosphorus, is achieved by obtaining a 60% net removal of dissolved phosphorus given a median influent concentration of 0.15mg/l. As with Goal 3, Goal 4 is achieved by designing the proposed SMP's in accordance with Section 10.4 of Chapter 10. As noted above, the proposed infiltration systems, infiltration basins, micropool extended detention pond and Jellyfish Filter have been designed in accordance with section 10.4 of Chapter 10 thus satisfying the requirements of this goal.

2.2 NYSDEC Runoff Reduction Volume (RR_v)

The Runoff Reduction Volume (RR_v) criterion is intended to replicate pre-development hydrology by maintaining preconstruction infiltration, peak flow runoff, discharge volume, as well as

minimizing concentrated stormwater flow. As stated in Chapter 4 of the Design Manual, RR_v may be treated with standard stormwater management practices (SMP's) sized in accordance with the Chapter 4/6 requirements, or with green infrastructure practices (GIP's) sized in accordance with the requirements set forth for each practice in Chapter 5. Runoff reduction is achieved when runoff from a percentage of the impervious area on the site is captured, routed through a SMP or a GIP, infiltrated to the ground, reused, reduced by evapotranspiration, and eventually removed from the stormwater discharge from the site. However, if 100% of the WQ_v cannot be reduced by applying a combination of green infrastructure techniques and standard SMP's with RR_v capacity, "they must, at a minimum, reduce runoff from a percentage of the impervious area constructed as part of the project using the green infrastructure techniques and standard SMPs with RR_v capacity. In addition, the designer must provide justification in the SWPPP that evaluates each of the green infrastructure techniques listed in Table 3.2 and identify the specific site limitations that make application of the technique(s) infeasible."

The project SWPPP cannot provide 100% of the WQ_v through the implementation of GIP's or standard SMP's with RR_v capacity upstream of Design Point 1 and Design Point 2. This is due to the existing onsite soil conditions and topography in the area of the proposed improvements, thus minimizing the area where infiltration practices for treatment of the RR_v / WQ_v is possible.

Where soils suitable for infiltration exist in close proximity to the proposed dwelling units, porous paver patios are proposed. As specified in the Design Manual porous paver patios will only be applied in areas with an HSG of C or better and where onsite soil testing yielded results suitable for infiltration.

Section 4.3 of the Design Manual states for sites that do not achieve runoff reduction to pre-construction condition must, at a minimum reduce a percentage of the runoff from impervious areas to be constructed on the site a minimum RR_v . The following equation can be used to determine the minimum runoff reduction volume:

The minimum runoff reduction volume shall be $RR_{v\text{minimum}} = \frac{(P)(R_v)(A_i)}{100}$ 12

Where,

S	= Hydrologic Soil Group (HSG) Specific Reduction Factor
A_{ic}	= Total Area of New Impervious Cover
A_i	= Impervious cover targeted for Runoff Reduction
	= $(S)(A_{ic})$
R_v	= 0.95

Although 100% of the WQ_v cannot be treated through the implementation of GIP's or standard SMP's with RR_v capacity upstream of Design Point 1 and Design Point 2, the project SWPPP addresses and satisfies the RR_v requirements of the Design Manual. In order to meet these requirements to the maximum extent practicable, the project SWPPP has minimized the creation of impervious surfaces to the maximum extent practicable. The types of GIP's and standard SMP's with RR_v capacity that can be employed onsite are limited on the project site. The project SWPPP as required by the Design Manual meets and exceeds the RR_v minimum required upstream of Design Point 1 and Design Point 2. For this project there are three I-4 Subsurface Infiltration Systems and an I-2 Infiltration Basin employed upstream of Design Point 1 and an I-2 Infiltration Basin employed upstream of Design Point 2 towards meeting the RR_v requirements.

For a calculation of the Initial WQ_v / RR_v , the RR_v minimum, the RR_v / WQ_v required, and the RR_v provided, refer to Appendix A. In calculating the RR_v minimum, onsite soils belong to the Hydrologic Soil Groups B and C. These soil groups have a specific reduction factor of 0.40 and 0.30, respectively. Listed in Table 2.2.1 below is a summary of the NYSDEC compliant practices, and their satisfaction of the NYSDEC RR_v requirements:

Table 2.2.1 Runoff Reduction Volume Summary

Design Point	Subcatchment	RR _v Required = WQ _v (c.f.) From Appendix C	RR _v Minimum (c.f.) Calculated in Appendix A	GIP/SMP ID	NYSDEC Practice Designation	Allowable % of WQ _v provided to be applied towards RR _v	Storage Volume Provided below System Outlet (c.f.) (From Appendix C)	RR _v Provided (c.f.)
1	1.1S	65,471	28,934	1.1P	O-2 Wet Swale	0%	-	47,872
	1.2S			1.2P	P-1 Pond	0%	-	
	1.3S			1.3P	I-4 Subsurface Infiltration System	100%	9,519	
	1.5S			1.5P			6,453	
	1.6S			1.6P			15,764	
	1.7S			1.7P	I-2 Infiltration Basin	100%	18,667	
	1.8S			1.8P	O-2 Wet Swale	0%	-	
	1.9S	3,921	1,904	1.9P	Porous Pavers	100%	4,455	3,921
2	2.1S	12,981	4,949	2.1P	I-2 Infiltration Basin	100%	6,534	6,534
	2.2S			2.2P	O-2 Wet Swale	0%	-	

As previously stated, 100% of the RR_vRequired could not be provided upstream of Design Point 1 and Design Point 2 due to existing onsite soil conditions and topography which limited the area where infiltration is feasible. As 100% of the RR_vRequired was not provided for Design Point 1 and 2, a downstream SMP must be provided to treat the difference between the WQ_v / RR_v required and the RR_v provided. See Section 2.3 below for further information regarding the proposed stormwater management practices provided in series to treat the remaining WQ_v.

2.3 NYSDEC Water Quality Volume (WQ_v)

The stormwater management practices have been sized in accordance with Chapter 4 of the Design Manual, as they have been sized to capture and treat the entire water quality volume (WQ_v) from the proposed improvements. The subject project is located in the New York City Watershed, which is listed as a phosphorus-limited watershed per the NYSDEC regulations. Therefore, the stormwater management practices have been designed in general accordance with the Enhanced Phosphorus Removal Supplement (Chapter 10) of the Design Manual. As outlined in Chapter 10, the treatment volume for the WQ_v is the runoff volume produced during the 1-year 24-hour design storm. See table 2.6.1 for a summary of the WQ_v that is generated by the proposed improvements during the 1-year, 24-hour storm. Treatment of the WQ_v for the from the proposed improvements on the project site is provided in the form of infiltration basins, subsurface infiltration practices, wet swales, Contech Jellyfish Filters, and a micropool extended detention pond.

The infiltration practices (infiltration basins and subsurface infiltration systems) have been sized to provide 100% storage of the water quality volume between the bottom of the practice and the outlet condition of the practice. Two infiltration basins and three subsurface infiltration practices are designed to treat the stormwater runoff from subcatchments 1.3S, 1.5S, 1.6S, 1.7S, and 2.1S. By providing 100% storage of the WQ_v in the infiltration practices, the water quality volume storage requirements set forth in the Design Manual have been met for these subcatchments.

Three hydrodynamic separators are proposed as pretreatment, one for each subsurface infiltration system. The Hydro International First Defense hydrodynamic separator is a NJCAT verified proprietary practice for pretreatment. As shown on the project plans, a hydrodynamic separator is proposed upstream of the proposed infiltration system 1.3P, 1.5P and 1.6P. The hydrodynamic

separators have been sized to pretreat 100% of the WQv based on the peak flow rate from the upstream flow splitter during the 1-year, 24-hour storm event as shown in Appendix C. The following table is a summary of the peak flows from the upstream flow splitter to the hydrodynamic separator for the Water Quality Volume storm event and the hydrodynamic separator sizing.

Table 2.3.1 – Pretreatment Hydrodynamic Separator Summary

Subcatchment	Flow Splitter	WQv ¹ Peak Flow (c.f.s.)	Hydrodynamic Separator Model	Hydrodynamic Separator Capacity (c.f.s.)
1.3S	FS 1.3	3.47	First Defense 7-ft	4.60
1.5S	FS 1.5	2.19	First Defense 5-ft	2.35
1.6S	FS 1.6	5.12	First Defense 8-ft	6.00

¹ For detailed calculations see Appendix C.

Pretreatment for the proposed infiltration basins (1.7P and 2.1P) is proposed through the implementation of an upstream dry pretreatment basin. The pretreatment basin has been designed in accordance with Chapter 6 of the Design Manual to provide a required pretreatment volume based on the infiltration rate of the underlying soils in the downstream infiltration basin. The table below provides a summary of the pretreatment requirements for each pretreatment basin.

Table 2.3.2 – Pretreatment Basin Sizing Summary

Subcatchment	WQv ¹ (c.f.)	Infiltration Rate of Underlying Soils in Downstream Infiltration Basin (in/hr)	Required Pretreatment Percentage of WQv Required	Required Pretreatment Volume (c.f.)	Storage Volume Provided in Pretreatment Basin ¹ (c.f.)
1.7S	15,333	14 in/hr	100%	15,333	27,375
2.1S	6,534	3 in/hr	50%	3,267	7,333

¹ For detailed calculations see Appendix C.

Three wet swales are proposed to treat the stormwater runoff from subcatchments 1.1S, 1.8S and 2.2S. As summarized in the table below the proposed wet swales have been designed to treat the WQv required from the contributing area. In accordance with the Design Manual, the swales have been designed to provide 30-minutes of detention of the 1-year 24-hour storm runoff volume, therefore treating 100% of the WQv.

Table 2.3.3 Summary of O-2 Wet Swales

Design Elements	Required	Provided			Remarks
		1.1P	1.8P	2.2P	
Longitudinal Slope	4.0 % Max.	4.0 % Max.	4.0 % Max.	4.0 % Max.	See Project Plans
10-Year Storm Freeboard	6" Minimum	6" Min. Provided	6" Min. Provided	6" Min. Provided	See Appendix C
Ponding Time	48 hours Max	< 48 hours	< 48 hours	< 48 hours	See Appendix C
Channel Side Slopes	2 H : 1 V Max	3 H : 1 V	3 H : 1 V	3 H : 1 V	See Project Plans
WQv Detention Time	30 Minutes Min.	42.7 Minutes	33.3 Minutes	37.0 Minutes	See Appendix C
Bottom Width of Swale	2' Min. – 8' Max.	6'	3'	7'	See Project Plans
Pretreatment	10% of WQv	>10% Provided ²	>10% Provided ¹	>10% Provided ¹	See Below

¹ Pretreatment is provided by the upstream Jellyfish Filter which is sized to treat 100% of the WQv.

² Pretreatment is provided in the form of deep sump catch basins and gravel diaphragm.

A P-1 Micropool Extended Detention Pond is proposed as a second practice in series to treat the stormwater runoff from subcatchments 1.1S and 1.2S in accordance with the NYCDEP requirements. The P-1 pond has been sized in accordance with Chapter 6 of the Design Manual to treat a total WQv from subcatchments 1.1S, 1.2S and 1.4S (15,856 c.f.) as shown in the table below.

Table 2.3.4 P-1 Micropool Extended Detention Pond Summary

Design Elements	Required	Provided	Remarks
Pond Location	Not within Jurisdictional Waters	Outside of Jurisdictional Waters	See Project Plans
Forebay Volume	10% of WQv (1,586 cubic feet)	10%+ of WQv (3,500 cubic feet)	See Appendix C
Forebay Depth	4' Min. – 6' Max.	5' Provided	See Project Plans
WQv Storage	20% Min. within Permanent Pool (3,171 cubic feet)	20%+ within Permanent Pool (6,700 cubic feet)	See Appendix C
Minimum Length to Width Ratio	1.5 : 1	Greater than 1.5 : 1	See Project Plans
Minimum Surface Area to Drainage Area Ratio	1 : 100	1 : 4	See Project Plans
Benches at Water Level	Aquatic Bench	Aquatic Bench	See Project Plans
Landscaping	Pond and Buffer Plantings Required	Pond and Buffer Plantings Provided	See Project Plans

Three Contech Jellyfish Filters are proposed to treat the stormwater runoff from subcatchments 1.2S, 1.8S, and 2.2S as well as meet the NYCDEP requirements for two practices in series. The Contech Jellyfish Filter is an approved NYSDEC proprietary stormwater management practice. As shown in the standard specifications for the Jellyfish Filter in Appendix G, the unit meet the requirements of the Design Manual by providing greater than 80% TSS removal and 40% phosphorous removal. In accordance with the NYCDEP requirements discussed in Section 2.6 below, the Jellyfish Filters have been sized to treat the entire WQv peak flow from the tributary areas (subcatchment 1.2S, 1.8S, and 2.2S). As shown in the table below the Jellyfish Filters are sized to provide a treatment capacity greater than the peak flow from the upstream tributary area during the 1-year, 24-hour storm event in order to meet the NYSDEC criteria for water quality.

Table 2.3.5 – Jellyfish Filter Water Quality Volume Treatment Summary

Subcatchment	SMP	WQv ¹ Peak Flow (c.f.s.)	Jellyfish Filter Model	Jellyfish Filter Capacity (c.f.s.)
1.2S	1.2F	0.38	JF4-2-1	0.45
1.8S	1.8F	1.06	JF6-6-1	1.16
2.2S	2.2F	2.35	JF10-12-3	2.41

¹ For detailed calculations see Appendix C.

By sizing the proposed stormwater management practices to treat 100% of the WQv from the contributing area in accordance with the Design Manual, the WQv criteria has been met.

2.4 NYSDEC Stream Channel Protection Volume (CP_v)

The Stream Channel Protection (CP_v) criterion is intended to protect stream channels from erosion and is accomplished by the 24-hour extended detention of the center-of-mass of the one-year, 24-hour storm event. As noted in Table 2.1.1 the stormwater infiltration systems and infiltration basins have been designed with a storage volume greater than the volume of stormwater runoff from the 1-year storm. The proposed P-1 Micropool Extended Detention Pond has been designed to provide 24-hour extended detention of the 1-year, 24-hour design storm. By providing a stormwater infiltration practices to fully infiltrate the volume of stormwater runoff from the 1-year, 24-hour design storm and a pond to provide 24-hour extended detention, the CP_v has been met for the project.

2.5 NYSDEC Overbank Flood Control (Q_p), and Extreme Flood Control (Q_t)

The Overbank Flood Control (Q_p) requirement is intended to prevent an increase in the frequency and magnitude of out-of-bank flooding events generated by urban development. Overbank control requires storage to attenuate the post-development 10-year, 24-hour peak discharge to pre-development rates. The Extreme Flood Control (Q_t) requirement is intended to prevent the increased risk of flood damage from large storm events, maintain the boundaries of the pre-development 100-year flood plain, and protect the physical integrity of stormwater management practice. Extreme flood control requires storage to attenuate the post-development 100-year, 24-hour peak discharge to pre-development rates. As shown in Table 2.5.1 attenuation for both the 10-year and 100-year 24-hour storms has been provided thus satisfying the Q_p and Q_t requirements.

Table 2.5.1– Existing and Proposed Conditions Peak Flows

24-HOUR DESIGN STORM PEAK FLOWS (c.f.s.)				
	10-YEAR (Overbank Flood Control)		100-YEAR (Extreme Flood Control)	
	Pre	Post	Pre	Post
Design Point 1	31.84	31.01	86.87	82.78
Design Point 2	12.79	12.79	32.56	30.30

As shown in the above table the peak flows from the contributing areas to the design points in the post development condition has been mitigated to below the existing condition levels, thus meeting the general requirements of the NYSDEC.

2.6 NYCDEP Requirements

As previously discussed, the proposed project meets three (3) of the thresholds that require SWPPP approval from the NYCDEP per Section 18-39 of the Rules and Regulations. The project meets the following thresholds listed in Section 18-39(b)(4) that require NYCDEP SWPPP approval:

- (i) Plans for development or sale of land that will result in the disturbance of five (5) or more acres of total land area.
- (iii) Construction of a new industrial, institutional, municipal, commercial, or multi-family residential project that will result in the creation of an impervious surface totaling over 40,000 square feet in size.
- (iv) A land clearing project, involving two or more acres, located at least in part within the limiting distance of 100 feet of a watercourse or wetland, or within the limiting distance of 300 feet of a reservoir, reservoir stem or controlled lake or on a slope exceeding 15 percent.

There is no proposed stormwater discharge from industrial activities for the proposed development. The proposed project does not include any new solid waste management facilities or alterations / modifications to existing facilities.

The Rules and Regulations parallel the requirements of the NYSDEC and the Town of Somers, with the exception that two different NYSDEC standard SMP's are required in series when the drainage area to a SMP is greater than 20% impervious and an infiltration practice is not provided. Although there are subcatchments where the percent impervious exceeds 20% (as shown in Table 2.6.2 below), by providing infiltration practices, there is no need for two different NYSDEC standard SMP's in series for all subcatchments.

Per the Rules and Regulations, the stormwater treatment volume used shall be the greater of the runoff volume from the 1-year, 24-hour storm event or the volume generated by the 90% storm.

The initial WQ_v from the 1-year storm event was discussed above. The following equation, per Chapter 4, was used to determine the water quality volume for the 90% storm event for the subcatchments.

$$\text{The water quality volume shall be } WQ_v = \frac{(P)(R_v)(A) \times 43,560 \text{ (s.f./ac)}}{12}$$

Where,

WQ_{v90} = water quality volume (in c.f.)

P = 90% Rainfall Event Number (1.5 in)

R_v = $0.05 + 0.009(I)$, where I is percent impervious cover

A = site area in acres

Table 2.6.1 - Water Quality Volume Calculation Summary 90% Storm vs. 1-Year Storm Comparison

Subcatchments	P (in.)	R_v	A ¹ (ac.)	WQ_{v90} (c.f.)	WQ_v^2 1-year (c.f.)
1.1S	1.5	0.65	0.6	2,124	3,833
1.2S		0.54	2.4	7,057	10,934
1.3S		0.68	1.6	5,924	9,148
1.5S		0.84	0.8	3,659	5,881
1.6S		0.85	1.8	8,331	13,852
1.7S		0.53	3.2	9,235	15,333
1.8S		0.73	0.4	1,590	2,831
1.9S		0.95	0.5	2,586	3,921 ³
2.1S		0.47	1.3	3,327	6,534
2.2S		0.84	0.8	3,659	6,447

¹ Information regarding contributing areas for the 1-year 24-hour storm event is shown in Appendix C.

² Refer to Appendix C for 1-year 24-hour water quality volume calculation.

³ Refer to Appendix M for 1-year 24-hour water quality volume calculation for subcatchment 1.9S.

As shown in Table 2.6.1 above, the volume produced by the 1-year, 24-hour design storm for subcatchments is larger than the volume produced by the 90% storm. Therefore, the 1-year, 24-hour design storm volumes shall be used for the WQ_v sizing for all of the proposed stormwater management practices.

The following table summarizes the amount of proposed impervious surfaces for each subcatchment and shows the proposed stormwater management practice that will treat each subcatchment:

Table 2.6.2 – Imperviousness of Tributary Areas & Stormwater Management Practice

Sub-Catchments	Total Area (acres)	Existing Impervious Surface Within Subcatchment (acres)	Proposed Impervious Surface Within Subcatchment (acres)	% Impervious Surface of Total Subcatchment Area	Proposed Stormwater Management Practice (SMP) Treatment Train ¹	
					RR _v /SMP 1	SMP 2 (A second practice in series is only provided when % impervious is greater than 20% and infiltration is not provided)
1.1S	0.6	0.0	0.4	67%	I-4 Subsurface Infiltration System	Not Required
1.2S	2.4	0.0	1.3	54%	Jellyfish Filter	P-1 Micropool Extended Detention Pond
1.3S	1.6	0.0	1.1	70%	I-4 Subsurface Infiltration System	Not Required
1.5S	0.8	0.0	0.7	88%		
1.6S	1.8	0.0	1.6	89%		
1.7S	3.2	0.0	1.7	53%	I-2 Infiltration Basin	Not Required
1.8S	0.4	0.0	0.3	75%	Jellyfish Filter	O-2 Wet Swale
1.9S	0.5	0.0	0.5	100%	Porous Pavers	Not Required
2.1S	1.3	0.0	0.6	46%	I-2 Infiltration Basin	Not Required
2.2S	0.8	0.0	0.7	88%	Jellyfish Filter	O-2 Wet Swale

¹ This table lists the standard SMP's used to treat the balance of the WQ_v / RR_v after the application of GIP's.

As shown in the above table, all the subcatchments where treatment is required are greater than 20% imperviousness. To satisfy the requirement for two practices in series, standard SMP's with RR_v capacity or infiltration practices have been used as the GIP's for the project. By proposing infiltration practices for all subcatchments, per the NYSDEP requirements, a second stormwater management practice in series is not required.

3.0 STORMWATER CONVEYANCE SYSTEM

The proposed stormwater collection and conveyance system for the project consists of grass swales, precast concrete drainage structures, HDPE and PVC SDR 35 pipe. The system will be sized utilizing the Rational Method. The Rational Method is a standard method used by engineers to develop flow rates for sizing collection systems. The Rational Method calculates flows based on a one-hour design storm. The collection system will be sized to convey, at a minimum, the 100-year design storm. Sizing calculations for the proposed conveyance system will be provided in future reports.

4.0 EROSION AND SEDIMENT CONTROL

Erosion and sediment control should be accomplished by four basic principles: diversion of clean water, containment of sediment, treatment of dirty water, and stabilization of disturbed areas. Diversion of clean water should be accomplished with swales. This diverted water should be safely conveyed around the construction area as necessary and discharged downstream of the disturbed areas. Sediment should be

contained with the use of silt fence at the toe of disturbed slopes. Disturbed areas should be permanently stabilized within 7 days of final grading to limit the required length of time that the temporary facilities must be utilized. The owner will be responsible for the maintenance of the temporary erosion control facilities. Refer to the Project Drawings for further information implementation of the Erosion Control Plan and Construction Sequence.

4.1 Temporary Erosion and Sediment Control Facilities

Temporary erosion and sediment control facilities should be installed and maintained as required to reduce the impacts to off-site properties. The owner will be required to provide maintenance for the temporary erosion and sediment control facilities. In general, the following temporary methods and materials should be used to control erosion and sedimentation from the project site:

- Stabilized Construction Entrance
- Silt Fence Barriers
- Storm Drain Inlet Protection
- Temporary Soil Stabilization
- Temporary Sediment Trap

All temporary erosion control measures shall be maintained in accordance with the Erosion & Sediment Control Maintenance Schedule contained on the Project Drawings, and as discussed below.

A stabilized construction entrance should be installed at the site entrance as shown on the project plans. The design drawings will include details to guide the contractor in the construction of this entrance. The intent of the stabilized construction entrance is to prevent the “tracking” of soil from the site. Dust control should be accomplished with water sprinkling trucks if required. During dry periods, sprinkler trucks should wet all exposed earth surfaces as required to prevent the transport of air-borne particles to adjoining areas.

Siltation barriers constructed of geosynthetic filter cloth should be installed at the toe of all disturbed slopes. The intent of these barriers is to contain silt and sediment at the source and inhibit its transport by stormwater runoff. The siltation barriers will also help reduce the rate of runoff by creating filters through which the stormwater must pass. During construction, the siltation barriers shall be inspected weekly and after a rainfall event and shall be cleaned/replaced when needed.

Storm drain inlet protection in the form of manufactured insert inlet protection will be installed on all proposed inlets. The manufactured insert inlet protection will serve to filter stormwater runoff before it enters the collection system. Throughout construction the concrete drainage structures, associated piping and inlet protections shall be inspected weekly and after a rainfall event. These items shall be cleaned, repaired and/or replaced when needed.

The P-1 Micropool Extended Detention Pond and pretreatment basins will act as temporary sediment traps during construction of the site. Additional temporary sediment traps are proposed to be constructed downhill of the proposed soil disturbance activities and removed once the contributing area has been stabilized. The stormwater runoff from disturbed areas will be directed to the sediment traps. The sediment traps will be sized in accordance with the New York State Standards and Specifications for Erosion and Sediment Control. Sizing calculations for the temporary sediment traps are provided in Appendix I.

When land is exposed during development, the exposure shall be kept to the shortest practical period, but in no case more than 7 days. Temporary grass seed and mulch shall be applied to any construction area idle for two weeks. The temporary seeding and mulching shall be performed in accordance with the seeding notes illustrated on the project drawings. Disturbance shall be minimized in the areas required to perform construction. Upon completion of final grading topsoil, permanent seeding and mulch shall be applied in accordance with the project drawings.

The stormwater runoff will be managed by the temporary erosion and sediment control facilities during construction. As discussed in the construction sequences provided, the project plans the stabilized construction entrance shall be installed at the site entrance and silt fence shall be installed along the downhill perimeter of where soil disturbing activities will occur containing sediment laden stormwater runoff on-site.

4.2 Permanent Erosion and Sediment Control Facilities

Permanent erosion and sediment control will be accomplished by diverting stormwater runoff from steep slopes, controlling/reducing stormwater runoff velocities and volumes, and vegetative and structural surface stabilization. All of the permanent facilities are relatively maintenance free and only require periodic inspections. The owner will provide maintenance for all the permanent erosion and sediment control facilities.

Rock outlet protection will be provided at the discharge end of all piped drainage systems, and will be sized in accordance with the Blue Book. The purpose of the rock outlet protection is to reduce the depth, velocity, and energy of water, such that the flow will not erode the receiving downstream reach. The rock outlet protection shall be inspected for evidence of scouring beneath the riprap and/or for any dislodged stones. Inspections of the rock outlet protection shall be performed during the inspections of the post-construction SMP's for the project.

Other than the paved or gravel surfaces, disturbed surfaces will be stabilized with vegetation within 10 days of final grading. Permanent seed mix and mulch shall be applied to idle areas to minimize the amount of exposed soil. Permanent seed mixtures are proposed for the project and illustrated on project drawings. Application rates for the seed and mulch are provided on the project drawings. The vegetation will control stormwater runoff by preventing soil erosion, reducing runoff volume and velocities, and providing a filter medium. Permanent seeding should optimally be undertaken in the spring from March 21st through May 20th and in late summer from August 15th to October 15th.

5.0 IMPLEMENTATION AND MAINTENANCE

5.1 Construction Phase

Details associated with the implementation and maintenance of the proposed stormwater facilities and erosion control measures during construction are shown on the project drawings. Soil disturbance for the subject project shall not exceed five acres at any given time. The erosion control plan will include associated details and notes to aid the contractor in implementing the plan. Construction is anticipated to begin in the fall of 2024 and anticipated to be completed by the fall of 2026.

During construction, a Site Log Book, Appendix D, is required to be kept per NYSDEC SPDES General Permit GP-0-25-001. Erosion and sediment control inspections are required to be conducted as necessary under coverage of the permit (minimum twice a week) and an updated logbook and a copy of the SWPPP is required to be kept on site for the duration of the construction activities. The Construction Site Log Book is an appendix taken from the *New York Standards and Specifications for Erosion and Sediment Control* (Blue Book).

In addition to the proposed erosion and sediment control facilities, the following good housekeeping best management practices shall be implemented to mitigate potential pollution during the construction phase of the project. The general contractor overseeing the day-to-day site operation shall be responsible for the good housekeeping best management practices included in the following general categories:

- Material Handling and Waste Management
- Establishment of Building Material Staging Areas
- Establishment of Washout Areas
- Proper Equipment Fueling and Maintenance Practices
- Spill Prevention and Control Plan

All construction waste materials shall be collected and removed from the site regularly by the general contractor. The general contractor shall supply waste barrels for proper disposal of waste materials. All personnel working on the site shall be instructed of the proper procedures for construction waste disposal.

Although it is not anticipated any hazardous waste materials will be utilized during construction, any hazardous waste materials shall be disposed of in accordance with federal, state, and local regulations. No hazardous waste shall be disposed of on-site. Hazardous waste materials shall be stored in appropriate and clearly marked containers and segregated from the other non-waste materials. All hazardous waste shall be stored in a structurally sound and sealed shipping containers located in the staging areas. Material safety data sheets, material inventory, and emergency contact numbers will be maintained in the office trailer. All personnel working on the site shall be instructed of the proper procedures for hazardous waste disposal.

Temporary sanitary facilities (portable toilets) shall be provided on site during the entire length of construction. The sanitary facilities shall be located in the project staging area, or in an alternate area away from the construction activities on the site. The portable toilets shall be inspected weekly for evidence of leaking holding tanks.

All recyclables, including wood pallets, cardboard boxes, and all other recyclable construction scraps shall be disposed of in a designated recycling barrel provided by the contractor and removed from the site regularly. All personnel working on the site shall be instructed of the proper procedures for construction waste recycling.

All construction equipment and maintenance materials shall be stored in a construction staging area. Silt fence shall be installed down gradient of the construction staging area. Shipping containers shall be utilized to store hand tools, small parts, and other construction materials, not taken off site daily. Construction waste barrels, recycling barrels and if necessary hazardous waste containers shall be located within the limits of the construction staging area.

Throughout the construction of the project, several types of vehicles and equipment will be used on-site. Fueling of the equipment shall occur within the limits of the construction staging area. Fuel will be delivered to the site as needed, by the general contractor, or a party chosen by the general contractor. Only minor vehicle equipment maintenance shall occur on-site, all major maintenance shall be performed off-site. All equipment fluids generated from minor maintenance activities shall be disposed of into designated drums and stored in accordance with the hazardous waste storage as previously discussed.

The designated temporary concrete washout areas shall be constructed in accordance with the detail in the general locations as shown on the project plans. The temporary concrete washout areas shall be lined with plastic sheeting as specified on the detail free of holes or tears. Should the liner rip or tear at any time it shall be replaced immediately. All concrete mixer trucks and chutes shall be washed in the designated concrete wash areas. All personnel working on the site including concrete equipment operators shall be instructed of the locations and proper procedures for concrete washout. When the temporary concrete washout areas are no longer needed the hardened concrete and materials used to construct the washout area shall be broken up and removed from the site and disposed of in a landfill.

Vehicles and equipment shall be inspected on each day of use. Any leak discovered shall be repaired immediately. All leaking equipment unable to be repaired shall be removed from the site. Ample supplies of absorbent, spill-cleanup materials, and spill kits shall be located in the construction staging area. All spills shall be cleaned up immediately upon discovery. Spent absorbent materials and rags shall be hauled off-site immediately after the spill is cleaned for disposal at a local landfill. All personnel working on the site shall be instructed of the proper procedures for spill prevention and control. Any spill large enough to discharge to surface water will be immediately reported to the local fire / police departments, NYCDEP, and the National Response Center 1-800-424-8802.

Vegetation should be inspected every 30 days and after every major storm event until established, after which inspections should take place on a quarterly basis and after every large storm event. Damaged areas should be immediately re-seeded and re-mulched.

5.2 Soil Restoration

Soil Restoration is required to be applied across areas of the development site where soils have been disturbed and will be vegetated. The purpose is to recover the original properties and porosity of the soil compacted during construction activity. Soil Restoration is applied in the cleanup,

restoration, and landscaping phase of construction followed by the permanent establishment of an appropriate, deep-rooted groundcover to help maintain the restored soil structure. Soil restoration includes mechanical decompaction and compost amendment. The table below describes various soil disturbance activities related to land development, soil types and the requirements for soil restoration for each activity as identified in the Design Manual. Restoration is applied across areas of a development site where soils have been compacted and will be vegetated according to the criteria defined in the table below:

Soil Restoration Requirements^{1, 2,4} (Onsite soils within the limit of disturbance belong to Hydrologic Soil Groups (HSG) B, C & D)		
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	Protect area from any ongoing construction activities.
	Apply 6 inches of topsoil	
Areas of cut or fill	HSG C&D	Aerate ³ and apply 6 inches of topsoil
	Aerate ¹ and apply 6 inches of topsoil	
Heavy traffic areas on site (especially in a zone 5-25 feet around buildings but not within a 5-foot perimeter around foundation walls)	HSG A & B	Apply full Soil Restoration ²
	Aerate ¹ and apply 6 inches of topsoil	
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.	

1. 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.
2. Per "Deep Ripping and De-compaction, DEC 2008".
3. 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 functions like a mini-subsoiler.
4. During periods of relatively low to moderate subsoil moisture, the disturbed soils are returned to rough grade and the following Soil Restoration steps applied:
 - 5.1. Apply 3 inches of compost over subsoil.
 - 5.2. Till compost into subsoil to a depth of at least 12 inches using a cat-mounted ripper, tractor-mounted disc, or tiller, mixing, and circulating air and compost into subsoils.
 - 5.3. Rock-pick until uplifted stone/rock materials of four inches and larger size area cleaned off the site.
 - 5.4. Apply topsoil to a depth of 6 inches.
 - 5.5. Vegetate as required by seeding notes located on the project drawings.
 - 5.6. Tilling should not be performed within the drip line of any existing trees or over any utility installations that are within 24 inches of the surface.

6. Compost shall be aged, from plant derived materials, free of viable weed seeds, have no visible free water or dust produced when handling, pass through a half inch screen and have a pH suitable to grow desired plants.

After soil restoration is completed an inspector should be able to push a 3/8" metal bar twelve inches into the soil with just body weight. Following decompaction/soil restoration activities, the following maintenance is anticipated during the first year:

- Initial inspections for the first six months (once after each storm greater than a half-inch).
- Reseeding to repair bare or eroding areas to assure grass stabilization.
- 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.
- Fertilization may be needed in the fall after the first growing season to increase plant vigor.

In order to ensure the soil remains decompacted the following ongoing maintenance is recommended:

- Planting the appropriate ground cover with deep roots to maintain the soil structure.
- Keeping the site free of vehicular and foot traffic or other weight loads. Consider pedestrian footpaths (sometimes it may be necessary to de-thatch the turf every few years).

5.3 Long Term Maintenance Plan

The stormwater facilities for the subject project have been designed to minimize the required maintenance. This section discusses the minimum maintenance requirements to ensure long-term performance of the stormwater facilities. Initially the stormwater facilities will require an increased maintenance and inspection schedule until all portions of the site are stable. Generally, the stormwater facilities consist of either collection and conveyance components or treatment components.

The stormwater collection and conveyance system is composed of HDPE drainage pipe and precast concrete drainage structures. The owner will assume the maintenance responsibilities for the drainage system. Minimal maintenance is typically required for these facilities. All pipes should be checked for debris and blockages and cleaned as required. All drain inlet sumps shall be cleaned to remove deposited sediment. During the cleaning process, the pipes should be inspected for structural integrity and overall condition; repairs and/or replacement should be made as required.

There are three Hydrodynamic Separators proposed to provide pretreatment for the subsurface infiltration systems. Routine maintenance shall include inspection of the Hydrodynamic Separator for accumulated sediment / debris, and cleaning as necessary per the manufacturer's requirements, see Appendix G.

Three Contech Jellyfish Filters are proposed to provide stormwater quality treatment. Routine maintenance shall include the inspection of the Filter per the manufacturer's requirements. The owner's manual for the Jellyfish Filter is provided in Appendix H of this report.

Areas of porous pavers must undergo routine maintenance to ensure successful operation of the paver section. Routine maintenance shall include inspection of paving area for signs of surface deterioration or spalling, vacuum sweeping to keep the surface free of sediments, cleaning porous paver areas of debris, and ensuring the paving dewaterers between storms. Traction sand shall not be used as it clogs the pavers, winter snow / ice control shall use soluble salt. Nonfunctional or clogged sections of porous pavers should be vacuum swept and high-pressure washed prior to pursuit of repairs or replacements.

Additionally, the stormwater management practices including the infiltration basin, pretreatment basin, wet swales and stormwater pond shall be checked for deposited sediment as well. Inspection and maintenance requirements for the proposed stormwater management practices per the Design Manual are provided in Appendix F of this report.

APPENDIX A
RR_v Calculations

RRv Calculation Worksheet - Design Point 1

Project: Trailside Estates at Somers
 Project #: 21241.100
 Date: 5/10/2024



1. *RRv Initial* = *Water Quality Volume (WQv)* 1.503 ac-ft = 65,471 c.f.
 (refer to HydroCAD Subcatchments 1.1S, 1.2S, 1.3S, 1.5S, 1.6S, 1.7S and 1.8S for Water Quality Volume)

2. *RRv Minimum* = $[(P)(Rv)(S)(Aic)] / 12$ where...
 P = Rainfall (in.) = 2.76 in.
 Rv = $0.05 + 0.009 (100\%)$ = 0.95
 S = Hydrologic Soil Group Specific Reduction Factor = 0.40
 [HSG A = 0.55] [HSG B = 0.40] [HSG C = 0.30] [HSG D = 0.20]
 Aic = Total area of new impervious cover = 7.6 Acres

RRv Minimum = 28,934 c.f.

3. *RRv Required* = *RRv Initial* - *Green Infrastructure Practice (GIP) with Area Reduction*

GIP with Area Reduction Applied in Project

5.3.1 Conservation of Natural Area N/A
 5.3.2 Sheet Flow to Riparian Buffers or Filter Strips N/A
 5.3.4 Tree Planting / Tree Box c.f.
 5.3.5 Disconnection of Rooftop Runoff -
 5.3.6 Stream Daylighting N/A

RRv Required (=WQv-RRv by area)(Refer to HydroCAD output in this Appendix) = 65,471 c.f.

4. *RRv Provided*

GIP with Volume Reduction Applied in Project	WQv Treated (c.f.)	% of WQv Applied to <i>RRv Provided</i>	<i>RRv Provided</i> (c.f.)
5.3.3 Vegetated Open Swales [HSG A / B = 20%] [HSG C / D = 10%] {Modified HSG C - D = 15% - 12%}		20% 10%	0 0
5.3.7 Rain Garden [No underdrains / Good Soils = 100%] [With underdrains / Poor Soils = 40%]		40%	0
5.3.8 Green Roof [RRv provided equals volume provided in Green Roof]		100%	N/A
5.3.9 Stormwater Planters [Infiltration Planters = 100%] [Flow Through HSG C = 45%] [Flow Through HSG D = 30%]		45%	N/A
5.3.10 Rain Tank / Cisterns		100%	N/A
5.3.11 Porous Pavers	3,921	100%	3,921
Infiltration Practice (Standard SMP)	47,872	100%	47,872
Bioretention Practice (Standard SMP) [Without Underdrains HSG A/B = 80%] [With Underdrain HSG C/D = 40%]		40%	0
Dry Swale (Open Channel Practice) (Standard SMP) [HSG A/B = 40%] [HSG C/D = 20%]		20%	N/A
<i>RRv Provided</i> =			51,793

5. Summary

RRv Initial = 65,471 c.f.
 RRv Required = 65,471 c.f.
 RRv Minimum = 28,934 c.f.
 RRv Provided = 51,793 c.f.
 WQv Required for Downstream SMP = 0 c.f. (= RRv Required - RRv Provided)
 Is RRv Provided greater than or equal to RRv Minimum? Yes

RRv Calculation Worksheet - Design Point 2

Project: Trailside Estates at Somers
 Project #: 21241.100
 Date: 5/10/2024



1. *RRv Initial* = Water Quality Volume (WQv) 0.298 ac-ft = 12,981 c.f.
 (refer to HydroCAD Subcatchments 2.1S and 2.2S for Water Quality Volume)

2. *RRv Minimum* = $[(P)(Rv)(S)(Aic)] / 12$ where...
 P = Rainfall (in.) = 2.76 in.
 Rv = 0.05 + 0.009 (100%) = 0.95
 S = Hydrologic Soil Group Specific Reduction Factor = 0.40
 [HSG A = 0.55] [HSG B = 0.40] [HSG C = 0.30] [HSG D = 0.20]
 Aic = Total area of new impervious cover = 1.3 Acres
RRv Minimum = 4,949 c.f.

3. *RRv Required* = RRv Initial - Green Infrastructure Practice (GIP) with Area Reduction

GIP with Area Reduction Applied in Project

5.3.1 Conservation of Natural Area N/A
 5.3.2 Sheet Flow to Riparian Buffers or Filter Strips N/A
 5.3.4 Tree Planting / Tree Box c.f.
 5.3.5 Disconnection of Rooftop Runoff -
 5.3.6 Stream Daylighting N/A

RRv Required(=WQv-RRv by area)(Refer to HydroCAD output in this Appendix) = 12,981 c.f.

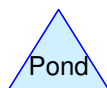
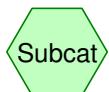
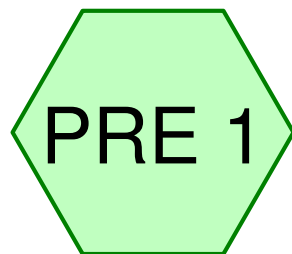
4. *RRv Provided*

GIP with Volume Reduction Applied in Project	WQv Treated (c.f.)	% of WQv Applied to RRv Provided	RRv Provided (c.f.)
5.3.3 Vegetated Open Swales [HSG A / B = 20%] [HSG C / D = 10%] {Modified HSG C - D = 15% - 12%}		20% 10%	0 0
5.3.7 Rain Garden [No underdrains / Good Soils = 100%] [With underdrains / Poor Soils = 40%]		40%	0
5.3.8 Green Roof [RRv provided equals volume provided in Green Roof]		100%	N/A
5.3.9 Stormwater Planters [Infiltration Planters = 100%] [Flow Through HSG C = 45%] [Flow Through HSG D = 30%]		45%	N/A
5.3.10 Rain Tank / Cisterns		100%	N/A
5.3.11 Porous Pavement		100%	N/A
Infiltration Practice (Standard SMP)	6534	100%	6,534
Bioretention Practice (Standard SMP) [Without Underdrains HSG A/B = 80%] [With Underdrain HSG C/D = 40%]		40%	0
Dry Swale (Open Channel Practice) (Standard SMP) [HSG A/B = 40%] [HSG C/D = 20%]		20%	N/A
RRv Provided =			6,534

5. Summary

RRv Initial = 12,981 c.f.
 RRv Required = 12,981 c.f.
 RRv Minimum = 4,949 c.f.
 RRv Provided = 6,534 c.f.
 WQv Required for Downstream SMP = 0 c.f. (= RRv Required - RRv Provided)
 Is RRv Provided greater than or equal to RRv Minimum? Yes

APPENDIX B
Pre Development Computer Data



Routing Diagram for Trailside Somers - Pre Development

Prepared by Insite Engineering, Surveying & Landscape Architecture, P.C., Printed 5/9/2024
HydroCAD® 10.00-15 s/n 02171 © 2015 HydroCAD Software Solutions LLC

Trailside Somers - Pre Development**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by Insite Engineering, Surveying & Landscape Architecture, P.C.

Printed 5/9/2024

HydroCAD® 10.00-15 s/n 02171 © 2015 HydroCAD Software Solutions LLC

Page 2

Summary for Subcatchment PRE 1:

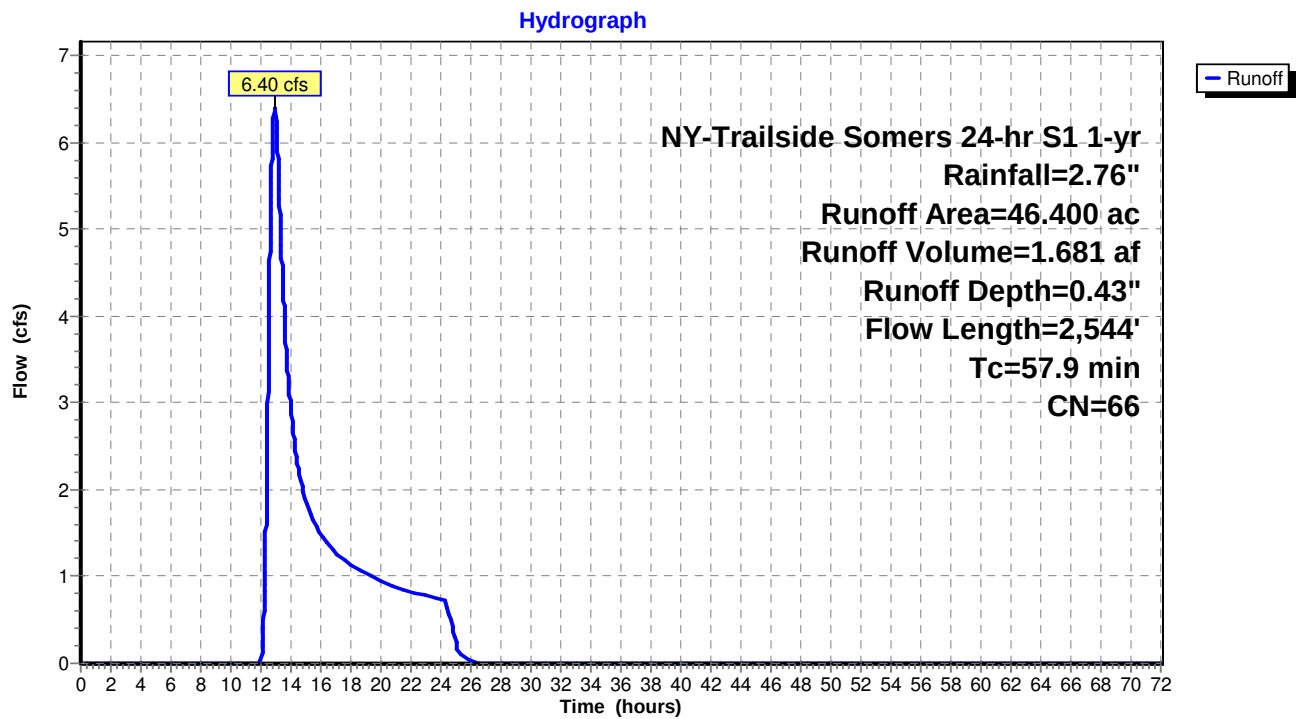
Runoff = 6.40 cfs @ 12.93 hrs, Volume= 1.681 af, Depth= 0.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (ac)	CN	Description
18.100	55	Woods, Good, HSG B
18.100	70	Woods, Good, HSG C
10.200	77	Woods, Good, HSG D
46.400	66	Weighted Average
46.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.5	100	0.0150	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.35"
20.5	802	0.0170	0.65		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.9	476	0.0400	1.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.1	743	0.0330	4.01	10.83	Channel Flow, Area= 2.7 sf Perim= 7.2' r= 0.38' n= 0.035 Earth, dense weeds
2.9	423	0.0210	2.39	4.07	Channel Flow, Area= 1.7 sf Perim= 7.0' r= 0.24' n= 0.035 Earth, dense weeds
57.9	2,544	Total			

Subcatchment PRE 1:



Trailside Somers - Pre Development**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by Insite Engineering, Surveying & Landscape Architecture, P.C.

Printed 5/9/2024

HydroCAD® 10.00-15 s/n 02171 © 2015 HydroCAD Software Solutions LLC

Page 4

Summary for Subcatchment PRE 2:

Runoff = 2.92 cfs @ 12.37 hrs, Volume= 0.465 af, Depth= 0.51"

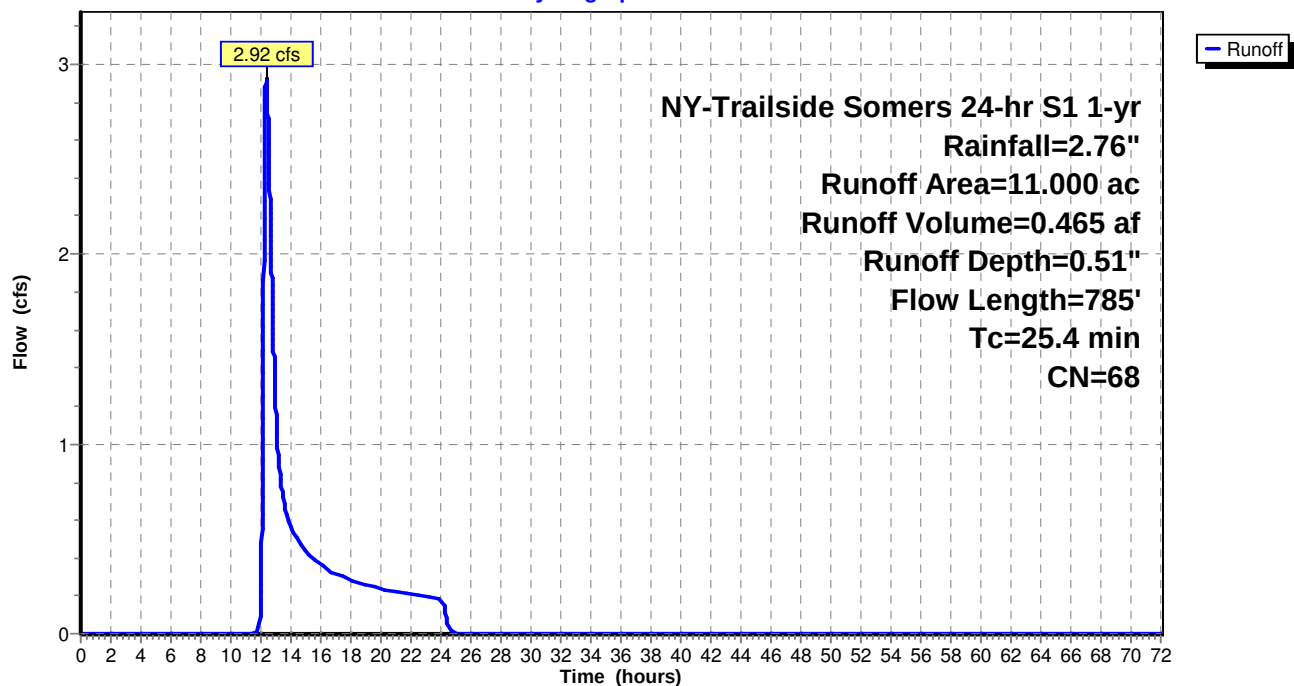
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (ac)	CN	Description
1.600	55	Woods, Good, HSG B
8.500	70	Woods, Good, HSG C
0.900	77	Woods, Good, HSG D
11.000	68	Weighted Average
11.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	100	0.0600	0.12		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.35"
10.4	540	0.0300	0.87		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.5	145	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
25.4	785	Total			

Subcatchment PRE 2:

Hydrograph



Trailside Somers - Pre Development**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by Insite Engineering, Surveying & Landscape Architecture, P.C.

Printed 5/9/2024

HydroCAD® 10.00-15 s/n 02171 © 2015 HydroCAD Software Solutions LLC

Page 5

Summary for Subcatchment PRE 1:

Runoff = 31.85 cfs @ 12.80 hrs, Volume= 6.786 af, Depth= 1.75"

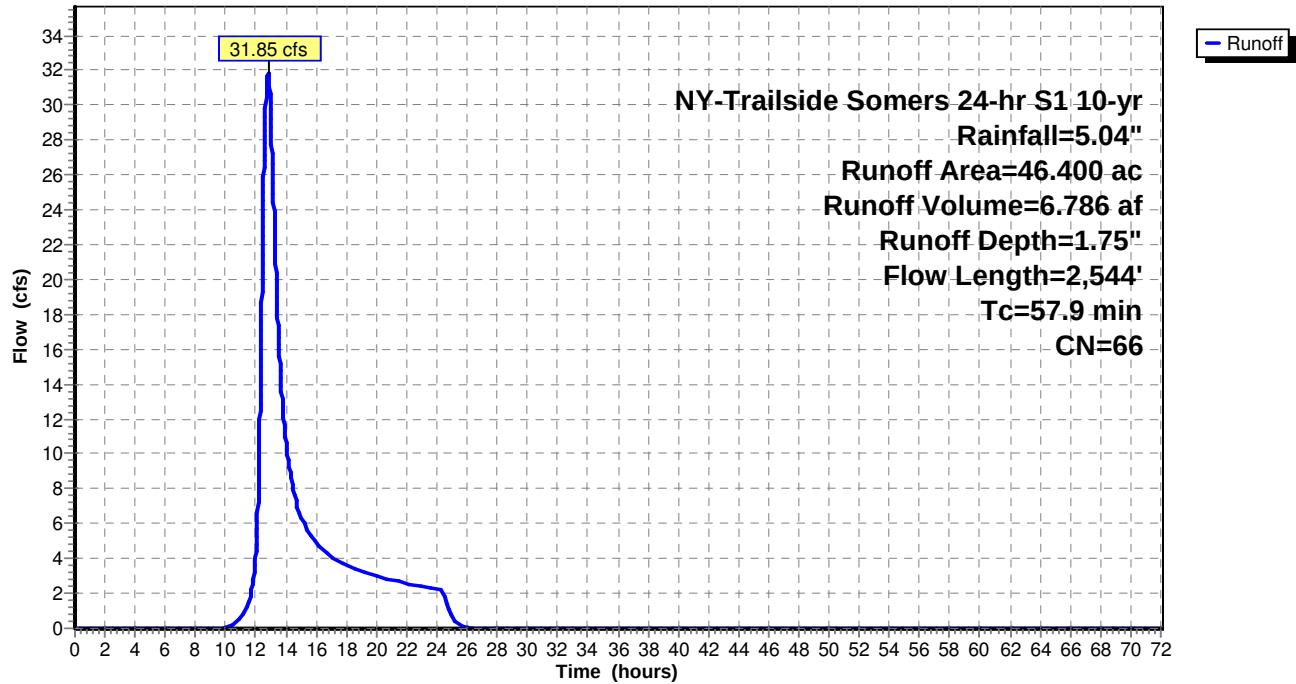
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (ac)	CN	Description
18.100	55	Woods, Good, HSG B
18.100	70	Woods, Good, HSG C
10.200	77	Woods, Good, HSG D
46.400	66	Weighted Average
46.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.5	100	0.0150	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.35"
20.5	802	0.0170	0.65		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.9	476	0.0400	1.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.1	743	0.0330	4.01	10.83	Channel Flow, Area= 2.7 sf Perim= 7.2' r= 0.38' n= 0.035 Earth, dense weeds
2.9	423	0.0210	2.39	4.07	Channel Flow, Area= 1.7 sf Perim= 7.0' r= 0.24' n= 0.035 Earth, dense weeds
57.9	2,544	Total			

Subcatchment PRE 1:

Hydrograph



Trailside Somers - Pre Development**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by Insite Engineering, Surveying & Landscape Architecture, P.C.

Printed 5/9/2024

HydroCAD® 10.00-15 s/n 02171 © 2015 HydroCAD Software Solutions LLC

Page 7

Summary for Subcatchment PRE 2:

Runoff = 12.79 cfs @ 12.33 hrs, Volume= 1.749 af, Depth= 1.91"

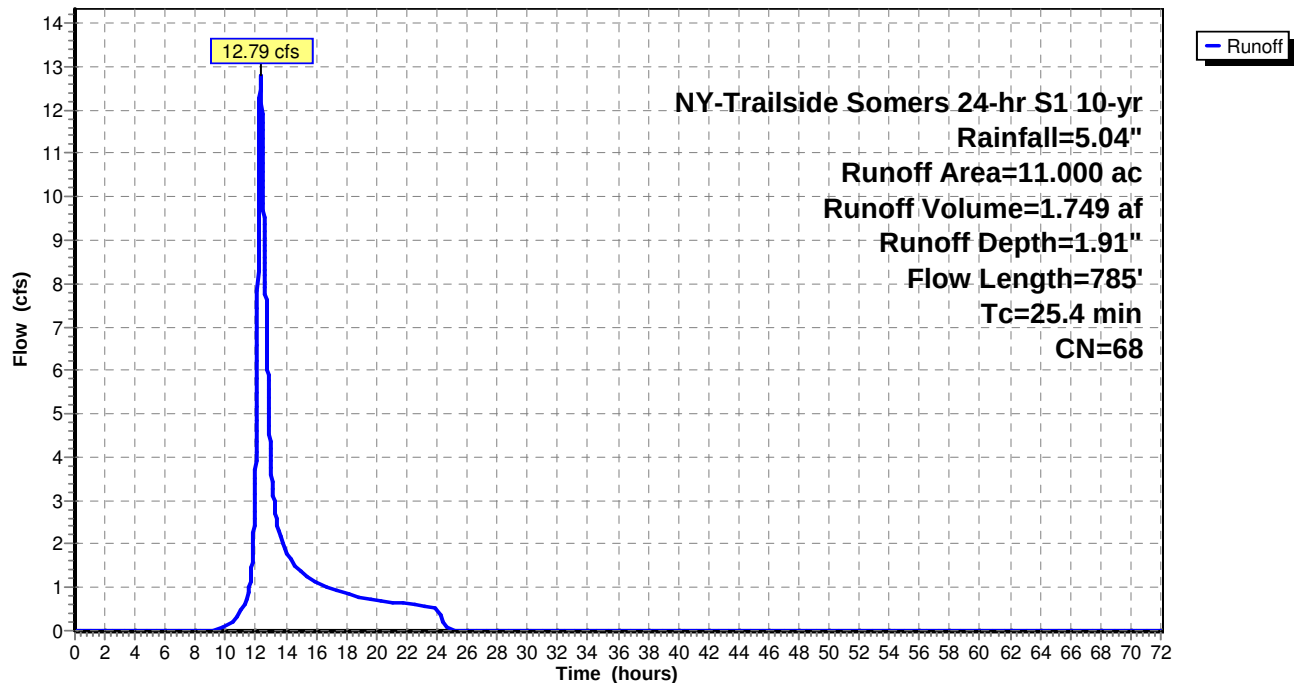
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (ac)	CN	Description
1.600	55	Woods, Good, HSG B
8.500	70	Woods, Good, HSG C
0.900	77	Woods, Good, HSG D
11.000	68	Weighted Average
11.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	100	0.0600	0.12		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.35"
10.4	540	0.0300	0.87		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.5	145	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
25.4	785	Total			

Subcatchment PRE 2:

Hydrograph



Summary for Subcatchment PRE 1:

Runoff = 86.87 cfs @ 12.79 hrs, Volume= 19.045 af, Depth= 4.93"

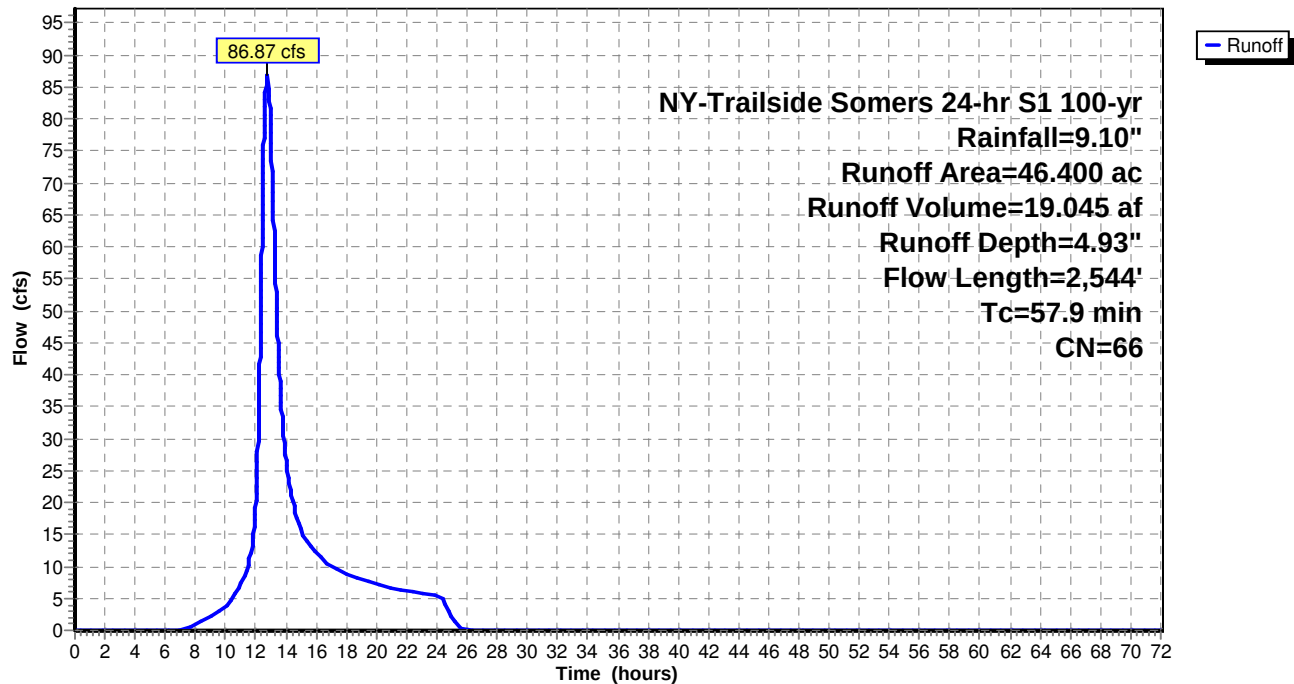
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (ac)	CN	Description
18.100	55	Woods, Good, HSG B
18.100	70	Woods, Good, HSG C
10.200	77	Woods, Good, HSG D
46.400	66	Weighted Average
46.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.5	100	0.0150	0.07		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.35"
20.5	802	0.0170	0.65		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.9	476	0.0400	1.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.1	743	0.0330	4.01	10.83	Channel Flow, Area= 2.7 sf Perim= 7.2' r= 0.38' n= 0.035 Earth, dense weeds
2.9	423	0.0210	2.39	4.07	Channel Flow, Area= 1.7 sf Perim= 7.0' r= 0.24' n= 0.035 Earth, dense weeds
57.9	2,544	Total			

Subcatchment PRE 1:

Hydrograph



Summary for Subcatchment PRE 2:

Runoff = 32.56 cfs @ 12.31 hrs, Volume= 4.743 af, Depth= 5.17"

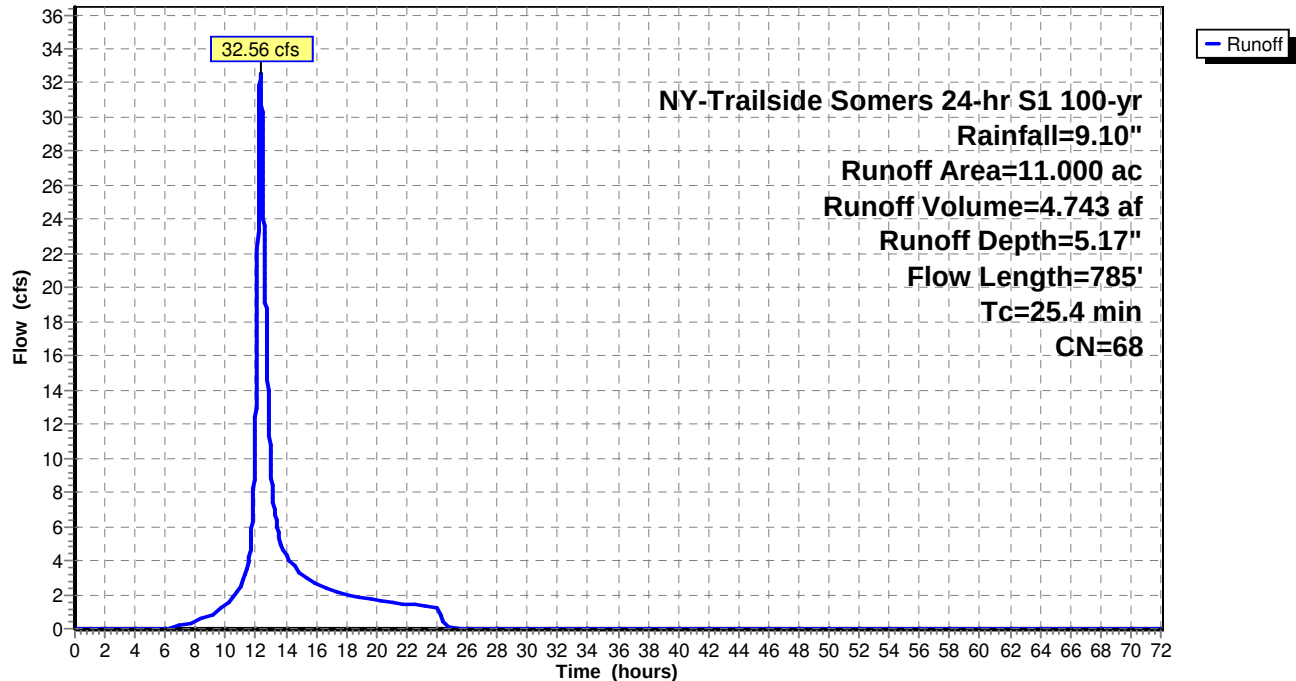
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (ac)	CN	Description
1.600	55	Woods, Good, HSG B
8.500	70	Woods, Good, HSG C
0.900	77	Woods, Good, HSG D
11.000	68	Weighted Average
11.000		100.00% Pervious Area

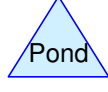
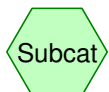
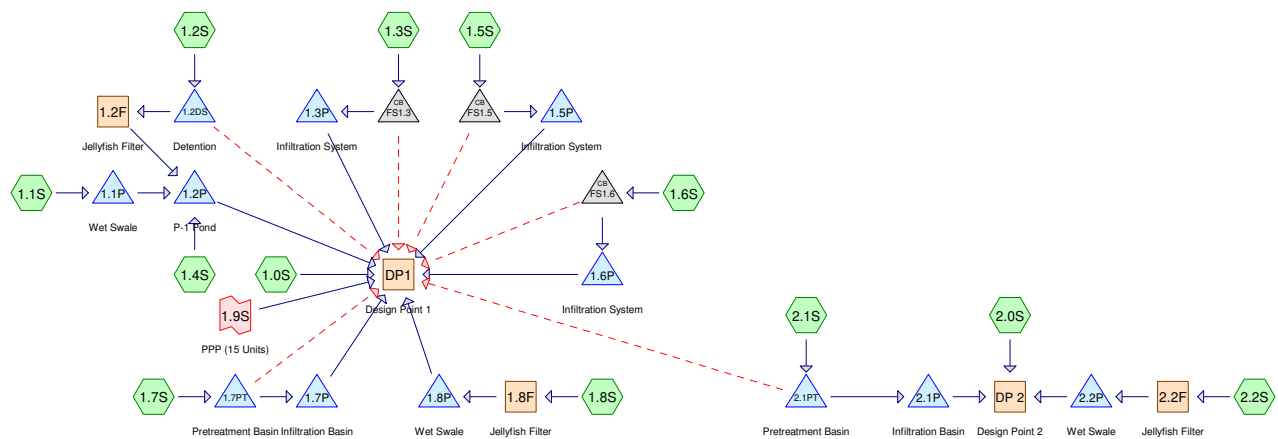
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.5	100	0.0600	0.12		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.35"
10.4	540	0.0300	0.87		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.5	145	0.1000	1.58		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
25.4	785	Total			

Subcatchment PRE 2:

Hydrograph



APPENDIX C
Post Development Computer Data



Routing Diagram for Trailside Somers - Post Development (With PPP Area)

Prepared by {enter your company name here}, Printed 11/20/2025
HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 2

Summary for Subcatchment 1.0S:

Runoff = 6.33 cfs @ 12.82 hrs, Volume= 1.453 af, Depth= 0.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (ac)	CN	Description
2.600	55	Woods, Good, HSG B
14.700	70	Woods, Good, HSG C
9.200	77	Woods, Good, HSG D
4.900	61	>75% Grass cover, Good, HSG B
2.900	58	Woods/grass comb., Good, HSG B
0.100	74	>75% Grass cover, Good, HSG C
34.400	68	Weighted Average
34.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0	100	0.0150	0.07		Sheet Flow, Grass: Bermuda n= 0.410 P2= 3.35"
14.8	630	0.0200	0.71		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.9	476	0.0400	1.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.1	743	0.0330	4.01	10.83	Channel Flow, Area= 2.7 sf Perim= 7.2' r= 0.38' n= 0.035 Earth, dense weeds
2.9	423	0.0210	2.39	4.07	Channel Flow, Area= 1.7 sf Perim= 7.0' r= 0.24' n= 0.035 Earth, dense weeds
52.7	2,372	Total			

Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

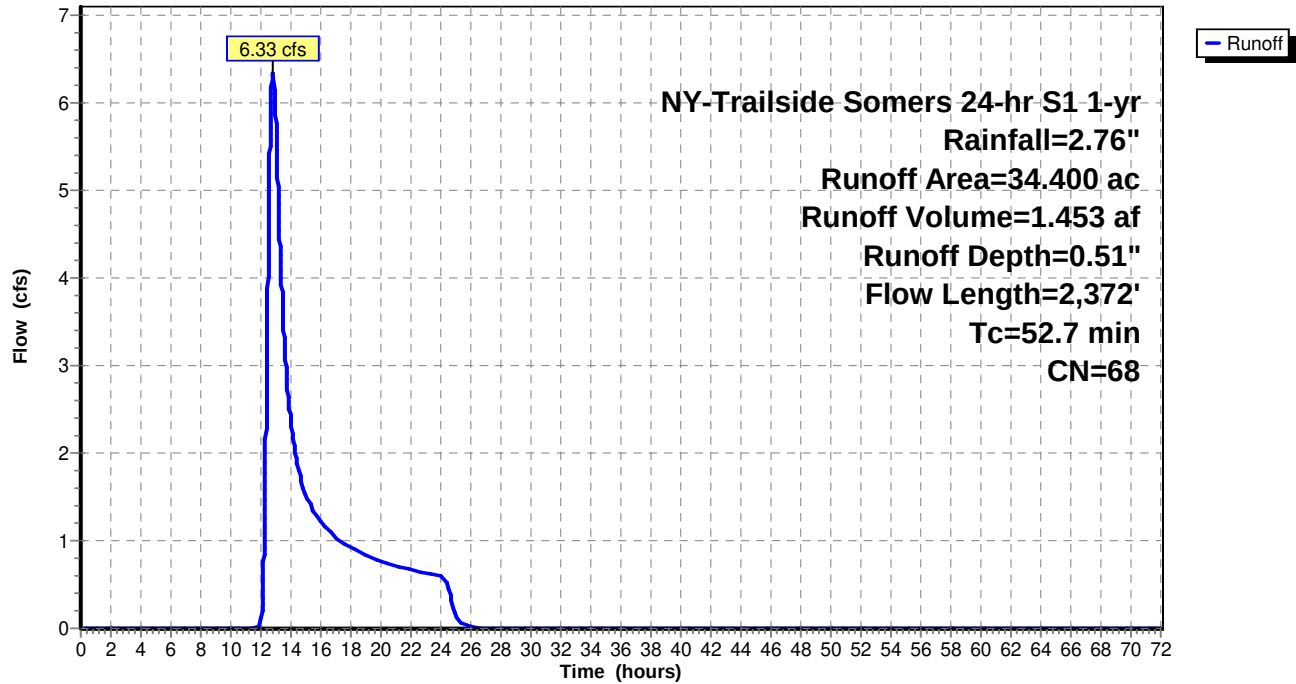
Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 3

Subcatchment 1.0S:

Hydrograph



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 4

Summary for Subcatchment 1.1S:

Runoff = 1.46 cfs @ 12.04 hrs, Volume= 0.088 af, Depth= 1.77"

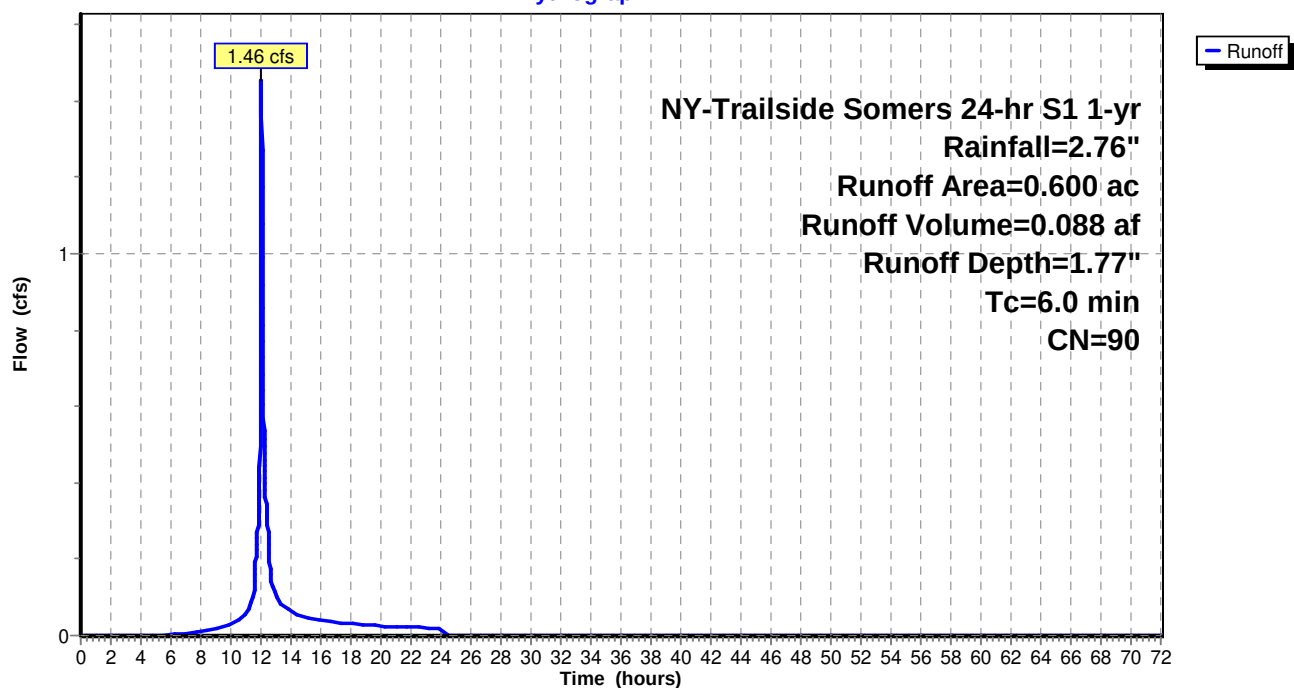
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (ac)	CN	Description
0.400	98	Paved parking, HSG B
0.200	74	>75% Grass cover, Good, HSG C
0.600	90	Weighted Average
0.200		33.33% Pervious Area
0.400		66.67% Impervious Area

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

Subcatchment 1.1S:

Hydrograph



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 5

Summary for Subcatchment 1.2S:

Runoff = 4.09 cfs @ 12.04 hrs, Volume= 0.251 af, Depth= 1.26"

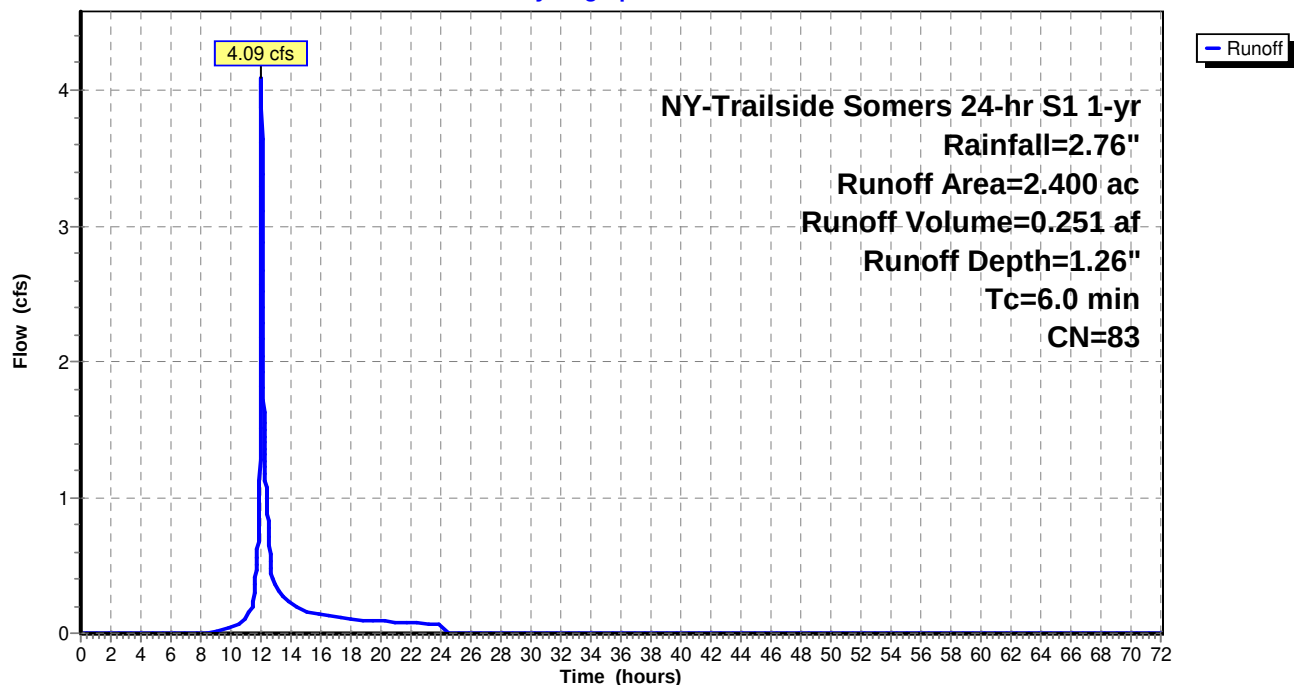
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (ac)	CN	Description
1.300	98	Paved parking, HSG B
0.900	61	>75% Grass cover, Good, HSG B
0.200	80	>75% Grass cover, Good, HSG D
2.400	83	Weighted Average
1.100		45.83% Pervious Area
1.300		54.17% Impervious Area

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

Subcatchment 1.2S:

Hydrograph



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 6

Summary for Subcatchment 1.3S:

Runoff = 3.47 cfs @ 12.04 hrs, Volume= 0.210 af, Depth= 1.53"

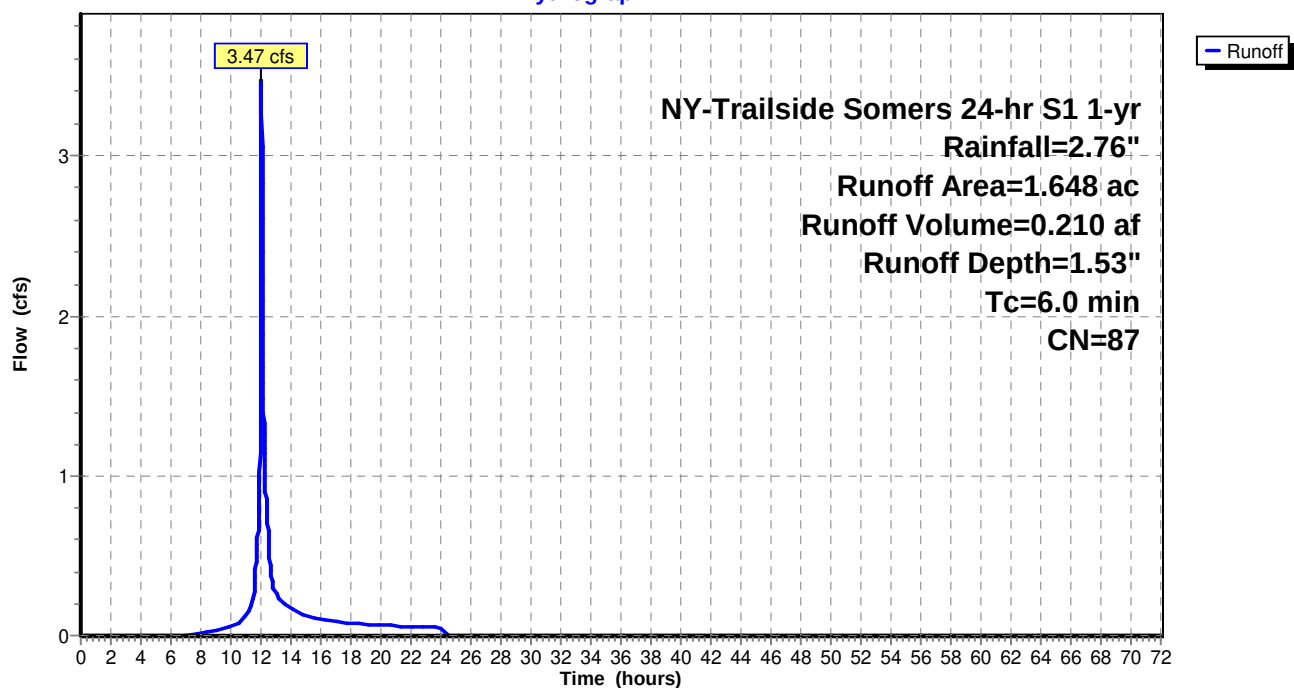
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (ac)	CN	Description
* 1.148	98	Paved parking
0.500	61	>75% Grass cover, Good, HSG B
1.648	87	Weighted Average
0.500		30.34% Pervious Area
1.148		69.66% Impervious Area

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

Subcatchment 1.3S:

Hydrograph



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 7

Summary for Subcatchment 1.4S:

Runoff = 0.23 cfs @ 12.14 hrs, Volume= 0.025 af, Depth= 0.51"

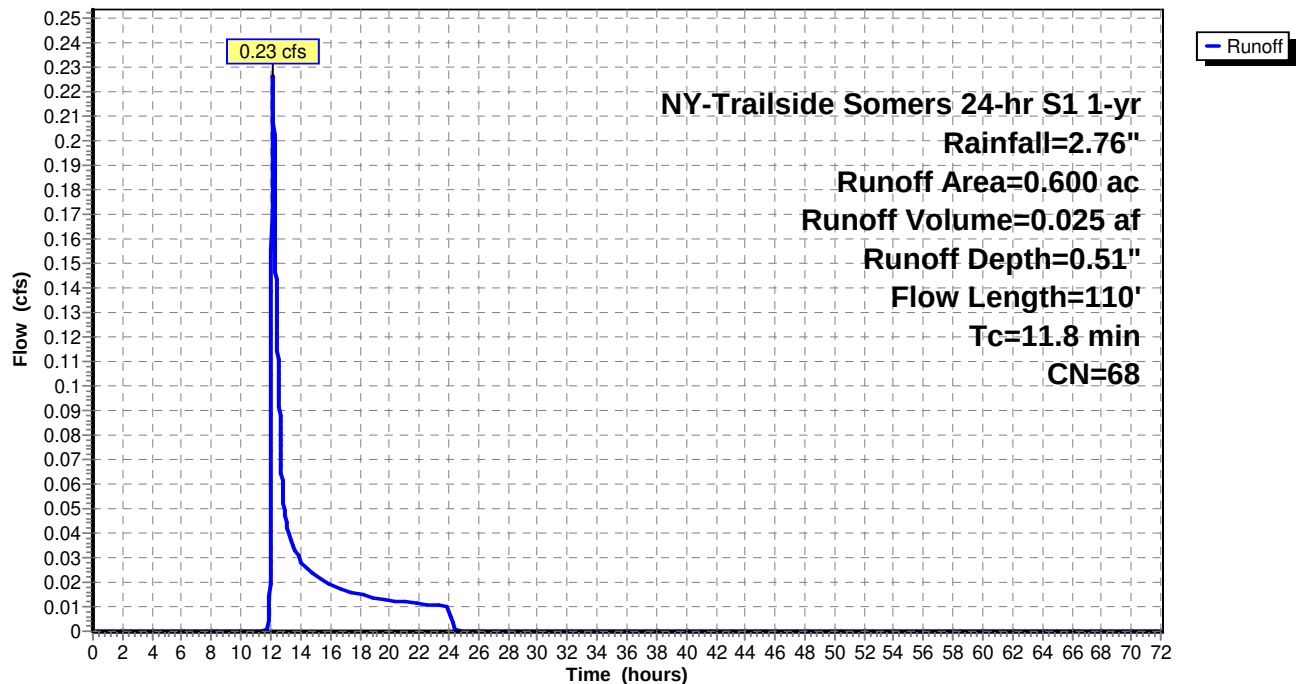
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (ac)	CN	Description
0.300	61	>75% Grass cover, Good, HSG B
0.300	74	>75% Grass cover, Good, HSG C
0.600	68	Weighted Average
0.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	80	0.0200	0.11		Sheet Flow, Grass: Dense n= 0.240 P2= 3.35"
0.1	30	0.3000	3.83		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.8	110	Total			

Subcatchment 1.4S:

Hydrograph



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 8

Summary for Subcatchment 1.5S:

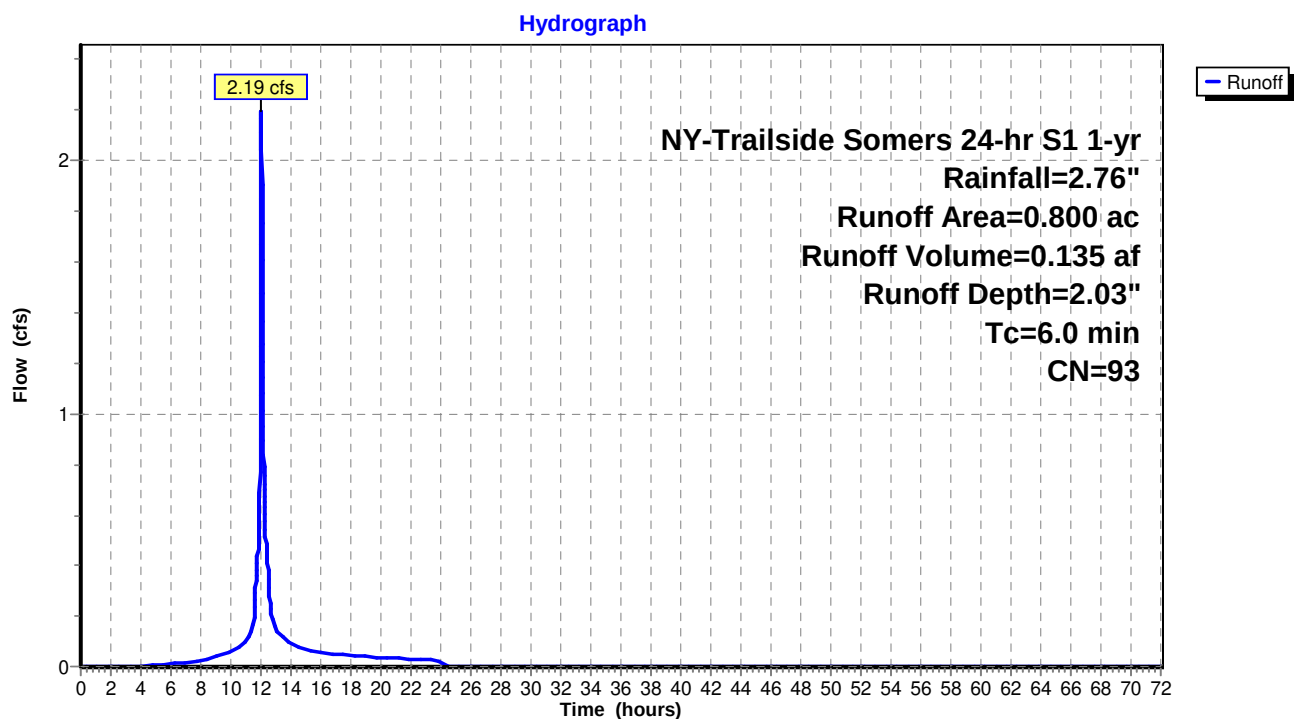
Runoff = 2.19 cfs @ 12.04 hrs, Volume= 0.135 af, Depth= 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG B
0.100	61	>75% Grass cover, Good, HSG B
0.800	93	Weighted Average
0.100		12.50% Pervious Area
0.700		87.50% Impervious Area

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

Subcatchment 1.5S:



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 9

Summary for Subcatchment 1.6S:

Runoff = 5.12 cfs @ 12.04 hrs, Volume= 0.318 af, Depth= 2.12"

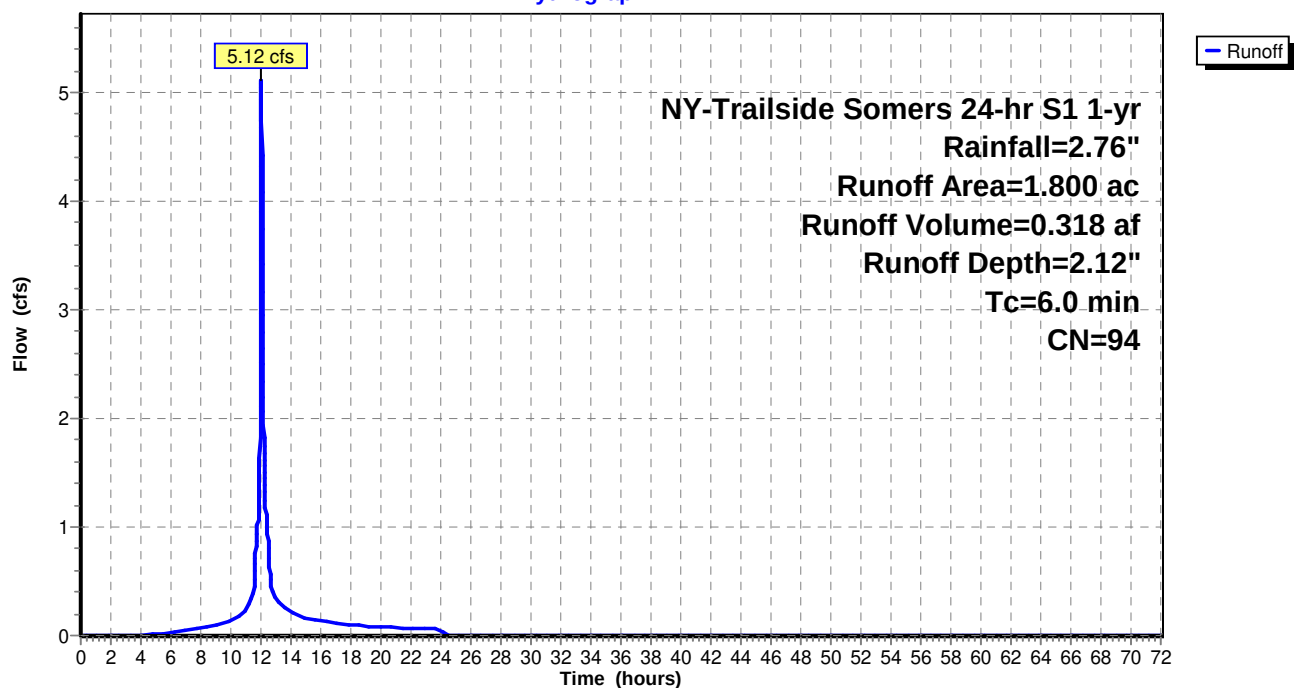
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (ac)	CN	Description
1.600	98	Paved parking, HSG B
0.200	61	>75% Grass cover, Good, HSG B
1.800	94	Weighted Average
0.200		11.11% Pervious Area
1.600		88.89% Impervious Area

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

Subcatchment 1.6S:

Hydrograph



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 10

Summary for Subcatchment 1.7S:

Runoff = 3.69 cfs @ 12.19 hrs, Volume= 0.352 af, Depth= 1.32"

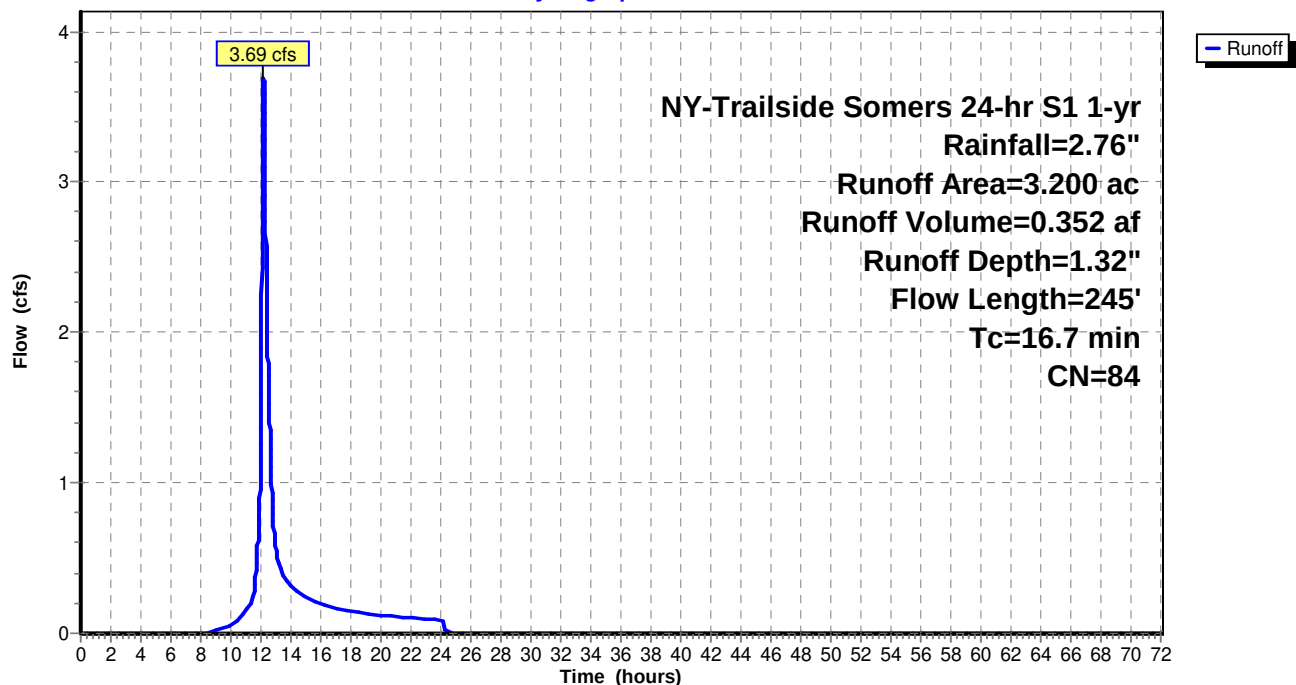
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (ac)	CN	Description
1.700	98	Paved parking, HSG B
0.700	61	>75% Grass cover, Good, HSG B
0.800	74	>75% Grass cover, Good, HSG C
3.200	84	Weighted Average
1.500		46.88% Pervious Area
1.700		53.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0200	0.12		Sheet Flow, Grass: Dense n= 0.240 P2= 3.35"
2.8	145	0.0150	0.86		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
16.7	245	Total			

Subcatchment 1.7S:

Hydrograph



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 11

Summary for Subcatchment 1.8S:

Runoff = 1.06 cfs @ 12.04 hrs, Volume= 0.065 af, Depth= 1.94"

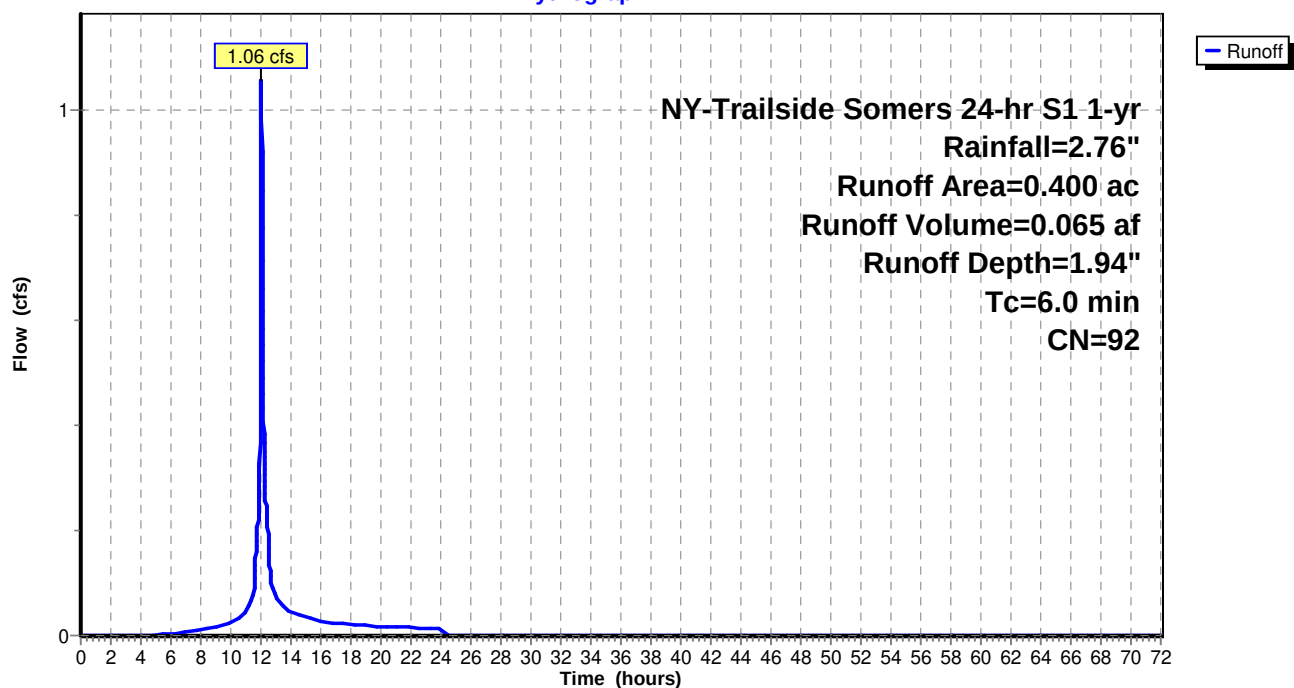
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (ac)	CN	Description
0.300	98	Paved parking, HSG C
0.100	74	>75% Grass cover, Good, HSG C
0.400	92	Weighted Average
0.100		25.00% Pervious Area
0.300		75.00% Impervious Area

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

Subcatchment 1.8S:

Hydrograph



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 12

Summary for Subcatchment 2.0S:

Runoff = 3.00 cfs @ 12.34 hrs, Volume= 0.439 af, Depth= 0.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (ac)	CN	Description
0.700	55	Woods, Good, HSG B
7.400	70	Woods, Good, HSG C
0.900	77	Woods, Good, HSG D
9.000	70	Weighted Average
9.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.9	100	0.0400	0.10		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.35"
1.6	110	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.8	85	0.0250	0.79		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.8	165	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.9	165	0.0350	0.94		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
25.0	625	Total			

Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

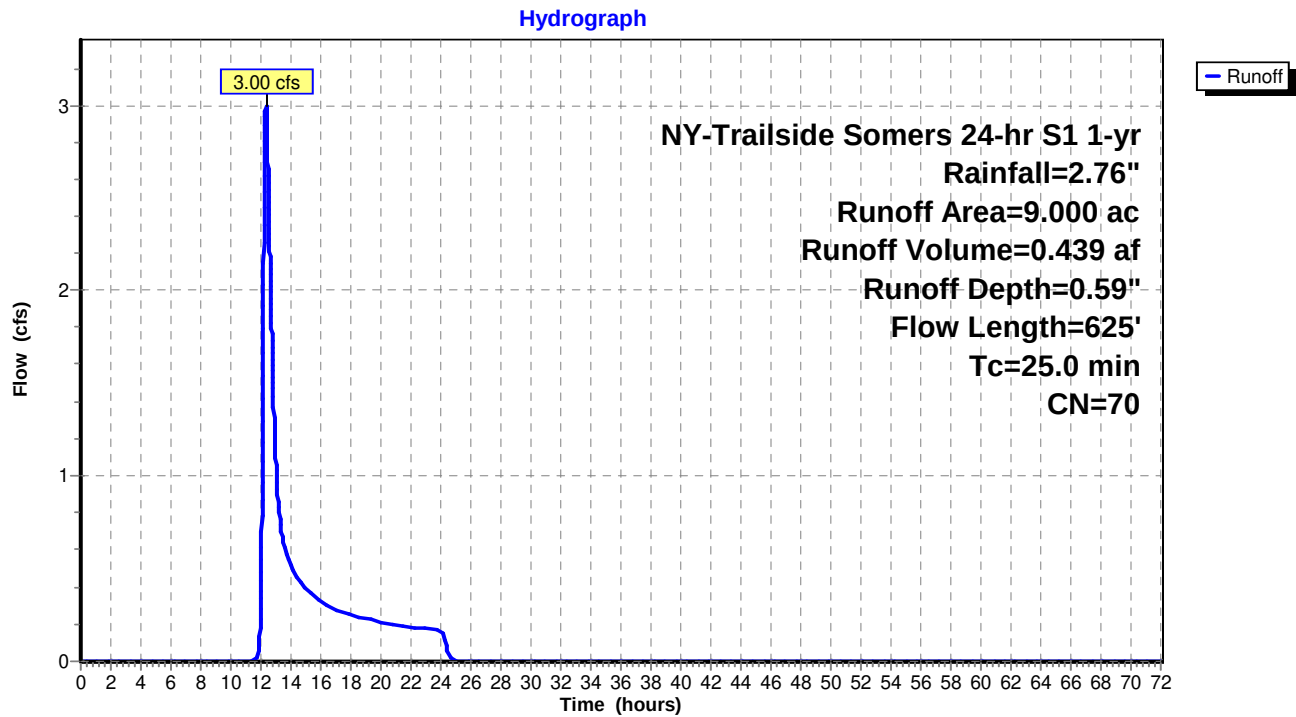
Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 13

Subcatchment 2.0S:



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 14

Summary for Subcatchment 2.1S:

Runoff = 2.47 cfs @ 12.04 hrs, Volume= 0.150 af, Depth= 1.39"

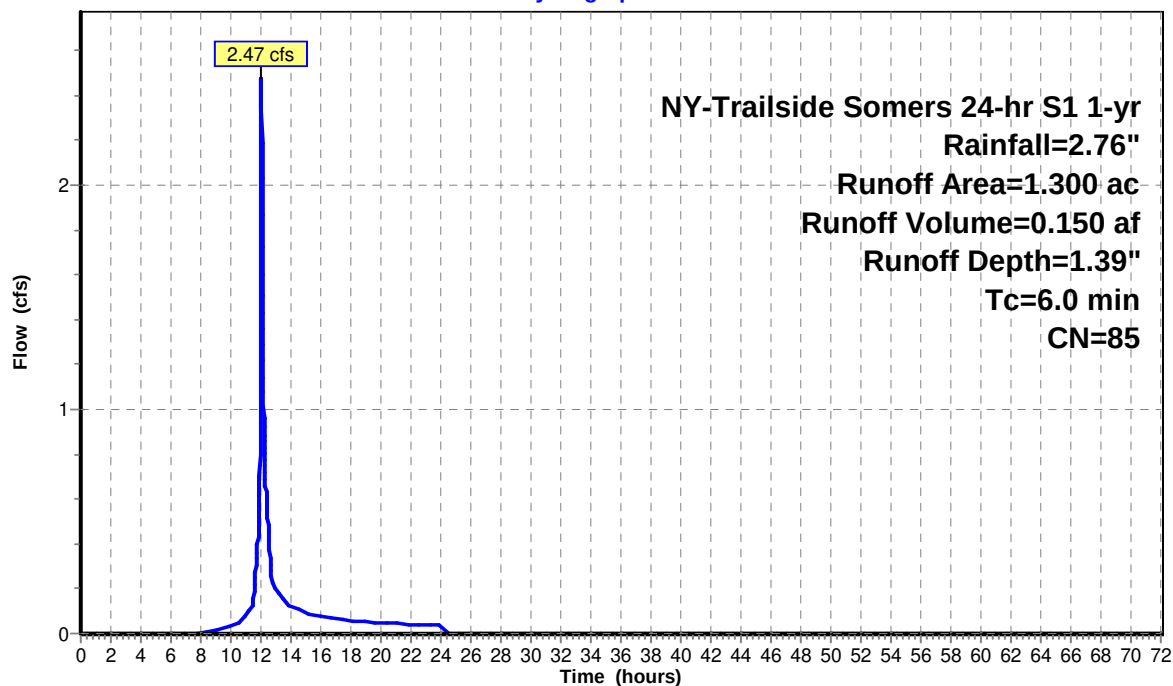
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (ac)	CN	Description
0.600	98	Paved parking, HSG C
0.700	74	>75% Grass cover, Good, HSG C
1.300	85	Weighted Average
0.700		53.85% Pervious Area
0.600		46.15% Impervious Area

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

Subcatchment 2.1S:

Hydrograph



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 15

Summary for Subcatchment 2.2S:

Runoff = 2.35 cfs @ 12.04 hrs, Volume= 0.148 af, Depth= 2.22"

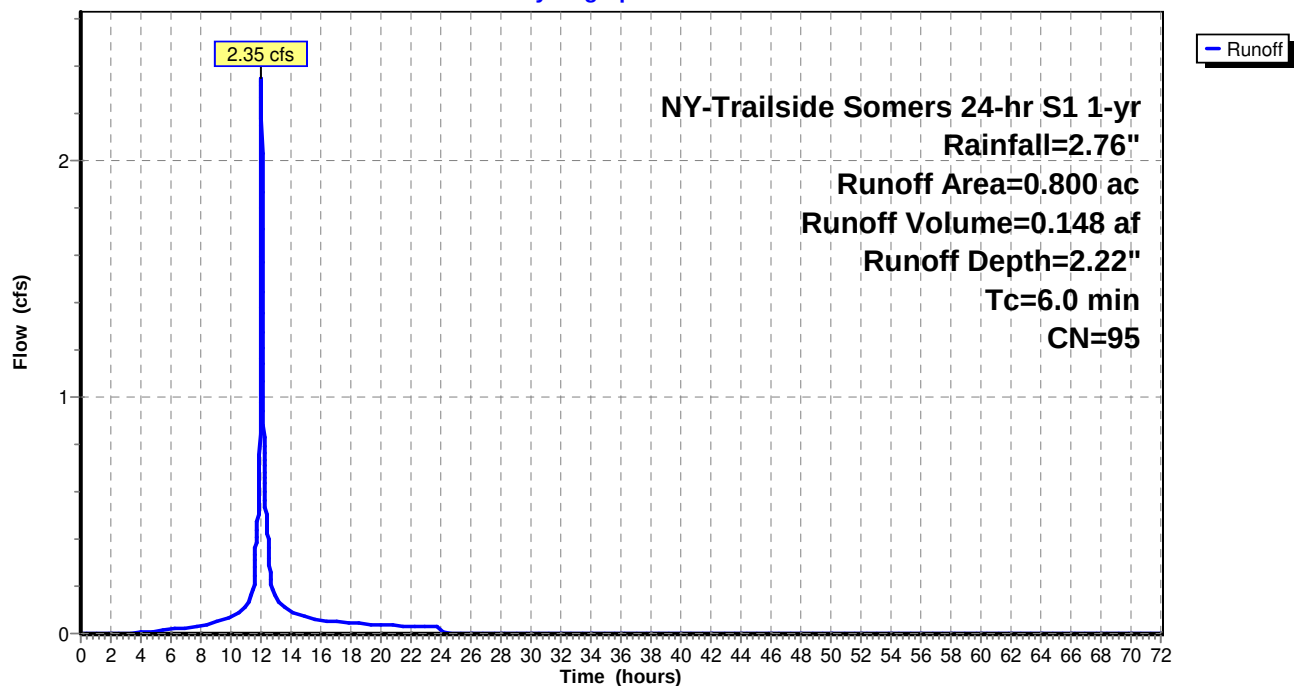
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG C
0.100	74	>75% Grass cover, Good, HSG C
0.800	95	Weighted Average
0.100		12.50% Pervious Area
0.700		87.50% Impervious Area

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

Subcatchment 2.2S:

Hydrograph

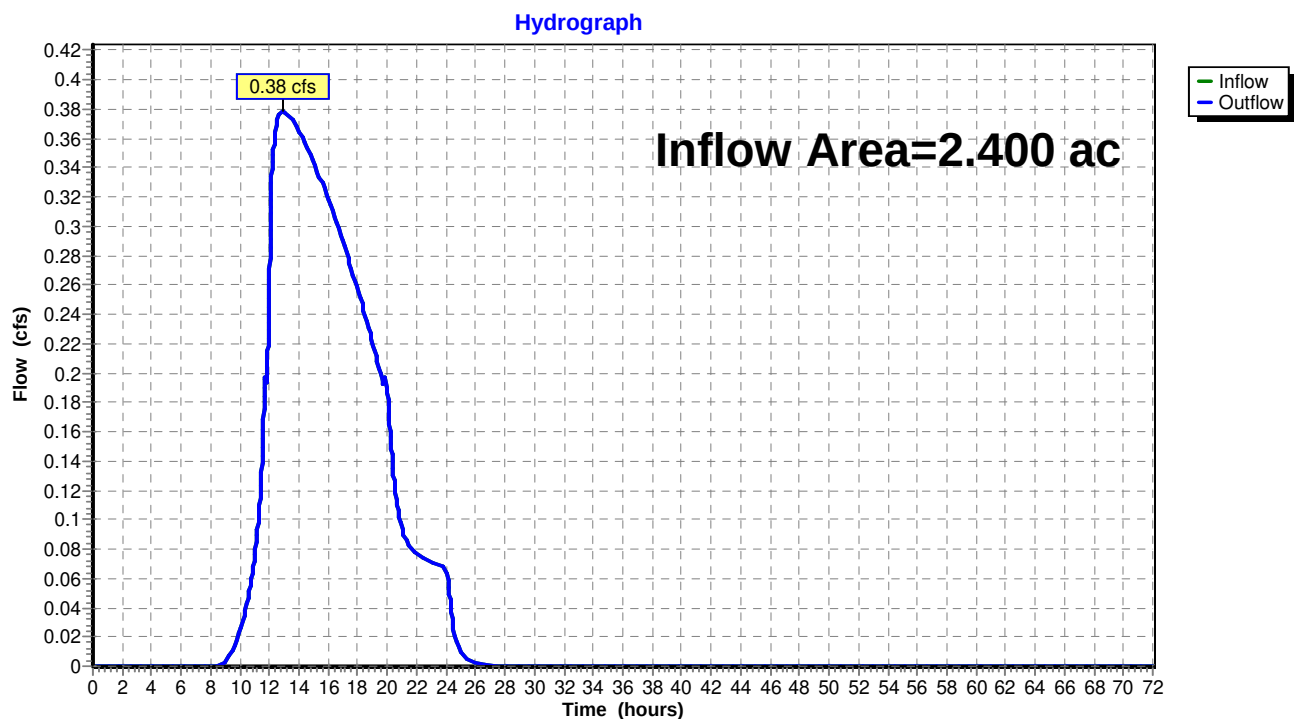


Summary for Reach 1.2F: Jellyfish Filter

Inflow Area = 2.400 ac, 54.17% Impervious, Inflow Depth = 1.26" for 1-yr event
Inflow = 0.38 cfs @ 12.87 hrs, Volume= 0.251 af
Outflow = 0.38 cfs @ 12.87 hrs, Volume= 0.251 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach 1.2F: Jellyfish Filter

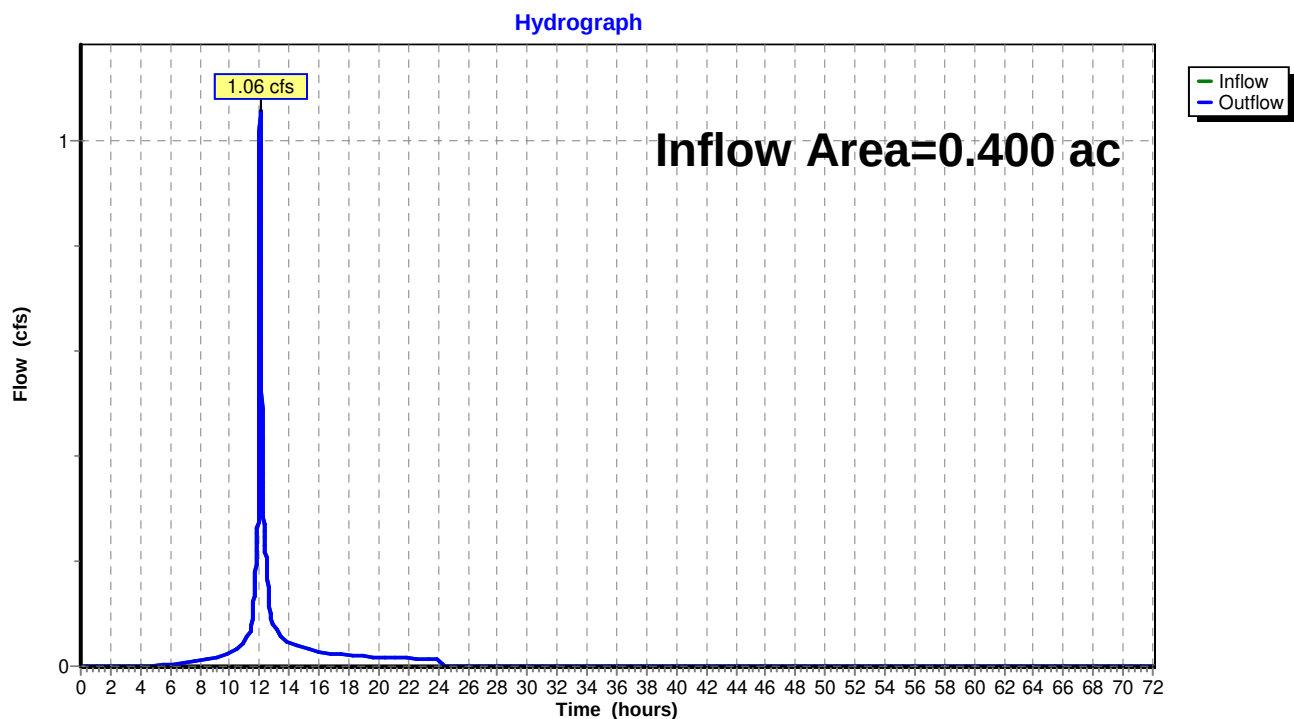


Summary for Reach 1.8F: Jellyfish Filter

Inflow Area = 0.400 ac, 75.00% Impervious, Inflow Depth = 1.94" for 1-yr event
Inflow = 1.06 cfs @ 12.04 hrs, Volume= 0.065 af
Outflow = 1.06 cfs @ 12.04 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach 1.8F: Jellyfish Filter

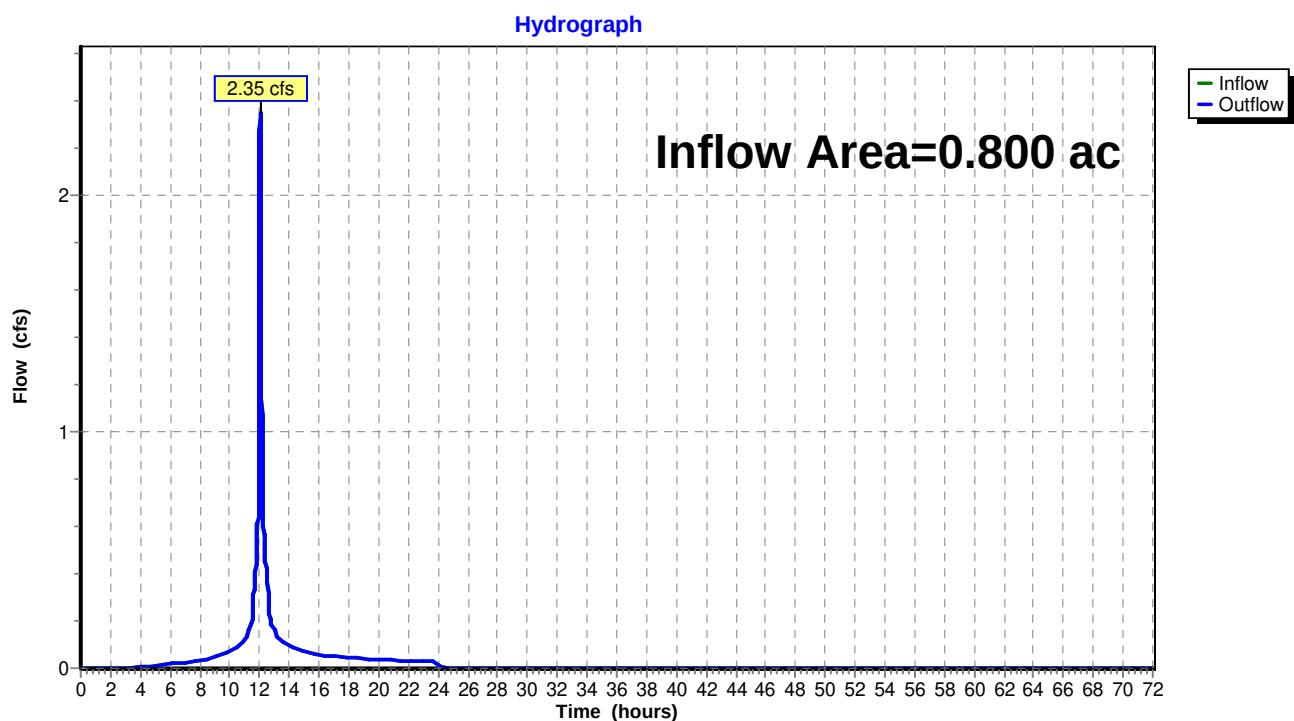


Summary for Reach 2.2F: Jellyfish Filter

Inflow Area = 0.800 ac, 87.50% Impervious, Inflow Depth = 2.22" for 1-yr event
Inflow = 2.35 cfs @ 12.04 hrs, Volume= 0.148 af
Outflow = 2.35 cfs @ 12.04 hrs, Volume= 0.148 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach 2.2F: Jellyfish Filter

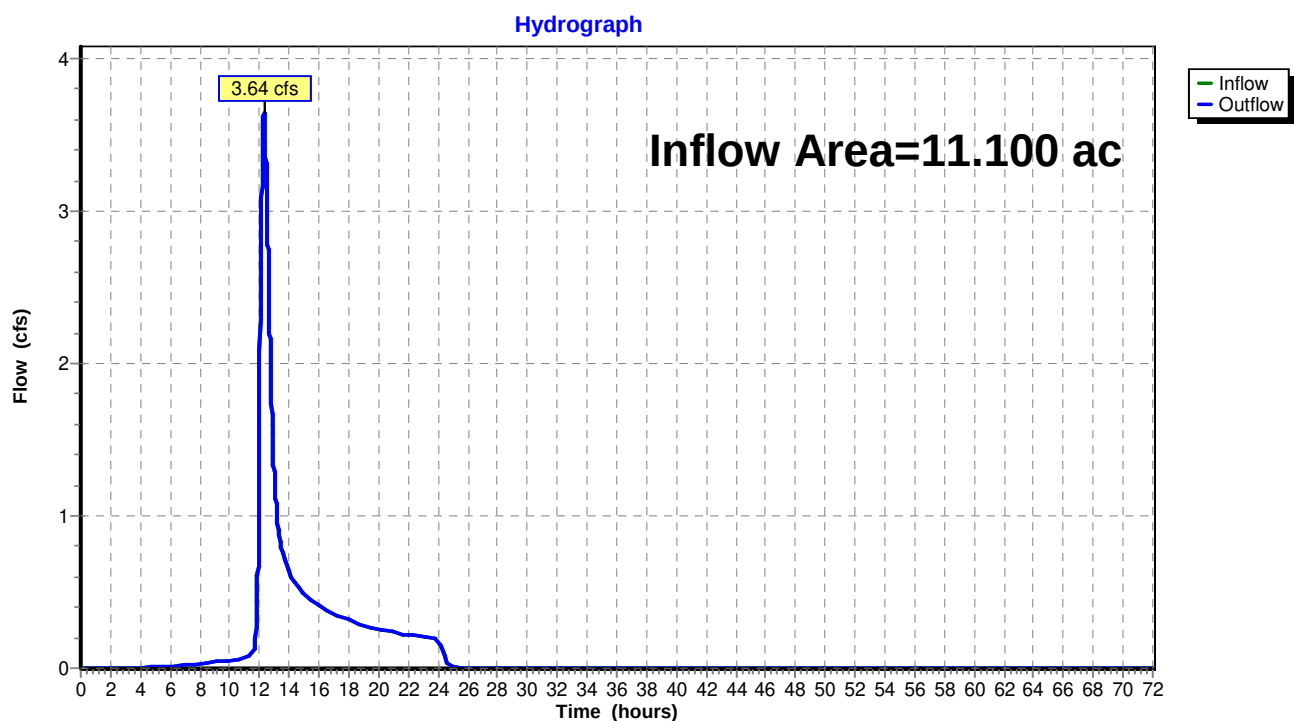


Summary for Reach DP 2: Design Point 2

Inflow Area = 11.100 ac, 11.71% Impervious, Inflow Depth = 0.63" for 1-yr event
Inflow = 3.64 cfs @ 12.31 hrs, Volume= 0.587 af
Outflow = 3.64 cfs @ 12.31 hrs, Volume= 0.587 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach DP 2: Design Point 2

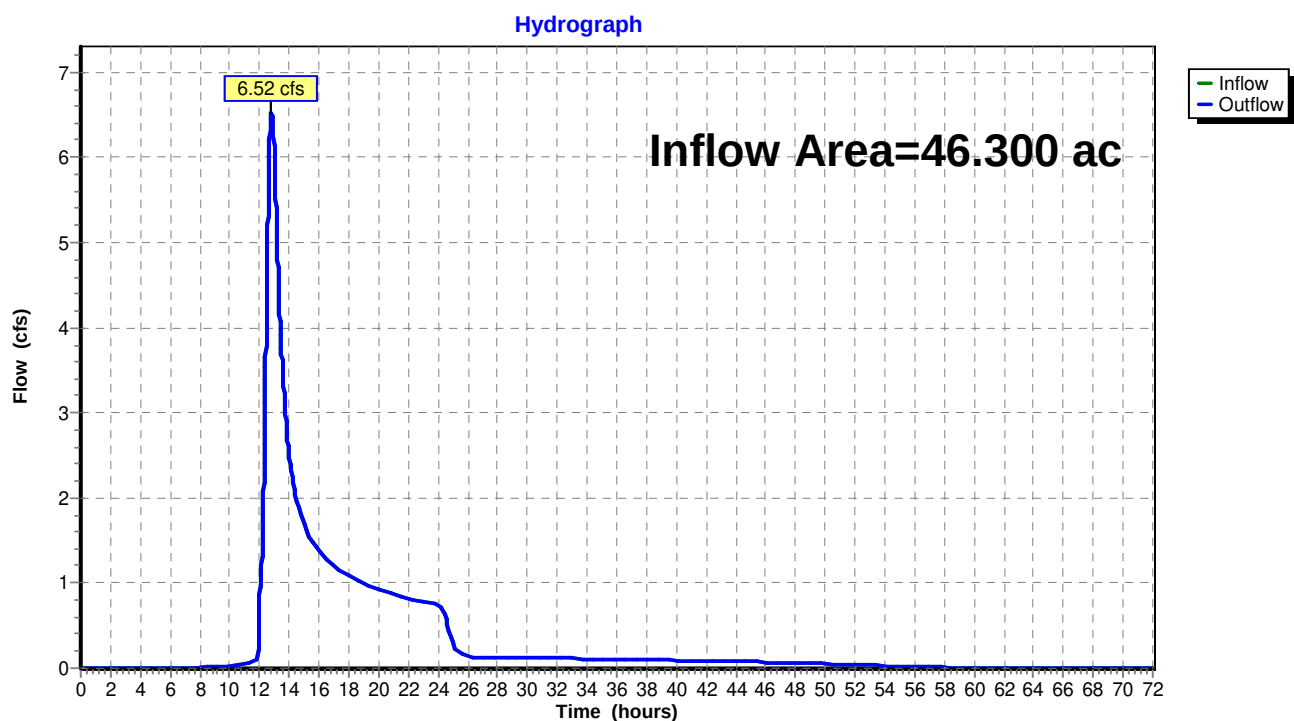


Summary for Reach DP1: Design Point 1

Inflow Area = 46.300 ac, 16.41% Impervious, Inflow Depth > 0.49" for 1-yr event
Inflow = 6.52 cfs @ 12.82 hrs, Volume= 1.881 af
Outflow = 6.52 cfs @ 12.82 hrs, Volume= 1.881 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach DP1: Design Point 1



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 21

Summary for Pond 1.1P: Wet Swale

Inflow Area = 0.600 ac, 66.67% Impervious, Inflow Depth = 1.77" for 1-yr event
Inflow = 1.46 cfs @ 12.04 hrs, Volume= 0.088 af
Outflow = 1.30 cfs @ 12.07 hrs, Volume= 0.088 af, Atten= 11%, Lag= 1.8 min
Primary = 1.30 cfs @ 12.07 hrs, Volume= 0.088 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 553.31' @ 12.07 hrs Surf.Area= 754 sf Storage= 559 cf

Plug-Flow detention time= 42.7 min calculated for 0.088 af (100% of inflow)
Center-of-Mass det. time= 42.5 min (866.9 - 824.4)

Volume	Invert	Avail.Storage	Storage Description
#1	552.00'	1,200 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
552.00	100	0	0
554.00	1,100	1,200	1,200

Device	Routing	Invert	Outlet Devices
#1	Primary	551.00'	12.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 551.00' / 550.50' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	552.00'	1.5" Vert. Orifice/Grate C= 0.600
#3	Device 1	553.00'	2.5' long 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

Primary OutFlow Max=1.29 cfs @ 12.07 hrs HW=553.31' TW=546.40' (Dynamic Tailwater)

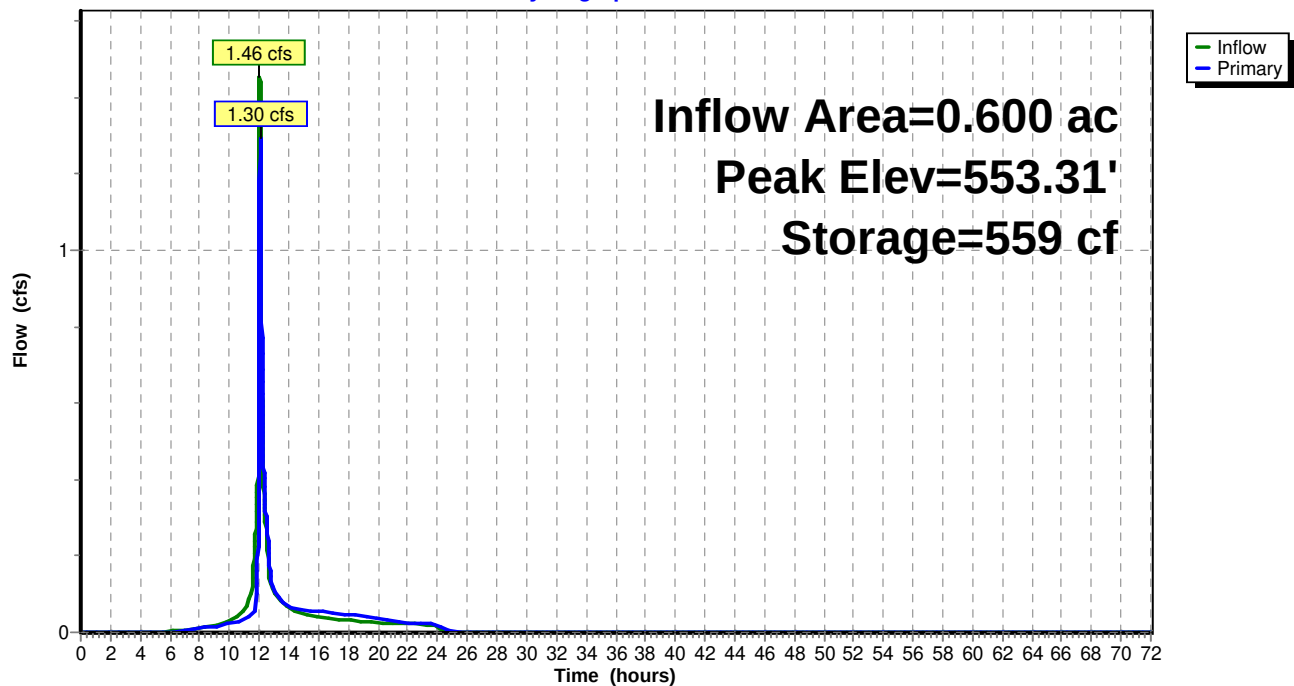
1=Culvert (Passes 1.29 cfs of 5.03 cfs potential flow)

2=Orifice/Grate (Orifice Controls 0.07 cfs @ 5.37 fps)

3=Broad-Crested Rectangular Weir (Weir Controls 1.23 cfs @ 1.59 fps)

Pond 1.1P: Wet Swale

Hydrograph



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 23

Stage-Area-Storage for Pond 1.1P: Wet Swale

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
552.00	100	0	553.04	620	374
552.02	110	2	553.06	630	387
552.04	120	4	553.08	640	400
552.06	130	7	553.10	650	413
552.08	140	10	553.12	660	426
552.10	150	13	553.14	670	439
552.12	160	16	553.16	680	452
552.14	170	19	553.18	690	466
552.16	180	22	553.20	700	480
552.18	190	26	553.22	710	494
552.20	200	30	553.24	720	508
552.22	210	34	553.26	730	523
552.24	220	38	553.28	740	538
552.26	230	43	553.30	750	552
552.28	240	48	553.32	760	568
552.30	250	52	553.34	770	583
552.32	260	58	553.36	780	598
552.34	270	63	553.38	790	614
552.36	280	68	553.40	800	630
552.38	290	74	553.42	810	646
552.40	300	80	553.44	820	662
552.42	310	86	553.46	830	679
552.44	320	92	553.48	840	696
552.46	330	99	553.50	850	713
552.48	340	106	553.52	860	730
552.50	350	113	553.54	870	747
552.52	360	120	553.56	880	764
552.54	370	127	553.58	890	782
552.56	380	134	553.60	900	800
552.58	390	142	553.62	910	818
552.60	400	150	553.64	920	836
552.62	410	158	553.66	930	855
552.64	420	166	553.68	940	874
552.66	430	175	553.70	950	893
552.68	440	184	553.72	960	912
552.70	450	193	553.74	970	931
552.72	460	202	553.76	980	950
552.74	470	211	553.78	990	970
552.76	480	220	553.80	1,000	990
552.78	490	230	553.82	1,010	1,010
552.80	500	240	553.84	1,020	1,030
552.82	510	250	553.86	1,030	1,051
552.84	520	260	553.88	1,040	1,072
552.86	530	271	553.90	1,050	1,092
552.88	540	282	553.92	1,060	1,114
552.90	550	292	553.94	1,070	1,135
552.92	560	304	553.96	1,080	1,156
552.94	570	315	553.98	1,090	1,178
552.96	580	326	554.00	1,100	1,200
552.98	590	338			
553.00	600	350			
553.02	610	362			

Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 24

Summary for Pond 1.2DS: Detention

Inflow Area = 2.400 ac, 54.17% Impervious, Inflow Depth = 1.26" for 1-yr event
Inflow = 4.09 cfs @ 12.04 hrs, Volume= 0.251 af
Outflow = 0.38 cfs @ 12.87 hrs, Volume= 0.251 af, Atten= 91%, Lag= 49.9 min
Primary = 0.38 cfs @ 12.87 hrs, Volume= 0.251 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 655.26' @ 12.87 hrs Surf.Area= 0.055 ac Storage= 0.095 af

Plug-Flow detention time= 110.1 min calculated for 0.251 af (100% of inflow)
Center-of-Mass det. time= 110.2 min (966.9 - 856.7)

Volume	Invert	Avail.Storage	Storage Description

#1	653.00'	0.216 af	60.0" Round Pipe Storage x 4 L= 120.0'

Device	Routing	Invert	Outlet Devices

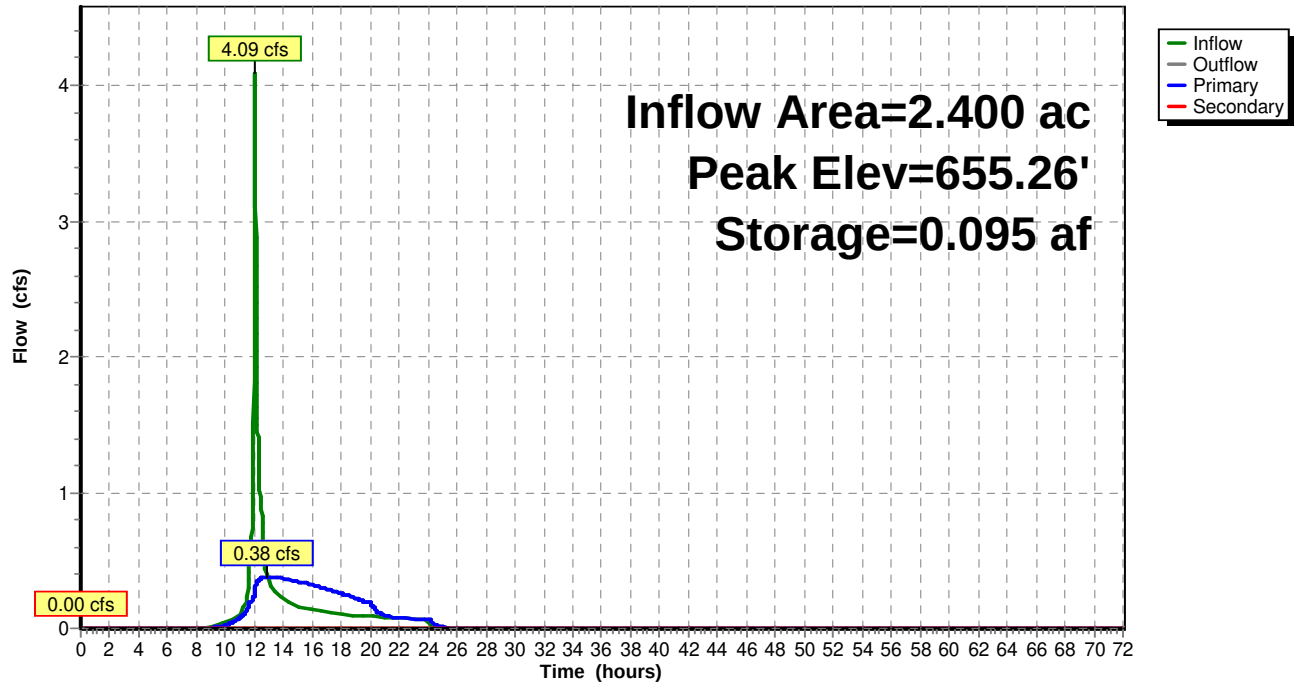
#1	Primary	653.00'	4.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 653.00' / 652.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Secondary	655.30'	18.0" Round Culvert L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 655.30' / 654.50' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.38 cfs @ 12.87 hrs HW=655.26' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 0.38 cfs @ 4.34 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=653.00' TW=0.00' (Dynamic Tailwater)
↑**2=Culvert** (Controls 0.00 cfs)

Pond 1.2DS: Detention

Hydrograph



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 26

Stage-Area-Storage for Pond 1.2DS: Detention

Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)
653.00	0.000	655.60	0.114
653.05	0.000	655.65	0.116
653.10	0.001	655.70	0.119
653.15	0.002	655.75	0.122
653.20	0.003	655.80	0.125
653.25	0.004	655.85	0.127
653.30	0.005	655.90	0.130
653.35	0.007	655.95	0.133
653.40	0.008	656.00	0.136
653.45	0.010	656.05	0.138
653.50	0.011	656.10	0.141
653.55	0.013	656.15	0.144
653.60	0.015	656.20	0.146
653.65	0.017	656.25	0.149
653.70	0.018	656.30	0.151
653.75	0.020	656.35	0.154
653.80	0.022	656.40	0.157
653.85	0.024	656.45	0.159
653.90	0.026	656.50	0.162
653.95	0.029	656.55	0.164
654.00	0.031	656.60	0.167
654.05	0.033	656.65	0.169
654.10	0.035	656.70	0.172
654.15	0.038	656.75	0.174
654.20	0.040	656.80	0.176
654.25	0.042	656.85	0.179
654.30	0.045	656.90	0.181
654.35	0.047	656.95	0.183
654.40	0.050	657.00	0.186
654.45	0.052	657.05	0.188
654.50	0.055	657.10	0.190
654.55	0.057	657.15	0.192
654.60	0.060	657.20	0.194
654.65	0.062	657.25	0.196
654.70	0.065	657.30	0.198
654.75	0.067	657.35	0.200
654.80	0.070	657.40	0.202
654.85	0.073	657.45	0.203
654.90	0.075	657.50	0.205
654.95	0.078	657.55	0.207
655.00	0.081	657.60	0.208
655.05	0.084	657.65	0.210
655.10	0.086	657.70	0.211
655.15	0.089	657.75	0.212
655.20	0.092	657.80	0.213
655.25	0.094	657.85	0.214
655.30	0.097	657.90	0.215
655.35	0.100	657.95	0.216
655.40	0.103	658.00	0.216
655.45	0.105		
655.50	0.108		
655.55	0.111		

Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 27

Summary for Pond 1.2P: P-1 Pond

Inflow Area = 3.600 ac, 47.22% Impervious, Inflow Depth = 1.22" for 1-yr event
 Inflow = 1.77 cfs @ 12.08 hrs, Volume= 0.365 af
 Outflow = 0.14 cfs @ 20.99 hrs, Volume= 0.363 af, Atten= 92%, Lag= 534.9 min
 Primary = 0.14 cfs @ 20.99 hrs, Volume= 0.363 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Starting Elev= 546.00' Surf.Area= 5,700 sf Storage= 6,700 cf

Peak Elev= 547.75' @ 20.99 hrs Surf.Area= 11,910 sf Storage= 17,205 cf (10,505 cf above start)

Plug-Flow detention time= 1,537.6 min calculated for 0.209 af (57% of inflow)

Center-of-Mass det. time= 897.3 min (1,837.2 - 939.9)

Volume	Invert	Avail.Storage	Storage Description
#1	541.00'	3,500 cf	Forebay (Prismatic) Listed below (Recalc)
#2	541.00'	39,900 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		43,400 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
541.00	50	0	0
543.00	350	400	400
545.00	900	1,250	1,650
546.00	2,800	1,850	3,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
541.00	50	0	0
543.00	250	300	300
545.00	800	1,050	1,350
546.00	2,900	1,850	3,200
548.00	10,000	12,900	16,100
550.00	13,800	23,800	39,900

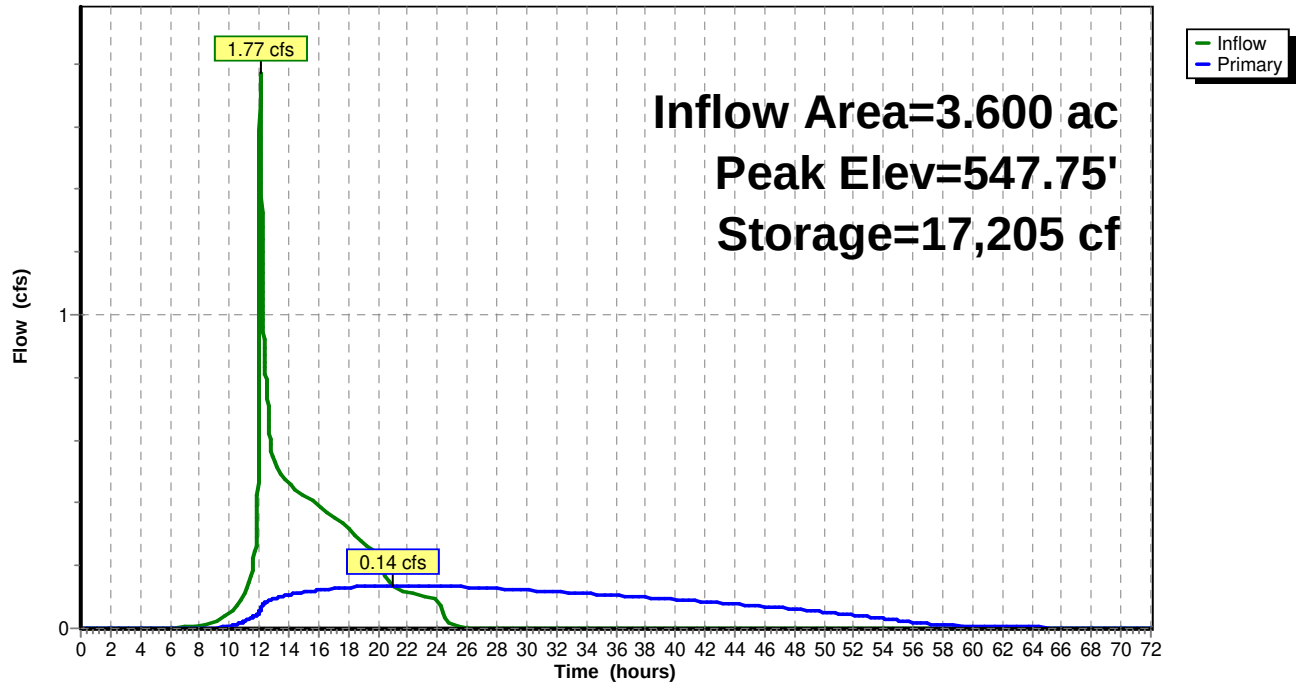
Device	Routing	Invert	Outlet Devices
#1	Primary	546.00'	24.0" Round Culvert L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 546.00' / 545.70' S= 0.0120 ' / Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	546.00'	2.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	548.40'	0.5' long x 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

Primary OutFlow Max=0.14 cfs @ 20.99 hrs HW=547.75' TW=0.00' (Dynamic Tailwater)

1=Culvert (Passes 0.14 cfs of 11.48 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.14 cfs @ 6.21 fps)
 3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1.2P: P-1 Pond

Hydrograph



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 29

Stage-Area-Storage for Pond 1.2P: P-1 Pond

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
541.00	0	546.20	7,351
541.10	11	546.30	7,730
541.20	25	546.40	8,144
541.30	41	546.50	8,594
541.40	60	546.60	9,079
541.50	81	546.70	9,600
541.60	105	546.80	10,156
541.70	131	546.90	10,748
541.80	160	547.00	11,375
541.90	191	547.10	12,038
542.00	225	547.20	12,736
542.10	261	547.30	13,470
542.20	300	547.40	14,239
542.30	341	547.50	15,044
542.40	385	547.60	15,884
542.50	431	547.70	16,760
542.60	480	547.80	17,671
542.70	531	547.90	18,618
542.80	585	548.00	19,600
542.90	641	548.10	20,610
543.00	700	548.20	21,638
543.10	763	548.30	22,685
543.20	831	548.40	23,752
543.30	905	548.50	24,838
543.40	984	548.60	25,942
543.50	1,069	548.70	27,066
543.60	1,159	548.80	28,208
543.70	1,255	548.90	29,369
543.80	1,356	549.00	30,550
543.90	1,463	549.10	31,750
544.00	1,575	549.20	32,968
544.10	1,693	549.30	34,205
544.20	1,816	549.40	35,462
544.30	1,945	549.50	36,738
544.40	2,079	549.60	38,032
544.50	2,219	549.70	39,346
544.60	2,364	549.80	40,678
544.70	2,515	549.90	42,029
544.80	2,671	550.00	43,400
544.90	2,833		
545.00	3,000		
545.10	3,190		
545.20	3,420		
545.30	3,690		
545.40	4,000		
545.50	4,350		
545.60	4,740		
545.70	5,170		
545.80	5,640		
545.90	6,150		
546.00	6,700		
546.10	7,008		

Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 30

Summary for Pond 1.3P: Infiltration System

Inflow Area = 1.648 ac, 69.66% Impervious, Inflow Depth = 1.53" for 1-yr event
Inflow = 3.47 cfs @ 12.04 hrs, Volume= 0.210 af
Outflow = 0.77 cfs @ 11.95 hrs, Volume= 0.210 af, Atten= 78%, Lag= 0.0 min
Discarded = 0.77 cfs @ 11.95 hrs, Volume= 0.210 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 564.63' @ 12.40 hrs Surf.Area= 5,528 sf Storage= 1,694 cf

Plug-Flow detention time= 11.5 min calculated for 0.210 af (100% of inflow)
Center-of-Mass det. time= 11.5 min (850.7 - 839.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	564.00'	4,901 cf	34.75'W x 159.08'L x 3.50'H Field A 19,348 cf Overall - 7,095 cf Embedded = 12,253 cf x 40.0% Voids
#2A	564.50'	7,095 cf	ADS StormTech SC-740 x 154 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 7 rows
11,996 cf			Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	564.00'	6.000 in/hr Exfiltration over Horizontal area Phase-In= 0.02'
#2	Primary	566.50'	6.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 566.50' / 562.00' S= 0.0900 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

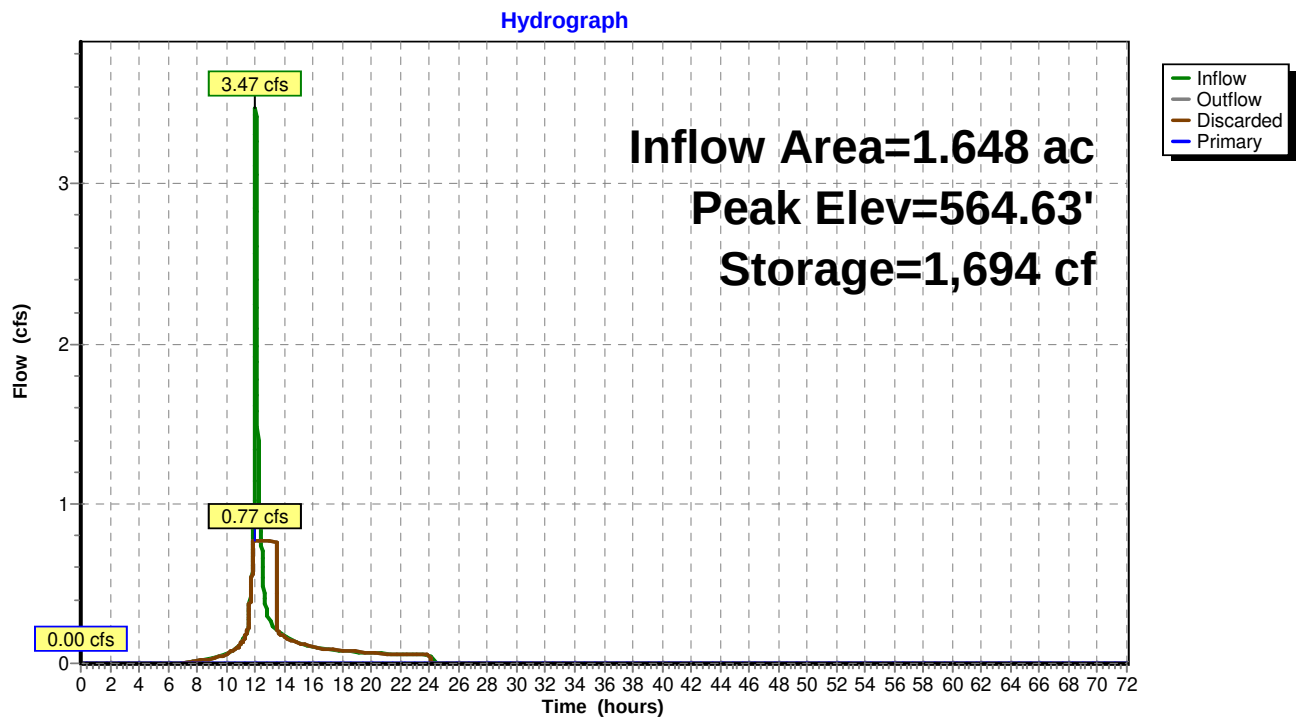
Discarded OutFlow Max=0.77 cfs @ 11.95 hrs HW=564.04' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.77 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=564.00' TW=0.00' (Dynamic Tailwater)

↑ **2=Culvert** (Controls 0.00 cfs)

Pond 1.3P: Infiltration System



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 32

Stage-Area-Storage for Pond 1.3P: Infiltration System

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
564.00	5,528	0	566.60	5,528	9,843
564.05	5,528	111	566.65	5,528	9,998
564.10	5,528	221	566.70	5,528	10,146
564.15	5,528	332	566.75	5,528	10,286
564.20	5,528	442	566.80	5,528	10,417
564.25	5,528	553	566.85	5,528	10,542
564.30	5,528	663	566.90	5,528	10,662
564.35	5,528	774	566.95	5,528	10,778
564.40	5,528	884	567.00	5,528	10,890
564.45	5,528	995	567.05	5,528	11,001
564.50	5,528	1,106	567.10	5,528	11,112
564.55	5,528	1,339	567.15	5,528	11,222
564.60	5,528	1,572	567.20	5,528	11,333
564.65	5,528	1,805	567.25	5,528	11,443
564.70	5,528	2,037	567.30	5,528	11,554
564.75	5,528	2,268	567.35	5,528	11,664
564.80	5,528	2,499	567.40	5,528	11,775
564.85	5,528	2,729	567.45	5,528	11,885
564.90	5,528	2,958	567.50	5,528	11,996
564.95	5,528	3,186			
565.00	5,528	3,413			
565.05	5,528	3,639			
565.10	5,528	3,864			
565.15	5,528	4,088			
565.20	5,528	4,311			
565.25	5,528	4,533			
565.30	5,528	4,754			
565.35	5,528	4,973			
565.40	5,528	5,191			
565.45	5,528	5,408			
565.50	5,528	5,624			
565.55	5,528	5,838			
565.60	5,528	6,050			
565.65	5,528	6,261			
565.70	5,528	6,470			
565.75	5,528	6,678			
565.80	5,528	6,883			
565.85	5,528	7,087			
565.90	5,528	7,289			
565.95	5,528	7,489			
566.00	5,528	7,687			
566.05	5,528	7,883			
566.10	5,528	8,076			
566.15	5,528	8,267			
566.20	5,528	8,455			
566.25	5,528	8,640			
566.30	5,528	8,822			
566.35	5,528	9,001			
566.40	5,528	9,177			
566.45	5,528	9,350			
566.50	5,528	9,519			
566.55	5,528	9,683			

Trailside Somers - Post Development (With *NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"*

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 33

Summary for Pond 1.5P: Infiltration System

Inflow Area = 0.800 ac, 87.50% Impervious, Inflow Depth = 2.03" for 1-yr event
Inflow = 2.19 cfs @ 12.04 hrs, Volume= 0.135 af
Outflow = 0.87 cfs @ 11.99 hrs, Volume= 0.135 af, Atten= 60%, Lag= 0.0 min
Discarded = 0.87 cfs @ 11.99 hrs, Volume= 0.135 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 563.21' @ 12.18 hrs Surf.Area= 3,753 sf Storage= 619 cf

Plug-Flow detention time= 3.3 min calculated for 0.135 af (100% of inflow)

Center-of-Mass det. time= 3.3 min (810.0 - 806.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	562.80'	3,333 cf	39.50'W x 95.00'L x 3.50'H Field A 13,134 cf Overall - 4,800 cf Embedded = 8,333 cf x 40.0% Voids
#2A	563.30'	4,800 cf	ADS StormTech SC-740 x 104 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 8 rows
8,134 cf			Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	562.80'	10.000 in/hr Exfiltration over Horizontal area Phase-In= 0.04'
#2	Primary	565.30'	6.0" Round Culvert L= 90.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 565.30' / 556.00' S= 0.1033 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

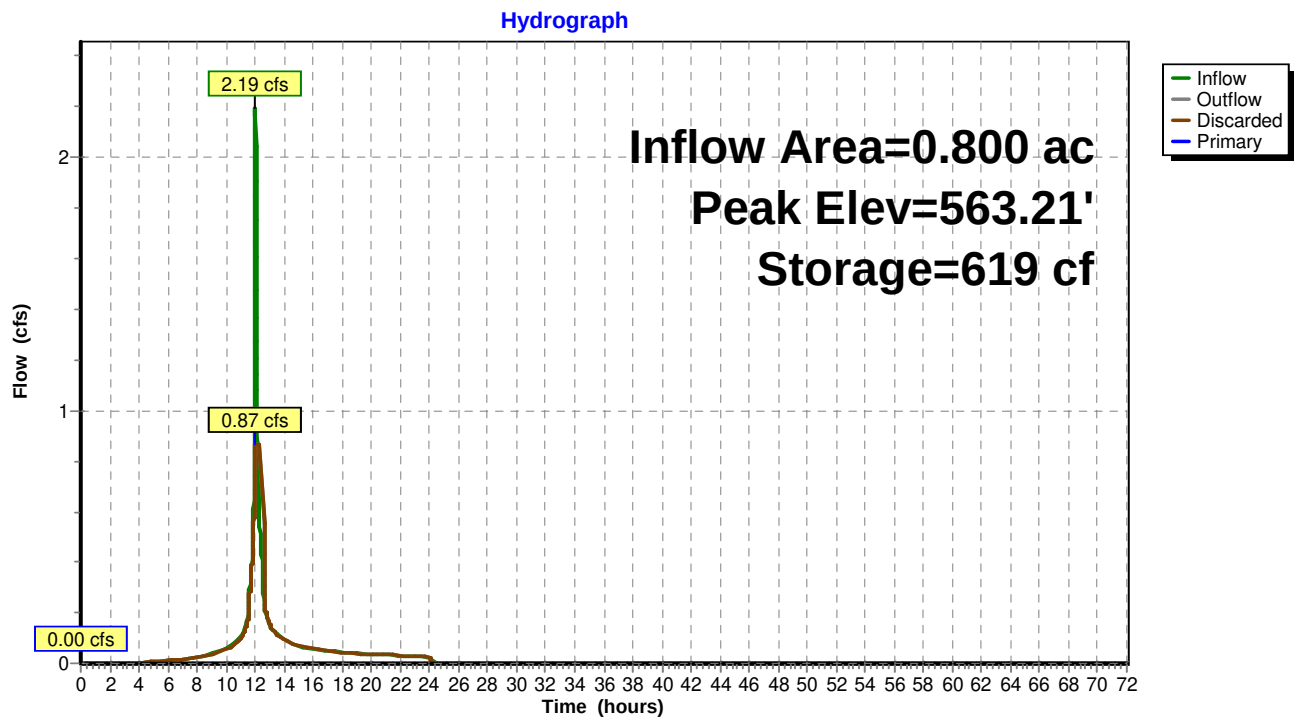
Discarded OutFlow Max=0.87 cfs @ 11.99 hrs HW=562.88' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.87 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=562.80' TW=0.00' (Dynamic Tailwater)

↑**2=Culvert** (Controls 0.00 cfs)

Pond 1.5P: Infiltration System



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 35

Stage-Area-Storage for Pond 1.5P: Infiltration System

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
562.80	3,753	0	565.40	3,753	6,673
562.85	3,753	75	565.45	3,753	6,778
562.90	3,753	150	565.50	3,753	6,878
562.95	3,753	225	565.55	3,753	6,973
563.00	3,753	300	565.60	3,753	7,062
563.05	3,753	375	565.65	3,753	7,147
563.10	3,753	450	565.70	3,753	7,228
563.15	3,753	525	565.75	3,753	7,307
563.20	3,753	600	565.80	3,753	7,383
563.25	3,753	675	565.85	3,753	7,458
563.30	3,753	751	565.90	3,753	7,533
563.35	3,753	909	565.95	3,753	7,608
563.40	3,753	1,066	566.00	3,753	7,683
563.45	3,753	1,224	566.05	3,753	7,759
563.50	3,753	1,381	566.10	3,753	7,834
563.55	3,753	1,538	566.15	3,753	7,909
563.60	3,753	1,695	566.20	3,753	7,984
563.65	3,753	1,850	566.25	3,753	8,059
563.70	3,753	2,006	566.30	3,753	8,134
563.75	3,753	2,160			
563.80	3,753	2,314			
563.85	3,753	2,468			
563.90	3,753	2,620			
563.95	3,753	2,772			
564.00	3,753	2,923			
564.05	3,753	3,073			
564.10	3,753	3,223			
564.15	3,753	3,372			
564.20	3,753	3,519			
564.25	3,753	3,666			
564.30	3,753	3,812			
564.35	3,753	3,958			
564.40	3,753	4,102			
564.45	3,753	4,244			
564.50	3,753	4,386			
564.55	3,753	4,527			
564.60	3,753	4,666			
564.65	3,753	4,804			
564.70	3,753	4,941			
564.75	3,753	5,077			
564.80	3,753	5,211			
564.85	3,753	5,344			
564.90	3,753	5,475			
564.95	3,753	5,604			
565.00	3,753	5,732			
565.05	3,753	5,857			
565.10	3,753	5,980			
565.15	3,753	6,102			
565.20	3,753	6,221			
565.25	3,753	6,338			
565.30	3,753	6,453			
565.35	3,753	6,564			

Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 36

Summary for Pond 1.6P: Infiltration System

Inflow Area = 1.800 ac, 88.89% Impervious, Inflow Depth = 2.12" for 1-yr event
Inflow = 5.12 cfs @ 12.04 hrs, Volume= 0.318 af
Outflow = 0.86 cfs @ 11.85 hrs, Volume= 0.318 af, Atten= 83%, Lag= 0.0 min
Discarded = 0.86 cfs @ 11.85 hrs, Volume= 0.318 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 596.16' @ 12.53 hrs Surf.Area= 9,246 sf Storage= 3,093 cf

Plug-Flow detention time= 19.0 min calculated for 0.318 af (100% of inflow)

Center-of-Mass det. time= 19.0 min (818.8 - 799.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	595.50'	8,308 cf	20.50'W x 451.00'L x 3.50'H Field A 32,359 cf Overall - 11,588 cf Embedded = 20,771 cf x 40.0% Voids
#2A	596.00'	11,588 cf	ADS StormTech SC-740 x 252 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 4 rows
		19,897 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	595.50'	4.000 in/hr Exfiltration over Horizontal area Phase-In= 0.02'
#2	Primary	598.00'	6.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 598.00' / 597.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

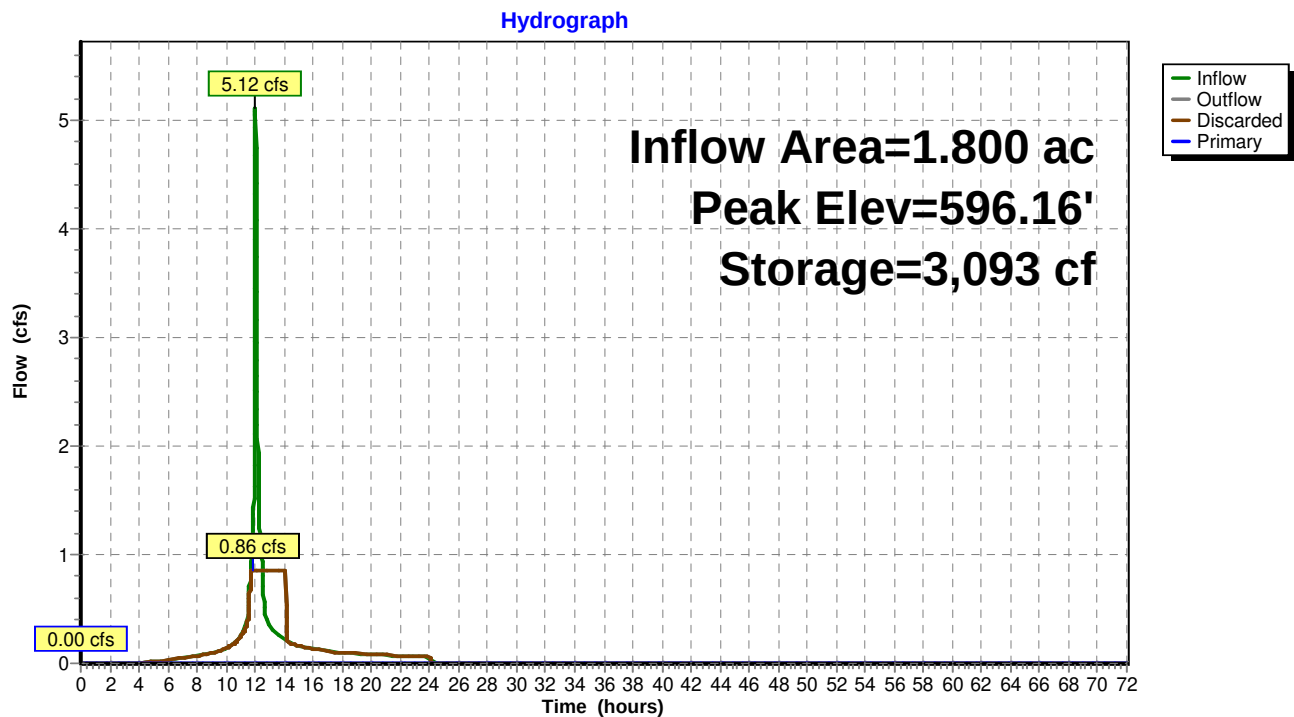
Discarded OutFlow Max=0.86 cfs @ 11.85 hrs HW=595.54' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.86 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=595.50' TW=0.00' (Dynamic Tailwater)

↑**2=Culvert** (Controls 0.00 cfs)

Pond 1.6P: Infiltration System



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 38

Stage-Area-Storage for Pond 1.6P: Infiltration System

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
595.50	9,246	0	598.10	9,246	16,303
595.55	9,246	185	598.15	9,246	16,560
595.60	9,246	370	598.20	9,246	16,806
595.65	9,246	555	598.25	9,246	17,038
595.70	9,246	740	598.30	9,246	17,258
595.75	9,246	925	598.35	9,246	17,465
595.80	9,246	1,109	598.40	9,246	17,665
595.85	9,246	1,294	598.45	9,246	17,859
595.90	9,246	1,479	598.50	9,246	18,048
595.95	9,246	1,664	598.55	9,246	18,232
596.00	9,246	1,849	598.60	9,246	18,417
596.05	9,246	2,234	598.65	9,246	18,602
596.10	9,246	2,619	598.70	9,246	18,787
596.15	9,246	3,004	598.75	9,246	18,972
596.20	9,246	3,387	598.80	9,246	19,157
596.25	9,246	3,770	598.85	9,246	19,342
596.30	9,246	4,151	598.90	9,246	19,527
596.35	9,246	4,530	598.95	9,246	19,712
596.40	9,246	4,909	599.00	9,246	19,897
596.45	9,246	5,286			
596.50	9,246	5,661			
596.55	9,246	6,035			
596.60	9,246	6,407			
596.65	9,246	6,777			
596.70	9,246	7,146			
596.75	9,246	7,513			
596.80	9,246	7,877			
596.85	9,246	8,240			
596.90	9,246	8,601			
596.95	9,246	8,959			
597.00	9,246	9,315			
597.05	9,246	9,669			
597.10	9,246	10,021			
597.15	9,246	10,370			
597.20	9,246	10,715			
597.25	9,246	11,058			
597.30	9,246	11,399			
597.35	9,246	11,736			
597.40	9,246	12,070			
597.45	9,246	12,401			
597.50	9,246	12,728			
597.55	9,246	13,052			
597.60	9,246	13,373			
597.65	9,246	13,689			
597.70	9,246	14,001			
597.75	9,246	14,307			
597.80	9,246	14,609			
597.85	9,246	14,905			
597.90	9,246	15,197			
597.95	9,246	15,483			
598.00	9,246	15,764			
598.05	9,246	16,037			

Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 39

Summary for Pond 1.7P: Infiltration Basin

Inflow Area = 3.200 ac, 53.13% Impervious, Inflow Depth > 1.31" for 1-yr event
 Inflow = 0.58 cfs @ 12.99 hrs, Volume= 0.350 af
 Outflow = 0.58 cfs @ 13.00 hrs, Volume= 0.350 af, Atten= 0%, Lag= 0.5 min
 Discarded = 0.58 cfs @ 13.00 hrs, Volume= 0.350 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 606.00' @ 13.00 hrs Surf.Area= 10,602 sf Storage= 18 cf

Plug-Flow detention time= 0.5 min calculated for 0.350 af (100% of inflow)

Center-of-Mass det. time= 0.5 min (1,076.4 - 1,075.9)

Volume	Invert	Avail.Storage	Storage Description
#1	606.00'	37,800 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

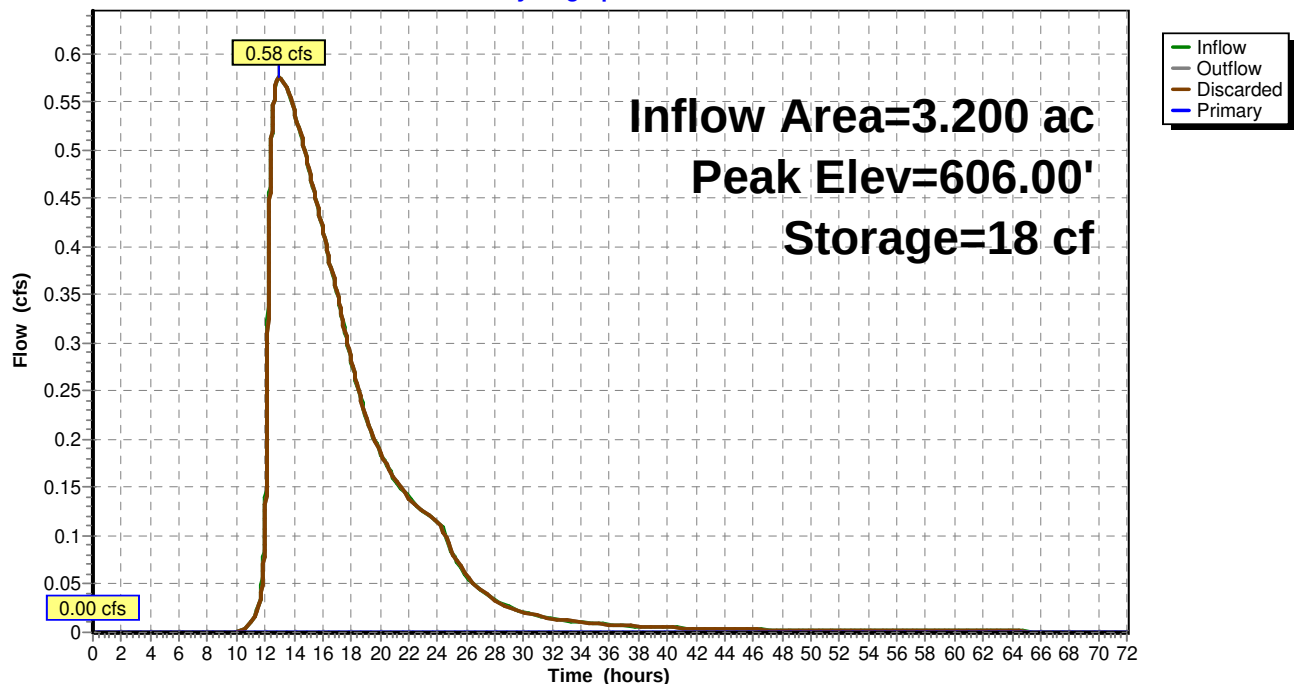
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
606.00	10,600	0	0
609.00	14,600	37,800	37,800

Device	Routing	Invert	Outlet Devices
#1	Discarded	606.00'	14.000 in/hr Exfiltration over Horizontal area Phase-In= 0.01'
#2	Primary	607.60'	4.0' long 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=0.58 cfs @ 13.00 hrs HW=606.00' (Free Discharge)↑ **1=Exfiltration** (Exfiltration Controls 0.58 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=606.00' TW=0.00' (Dynamic Tailwater)↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.7P: Infiltration Basin

Hydrograph



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 41

Stage-Area-Storage for Pond 1.7P: Infiltration Basin

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
606.00	10,600	10,600	0
606.10	10,733	10,733	1,067
606.20	10,867	10,867	2,147
606.30	11,000	11,000	3,240
606.40	11,133	11,133	4,347
606.50	11,267	11,267	5,467
606.60	11,400	11,400	6,600
606.70	11,533	11,533	7,747
606.80	11,667	11,667	8,907
606.90	11,800	11,800	10,080
607.00	11,933	11,933	11,267
607.10	12,067	12,067	12,467
607.20	12,200	12,200	13,680
607.30	12,333	12,333	14,907
607.40	12,467	12,467	16,147
607.50	12,600	12,600	17,400
607.60	12,733	12,733	18,667
607.70	12,867	12,867	19,947
607.80	13,000	13,000	21,240
607.90	13,133	13,133	22,547
608.00	13,267	13,267	23,867
608.10	13,400	13,400	25,200
608.20	13,533	13,533	26,547
608.30	13,667	13,667	27,907
608.40	13,800	13,800	29,280
608.50	13,933	13,933	30,667
608.60	14,067	14,067	32,067
608.70	14,200	14,200	33,480
608.80	14,333	14,333	34,907
608.90	14,467	14,467	36,347
609.00	14,600	14,600	37,800

Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 42

Summary for Pond 1.7PT: Pretreatment Basin

Inflow Area = 3.200 ac, 53.13% Impervious, Inflow Depth = 1.32" for 1-yr event
 Inflow = 3.69 cfs @ 12.19 hrs, Volume= 0.352 af
 Outflow = 0.58 cfs @ 12.99 hrs, Volume= 0.350 af, Atten= 84%, Lag= 48.1 min
 Primary = 0.58 cfs @ 12.99 hrs, Volume= 0.350 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 607.84' @ 12.99 hrs Surf.Area= 8,371 sf Storage= 6,660 cf

Plug-Flow detention time= 217.7 min calculated for 0.349 af (99% of inflow)

Center-of-Mass det. time= 213.4 min (1,075.9 - 862.4)

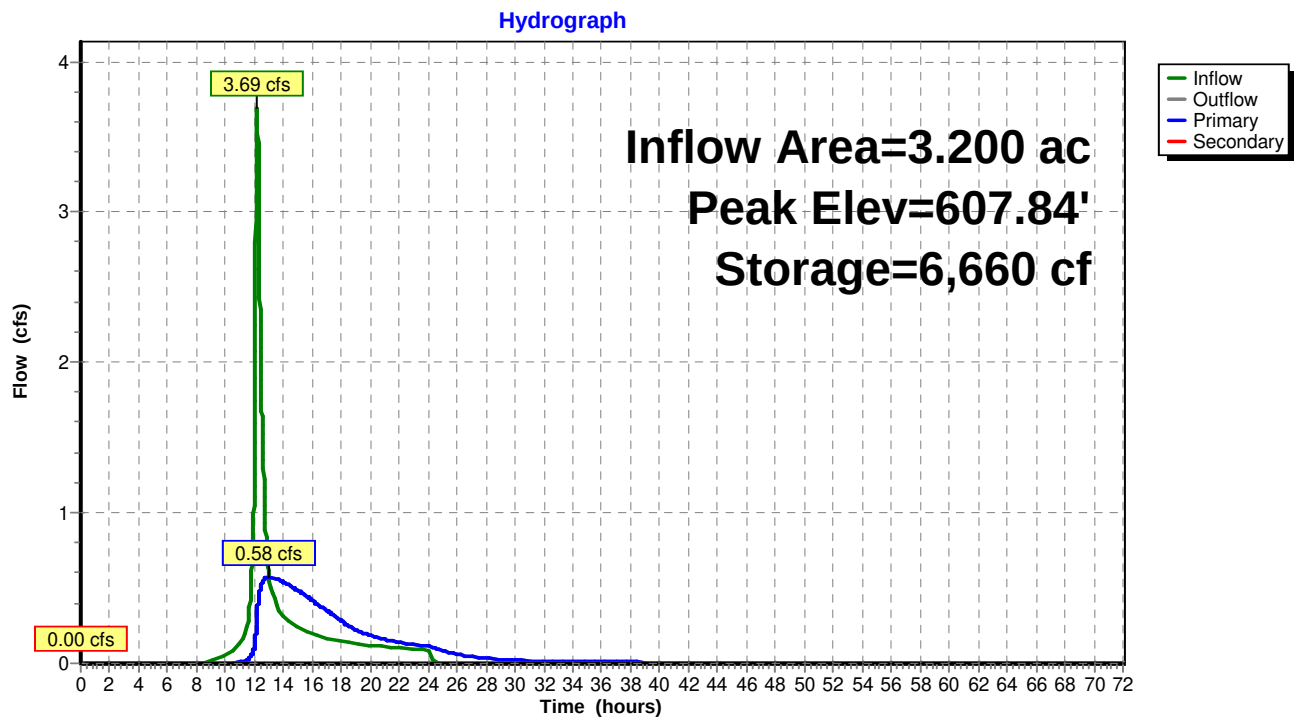
Volume	Invert	Avail.Storage	Storage Description
#1	607.00'	38,800 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
607.00	7,400	0	0
611.00	12,000	38,800	38,800

Device	Routing	Invert	Outlet Devices
#1	Primary	607.00'	6.0" Round Culvert L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 607.00' / 606.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	608.00'	0.7' long 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

Primary OutFlow Max=0.58 cfs @ 12.99 hrs HW=607.84' TW=606.00' (Dynamic Tailwater)↑ **1=Culvert** (Inlet Controls 0.58 cfs @ 2.93 fps)**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=607.00' TW=0.00' (Dynamic Tailwater)↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.7PT: Pretreatment Basin



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 44

Stage-Area-Storage for Pond 1.7PT: Pretreatment Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
607.00	7,400	0	609.60	10,390	23,127
607.05	7,457	371	609.65	10,447	23,648
607.10	7,515	746	609.70	10,505	24,172
607.15	7,572	1,123	609.75	10,563	24,698
607.20	7,630	1,503	609.80	10,620	25,228
607.25	7,688	1,886	609.85	10,678	25,760
607.30	7,745	2,272	609.90	10,735	26,296
607.35	7,803	2,660	609.95	10,793	26,834
607.40	7,860	3,052	610.00	10,850	27,375
607.45	7,918	3,446	610.05	10,907	27,919
607.50	7,975	3,844	610.10	10,965	28,466
607.55	8,032	4,244	610.15	11,022	29,015
607.60	8,090	4,647	610.20	11,080	29,568
607.65	8,147	5,053	610.25	11,138	30,123
607.70	8,205	5,462	610.30	11,195	30,682
607.75	8,263	5,873	610.35	11,253	31,243
607.80	8,320	6,288	610.40	11,310	31,807
607.85	8,378	6,705	610.45	11,368	32,374
607.90	8,435	7,126	610.50	11,425	32,944
607.95	8,493	7,549	610.55	11,482	33,516
608.00	8,550	7,975	610.60	11,540	34,092
608.05	8,607	8,404	610.65	11,597	34,670
608.10	8,665	8,836	610.70	11,655	35,252
608.15	8,722	9,270	610.75	11,713	35,836
608.20	8,780	9,708	610.80	11,770	36,423
608.25	8,838	10,148	610.85	11,828	37,013
608.30	8,895	10,592	610.90	11,885	37,606
608.35	8,953	11,038	610.95	11,943	38,201
608.40	9,010	11,487	611.00	12,000	38,800
608.45	9,068	11,939			
608.50	9,125	12,394			
608.55	9,182	12,851			
608.60	9,240	13,312			
608.65	9,297	13,775			
608.70	9,355	14,242			
608.75	9,413	14,711			
608.80	9,470	15,183			
608.85	9,528	15,658			
608.90	9,585	16,136			
608.95	9,643	16,616			
609.00	9,700	17,100			
609.05	9,757	17,586			
609.10	9,815	18,076			
609.15	9,872	18,568			
609.20	9,930	19,063			
609.25	9,988	19,561			
609.30	10,045	20,062			
609.35	10,103	20,565			
609.40	10,160	21,072			
609.45	10,218	21,581			
609.50	10,275	22,094			
609.55	10,332	22,609			

Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 45

Summary for Pond 1.8P: Wet Swale

Inflow Area = 0.400 ac, 75.00% Impervious, Inflow Depth = 1.94" for 1-yr event
Inflow = 1.06 cfs @ 12.04 hrs, Volume= 0.065 af
Outflow = 0.94 cfs @ 12.07 hrs, Volume= 0.065 af, Atten= 11%, Lag= 1.8 min
Primary = 0.94 cfs @ 12.07 hrs, Volume= 0.065 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 605.29' @ 12.07 hrs Surf.Area= 550 sf Storage= 419 cf

Plug-Flow detention time= 33.3 min calculated for 0.065 af (100% of inflow)
Center-of-Mass det. time= 33.2 min (846.2 - 813.0)

Volume	Invert	Avail.Storage	Storage Description
#1	604.00'	900 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
604.00	100	0	0
606.00	800	900	900

Device	Routing	Invert	Outlet Devices
#1	Primary	603.00'	12.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 603.00' / 602.50' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	604.00'	1.5" Vert. Orifice/Grate C= 0.600
#3	Device 1	605.00'	2.0' long 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

Primary OutFlow Max=0.94 cfs @ 12.07 hrs HW=605.29' TW=0.00' (Dynamic Tailwater)

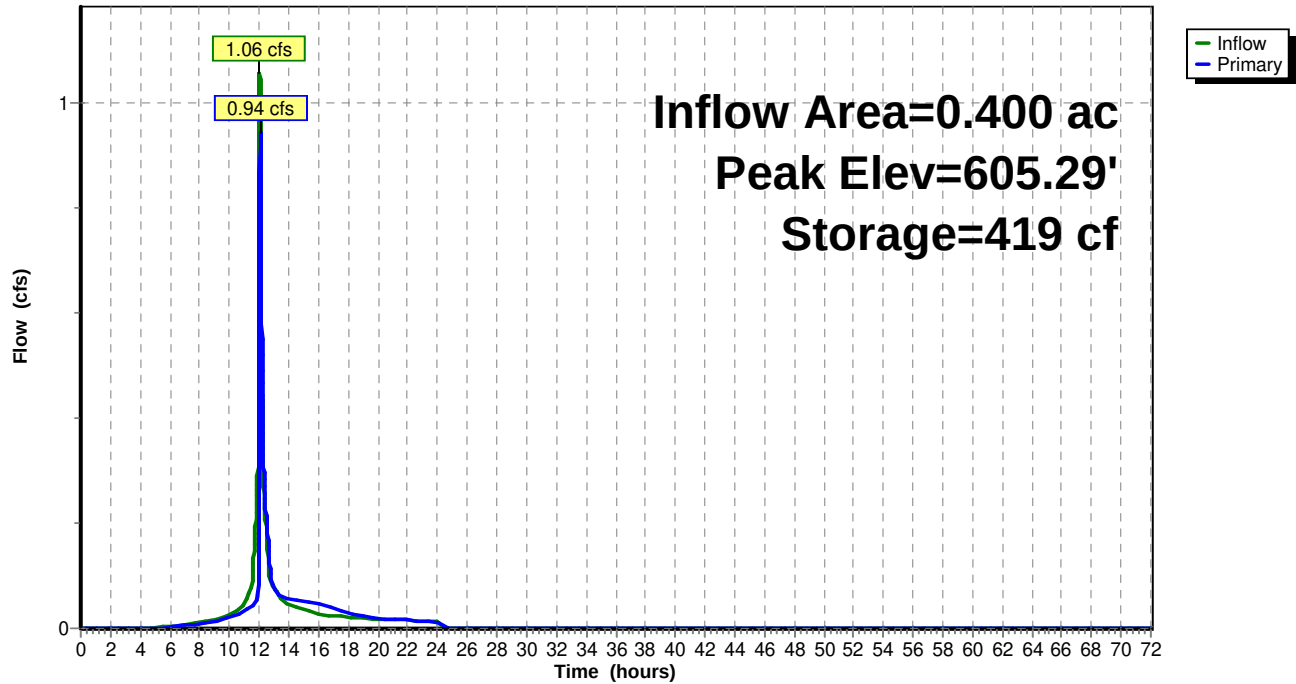
↑ **1=Culvert** (Passes 0.94 cfs of 5.00 cfs potential flow)

↑ **2=Orifice/Grate** (Orifice Controls 0.07 cfs @ 5.33 fps)

↑ **3=Broad-Crested Rectangular Weir** (Weir Controls 0.88 cfs @ 1.53 fps)

Pond 1.8P: Wet Swale

Hydrograph



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 47

Stage-Area-Storage for Pond 1.8P: Wet Swale

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
604.00	100	0	605.04	464	293
604.02	107	2	605.06	471	303
604.04	114	4	605.08	478	312
604.06	121	7	605.10	485	322
604.08	128	9	605.12	492	332
604.10	135	12	605.14	499	341
604.12	142	15	605.16	506	351
604.14	149	17	605.18	513	362
604.16	156	20	605.20	520	372
604.18	163	24	605.22	527	382
604.20	170	27	605.24	534	393
604.22	177	30	605.26	541	404
604.24	184	34	605.28	548	415
604.26	191	38	605.30	555	426
604.28	198	42	605.32	562	437
604.30	205	46	605.34	569	448
604.32	212	50	605.36	576	460
604.34	219	54	605.38	583	471
604.36	226	59	605.40	590	483
604.38	233	63	605.42	597	495
604.40	240	68	605.44	604	507
604.42	247	73	605.46	611	519
604.44	254	78	605.48	618	531
604.46	261	83	605.50	625	544
604.48	268	88	605.52	632	556
604.50	275	94	605.54	639	569
604.52	282	99	605.56	646	582
604.54	289	105	605.58	653	595
604.56	296	111	605.60	660	608
604.58	303	117	605.62	667	621
604.60	310	123	605.64	674	635
604.62	317	129	605.66	681	648
604.64	324	136	605.68	688	662
604.66	331	142	605.70	695	676
604.68	338	149	605.72	702	690
604.70	345	156	605.74	709	704
604.72	352	163	605.76	716	718
604.74	359	170	605.78	723	732
604.76	366	177	605.80	730	747
604.78	373	184	605.82	737	762
604.80	380	192	605.84	744	776
604.82	387	200	605.86	751	791
604.84	394	207	605.88	758	807
604.86	401	215	605.90	765	822
604.88	408	224	605.92	772	837
604.90	415	232	605.94	779	853
604.92	422	240	605.96	786	868
604.94	429	249	605.98	793	884
604.96	436	257	606.00	800	900
604.98	443	266			
605.00	450	275			
605.02	457	284			

Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 48

Summary for Pond 2.1P: Infiltration Basin

Inflow Area = 1.300 ac, 46.15% Impervious, Inflow Depth > 1.38" for 1-yr event
Inflow = 0.50 cfs @ 12.48 hrs, Volume= 0.150 af
Outflow = 0.23 cfs @ 14.24 hrs, Volume= 0.150 af, Atten= 55%, Lag= 105.3 min
Discarded = 0.23 cfs @ 14.24 hrs, Volume= 0.150 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 606.46' @ 14.24 hrs Surf.Area= 3,286 sf Storage= 1,434 cf

Plug-Flow detention time= 49.8 min calculated for 0.150 af (100% of inflow)

Center-of-Mass det. time= 49.8 min (1,004.9 - 955.1)

Volume	Invert	Avail.Storage	Storage Description
#1	606.00'	12,450 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
606.00	2,900	0	0
609.00	5,400	12,450	12,450

Device	Routing	Invert	Outlet Devices
#1	Discarded	606.00'	3.000 in/hr Exfiltration over Horizontal area Phase-In= 0.01'
#2	Primary	607.80'	2.0' long 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=0.23 cfs @ 14.24 hrs HW=606.46' (Free Discharge)

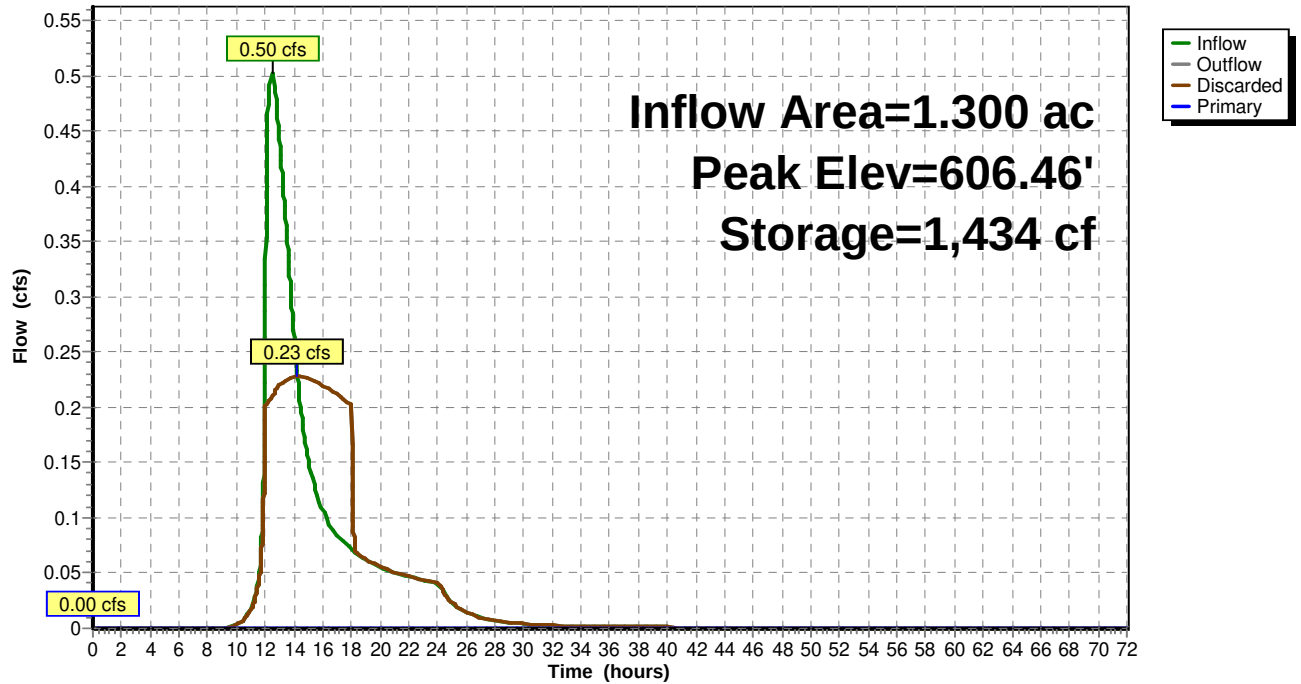
↑**1=Exfiltration** (Exfiltration Controls 0.23 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=606.00' TW=0.00' (Dynamic Tailwater)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2.1P: Infiltration Basin

Hydrograph



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 50

Stage-Area-Storage for Pond 2.1P: Infiltration Basin

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
606.00	2,900	2,900	0
606.10	2,983	2,983	294
606.20	3,067	3,067	597
606.30	3,150	3,150	907
606.40	3,233	3,233	1,227
606.50	3,317	3,317	1,554
606.60	3,400	3,400	1,890
606.70	3,483	3,483	2,234
606.80	3,567	3,567	2,587
606.90	3,650	3,650	2,947
607.00	3,733	3,733	3,317
607.10	3,817	3,817	3,694
607.20	3,900	3,900	4,080
607.30	3,983	3,983	4,474
607.40	4,067	4,067	4,877
607.50	4,150	4,150	5,288
607.60	4,233	4,233	5,707
607.70	4,317	4,317	6,134
607.80	4,400	4,400	6,570
607.90	4,483	4,483	7,014
608.00	4,567	4,567	7,467
608.10	4,650	4,650	7,928
608.20	4,733	4,733	8,397
608.30	4,817	4,817	8,874
608.40	4,900	4,900	9,360
608.50	4,983	4,983	9,854
608.60	5,067	5,067	10,357
608.70	5,150	5,150	10,868
608.80	5,233	5,233	11,387
608.90	5,317	5,317	11,914
609.00	5,400	5,400	12,450

Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 51

Summary for Pond 2.1PT: Pretreatment Basin

Inflow Area = 1.300 ac, 46.15% Impervious, Inflow Depth = 1.39" for 1-yr event
Inflow = 2.47 cfs @ 12.04 hrs, Volume= 0.150 af
Outflow = 0.50 cfs @ 12.48 hrs, Volume= 0.150 af, Atten= 80%, Lag= 26.4 min
Primary = 0.50 cfs @ 12.48 hrs, Volume= 0.150 af
Secondary = 0.00 cfs @ 12.48 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 607.70' @ 12.48 hrs Surf.Area= 3,440 sf Storage= 2,231 cf

Plug-Flow detention time= 108.2 min calculated for 0.150 af (100% of inflow)

Center-of-Mass det. time= 106.9 min (955.1 - 848.2)

Volume	Invert	Avail.Storage	Storage Description
#1	607.00'	12,150 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
607.00	2,900	0	0
610.00	5,200	12,150	12,150

Device	Routing	Invert	Outlet Devices
#1	Primary	607.00'	6.0" Round Culvert L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 607.00' / 606.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	607.70'	0.7' long 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

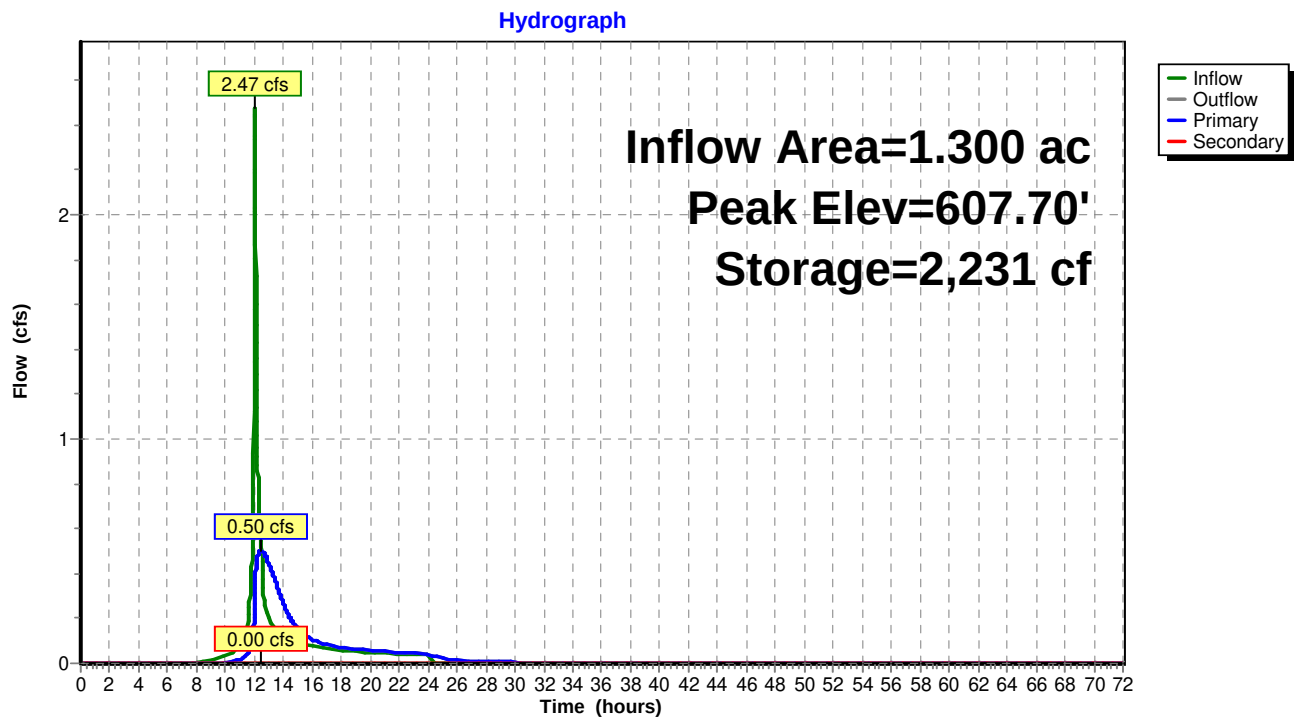
Primary OutFlow Max=0.50 cfs @ 12.48 hrs HW=607.70' TW=606.15' (Dynamic Tailwater)

↑ **1=Culvert** (Inlet Controls 0.50 cfs @ 2.56 fps)

Secondary OutFlow Max=0.00 cfs @ 12.48 hrs HW=607.70' TW=0.00' (Dynamic Tailwater)

↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.17 fps)

Pond 2.1PT: Pretreatment Basin



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 53

Stage-Area-Storage for Pond 2.1PT: Pretreatment Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
607.00	2,900	0	609.60	4,893	10,131
607.05	2,938	146	609.65	4,932	10,377
607.10	2,977	294	609.70	4,970	10,625
607.15	3,015	444	609.75	5,008	10,874
607.20	3,053	595	609.80	5,047	11,125
607.25	3,092	749	609.85	5,085	11,379
607.30	3,130	904	609.90	5,123	11,634
607.35	3,168	1,062	609.95	5,162	11,891
607.40	3,207	1,221	610.00	5,200	12,150
607.45	3,245	1,383			
607.50	3,283	1,546			
607.55	3,322	1,711			
607.60	3,360	1,878			
607.65	3,398	2,047			
607.70	3,437	2,218			
607.75	3,475	2,391			
607.80	3,513	2,565			
607.85	3,552	2,742			
607.90	3,590	2,920			
607.95	3,628	3,101			
608.00	3,667	3,283			
608.05	3,705	3,468			
608.10	3,743	3,654			
608.15	3,782	3,842			
608.20	3,820	4,032			
608.25	3,858	4,224			
608.30	3,897	4,418			
608.35	3,935	4,614			
608.40	3,973	4,811			
608.45	4,012	5,011			
608.50	4,050	5,213			
608.55	4,088	5,416			
608.60	4,127	5,621			
608.65	4,165	5,829			
608.70	4,203	6,038			
608.75	4,242	6,249			
608.80	4,280	6,462			
608.85	4,318	6,677			
608.90	4,357	6,894			
608.95	4,395	7,113			
609.00	4,433	7,333			
609.05	4,472	7,556			
609.10	4,510	7,781			
609.15	4,548	8,007			
609.20	4,587	8,235			
609.25	4,625	8,466			
609.30	4,663	8,698			
609.35	4,702	8,932			
609.40	4,740	9,168			
609.45	4,778	9,406			
609.50	4,817	9,646			
609.55	4,855	9,888			

Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 54

Summary for Pond 2.2P: Wet Swale

Inflow Area = 0.800 ac, 87.50% Impervious, Inflow Depth = 2.22" for 1-yr event
Inflow = 2.35 cfs @ 12.04 hrs, Volume= 0.148 af
Outflow = 2.09 cfs @ 12.07 hrs, Volume= 0.148 af, Atten= 11%, Lag= 1.8 min
Primary = 2.09 cfs @ 12.07 hrs, Volume= 0.148 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 605.45' @ 12.07 hrs Surf.Area= 880 sf Storage= 856 cf

Plug-Flow detention time= 37.0 min calculated for 0.148 af (100% of inflow)
Center-of-Mass det. time= 36.9 min (829.0 - 792.1)

Volume	Invert	Avail.Storage	Storage Description
#1	604.00'	1,400 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
604.00	300	0	0
606.00	1,100	1,400	1,400

Device	Routing	Invert	Outlet Devices
#1	Primary	603.00'	12.0" Round Culvert L= 65.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 603.00' / 602.30' S= 0.0108 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	604.00'	2.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	605.00'	2.2' long 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

Primary OutFlow Max=2.09 cfs @ 12.07 hrs HW=605.45' TW=0.00' (Dynamic Tailwater)

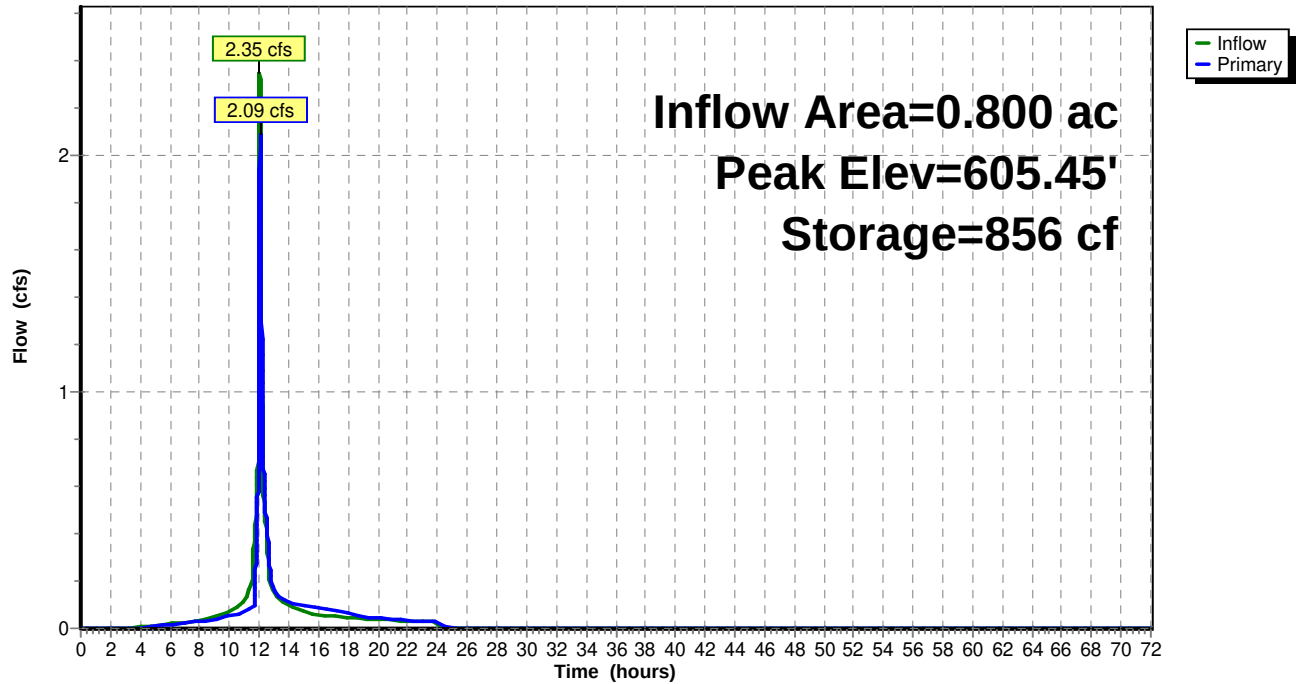
1=Culvert (Passes 2.09 cfs of 5.13 cfs potential flow)

2=Orifice/Grate (Orifice Controls 0.12 cfs @ 5.63 fps)

3=Broad-Crested Rectangular Weir (Weir Controls 1.96 cfs @ 1.99 fps)

Pond 2.2P: Wet Swale

Hydrograph



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 56

Stage-Area-Storage for Pond 2.2P: Wet Swale

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
604.00	300	0	605.04	716	528
604.02	308	6	605.06	724	543
604.04	316	12	605.08	732	557
604.06	324	19	605.10	740	572
604.08	332	25	605.12	748	587
604.10	340	32	605.14	756	602
604.12	348	39	605.16	764	617
604.14	356	46	605.18	772	632
604.16	364	53	605.20	780	648
604.18	372	60	605.22	788	664
604.20	380	68	605.24	796	680
604.22	388	76	605.26	804	696
604.24	396	84	605.28	812	712
604.26	404	92	605.30	820	728
604.28	412	100	605.32	828	744
604.30	420	108	605.34	836	761
604.32	428	116	605.36	844	778
604.34	436	125	605.38	852	795
604.36	444	134	605.40	860	812
604.38	452	143	605.42	868	829
604.40	460	152	605.44	876	847
604.42	468	161	605.46	884	864
604.44	476	171	605.48	892	882
604.46	484	180	605.50	900	900
604.48	492	190	605.52	908	918
604.50	500	200	605.54	916	936
604.52	508	210	605.56	924	955
604.54	516	220	605.58	932	973
604.56	524	231	605.60	940	992
604.58	532	241	605.62	948	1,011
604.60	540	252	605.64	956	1,030
604.62	548	263	605.66	964	1,049
604.64	556	274	605.68	972	1,068
604.66	564	285	605.70	980	1,088
604.68	572	296	605.72	988	1,108
604.70	580	308	605.74	996	1,128
604.72	588	320	605.76	1,004	1,148
604.74	596	332	605.78	1,012	1,168
604.76	604	344	605.80	1,020	1,188
604.78	612	356	605.82	1,028	1,208
604.80	620	368	605.84	1,036	1,229
604.82	628	380	605.86	1,044	1,250
604.84	636	393	605.88	1,052	1,271
604.86	644	406	605.90	1,060	1,292
604.88	652	419	605.92	1,068	1,313
604.90	660	432	605.94	1,076	1,335
604.92	668	445	605.96	1,084	1,356
604.94	676	459	605.98	1,092	1,378
604.96	684	472	606.00	1,100	1,400
604.98	692	486			
605.00	700	500			
605.02	708	514			

Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 57

Summary for Pond FS1.3:

Inflow Area = 1.648 ac, 69.66% Impervious, Inflow Depth = 1.53" for 1-yr event
 Inflow = 3.47 cfs @ 12.04 hrs, Volume= 0.210 af
 Outflow = 3.47 cfs @ 12.04 hrs, Volume= 0.210 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.47 cfs @ 12.04 hrs, Volume= 0.210 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 575.50' @ 12.04 hrs

Flood Elev= 577.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	570.20'	12.0" Round Culvert L= 365.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.20' / 566.50' S= 0.0101 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	570.20'	7.7" Vert. Orifice/Grate C= 0.600
#3	Device 4	575.90'	4.0' long 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
#4	Secondary	570.20'	18.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.20' / 569.70' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.47 cfs @ 12.04 hrs HW=575.49' TW=564.31' (Dynamic Tailwater)

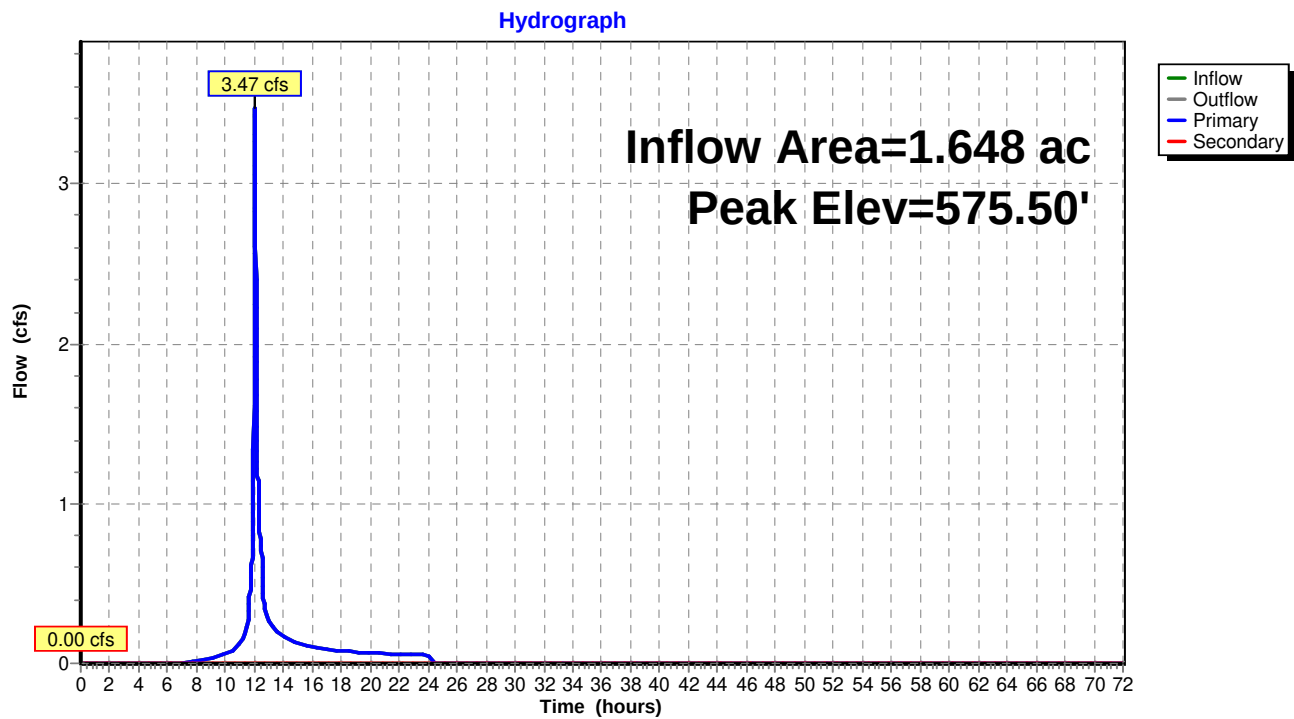
1=Culvert (Passes 3.47 cfs of 4.95 cfs potential flow)


2=Orifice/Grate (Orifice Controls 3.47 cfs @ 10.73 fps)
Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=570.20' TW=0.00' (Dynamic Tailwater)

4=Culvert (Controls 0.00 cfs)


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

Pond FS1.3:



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 59

Stage-Area-Storage for Pond FS1.3:

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
570.20	0	575.40	0
570.30	0	575.50	0
570.40	0	575.60	0
570.50	0	575.70	0
570.60	0	575.80	0
570.70	0	575.90	0
570.80	0	576.00	0
570.90	0	576.10	0
571.00	0	576.20	0
571.10	0	576.30	0
571.20	0	576.40	0
571.30	0	576.50	0
571.40	0	576.60	0
571.50	0	576.70	0
571.60	0	576.80	0
571.70	0	576.90	0
571.80	0	577.00	0
571.90	0	577.10	0
572.00	0	577.20	0
572.10	0	577.30	0
572.20	0	577.40	0
572.30	0	577.50	0
572.40	0		
572.50	0		
572.60	0		
572.70	0		
572.80	0		
572.90	0		
573.00	0		
573.10	0		
573.20	0		
573.30	0		
573.40	0		
573.50	0		
573.60	0		
573.70	0		
573.80	0		
573.90	0		
574.00	0		
574.10	0		
574.20	0		
574.30	0		
574.40	0		
574.50	0		
574.60	0		
574.70	0		
574.80	0		
574.90	0		
575.00	0		
575.10	0		
575.20	0		
575.30	0		

Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 60

Summary for Pond FS1.5:

Inflow Area = 0.800 ac, 87.50% Impervious, Inflow Depth = 2.03" for 1-yr event
Inflow = 2.19 cfs @ 12.04 hrs, Volume= 0.135 af
Outflow = 2.19 cfs @ 12.04 hrs, Volume= 0.135 af, Atten= 0%, Lag= 0.0 min
Primary = 2.19 cfs @ 12.04 hrs, Volume= 0.135 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 567.88' @ 12.04 hrs

Flood Elev= 569.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	565.60'	8.0" Round Culvert L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 565.60' / 565.30' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 3	567.90'	4.0' long 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
#3	Secondary	565.60'	15.0" Round Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 565.60' / 565.20' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.19 cfs @ 12.04 hrs HW=567.87' TW=563.00' (Dynamic Tailwater)

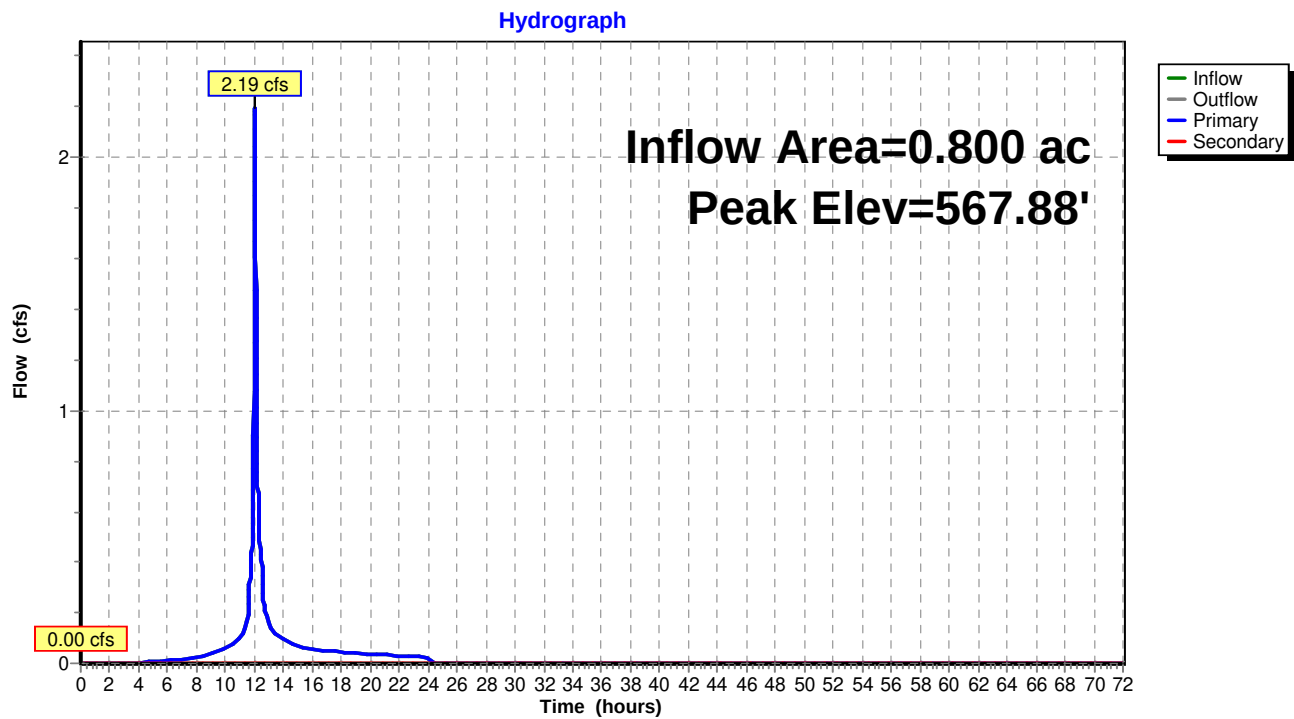
↑ **1=Culvert** (Barrel Controls 2.19 cfs @ 6.27 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=565.60' TW=0.00' (Dynamic Tailwater)

↑ **3=Culvert** (Controls 0.00 cfs)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond FS1.5:



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 62

Stage-Area-Storage for Pond FS1.5:

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
565.60	0	568.20	0
565.65	0	568.25	0
565.70	0	568.30	0
565.75	0	568.35	0
565.80	0	568.40	0
565.85	0	568.45	0
565.90	0	568.50	0
565.95	0	568.55	0
566.00	0	568.60	0
566.05	0	568.65	0
566.10	0	568.70	0
566.15	0	568.75	0
566.20	0	568.80	0
566.25	0	568.85	0
566.30	0	568.90	0
566.35	0	568.95	0
566.40	0	569.00	0
566.45	0	569.05	0
566.50	0	569.10	0
566.55	0	569.15	0
566.60	0	569.20	0
566.65	0	569.25	0
566.70	0	569.30	0
566.75	0	569.35	0
566.80	0	569.40	0
566.85	0	569.45	0
566.90	0	569.50	0
566.95	0		
567.00	0		
567.05	0		
567.10	0		
567.15	0		
567.20	0		
567.25	0		
567.30	0		
567.35	0		
567.40	0		
567.45	0		
567.50	0		
567.55	0		
567.60	0		
567.65	0		
567.70	0		
567.75	0		
567.80	0		
567.85	0		
567.90	0		
567.95	0		
568.00	0		
568.05	0		
568.10	0		
568.15	0		

Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 63

Summary for Pond FS1.6:

Inflow Area = 1.800 ac, 88.89% Impervious, Inflow Depth = 2.12" for 1-yr event
Inflow = 5.12 cfs @ 12.04 hrs, Volume= 0.318 af
Outflow = 5.12 cfs @ 12.04 hrs, Volume= 0.318 af, Atten= 0%, Lag= 0.0 min
Primary = 5.12 cfs @ 12.04 hrs, Volume= 0.318 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 602.18' @ 12.04 hrs

Flood Elev= 604.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	598.50'	12.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 598.50' / 598.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	598.50'	10.4" Vert. Orifice/Grate C= 0.600
#3	Device 4	603.00'	4.0' long 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
#4	Secondary	598.50'	15.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 598.50' / 593.50' S= 0.1000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.10 cfs @ 12.04 hrs HW=602.16' TW=595.85' (Dynamic Tailwater)

↑**1=Culvert** (Passes 5.10 cfs of 6.40 cfs potential flow)

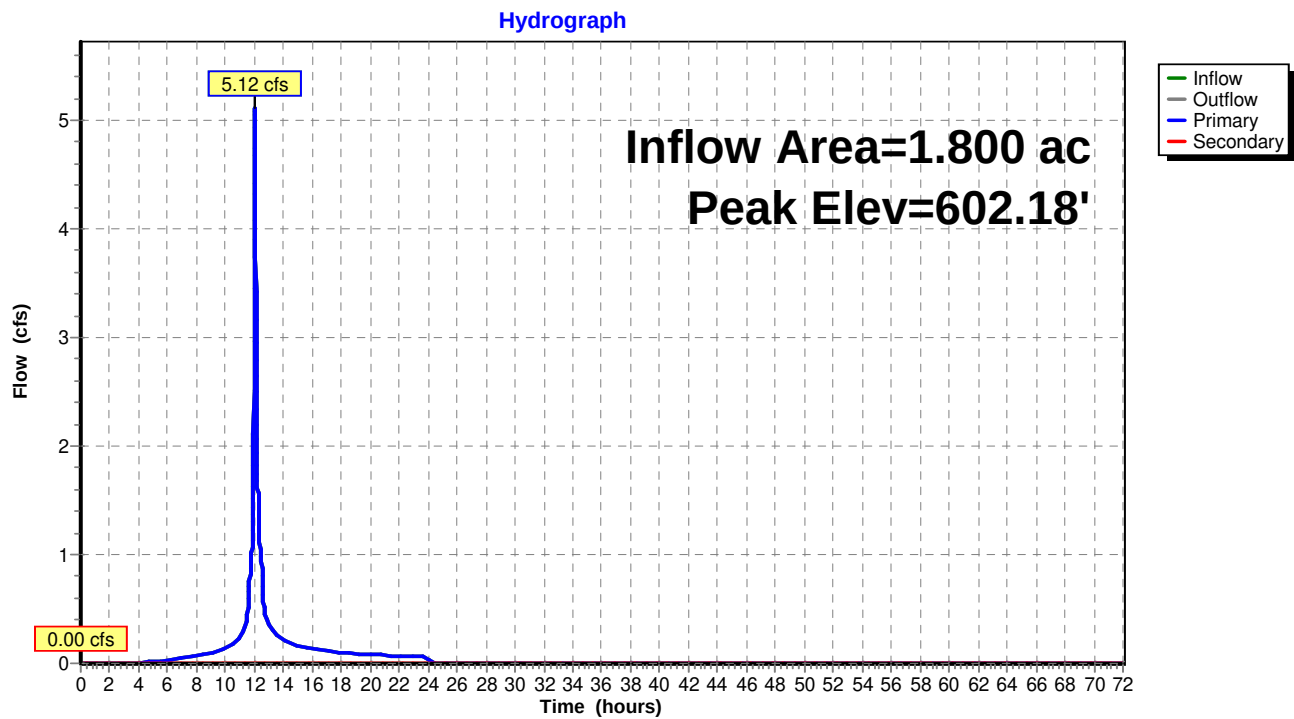
↑**2=Orifice/Grate** (Orifice Controls 5.10 cfs @ 8.65 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=598.50' TW=0.00' (Dynamic Tailwater)

↑**4=Culvert** (Controls 0.00 cfs)

↑**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond FS1.6:



Trailside Somers - Post Development (With NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 65

Stage-Area-Storage for Pond FS1.6:

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
598.50	0	600.58	0	602.66	0
598.54	0	600.62	0	602.70	0
598.58	0	600.66	0	602.74	0
598.62	0	600.70	0	602.78	0
598.66	0	600.74	0	602.82	0
598.70	0	600.78	0	602.86	0
598.74	0	600.82	0	602.90	0
598.78	0	600.86	0	602.94	0
598.82	0	600.90	0	602.98	0
598.86	0	600.94	0	603.02	0
598.90	0	600.98	0	603.06	0
598.94	0	601.02	0	603.10	0
598.98	0	601.06	0	603.14	0
599.02	0	601.10	0	603.18	0
599.06	0	601.14	0	603.22	0
599.10	0	601.18	0	603.26	0
599.14	0	601.22	0	603.30	0
599.18	0	601.26	0	603.34	0
599.22	0	601.30	0	603.38	0
599.26	0	601.34	0	603.42	0
599.30	0	601.38	0	603.46	0
599.34	0	601.42	0	603.50	0
599.38	0	601.46	0	603.54	0
599.42	0	601.50	0	603.58	0
599.46	0	601.54	0	603.62	0
599.50	0	601.58	0	603.66	0
599.54	0	601.62	0	603.70	0
599.58	0	601.66	0	603.74	0
599.62	0	601.70	0	603.78	0
599.66	0	601.74	0	603.82	0
599.70	0	601.78	0	603.86	0
599.74	0	601.82	0	603.90	0
599.78	0	601.86	0	603.94	0
599.82	0	601.90	0	603.98	0
599.86	0	601.94	0		
599.90	0	601.98	0		
599.94	0	602.02	0		
599.98	0	602.06	0		
600.02	0	602.10	0		
600.06	0	602.14	0		
600.10	0	602.18	0		
600.14	0	602.22	0		
600.18	0	602.26	0		
600.22	0	602.30	0		
600.26	0	602.34	0		
600.30	0	602.38	0		
600.34	0	602.42	0		
600.38	0	602.46	0		
600.42	0	602.50	0		
600.46	0	602.54	0		
600.50	0	602.58	0		
600.54	0	602.62	0		

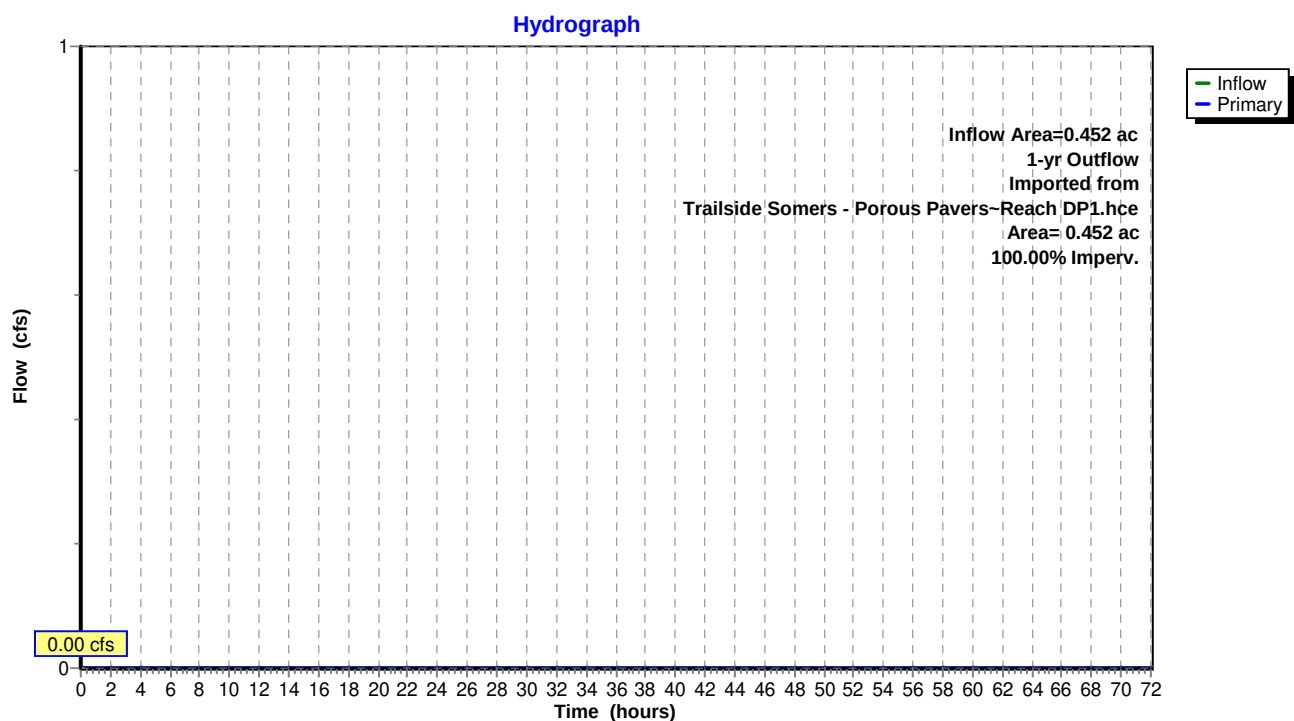
Summary for Link 1.9S: PPP (15 Units)

Inflow Area = 0.452 ac, 100.00% Impervious, Inflow Depth = 0.00" for 1-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

1-yr Outflow Imported from Trailside Somers - Porous Pavers~Reach DP1.hce

Link 1.9S: PPP (15 Units)



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 67

Summary for Subcatchment 1.0S:

Runoff = 27.50 cfs @ 12.71 hrs, Volume= 5.470 af, Depth= 1.91"

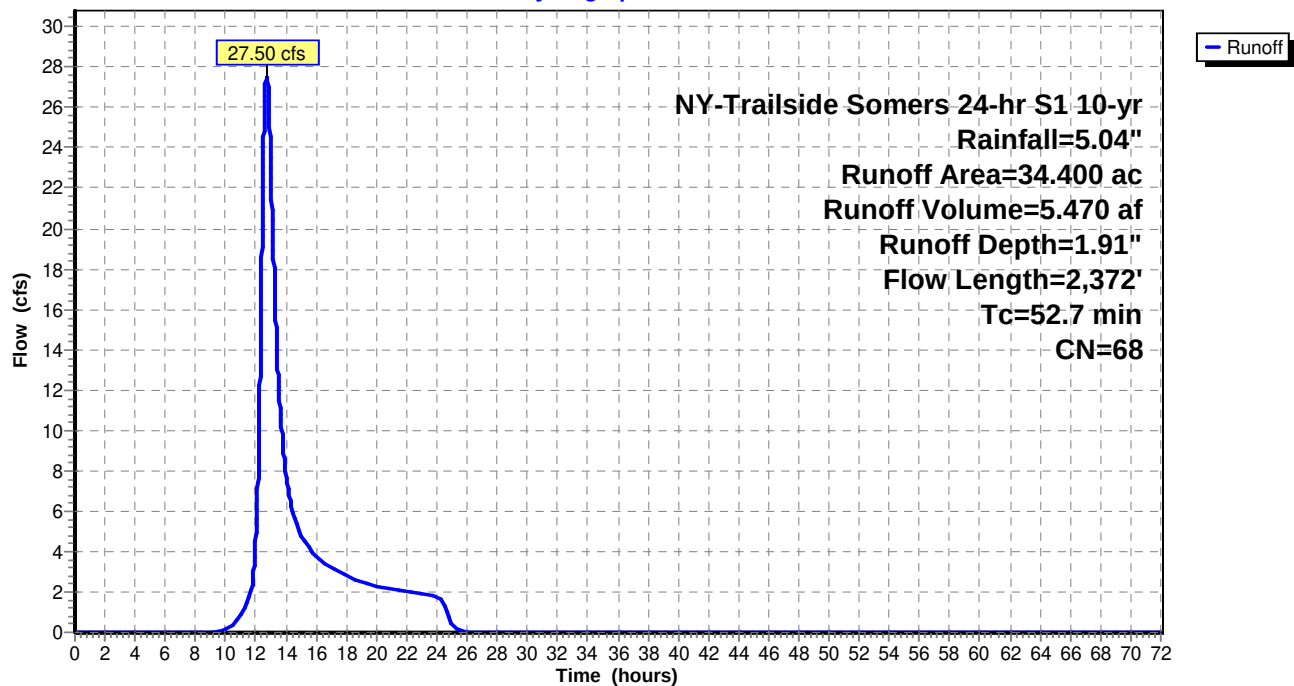
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (ac)	CN	Description
2.600	55	Woods, Good, HSG B
14.700	70	Woods, Good, HSG C
9.200	77	Woods, Good, HSG D
4.900	61	>75% Grass cover, Good, HSG B
2.900	58	Woods/grass comb., Good, HSG B
0.100	74	>75% Grass cover, Good, HSG C
34.400	68	Weighted Average
34.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0	100	0.0150	0.07		Sheet Flow, Grass: Bermuda n= 0.410 P2= 3.35"
14.8	630	0.0200	0.71		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.9	476	0.0400	1.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.1	743	0.0330	4.01	10.83	Channel Flow, Area= 2.7 sf Perim= 7.2' r= 0.38' n= 0.035 Earth, dense weeds
2.9	423	0.0210	2.39	4.07	Channel Flow, Area= 1.7 sf Perim= 7.0' r= 0.24' n= 0.035 Earth, dense weeds
52.7	2,372	Total			

Subcatchment 1.0S:

Hydrograph



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 69

Summary for Subcatchment 1.1S:

Runoff = 2.67 cfs @ 12.04 hrs, Volume= 0.196 af, Depth= 3.91"

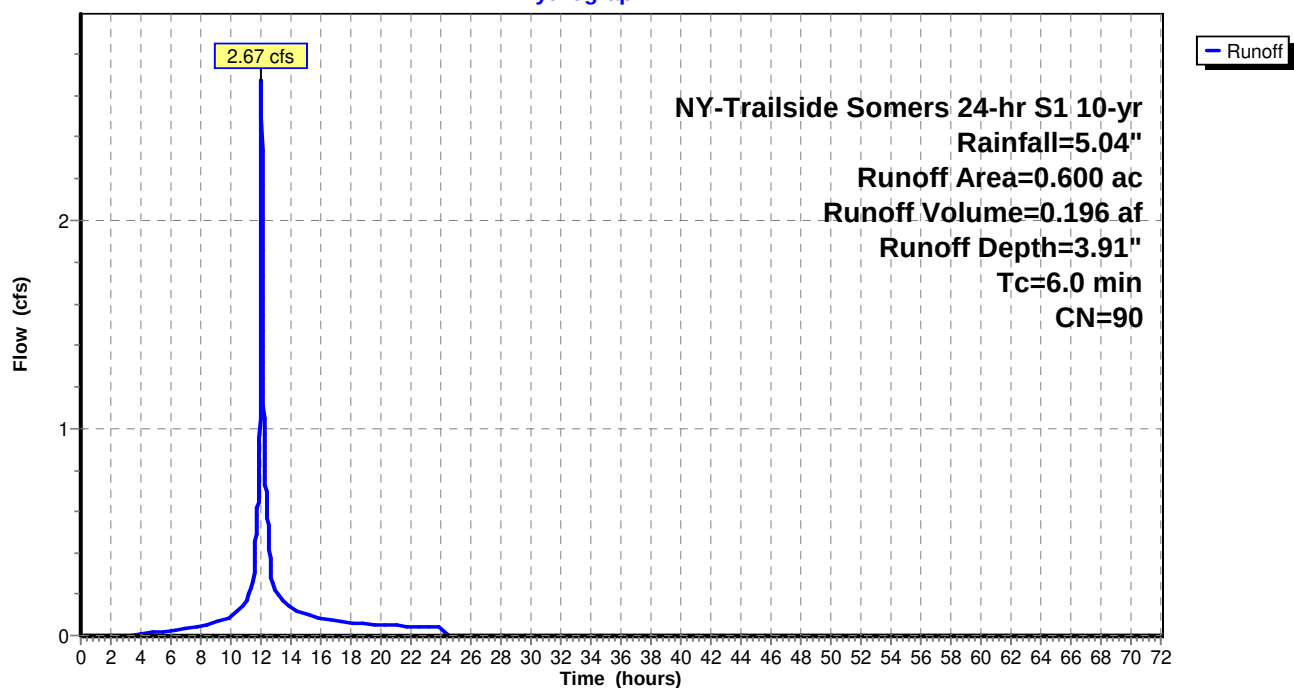
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (ac)	CN	Description
0.400	98	Paved parking, HSG B
0.200	74	>75% Grass cover, Good, HSG C
0.600	90	Weighted Average
0.200		33.33% Pervious Area
0.400		66.67% Impervious Area

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

Subcatchment 1.1S:

Hydrograph



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 70

Summary for Subcatchment 1.2S:

Runoff = 9.01 cfs @ 12.04 hrs, Volume= 0.642 af, Depth= 3.21"

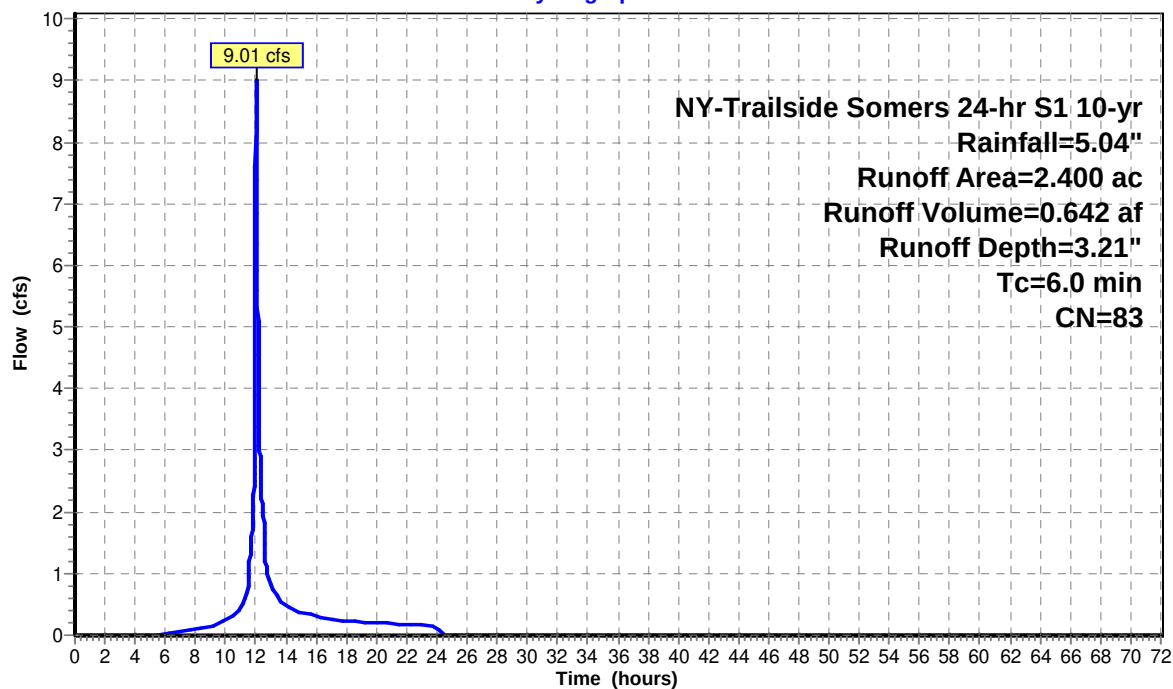
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (ac)	CN	Description
1.300	98	Paved parking, HSG B
0.900	61	>75% Grass cover, Good, HSG B
0.200	80	>75% Grass cover, Good, HSG D
2.400	83	Weighted Average
1.100		45.83% Pervious Area
1.300		54.17% Impervious Area

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

Subcatchment 1.2S:

Hydrograph



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 71

Summary for Subcatchment 1.3S:

Runoff = 6.87 cfs @ 12.04 hrs, Volume= 0.495 af, Depth= 3.60"

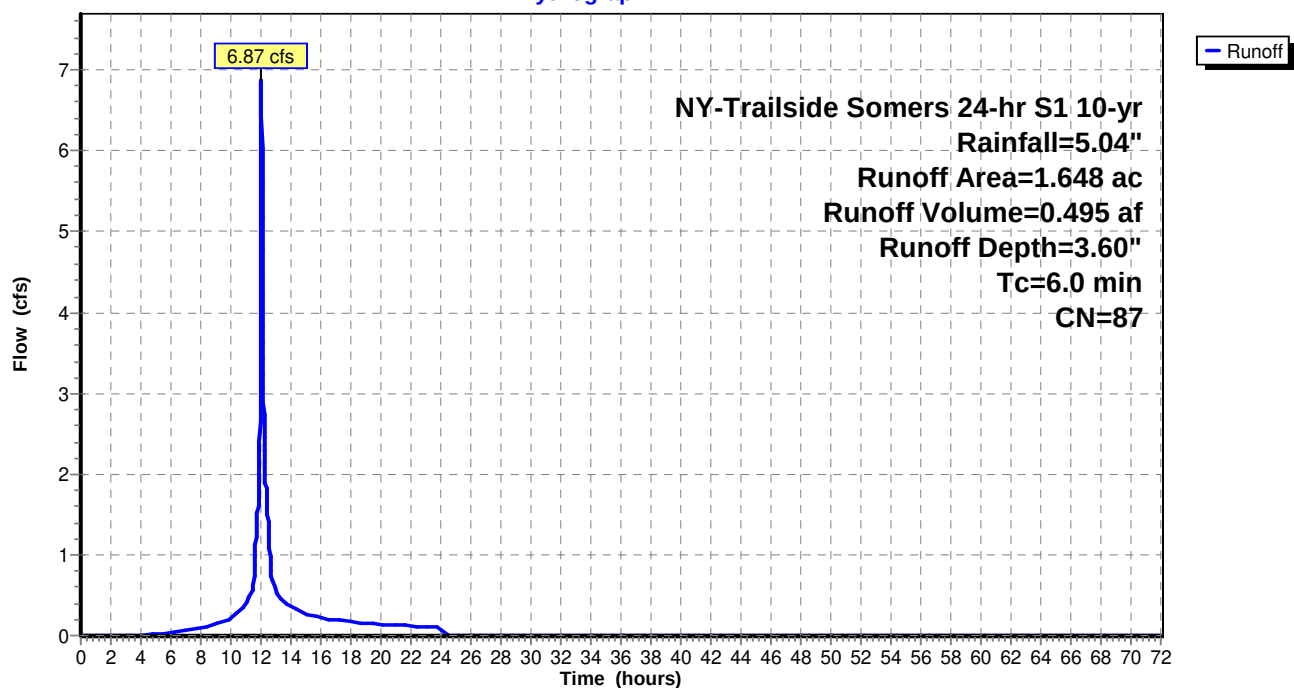
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (ac)	CN	Description
* 1.148	98	Paved parking
0.500	61	>75% Grass cover, Good, HSG B
1.648	87	Weighted Average
0.500		30.34% Pervious Area
1.148		69.66% Impervious Area

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

Subcatchment 1.3S:

Hydrograph



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 72

Summary for Subcatchment 1.4S:

Runoff = 0.99 cfs @ 12.12 hrs, Volume= 0.095 af, Depth= 1.91"

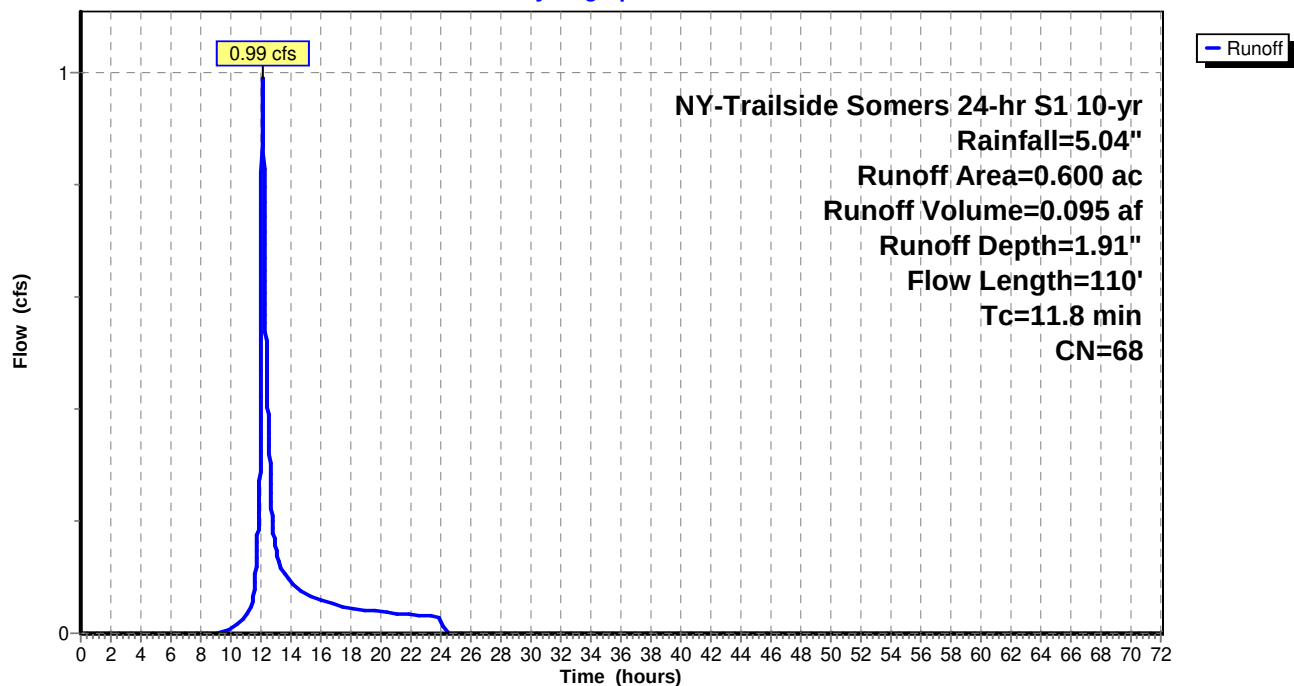
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (ac)	CN	Description
0.300	61	>75% Grass cover, Good, HSG B
0.300	74	>75% Grass cover, Good, HSG C
0.600	68	Weighted Average
0.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	80	0.0200	0.11		Sheet Flow, Grass: Dense n= 0.240 P2= 3.35"
0.1	30	0.3000	3.83		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.8	110	Total			

Subcatchment 1.4S:

Hydrograph



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 73

Summary for Subcatchment 1.5S:

Runoff = 3.77 cfs @ 12.04 hrs, Volume= 0.282 af, Depth= 4.24"

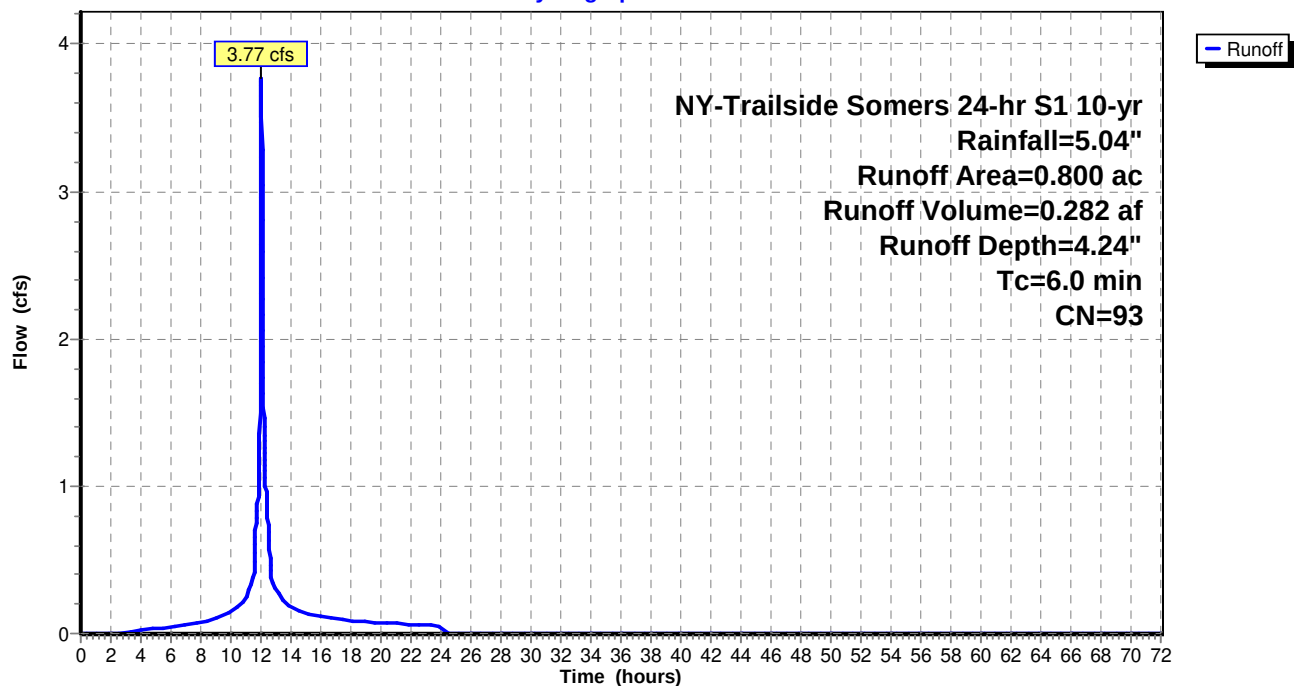
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG B
0.100	61	>75% Grass cover, Good, HSG B
0.800	93	Weighted Average
0.100		12.50% Pervious Area
0.700		87.50% Impervious Area

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

Subcatchment 1.5S:

Hydrograph



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 74

Summary for Subcatchment 1.6S:

Runoff = 8.61 cfs @ 12.04 hrs, Volume= 0.652 af, Depth= 4.35"

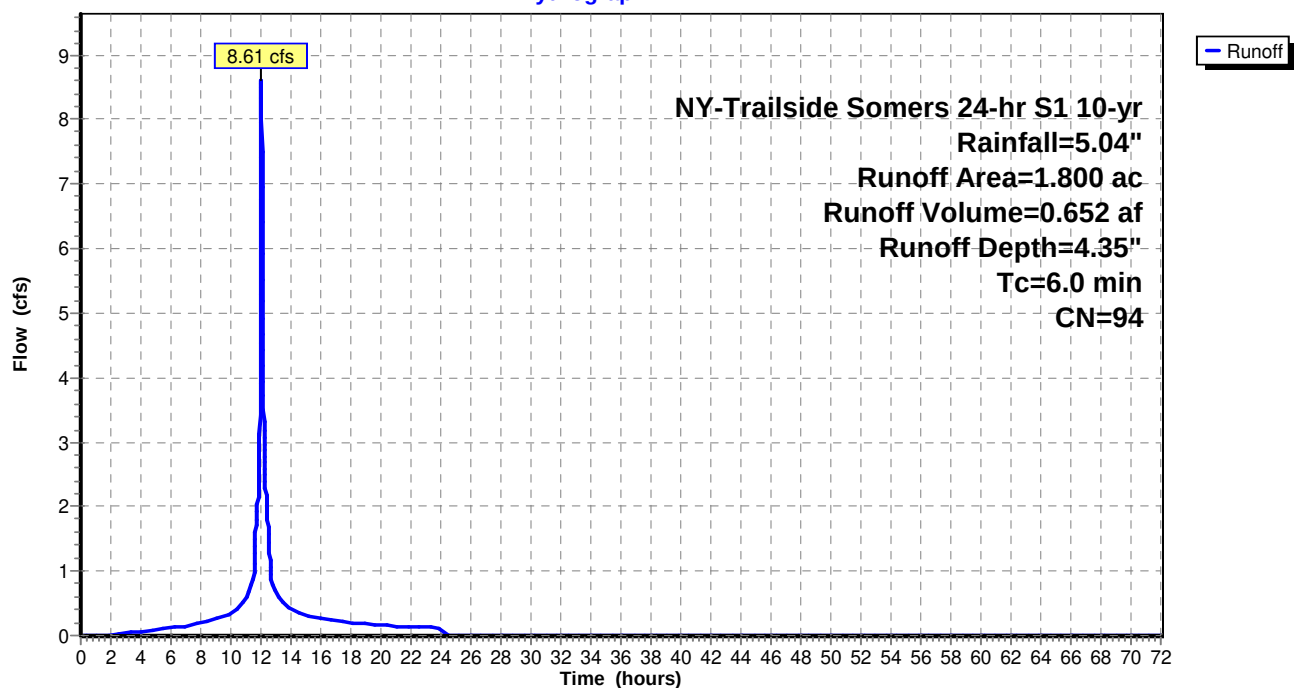
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (ac)	CN	Description
1.600	98	Paved parking, HSG B
0.200	61	>75% Grass cover, Good, HSG B
1.800	94	Weighted Average
0.200		11.11% Pervious Area
1.600		88.89% Impervious Area

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

Subcatchment 1.6S:

Hydrograph



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 75

Summary for Subcatchment 1.7S:

Runoff = 8.17 cfs @ 12.19 hrs, Volume= 0.882 af, Depth= 3.31"

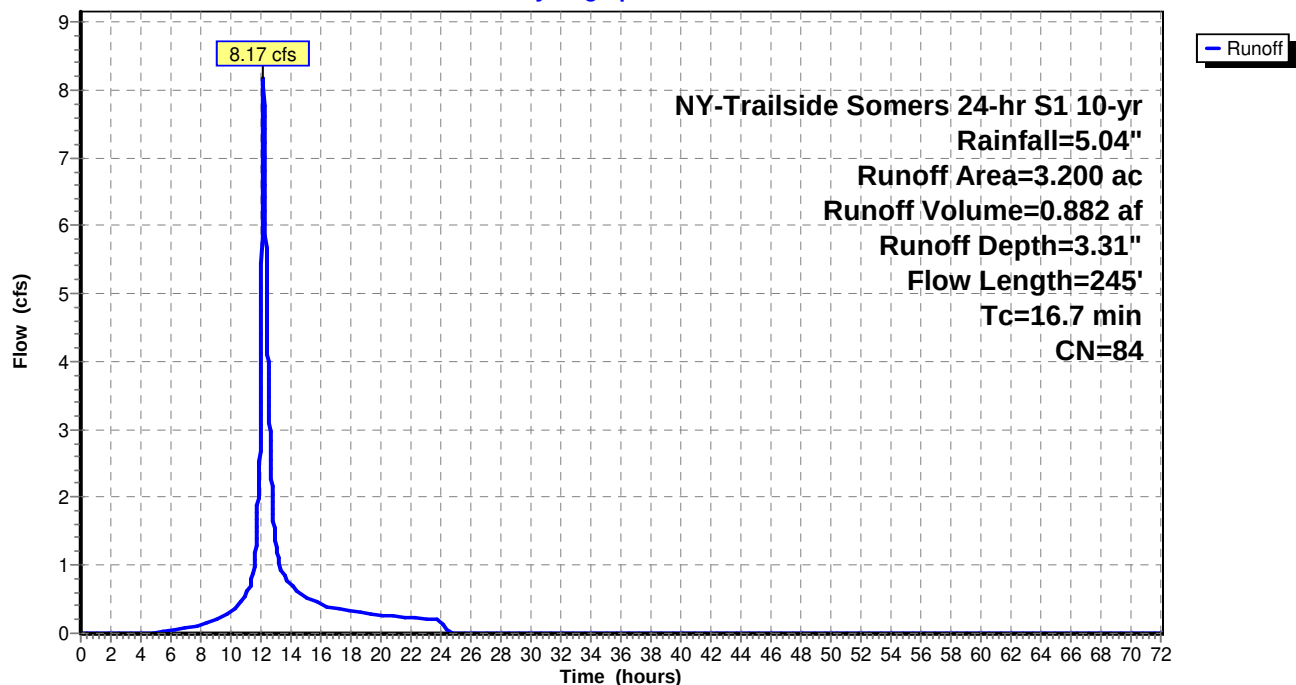
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (ac)	CN	Description
1.700	98	Paved parking, HSG B
0.700	61	>75% Grass cover, Good, HSG B
0.800	74	>75% Grass cover, Good, HSG C
3.200	84	Weighted Average
1.500		46.88% Pervious Area
1.700		53.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0200	0.12		Sheet Flow, Grass: Dense n= 0.240 P2= 3.35"
2.8	145	0.0150	0.86		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
16.7	245	Total			

Subcatchment 1.7S:

Hydrograph



Trailside Somers - Post Development (Wit *NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"*

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 76

Summary for Subcatchment 1.8S:

Runoff = 1.85 cfs @ 12.04 hrs, Volume= 0.138 af, Depth= 4.13"

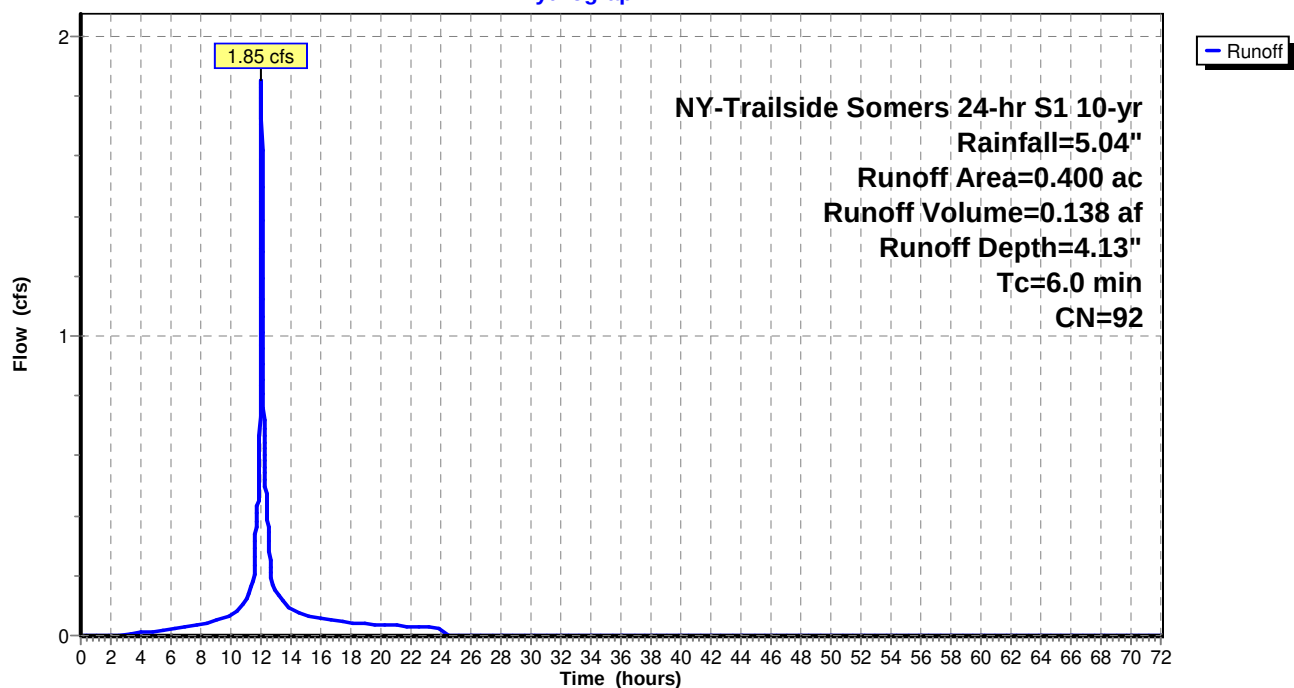
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (ac)	CN	Description
0.300	98	Paved parking, HSG C
0.100	74	>75% Grass cover, Good, HSG C
0.400	92	Weighted Average
0.100		25.00% Pervious Area
0.300		75.00% Impervious Area

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

Subcatchment 1.8S:

Hydrograph



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 77

Summary for Subcatchment 2.0S:

Runoff = 11.58 cfs @ 12.31 hrs, Volume= 1.550 af, Depth= 2.07"

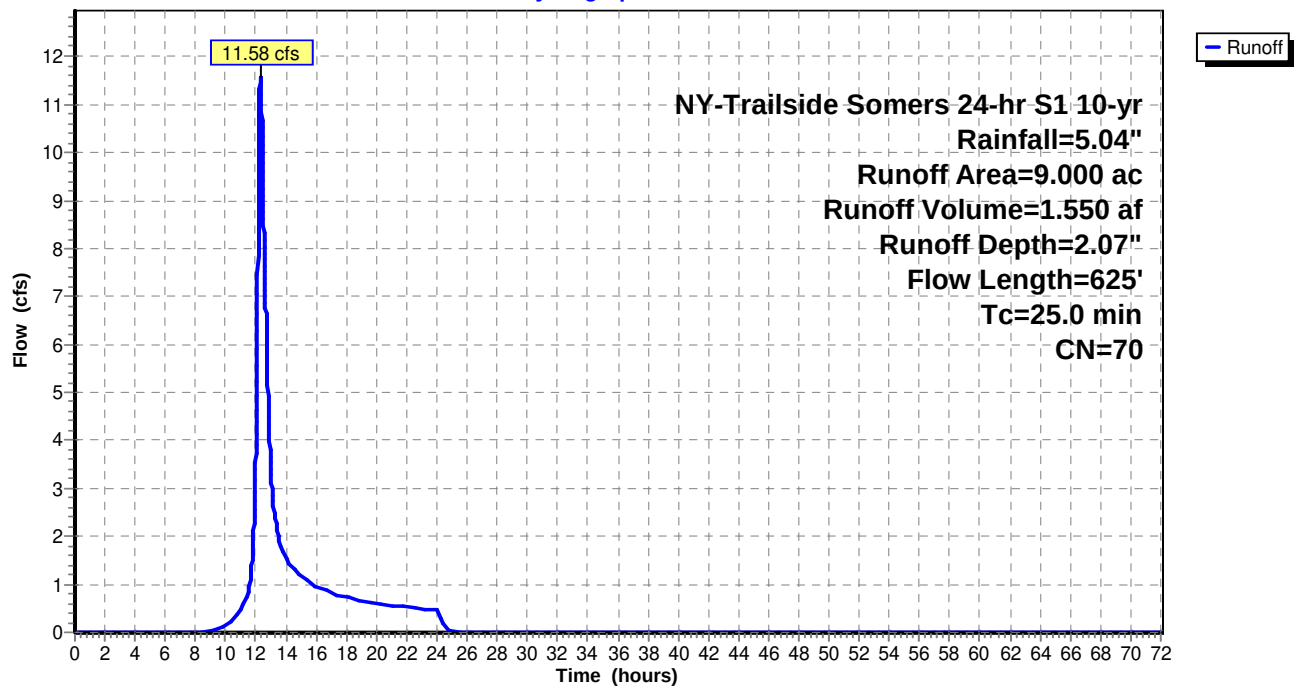
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (ac)	CN	Description
0.700	55	Woods, Good, HSG B
7.400	70	Woods, Good, HSG C
0.900	77	Woods, Good, HSG D
9.000	70	Weighted Average
9.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.9	100	0.0400	0.10		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.35"
1.6	110	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.8	85	0.0250	0.79		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.8	165	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.9	165	0.0350	0.94		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
25.0	625	Total			

Subcatchment 2.0S:

Hydrograph



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 79

Summary for Subcatchment 2.1S:

Runoff = 5.16 cfs @ 12.04 hrs, Volume= 0.369 af, Depth= 3.41"

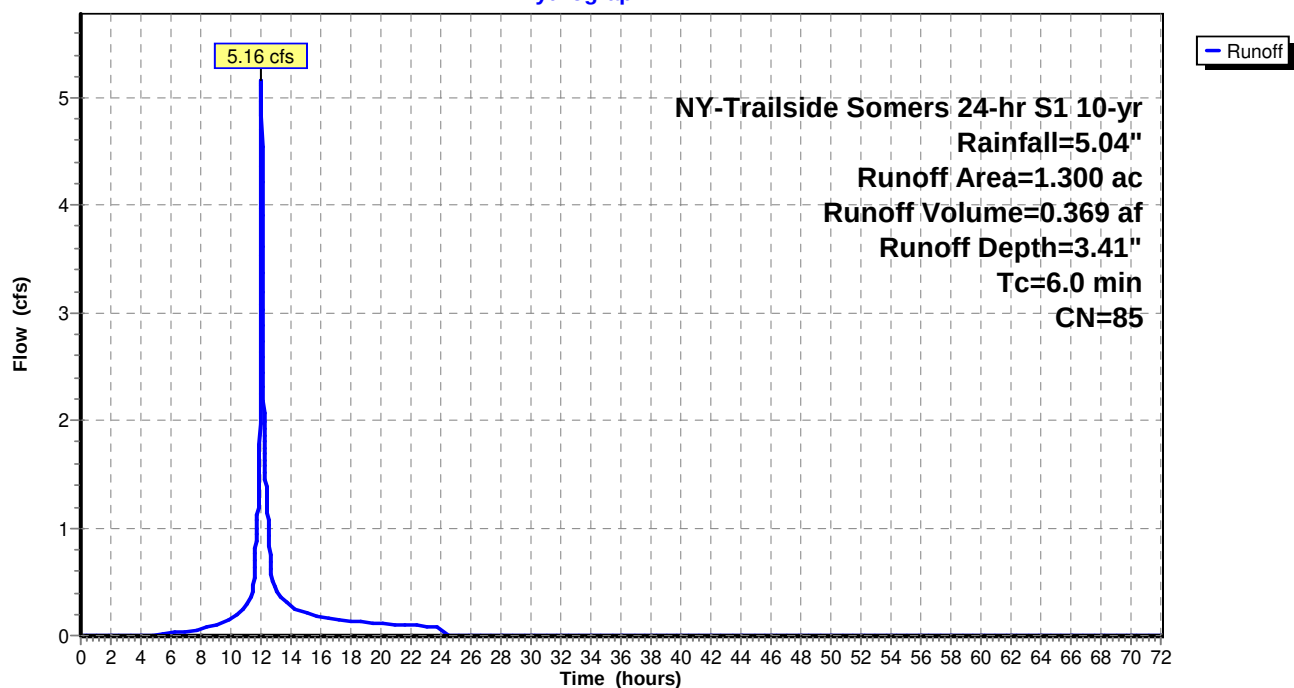
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (ac)	CN	Description
0.600	98	Paved parking, HSG C
0.700	74	>75% Grass cover, Good, HSG C
1.300	85	Weighted Average
0.700		53.85% Pervious Area
0.600		46.15% Impervious Area

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

Subcatchment 2.1S:

Hydrograph



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 80

Summary for Subcatchment 2.2S:

Runoff = 3.88 cfs @ 12.04 hrs, Volume= 0.297 af, Depth= 4.46"

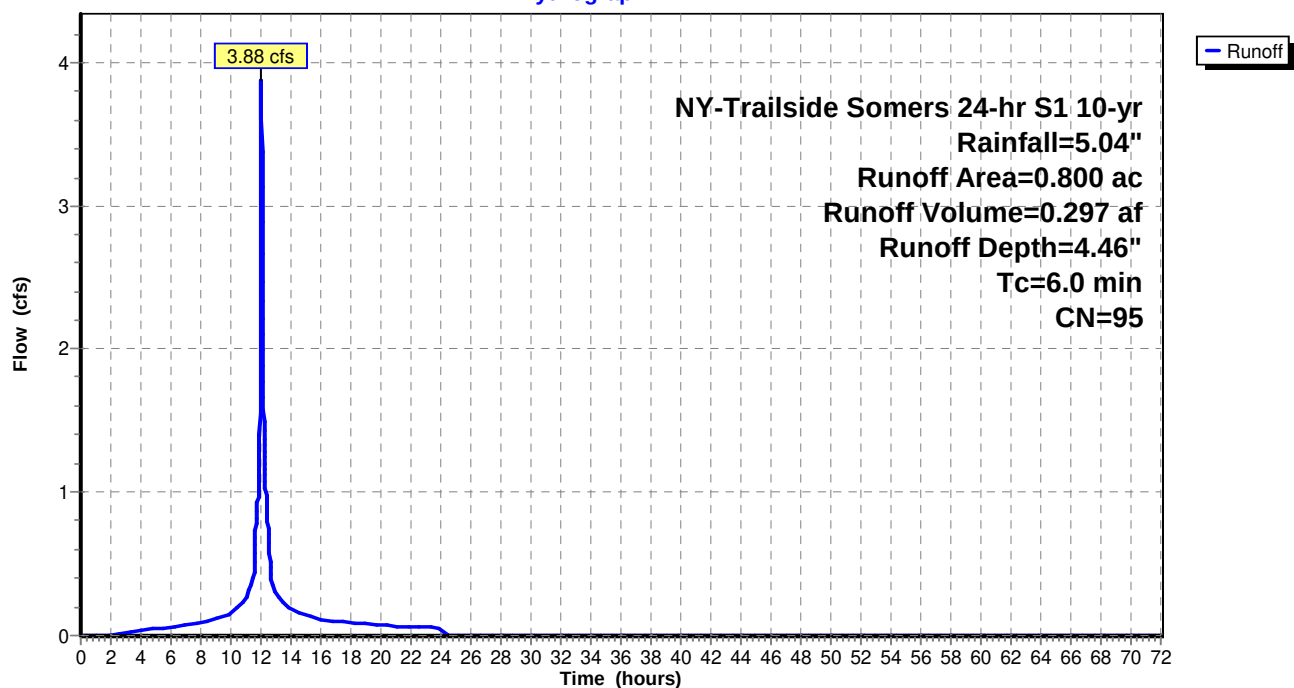
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG C
0.100	74	>75% Grass cover, Good, HSG C
0.800	95	Weighted Average
0.100		12.50% Pervious Area
0.700		87.50% Impervious Area

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

Subcatchment 2.2S:

Hydrograph

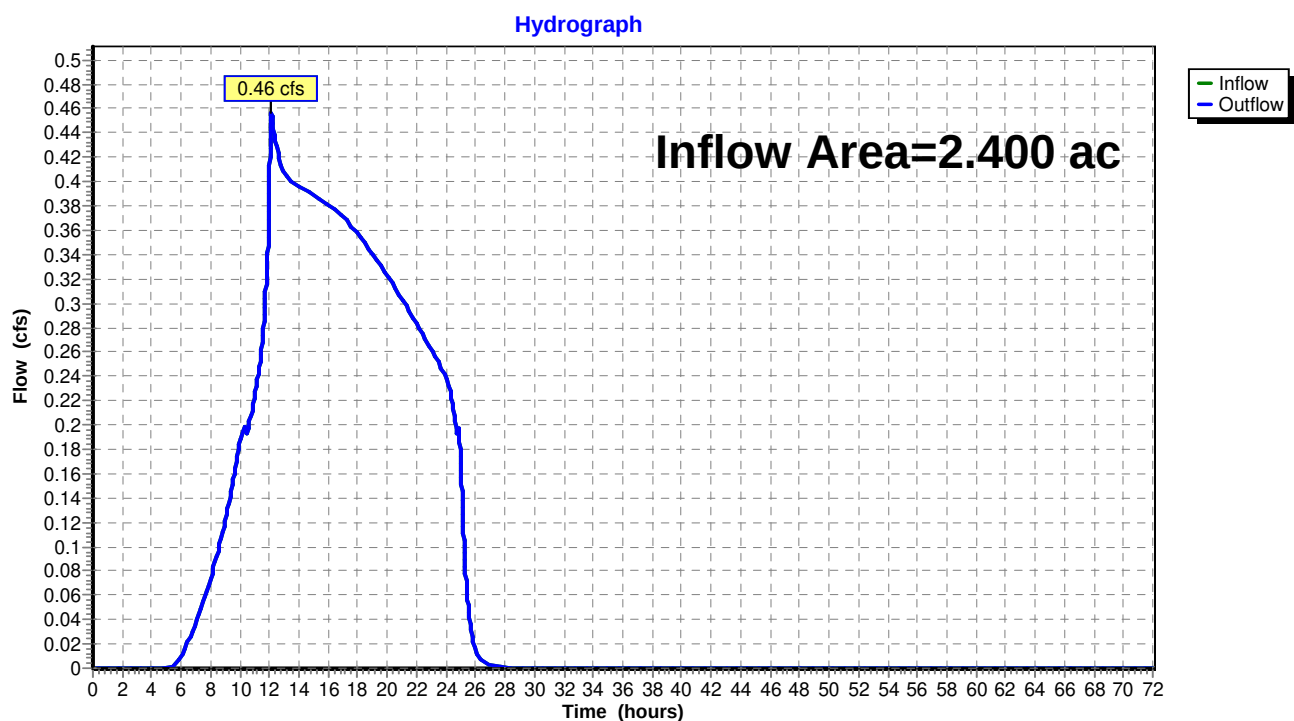


Summary for Reach 1.2F: Jellyfish Filter

Inflow Area = 2.400 ac, 54.17% Impervious, Inflow Depth = 2.17" for 10-yr event
Inflow = 0.46 cfs @ 12.14 hrs, Volume= 0.434 af
Outflow = 0.46 cfs @ 12.14 hrs, Volume= 0.434 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach 1.2F: Jellyfish Filter

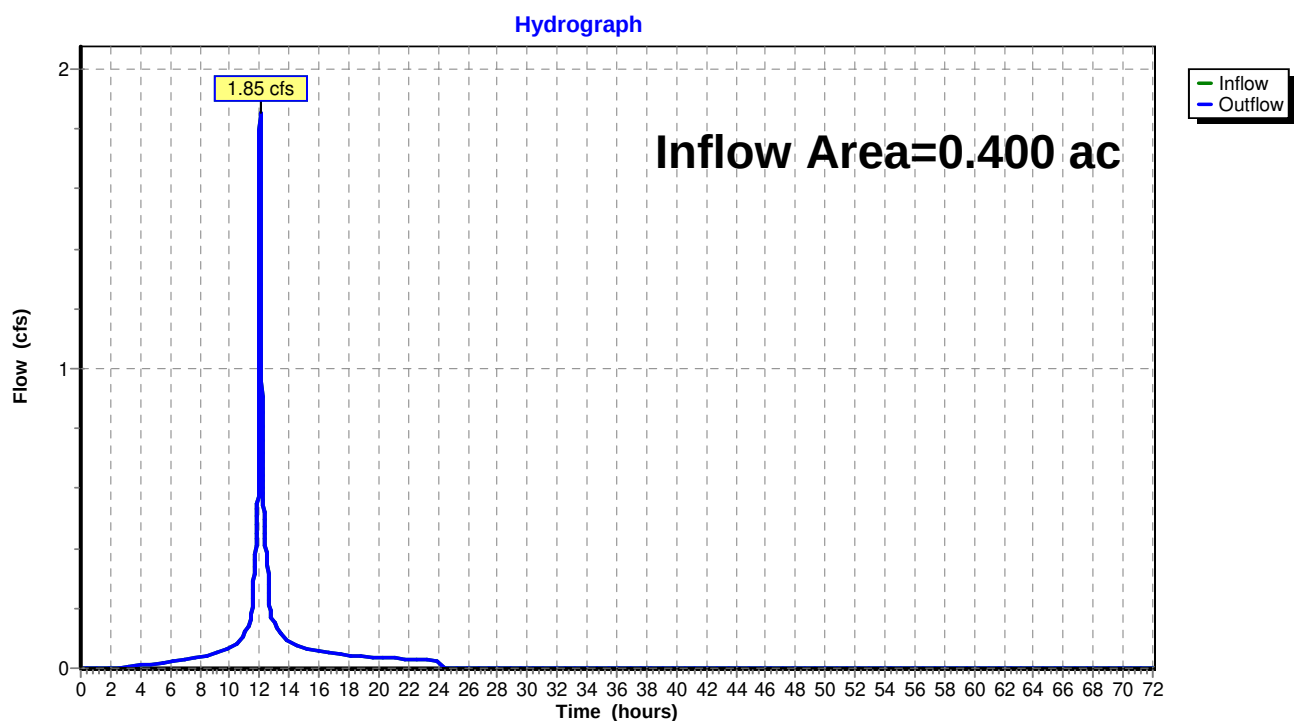


Summary for Reach 1.8F: Jellyfish Filter

Inflow Area = 0.400 ac, 75.00% Impervious, Inflow Depth = 4.13" for 10-yr event
Inflow = 1.85 cfs @ 12.04 hrs, Volume= 0.138 af
Outflow = 1.85 cfs @ 12.04 hrs, Volume= 0.138 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach 1.8F: Jellyfish Filter

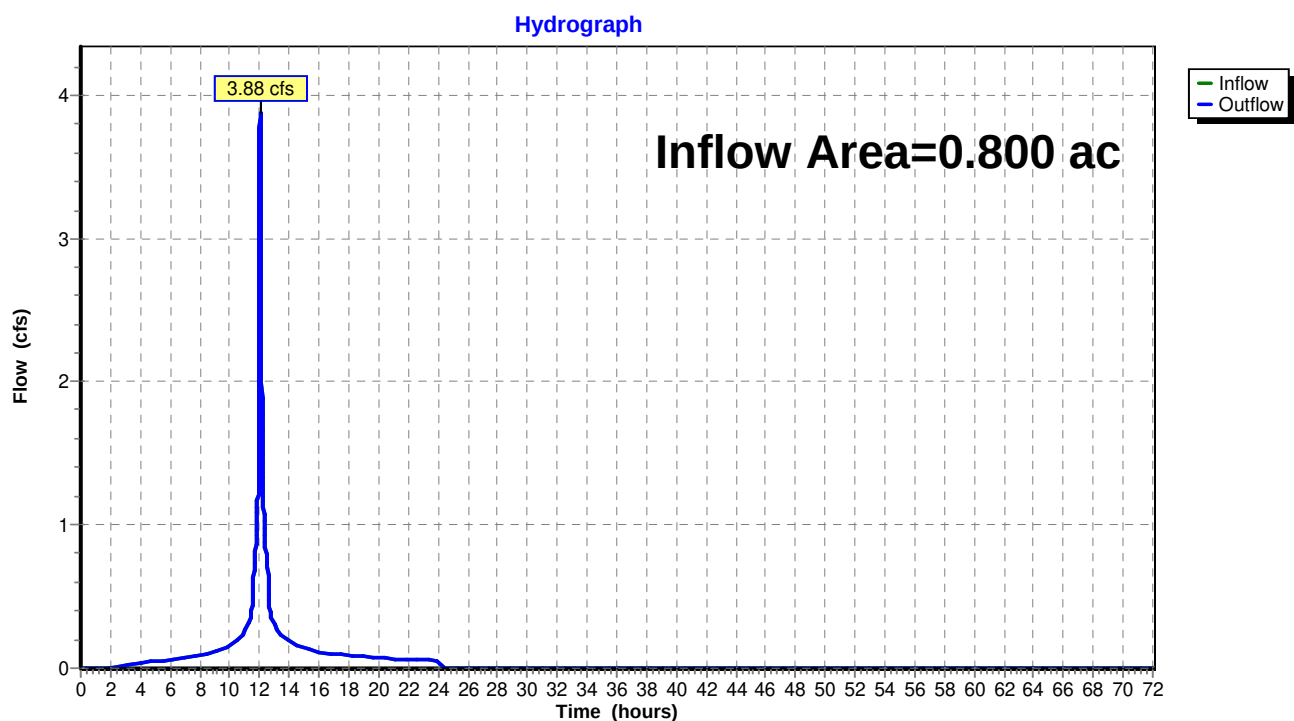


Summary for Reach 2.2F: Jellyfish Filter

Inflow Area = 0.800 ac, 87.50% Impervious, Inflow Depth = 4.46" for 10-yr event
Inflow = 3.88 cfs @ 12.04 hrs, Volume= 0.297 af
Outflow = 3.88 cfs @ 12.04 hrs, Volume= 0.297 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach 2.2F: Jellyfish Filter



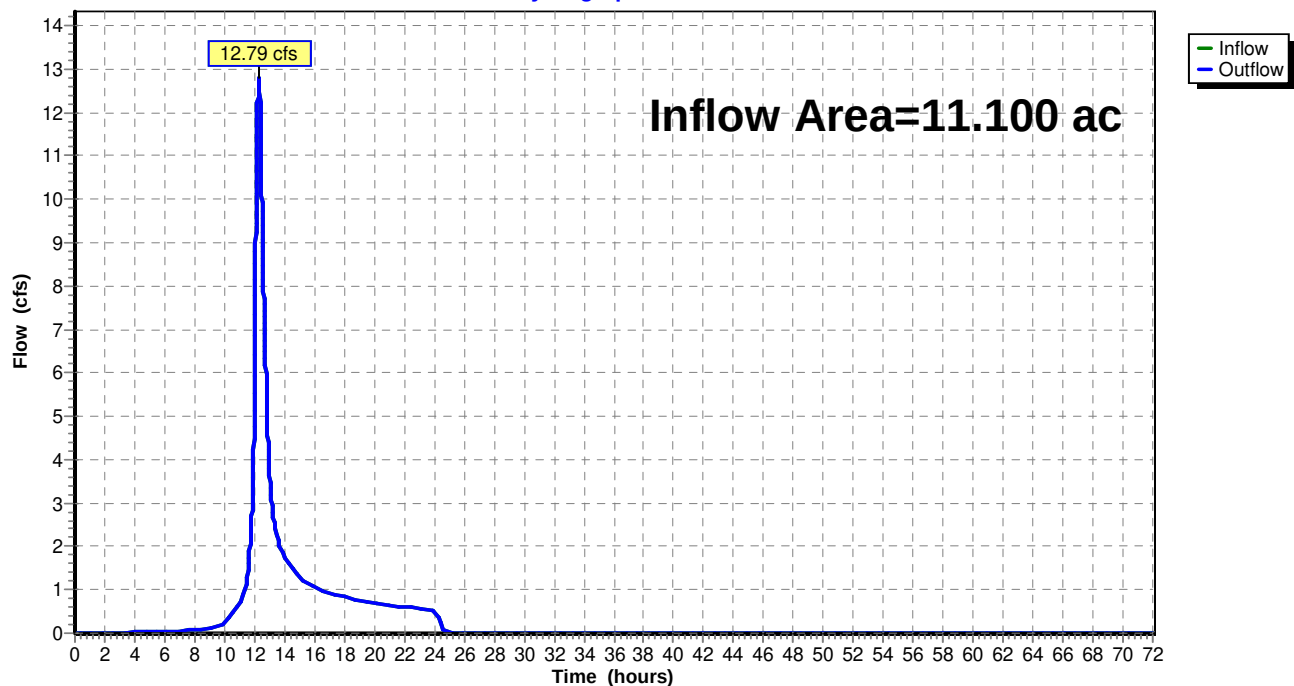
Summary for Reach DP 2: Design Point 2

Inflow Area = 11.100 ac, 11.71% Impervious, Inflow Depth = 2.00" for 10-yr event
Inflow = 12.79 cfs @ 12.30 hrs, Volume= 1.847 af
Outflow = 12.79 cfs @ 12.30 hrs, Volume= 1.847 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach DP 2: Design Point 2

Hydrograph

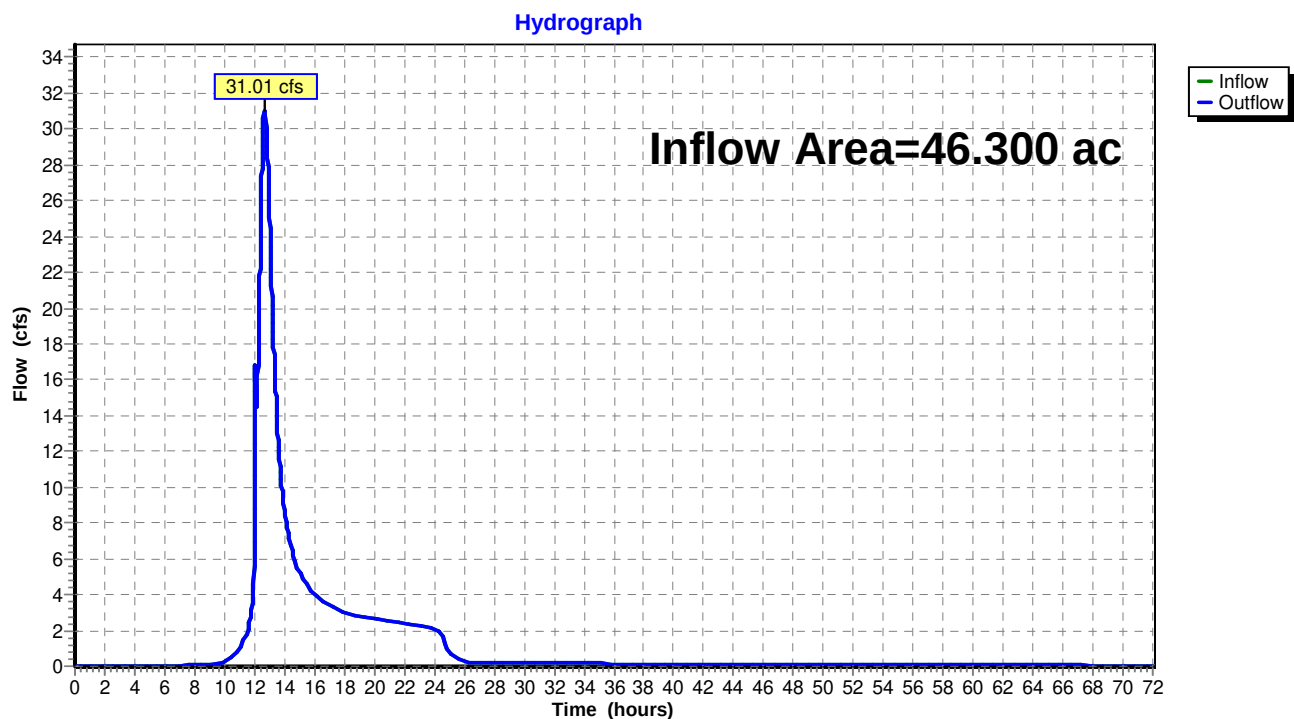


Summary for Reach DP1: Design Point 1

Inflow Area = 46.300 ac, 16.41% Impervious, Inflow Depth > 1.77" for 10-yr event
Inflow = 31.01 cfs @ 12.70 hrs, Volume= 6.829 af
Outflow = 31.01 cfs @ 12.70 hrs, Volume= 6.829 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach DP1: Design Point 1



Trailside Somers - Post Development (Wit *NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"*

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 86

Summary for Pond 1.1P: Wet Swale

Inflow Area = 0.600 ac, 66.67% Impervious, Inflow Depth = 3.91" for 10-yr event
Inflow = 2.67 cfs @ 12.04 hrs, Volume= 0.196 af
Outflow = 2.48 cfs @ 12.06 hrs, Volume= 0.196 af, Atten= 7%, Lag= 1.5 min
Primary = 2.48 cfs @ 12.06 hrs, Volume= 0.196 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 553.47' @ 12.06 hrs Surf.Area= 836 sf Storage= 688 cf

Plug-Flow detention time= 39.2 min calculated for 0.196 af (100% of inflow)
Center-of-Mass det. time= 39.2 min (840.0 - 800.7)

Volume	Invert	Avail.Storage	Storage Description
#1	552.00'	1,200 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
552.00	100	0	0
554.00	1,100	1,200	1,200

Device	Routing	Invert	Outlet Devices
#1	Primary	551.00'	12.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 551.00' / 550.50' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	552.00'	1.5" Vert. Orifice/Grate C= 0.600
#3	Device 1	553.00'	2.5' long 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

Primary OutFlow Max=2.47 cfs @ 12.06 hrs HW=553.47' TW=547.11' (Dynamic Tailwater)

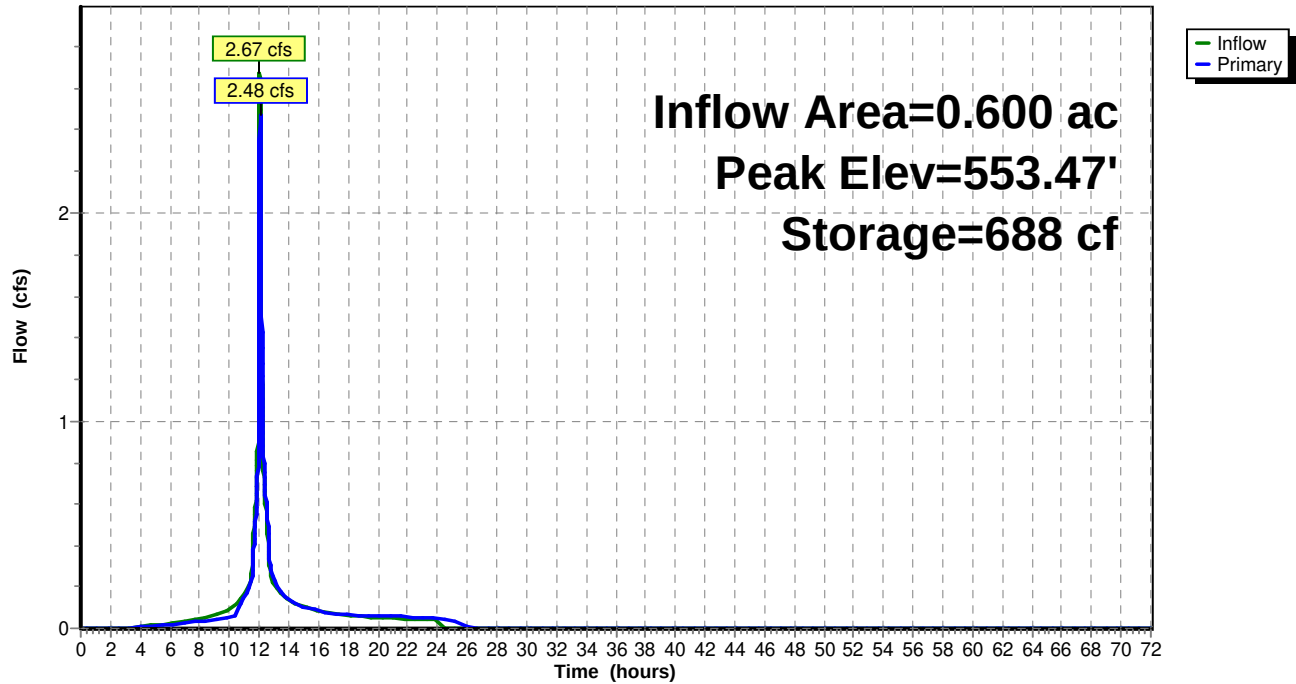
↑ **1=Culvert** (Passes 2.47 cfs of 5.25 cfs potential flow)

↑ **2=Orifice/Grate** (Orifice Controls 0.07 cfs @ 5.71 fps)

↑ **3=Broad-Crested Rectangular Weir** (Weir Controls 2.40 cfs @ 2.04 fps)

Pond 1.1P: Wet Swale

Hydrograph



Trailside Somers - Post Development (Wit *NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"*

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 88

Stage-Area-Storage for Pond 1.1P: Wet Swale

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
552.00	100	0	553.04	620	374
552.02	110	2	553.06	630	387
552.04	120	4	553.08	640	400
552.06	130	7	553.10	650	413
552.08	140	10	553.12	660	426
552.10	150	13	553.14	670	439
552.12	160	16	553.16	680	452
552.14	170	19	553.18	690	466
552.16	180	22	553.20	700	480
552.18	190	26	553.22	710	494
552.20	200	30	553.24	720	508
552.22	210	34	553.26	730	523
552.24	220	38	553.28	740	538
552.26	230	43	553.30	750	552
552.28	240	48	553.32	760	568
552.30	250	52	553.34	770	583
552.32	260	58	553.36	780	598
552.34	270	63	553.38	790	614
552.36	280	68	553.40	800	630
552.38	290	74	553.42	810	646
552.40	300	80	553.44	820	662
552.42	310	86	553.46	830	679
552.44	320	92	553.48	840	696
552.46	330	99	553.50	850	713
552.48	340	106	553.52	860	730
552.50	350	113	553.54	870	747
552.52	360	120	553.56	880	764
552.54	370	127	553.58	890	782
552.56	380	134	553.60	900	800
552.58	390	142	553.62	910	818
552.60	400	150	553.64	920	836
552.62	410	158	553.66	930	855
552.64	420	166	553.68	940	874
552.66	430	175	553.70	950	893
552.68	440	184	553.72	960	912
552.70	450	193	553.74	970	931
552.72	460	202	553.76	980	950
552.74	470	211	553.78	990	970
552.76	480	220	553.80	1,000	990
552.78	490	230	553.82	1,010	1,010
552.80	500	240	553.84	1,020	1,030
552.82	510	250	553.86	1,030	1,051
552.84	520	260	553.88	1,040	1,072
552.86	530	271	553.90	1,050	1,092
552.88	540	282	553.92	1,060	1,114
552.90	550	292	553.94	1,070	1,135
552.92	560	304	553.96	1,080	1,156
552.94	570	315	553.98	1,090	1,178
552.96	580	326	554.00	1,100	1,200
552.98	590	338			
553.00	600	350			
553.02	610	362			

Trailside Somers - Post Development (Wit *NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"*

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 89

Summary for Pond 1.2DS: Detention

Inflow Area = 2.400 ac, 54.17% Impervious, Inflow Depth = 3.21" for 10-yr event
Inflow = 9.01 cfs @ 12.04 hrs, Volume= 0.642 af
Outflow = 5.09 cfs @ 12.14 hrs, Volume= 0.642 af, Atten= 44%, Lag= 6.1 min
Primary = 0.46 cfs @ 12.14 hrs, Volume= 0.434 af
Secondary = 4.63 cfs @ 12.14 hrs, Volume= 0.208 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 656.35' @ 12.14 hrs Surf.Area= 0.052 ac Storage= 0.154 af

Plug-Flow detention time= 94.0 min calculated for 0.642 af (100% of inflow)
Center-of-Mass det. time= 94.0 min (923.5 - 829.5)

Volume	Invert	Avail.Storage	Storage Description

#1	653.00'	0.216 af	60.0" Round Pipe Storage x 4 L= 120.0'

Device	Routing	Invert	Outlet Devices

#1	Primary	653.00'	4.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 653.00' / 652.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Secondary	655.30'	18.0" Round Culvert L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 655.30' / 654.50' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.46 cfs @ 12.14 hrs HW=656.35' TW=0.00' (Dynamic Tailwater)

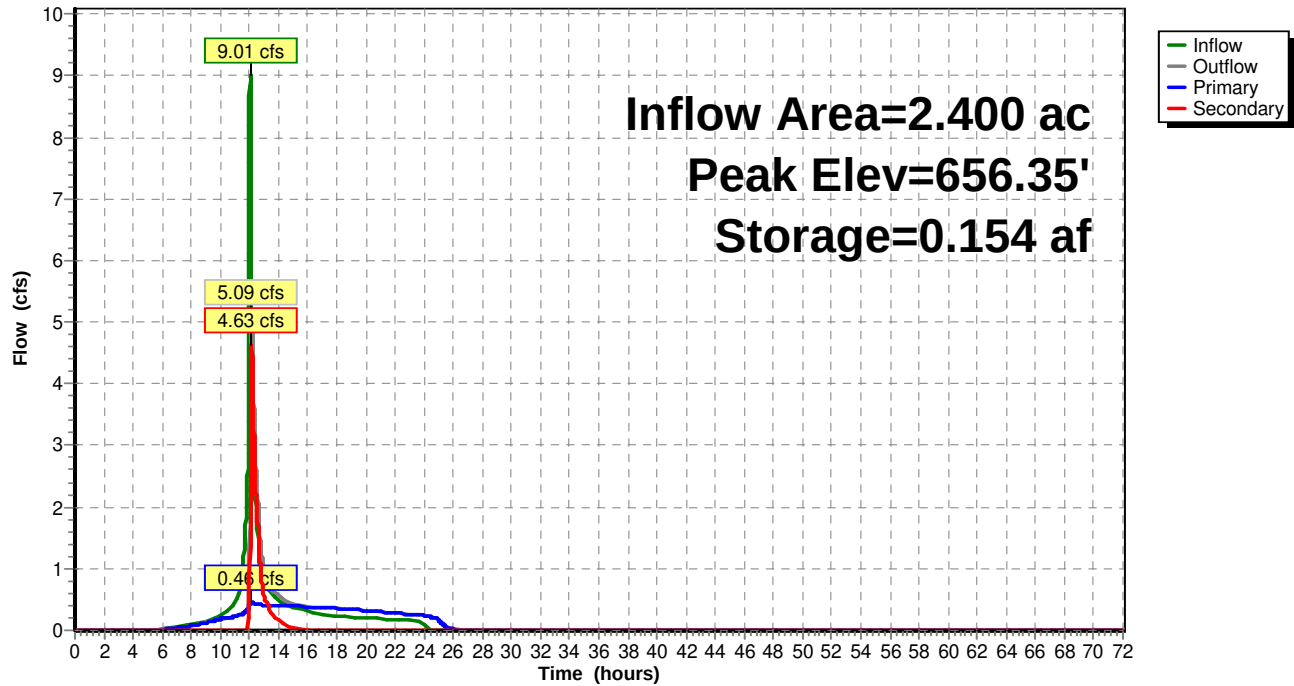
↑**1=Culvert** (Barrel Controls 0.46 cfs @ 5.23 fps)

Secondary OutFlow Max=4.63 cfs @ 12.14 hrs HW=656.35' TW=0.00' (Dynamic Tailwater)

↑**2=Culvert** (Inlet Controls 4.63 cfs @ 3.49 fps)

Pond 1.2DS: Detention

Hydrograph



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 91

Stage-Area-Storage for Pond 1.2DS: Detention

Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)
653.00	0.000	655.60	0.114
653.05	0.000	655.65	0.116
653.10	0.001	655.70	0.119
653.15	0.002	655.75	0.122
653.20	0.003	655.80	0.125
653.25	0.004	655.85	0.127
653.30	0.005	655.90	0.130
653.35	0.007	655.95	0.133
653.40	0.008	656.00	0.136
653.45	0.010	656.05	0.138
653.50	0.011	656.10	0.141
653.55	0.013	656.15	0.144
653.60	0.015	656.20	0.146
653.65	0.017	656.25	0.149
653.70	0.018	656.30	0.151
653.75	0.020	656.35	0.154
653.80	0.022	656.40	0.157
653.85	0.024	656.45	0.159
653.90	0.026	656.50	0.162
653.95	0.029	656.55	0.164
654.00	0.031	656.60	0.167
654.05	0.033	656.65	0.169
654.10	0.035	656.70	0.172
654.15	0.038	656.75	0.174
654.20	0.040	656.80	0.176
654.25	0.042	656.85	0.179
654.30	0.045	656.90	0.181
654.35	0.047	656.95	0.183
654.40	0.050	657.00	0.186
654.45	0.052	657.05	0.188
654.50	0.055	657.10	0.190
654.55	0.057	657.15	0.192
654.60	0.060	657.20	0.194
654.65	0.062	657.25	0.196
654.70	0.065	657.30	0.198
654.75	0.067	657.35	0.200
654.80	0.070	657.40	0.202
654.85	0.073	657.45	0.203
654.90	0.075	657.50	0.205
654.95	0.078	657.55	0.207
655.00	0.081	657.60	0.208
655.05	0.084	657.65	0.210
655.10	0.086	657.70	0.211
655.15	0.089	657.75	0.212
655.20	0.092	657.80	0.213
655.25	0.094	657.85	0.214
655.30	0.097	657.90	0.215
655.35	0.100	657.95	0.216
655.40	0.103	658.00	0.216
655.45	0.105		
655.50	0.108		
655.55	0.111		

Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 92

Summary for Pond 1.2P: P-1 Pond

Inflow Area = 3.600 ac, 47.22% Impervious, Inflow Depth = 2.42" for 10-yr event
 Inflow = 3.78 cfs @ 12.07 hrs, Volume= 0.725 af
 Outflow = 0.34 cfs @ 23.06 hrs, Volume= 0.715 af, Atten= 91%, Lag= 659.1 min
 Primary = 0.34 cfs @ 23.06 hrs, Volume= 0.715 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Starting Elev= 546.00' Surf.Area= 5,700 sf Storage= 6,700 cf

Peak Elev= 548.65' @ 23.06 hrs Surf.Area= 14,032 sf Storage= 26,486 cf (19,786 cf above start)

Plug-Flow detention time= 1,506.2 min calculated for 0.561 af (77% of inflow)

Center-of-Mass det. time= 1,097.5 min (2,041.7 - 944.2)

Volume	Invert	Avail.Storage	Storage Description
#1	541.00'	3,500 cf	Forebay (Prismatic) Listed below (Recalc)
#2	541.00'	39,900 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		43,400 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
541.00	50	0	0
543.00	350	400	400
545.00	900	1,250	1,650
546.00	2,800	1,850	3,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
541.00	50	0	0
543.00	250	300	300
545.00	800	1,050	1,350
546.00	2,900	1,850	3,200
548.00	10,000	12,900	16,100
550.00	13,800	23,800	39,900

Device	Routing	Invert	Outlet Devices
#1	Primary	546.00'	24.0" Round Culvert L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 546.00' / 545.70' S= 0.0120 ' / Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	546.00'	2.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	548.40'	0.5' long 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

Primary OutFlow Max=0.34 cfs @ 23.06 hrs HW=548.65' TW=0.00' (Dynamic Tailwater)

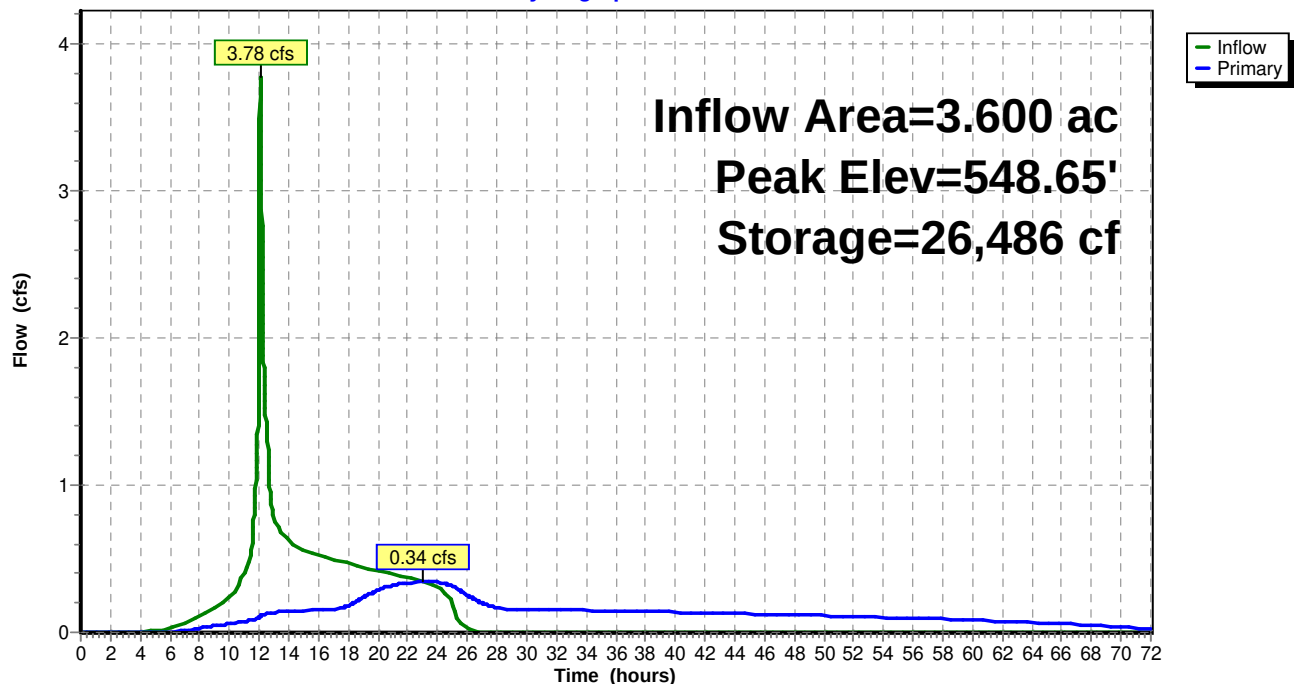
1=Culvert (Passes 0.34 cfs of 18.69 cfs potential flow)

2=Orifice/Grate (Orifice Controls 0.17 cfs @ 7.71 fps)

3=Broad-Crested Rectangular Weir (Weir Controls 0.18 cfs @ 1.41 fps)

Pond 1.2P: P-1 Pond

Hydrograph



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 94

Stage-Area-Storage for Pond 1.2P: P-1 Pond

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
541.00	0	546.20	7,351
541.10	11	546.30	7,730
541.20	25	546.40	8,144
541.30	41	546.50	8,594
541.40	60	546.60	9,079
541.50	81	546.70	9,600
541.60	105	546.80	10,156
541.70	131	546.90	10,748
541.80	160	547.00	11,375
541.90	191	547.10	12,038
542.00	225	547.20	12,736
542.10	261	547.30	13,470
542.20	300	547.40	14,239
542.30	341	547.50	15,044
542.40	385	547.60	15,884
542.50	431	547.70	16,760
542.60	480	547.80	17,671
542.70	531	547.90	18,618
542.80	585	548.00	19,600
542.90	641	548.10	20,610
543.00	700	548.20	21,638
543.10	763	548.30	22,685
543.20	831	548.40	23,752
543.30	905	548.50	24,838
543.40	984	548.60	25,942
543.50	1,069	548.70	27,066
543.60	1,159	548.80	28,208
543.70	1,255	548.90	29,369
543.80	1,356	549.00	30,550
543.90	1,463	549.10	31,750
544.00	1,575	549.20	32,968
544.10	1,693	549.30	34,205
544.20	1,816	549.40	35,462
544.30	1,945	549.50	36,738
544.40	2,079	549.60	38,032
544.50	2,219	549.70	39,346
544.60	2,364	549.80	40,678
544.70	2,515	549.90	42,029
544.80	2,671	550.00	43,400
544.90	2,833		
545.00	3,000		
545.10	3,190		
545.20	3,420		
545.30	3,690		
545.40	4,000		
545.50	4,350		
545.60	4,740		
545.70	5,170		
545.80	5,640		
545.90	6,150		
546.00	6,700		
546.10	7,008		

Trailside Somers - Post Development (Wit *NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"*

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 95

Summary for Pond 1.3P: Infiltration System

Inflow Area = 1.648 ac, 69.66% Impervious, Inflow Depth = 3.42" for 10-yr event
Inflow = 3.75 cfs @ 12.04 hrs, Volume= 0.469 af
Outflow = 0.77 cfs @ 11.62 hrs, Volume= 0.469 af, Atten= 80%, Lag= 0.0 min
Discarded = 0.77 cfs @ 11.62 hrs, Volume= 0.469 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 565.36' @ 12.69 hrs Surf.Area= 5,528 sf Storage= 5,016 cf

Plug-Flow detention time= 38.5 min calculated for 0.469 af (100% of inflow)
Center-of-Mass det. time= 38.5 min (857.5 - 819.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	564.00'	4,901 cf	34.75'W x 159.08'L x 3.50'H Field A 19,348 cf Overall - 7,095 cf Embedded = 12,253 cf x 40.0% Voids
#2A	564.50'	7,095 cf	ADS StormTech SC-740 x 154 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 7 rows
11,996 cf			Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	564.00'	6.000 in/hr Exfiltration over Horizontal area Phase-In= 0.02'
#2	Primary	566.50'	6.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 566.50' / 562.00' S= 0.0900 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

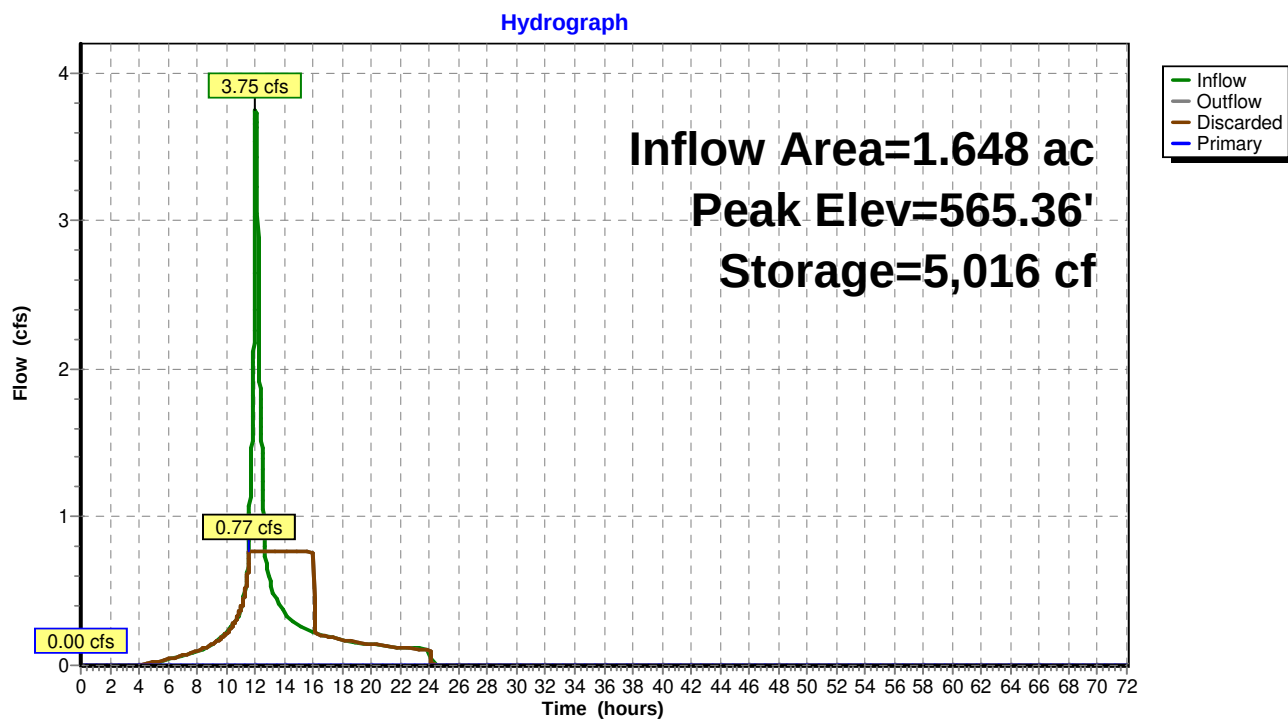
Discarded OutFlow Max=0.77 cfs @ 11.62 hrs HW=564.04' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.77 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=564.00' TW=0.00' (Dynamic Tailwater)

↑**2=Culvert** (Controls 0.00 cfs)

Pond 1.3P: Infiltration System



Trailside Somers - Post Development (Wit *NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"*

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 97

Stage-Area-Storage for Pond 1.3P: Infiltration System

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
564.00	5,528	0	566.60	5,528	9,843
564.05	5,528	111	566.65	5,528	9,998
564.10	5,528	221	566.70	5,528	10,146
564.15	5,528	332	566.75	5,528	10,286
564.20	5,528	442	566.80	5,528	10,417
564.25	5,528	553	566.85	5,528	10,542
564.30	5,528	663	566.90	5,528	10,662
564.35	5,528	774	566.95	5,528	10,778
564.40	5,528	884	567.00	5,528	10,890
564.45	5,528	995	567.05	5,528	11,001
564.50	5,528	1,106	567.10	5,528	11,112
564.55	5,528	1,339	567.15	5,528	11,222
564.60	5,528	1,572	567.20	5,528	11,333
564.65	5,528	1,805	567.25	5,528	11,443
564.70	5,528	2,037	567.30	5,528	11,554
564.75	5,528	2,268	567.35	5,528	11,664
564.80	5,528	2,499	567.40	5,528	11,775
564.85	5,528	2,729	567.45	5,528	11,885
564.90	5,528	2,958	567.50	5,528	11,996
564.95	5,528	3,186			
565.00	5,528	3,413			
565.05	5,528	3,639			
565.10	5,528	3,864			
565.15	5,528	4,088			
565.20	5,528	4,311			
565.25	5,528	4,533			
565.30	5,528	4,754			
565.35	5,528	4,973			
565.40	5,528	5,191			
565.45	5,528	5,408			
565.50	5,528	5,624			
565.55	5,528	5,838			
565.60	5,528	6,050			
565.65	5,528	6,261			
565.70	5,528	6,470			
565.75	5,528	6,678			
565.80	5,528	6,883			
565.85	5,528	7,087			
565.90	5,528	7,289			
565.95	5,528	7,489			
566.00	5,528	7,687			
566.05	5,528	7,883			
566.10	5,528	8,076			
566.15	5,528	8,267			
566.20	5,528	8,455			
566.25	5,528	8,640			
566.30	5,528	8,822			
566.35	5,528	9,001			
566.40	5,528	9,177			
566.45	5,528	9,350			
566.50	5,528	9,519			
566.55	5,528	9,683			

Trailside Somers - Post Development (Wit *NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"*

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 98

Summary for Pond 1.5P: Infiltration System

Inflow Area = 0.800 ac, 87.50% Impervious, Inflow Depth = 4.08" for 10-yr event
Inflow = 2.34 cfs @ 12.04 hrs, Volume= 0.272 af
Outflow = 0.87 cfs @ 11.89 hrs, Volume= 0.272 af, Atten= 63%, Lag= 0.0 min
Discarded = 0.87 cfs @ 11.89 hrs, Volume= 0.272 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 563.54' @ 12.39 hrs Surf.Area= 3,753 sf Storage= 1,496 cf

Plug-Flow detention time= 7.4 min calculated for 0.272 af (100% of inflow)
Center-of-Mass det. time= 7.4 min (795.1 - 787.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	562.80'	3,333 cf	39.50'W x 95.00'L x 3.50'H Field A 13,134 cf Overall - 4,800 cf Embedded = 8,333 cf x 40.0% Voids
#2A	563.30'	4,800 cf	ADS StormTech SC-740 x 104 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 8 rows
		8,134 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	562.80'	10.000 in/hr Exfiltration over Horizontal area Phase-In= 0.04'
#2	Primary	565.30'	6.0" Round Culvert L= 90.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 565.30' / 556.00' S= 0.1033 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

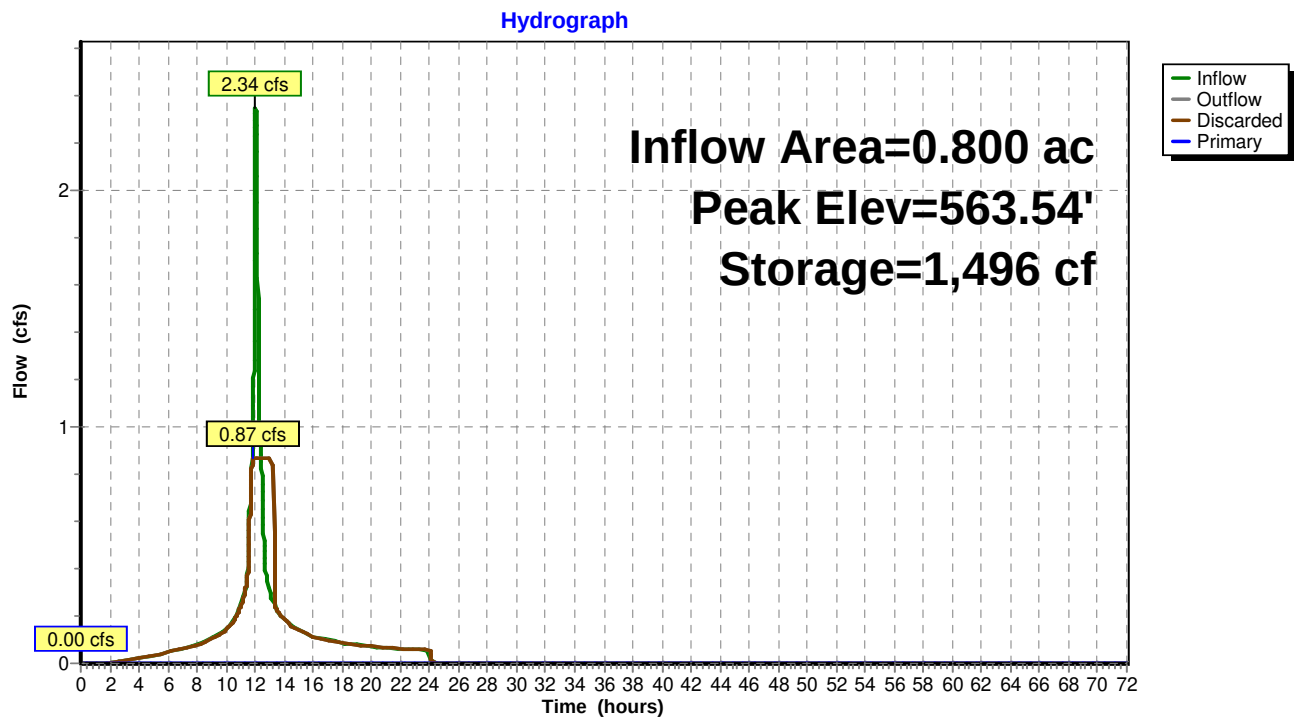
Discarded OutFlow Max=0.87 cfs @ 11.89 hrs HW=562.87' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.87 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=562.80' TW=0.00' (Dynamic Tailwater)

↑ **2=Culvert** (Controls 0.00 cfs)

Pond 1.5P: Infiltration System



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 100

Stage-Area-Storage for Pond 1.5P: Infiltration System

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
562.80	3,753	0	565.40	3,753	6,673
562.85	3,753	75	565.45	3,753	6,778
562.90	3,753	150	565.50	3,753	6,878
562.95	3,753	225	565.55	3,753	6,973
563.00	3,753	300	565.60	3,753	7,062
563.05	3,753	375	565.65	3,753	7,147
563.10	3,753	450	565.70	3,753	7,228
563.15	3,753	525	565.75	3,753	7,307
563.20	3,753	600	565.80	3,753	7,383
563.25	3,753	675	565.85	3,753	7,458
563.30	3,753	751	565.90	3,753	7,533
563.35	3,753	909	565.95	3,753	7,608
563.40	3,753	1,066	566.00	3,753	7,683
563.45	3,753	1,224	566.05	3,753	7,759
563.50	3,753	1,381	566.10	3,753	7,834
563.55	3,753	1,538	566.15	3,753	7,909
563.60	3,753	1,695	566.20	3,753	7,984
563.65	3,753	1,850	566.25	3,753	8,059
563.70	3,753	2,006	566.30	3,753	8,134
563.75	3,753	2,160			
563.80	3,753	2,314			
563.85	3,753	2,468			
563.90	3,753	2,620			
563.95	3,753	2,772			
564.00	3,753	2,923			
564.05	3,753	3,073			
564.10	3,753	3,223			
564.15	3,753	3,372			
564.20	3,753	3,519			
564.25	3,753	3,666			
564.30	3,753	3,812			
564.35	3,753	3,958			
564.40	3,753	4,102			
564.45	3,753	4,244			
564.50	3,753	4,386			
564.55	3,753	4,527			
564.60	3,753	4,666			
564.65	3,753	4,804			
564.70	3,753	4,941			
564.75	3,753	5,077			
564.80	3,753	5,211			
564.85	3,753	5,344			
564.90	3,753	5,475			
564.95	3,753	5,604			
565.00	3,753	5,732			
565.05	3,753	5,857			
565.10	3,753	5,980			
565.15	3,753	6,102			
565.20	3,753	6,221			
565.25	3,753	6,338			
565.30	3,753	6,453			
565.35	3,753	6,564			

Trailside Somers - Post Development (Wit *NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"*

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 101

Summary for Pond 1.6P: Infiltration System

Inflow Area = 1.800 ac, 88.89% Impervious, Inflow Depth = 4.24" for 10-yr event
Inflow = 5.98 cfs @ 12.04 hrs, Volume= 0.635 af
Outflow = 0.86 cfs @ 11.59 hrs, Volume= 0.635 af, Atten= 86%, Lag= 0.0 min
Discarded = 0.86 cfs @ 11.59 hrs, Volume= 0.635 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 596.74' @ 12.74 hrs Surf.Area= 9,246 sf Storage= 7,446 cf

Plug-Flow detention time= 51.6 min calculated for 0.635 af (100% of inflow)
Center-of-Mass det. time= 51.6 min (832.4 - 780.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	595.50'	8,308 cf	20.50'W x 451.00'L x 3.50'H Field A 32,359 cf Overall - 11,588 cf Embedded = 20,771 cf x 40.0% Voids
#2A	596.00'	11,588 cf	ADS StormTech SC-740 x 252 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 4 rows
		19,897 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	595.50'	4.000 in/hr Exfiltration over Horizontal area Phase-In= 0.02'
#2	Primary	598.00'	6.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 598.00' / 597.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.86 cfs @ 11.59 hrs HW=595.54' (Free Discharge)

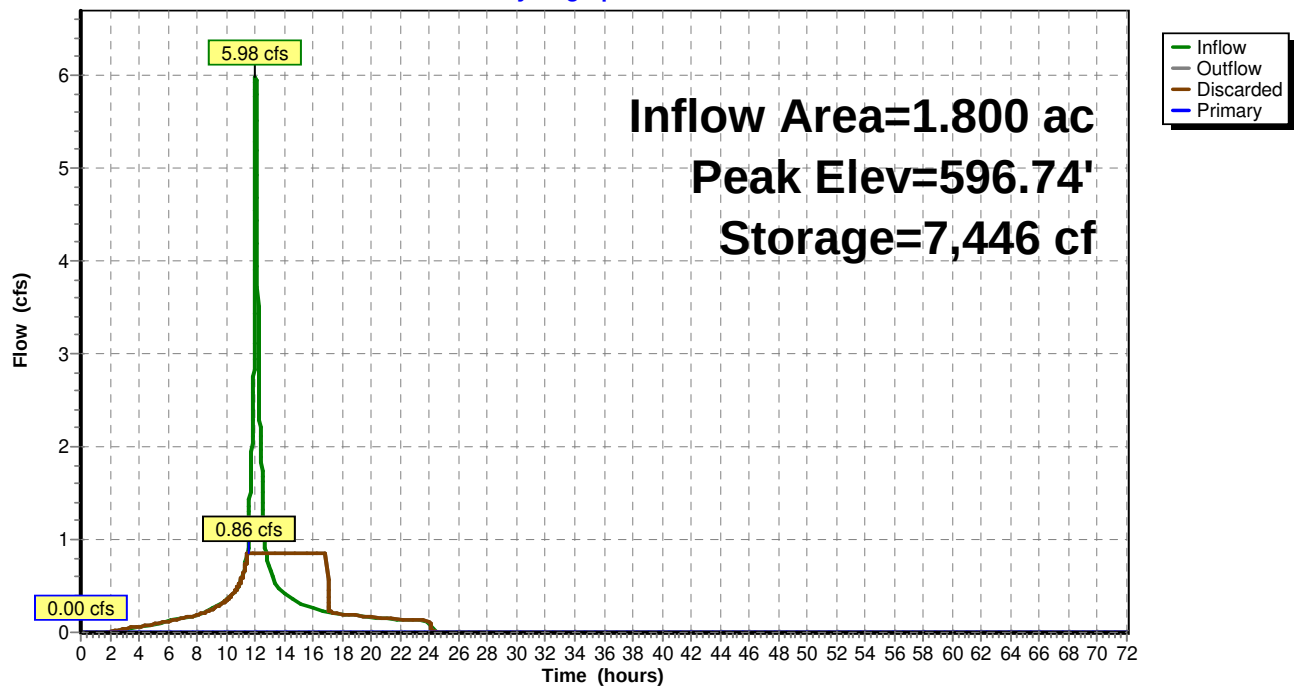
↑**1=Exfiltration** (Exfiltration Controls 0.86 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=595.50' TW=0.00' (Dynamic Tailwater)

↑**2=Culvert** (Controls 0.00 cfs)

Pond 1.6P: Infiltration System

Hydrograph



Trailside Somers - Post Development (Wit *NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"*

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 103

Stage-Area-Storage for Pond 1.6P: Infiltration System

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
595.50	9,246	0	598.10	9,246	16,303
595.55	9,246	185	598.15	9,246	16,560
595.60	9,246	370	598.20	9,246	16,806
595.65	9,246	555	598.25	9,246	17,038
595.70	9,246	740	598.30	9,246	17,258
595.75	9,246	925	598.35	9,246	17,465
595.80	9,246	1,109	598.40	9,246	17,665
595.85	9,246	1,294	598.45	9,246	17,859
595.90	9,246	1,479	598.50	9,246	18,048
595.95	9,246	1,664	598.55	9,246	18,232
596.00	9,246	1,849	598.60	9,246	18,417
596.05	9,246	2,234	598.65	9,246	18,602
596.10	9,246	2,619	598.70	9,246	18,787
596.15	9,246	3,004	598.75	9,246	18,972
596.20	9,246	3,387	598.80	9,246	19,157
596.25	9,246	3,770	598.85	9,246	19,342
596.30	9,246	4,151	598.90	9,246	19,527
596.35	9,246	4,530	598.95	9,246	19,712
596.40	9,246	4,909	599.00	9,246	19,897
596.45	9,246	5,286			
596.50	9,246	5,661			
596.55	9,246	6,035			
596.60	9,246	6,407			
596.65	9,246	6,777			
596.70	9,246	7,146			
596.75	9,246	7,513			
596.80	9,246	7,877			
596.85	9,246	8,240			
596.90	9,246	8,601			
596.95	9,246	8,959			
597.00	9,246	9,315			
597.05	9,246	9,669			
597.10	9,246	10,021			
597.15	9,246	10,370			
597.20	9,246	10,715			
597.25	9,246	11,058			
597.30	9,246	11,399			
597.35	9,246	11,736			
597.40	9,246	12,070			
597.45	9,246	12,401			
597.50	9,246	12,728			
597.55	9,246	13,052			
597.60	9,246	13,373			
597.65	9,246	13,689			
597.70	9,246	14,001			
597.75	9,246	14,307			
597.80	9,246	14,609			
597.85	9,246	14,905			
597.90	9,246	15,197			
597.95	9,246	15,483			
598.00	9,246	15,764			
598.05	9,246	16,037			

Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 104

Summary for Pond 1.7P: Infiltration Basin

Inflow Area = 3.200 ac, 53.13% Impervious, Inflow Depth > 2.60" for 10-yr event
 Inflow = 0.92 cfs @ 12.69 hrs, Volume= 0.694 af
 Outflow = 0.92 cfs @ 12.70 hrs, Volume= 0.694 af, Atten= 0%, Lag= 0.5 min
 Discarded = 0.92 cfs @ 12.70 hrs, Volume= 0.694 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 606.00' @ 12.70 hrs Surf.Area= 10,604 sf Storage= 28 cf

Plug-Flow detention time= 0.5 min calculated for 0.694 af (100% of inflow)

Center-of-Mass det. time= 0.5 min (1,064.9 - 1,064.4)

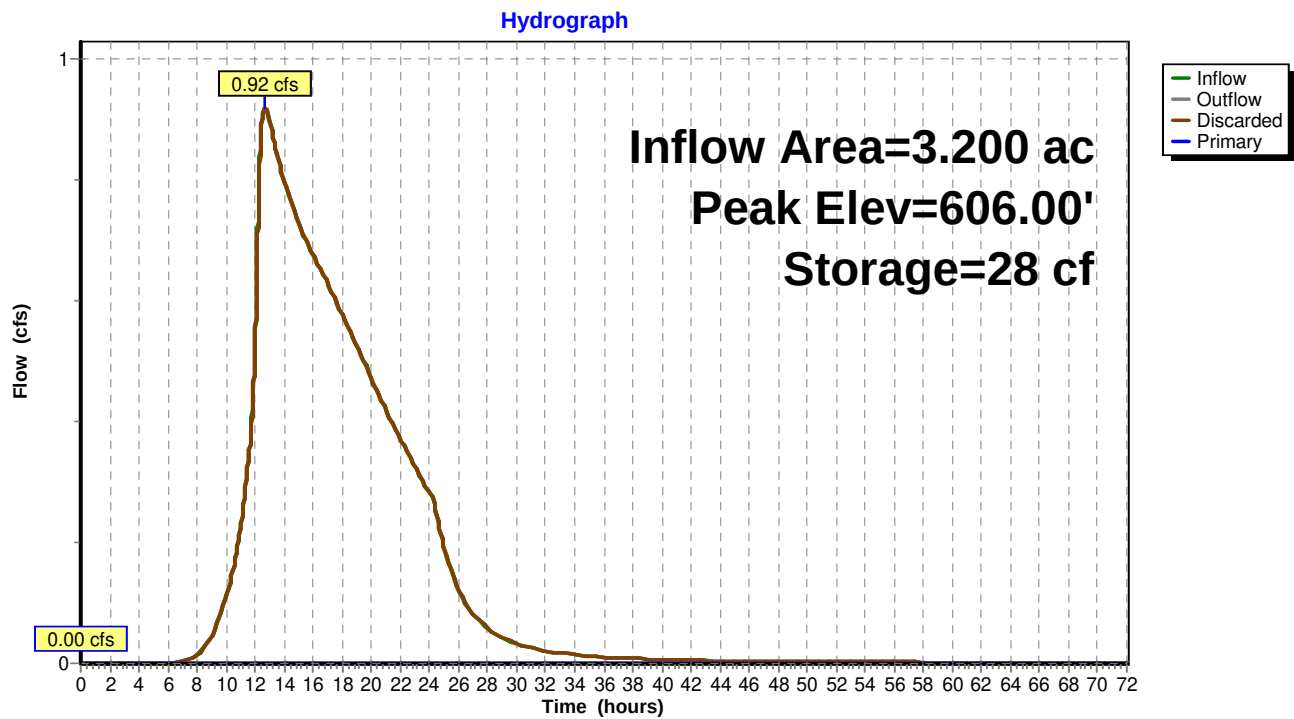
Volume	Invert	Avail.Storage	Storage Description
#1	606.00'	37,800 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
606.00	10,600	0	0
609.00	14,600	37,800	37,800

Device	Routing	Invert	Outlet Devices
#1	Discarded	606.00'	14.000 in/hr Exfiltration over Horizontal area Phase-In= 0.01'
#2	Primary	607.60'	4.0' long 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=0.92 cfs @ 12.70 hrs HW=606.00' (Free Discharge)↑ **1=Exfiltration** (Exfiltration Controls 0.92 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=606.00' TW=0.00' (Dynamic Tailwater)↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.7P: Infiltration Basin



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 106

Stage-Area-Storage for Pond 1.7P: Infiltration Basin

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
606.00	10,600	10,600	0
606.10	10,733	10,733	1,067
606.20	10,867	10,867	2,147
606.30	11,000	11,000	3,240
606.40	11,133	11,133	4,347
606.50	11,267	11,267	5,467
606.60	11,400	11,400	6,600
606.70	11,533	11,533	7,747
606.80	11,667	11,667	8,907
606.90	11,800	11,800	10,080
607.00	11,933	11,933	11,267
607.10	12,067	12,067	12,467
607.20	12,200	12,200	13,680
607.30	12,333	12,333	14,907
607.40	12,467	12,467	16,147
607.50	12,600	12,600	17,400
607.60	12,733	12,733	18,667
607.70	12,867	12,867	19,947
607.80	13,000	13,000	21,240
607.90	13,133	13,133	22,547
608.00	13,267	13,267	23,867
608.10	13,400	13,400	25,200
608.20	13,533	13,533	26,547
608.30	13,667	13,667	27,907
608.40	13,800	13,800	29,280
608.50	13,933	13,933	30,667
608.60	14,067	14,067	32,067
608.70	14,200	14,200	33,480
608.80	14,333	14,333	34,907
608.90	14,467	14,467	36,347
609.00	14,600	14,600	37,800

Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 107

Summary for Pond 1.7PT: Pretreatment Basin

Inflow Area = 3.200 ac, 53.13% Impervious, Inflow Depth = 3.31" for 10-yr event
 Inflow = 8.17 cfs @ 12.19 hrs, Volume= 0.882 af
 Outflow = 2.44 cfs @ 12.69 hrs, Volume= 0.879 af, Atten= 70%, Lag= 30.3 min
 Primary = 0.92 cfs @ 12.69 hrs, Volume= 0.694 af
 Secondary = 1.52 cfs @ 12.69 hrs, Volume= 0.185 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 608.76' @ 12.69 hrs Surf.Area= 9,428 sf Storage= 14,836 cf

Plug-Flow detention time= 174.5 min calculated for 0.879 af (100% of inflow)
 Center-of-Mass det. time= 172.8 min (1,008.6 - 835.7)

Volume	Invert	Avail.Storage	Storage Description
#1	607.00'	38,800 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
607.00	7,400	0	0
611.00	12,000	38,800	38,800

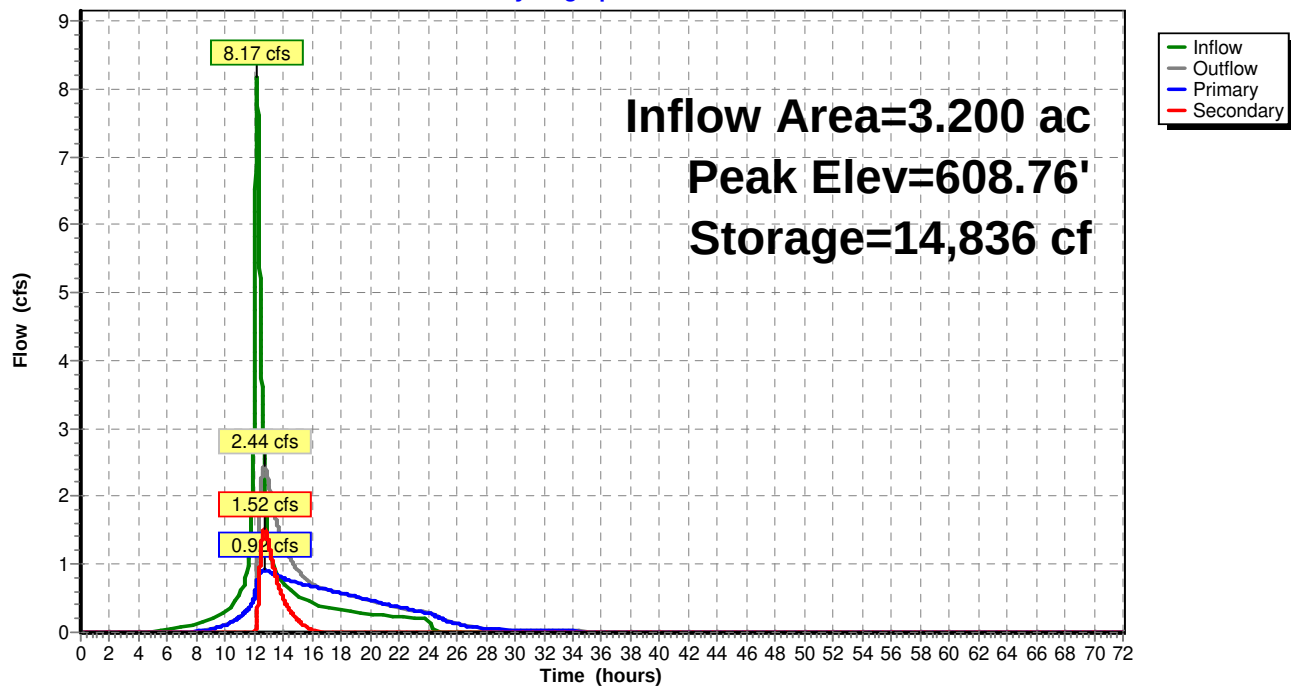
Device	Routing	Invert	Outlet Devices
#1	Primary	607.00'	6.0" Round Culvert L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 607.00' / 606.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	608.00'	0.7' long x 0.5' breadth Broad-Crested 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

Primary OutFlow Max=0.92 cfs @ 12.69 hrs HW=608.76' TW=606.00' (Dynamic Tailwater)
 ↑1=Culvert (Inlet Controls 0.92 cfs @ 4.68 fps)

Secondary OutFlow Max=1.52 cfs @ 12.69 hrs HW=608.76' TW=0.00' (Dynamic Tailwater)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 1.52 cfs @ 2.85 fps)

Pond 1.7PT: Pretreatment Basin

Hydrograph



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 109

Stage-Area-Storage for Pond 1.7PT: Pretreatment Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
607.00	7,400	0	609.60	10,390	23,127
607.05	7,457	371	609.65	10,447	23,648
607.10	7,515	746	609.70	10,505	24,172
607.15	7,572	1,123	609.75	10,563	24,698
607.20	7,630	1,503	609.80	10,620	25,228
607.25	7,688	1,886	609.85	10,678	25,760
607.30	7,745	2,272	609.90	10,735	26,296
607.35	7,803	2,660	609.95	10,793	26,834
607.40	7,860	3,052	610.00	10,850	27,375
607.45	7,918	3,446	610.05	10,907	27,919
607.50	7,975	3,844	610.10	10,965	28,466
607.55	8,032	4,244	610.15	11,022	29,015
607.60	8,090	4,647	610.20	11,080	29,568
607.65	8,147	5,053	610.25	11,138	30,123
607.70	8,205	5,462	610.30	11,195	30,682
607.75	8,263	5,873	610.35	11,253	31,243
607.80	8,320	6,288	610.40	11,310	31,807
607.85	8,378	6,705	610.45	11,368	32,374
607.90	8,435	7,126	610.50	11,425	32,944
607.95	8,493	7,549	610.55	11,482	33,516
608.00	8,550	7,975	610.60	11,540	34,092
608.05	8,607	8,404	610.65	11,597	34,670
608.10	8,665	8,836	610.70	11,655	35,252
608.15	8,722	9,270	610.75	11,713	35,836
608.20	8,780	9,708	610.80	11,770	36,423
608.25	8,838	10,148	610.85	11,828	37,013
608.30	8,895	10,592	610.90	11,885	37,606
608.35	8,953	11,038	610.95	11,943	38,201
608.40	9,010	11,487	611.00	12,000	38,800
608.45	9,068	11,939			
608.50	9,125	12,394			
608.55	9,182	12,851			
608.60	9,240	13,312			
608.65	9,297	13,775			
608.70	9,355	14,242			
608.75	9,413	14,711			
608.80	9,470	15,183			
608.85	9,528	15,658			
608.90	9,585	16,136			
608.95	9,643	16,616			
609.00	9,700	17,100			
609.05	9,757	17,586			
609.10	9,815	18,076			
609.15	9,872	18,568			
609.20	9,930	19,063			
609.25	9,988	19,561			
609.30	10,045	20,062			
609.35	10,103	20,565			
609.40	10,160	21,072			
609.45	10,218	21,581			
609.50	10,275	22,094			
609.55	10,332	22,609			

Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 110

Summary for Pond 1.8P: Wet Swale

Inflow Area = 0.400 ac, 75.00% Impervious, Inflow Depth = 4.13" for 10-yr event
 Inflow = 1.85 cfs @ 12.04 hrs, Volume= 0.138 af
 Outflow = 1.72 cfs @ 12.06 hrs, Volume= 0.138 af, Atten= 7%, Lag= 1.4 min
 Primary = 1.72 cfs @ 12.06 hrs, Volume= 0.138 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 605.43' @ 12.06 hrs Surf.Area= 600 sf Storage= 500 cf

Plug-Flow detention time= 33.1 min calculated for 0.138 af (100% of inflow)
 Center-of-Mass det. time= 32.9 min (823.6 - 790.7)

Volume	Invert	Avail.Storage	Storage Description
#1	604.00'	900 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
604.00	100	0	0
606.00	800	900	900

Device	Routing	Invert	Outlet Devices
#1	Primary	603.00'	12.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 603.00' / 602.50' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	604.00'	1.5" Vert. Orifice/Grate C= 0.600
#3	Device 1	605.00'	2.0' long 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

Primary OutFlow Max=1.72 cfs @ 12.06 hrs HW=605.43' TW=0.00' (Dynamic Tailwater)

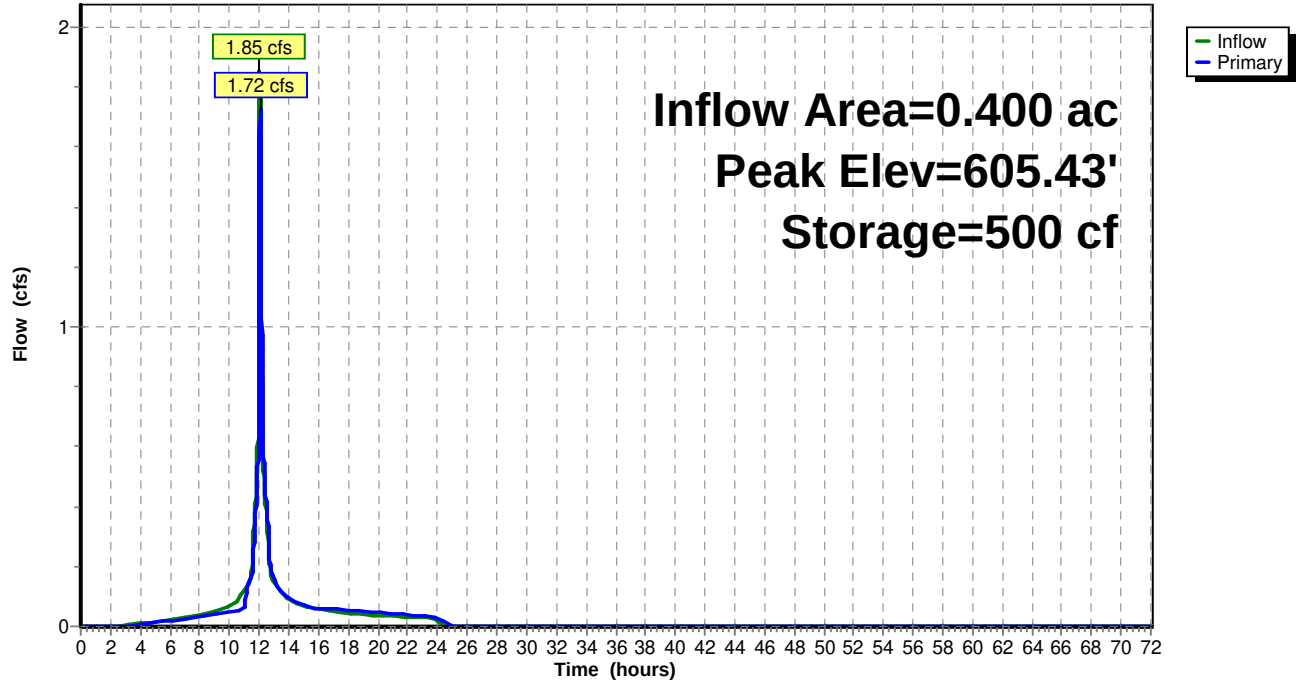
↑ **1=Culvert** (Passes 1.72 cfs of 5.20 cfs potential flow)

↑ **2=Orifice/Grate** (Orifice Controls 0.07 cfs @ 5.63 fps)

↑ **3=Broad-Crested Rectangular Weir** (Weir Controls 1.65 cfs @ 1.93 fps)

Pond 1.8P: Wet Swale

Hydrograph



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 112

Stage-Area-Storage for Pond 1.8P: Wet Swale

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
604.00	100	0	605.04	464	293
604.02	107	2	605.06	471	303
604.04	114	4	605.08	478	312
604.06	121	7	605.10	485	322
604.08	128	9	605.12	492	332
604.10	135	12	605.14	499	341
604.12	142	15	605.16	506	351
604.14	149	17	605.18	513	362
604.16	156	20	605.20	520	372
604.18	163	24	605.22	527	382
604.20	170	27	605.24	534	393
604.22	177	30	605.26	541	404
604.24	184	34	605.28	548	415
604.26	191	38	605.30	555	426
604.28	198	42	605.32	562	437
604.30	205	46	605.34	569	448
604.32	212	50	605.36	576	460
604.34	219	54	605.38	583	471
604.36	226	59	605.40	590	483
604.38	233	63	605.42	597	495
604.40	240	68	605.44	604	507
604.42	247	73	605.46	611	519
604.44	254	78	605.48	618	531
604.46	261	83	605.50	625	544
604.48	268	88	605.52	632	556
604.50	275	94	605.54	639	569
604.52	282	99	605.56	646	582
604.54	289	105	605.58	653	595
604.56	296	111	605.60	660	608
604.58	303	117	605.62	667	621
604.60	310	123	605.64	674	635
604.62	317	129	605.66	681	648
604.64	324	136	605.68	688	662
604.66	331	142	605.70	695	676
604.68	338	149	605.72	702	690
604.70	345	156	605.74	709	704
604.72	352	163	605.76	716	718
604.74	359	170	605.78	723	732
604.76	366	177	605.80	730	747
604.78	373	184	605.82	737	762
604.80	380	192	605.84	744	776
604.82	387	200	605.86	751	791
604.84	394	207	605.88	758	807
604.86	401	215	605.90	765	822
604.88	408	224	605.92	772	837
604.90	415	232	605.94	779	853
604.92	422	240	605.96	786	868
604.94	429	249	605.98	793	884
604.96	436	257	606.00	800	900
604.98	443	266			
605.00	450	275			
605.02	457	284			

Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 113

Summary for Pond 2.1P: Infiltration Basin

Inflow Area = 1.300 ac, 46.15% Impervious, Inflow Depth > 2.84" for 10-yr event
Inflow = 0.77 cfs @ 12.25 hrs, Volume= 0.308 af
Outflow = 0.27 cfs @ 15.52 hrs, Volume= 0.308 af, Atten= 65%, Lag= 196.4 min
Discarded = 0.27 cfs @ 15.52 hrs, Volume= 0.308 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 607.13' @ 15.52 hrs Surf.Area= 3,844 sf Storage= 3,821 cf

Plug-Flow detention time= 137.1 min calculated for 0.308 af (100% of inflow)

Center-of-Mass det. time= 137.1 min (1,067.4 - 930.3)

Volume	Invert	Avail.Storage	Storage Description
#1	606.00'	12,450 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
606.00	2,900	0	0
609.00	5,400	12,450	12,450

Device	Routing	Invert	Outlet Devices
#1	Discarded	606.00'	3.000 in/hr Exfiltration over Horizontal area Phase-In= 0.01'
#2	Primary	607.80'	2.0' long 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=0.27 cfs @ 15.52 hrs HW=607.13' (Free Discharge)

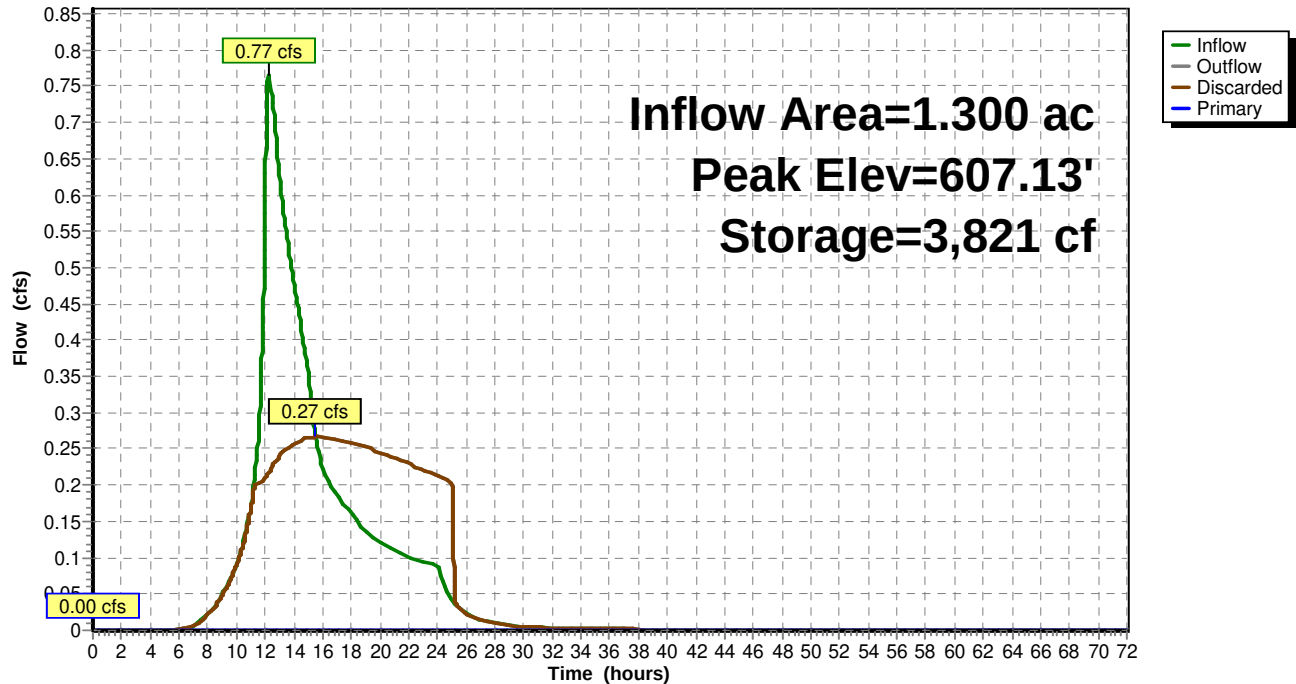
↑**1=Exfiltration** (Exfiltration Controls 0.27 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=606.00' TW=0.00' (Dynamic Tailwater)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2.1P: Infiltration Basin

Hydrograph



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 115

Stage-Area-Storage for Pond 2.1P: Infiltration Basin

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
606.00	2,900	2,900	0
606.10	2,983	2,983	294
606.20	3,067	3,067	597
606.30	3,150	3,150	907
606.40	3,233	3,233	1,227
606.50	3,317	3,317	1,554
606.60	3,400	3,400	1,890
606.70	3,483	3,483	2,234
606.80	3,567	3,567	2,587
606.90	3,650	3,650	2,947
607.00	3,733	3,733	3,317
607.10	3,817	3,817	3,694
607.20	3,900	3,900	4,080
607.30	3,983	3,983	4,474
607.40	4,067	4,067	4,877
607.50	4,150	4,150	5,288
607.60	4,233	4,233	5,707
607.70	4,317	4,317	6,134
607.80	4,400	4,400	6,570
607.90	4,483	4,483	7,014
608.00	4,567	4,567	7,467
608.10	4,650	4,650	7,928
608.20	4,733	4,733	8,397
608.30	4,817	4,817	8,874
608.40	4,900	4,900	9,360
608.50	4,983	4,983	9,854
608.60	5,067	5,067	10,357
608.70	5,150	5,150	10,868
608.80	5,233	5,233	11,387
608.90	5,317	5,317	11,914
609.00	5,400	5,400	12,450

Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 116

Summary for Pond 2.1PT: Pretreatment Basin

Inflow Area = 1.300 ac, 46.15% Impervious, Inflow Depth = 3.41" for 10-yr event
Inflow = 5.16 cfs @ 12.04 hrs, Volume= 0.369 af
Outflow = 1.77 cfs @ 12.25 hrs, Volume= 0.368 af, Atten= 66%, Lag= 12.4 min
Primary = 0.77 cfs @ 12.25 hrs, Volume= 0.308 af
Secondary = 1.01 cfs @ 12.25 hrs, Volume= 0.061 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 608.30' @ 12.25 hrs Surf.Area= 3,898 sf Storage= 4,425 cf

Plug-Flow detention time= 79.1 min calculated for 0.368 af (100% of inflow)

Center-of-Mass det. time= 78.8 min (900.8 - 822.0)

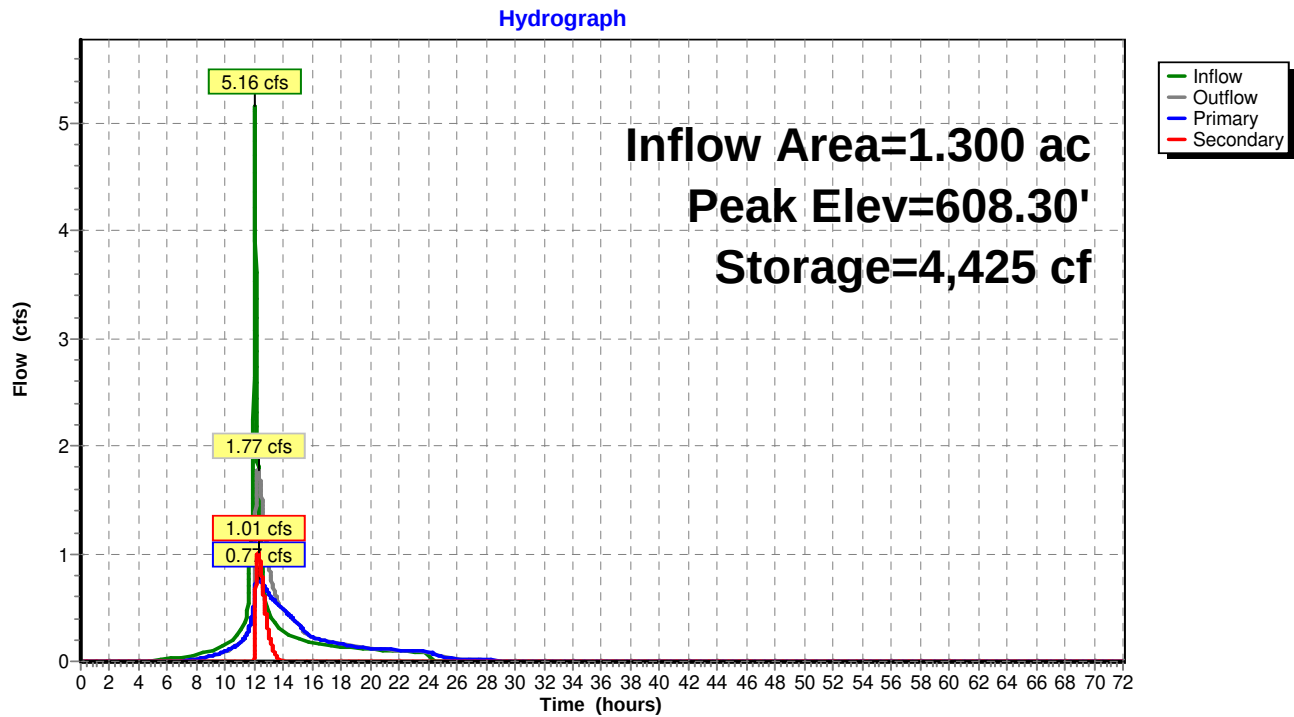
Volume	Invert	Avail.Storage	Storage Description
#1	607.00'	12,150 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
607.00	2,900	0	0
610.00	5,200	12,150	12,150

Device	Routing	Invert	Outlet Devices
#1	Primary	607.00'	6.0" Round Culvert L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 607.00' / 606.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	607.70'	0.7' long 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

Primary OutFlow Max=0.77 cfs @ 12.25 hrs HW=608.30' TW=606.27' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 0.77 cfs @ 3.90 fps)**Secondary OutFlow** Max=1.01 cfs @ 12.25 hrs HW=608.30' TW=0.00' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Weir Controls 1.01 cfs @ 2.39 fps)

Pond 2.1PT: Pretreatment Basin



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 118

Stage-Area-Storage for Pond 2.1PT: Pretreatment Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
607.00	2,900	0	609.60	4,893	10,131
607.05	2,938	146	609.65	4,932	10,377
607.10	2,977	294	609.70	4,970	10,625
607.15	3,015	444	609.75	5,008	10,874
607.20	3,053	595	609.80	5,047	11,125
607.25	3,092	749	609.85	5,085	11,379
607.30	3,130	904	609.90	5,123	11,634
607.35	3,168	1,062	609.95	5,162	11,891
607.40	3,207	1,221	610.00	5,200	12,150
607.45	3,245	1,383			
607.50	3,283	1,546			
607.55	3,322	1,711			
607.60	3,360	1,878			
607.65	3,398	2,047			
607.70	3,437	2,218			
607.75	3,475	2,391			
607.80	3,513	2,565			
607.85	3,552	2,742			
607.90	3,590	2,920			
607.95	3,628	3,101			
608.00	3,667	3,283			
608.05	3,705	3,468			
608.10	3,743	3,654			
608.15	3,782	3,842			
608.20	3,820	4,032			
608.25	3,858	4,224			
608.30	3,897	4,418			
608.35	3,935	4,614			
608.40	3,973	4,811			
608.45	4,012	5,011			
608.50	4,050	5,213			
608.55	4,088	5,416			
608.60	4,127	5,621			
608.65	4,165	5,829			
608.70	4,203	6,038			
608.75	4,242	6,249			
608.80	4,280	6,462			
608.85	4,318	6,677			
608.90	4,357	6,894			
608.95	4,395	7,113			
609.00	4,433	7,333			
609.05	4,472	7,556			
609.10	4,510	7,781			
609.15	4,548	8,007			
609.20	4,587	8,235			
609.25	4,625	8,466			
609.30	4,663	8,698			
609.35	4,702	8,932			
609.40	4,740	9,168			
609.45	4,778	9,406			
609.50	4,817	9,646			
609.55	4,855	9,888			

Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 119

Summary for Pond 2.2P: Wet Swale

Inflow Area = 0.800 ac, 87.50% Impervious, Inflow Depth = 4.46" for 10-yr event
Inflow = 3.88 cfs @ 12.04 hrs, Volume= 0.297 af
Outflow = 3.58 cfs @ 12.06 hrs, Volume= 0.297 af, Atten= 8%, Lag= 1.5 min
Primary = 3.58 cfs @ 12.06 hrs, Volume= 0.297 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 605.63' @ 12.06 hrs Surf.Area= 953 sf Storage= 1,022 cf

Plug-Flow detention time= 35.6 min calculated for 0.297 af (100% of inflow)
Center-of-Mass det. time= 35.7 min (808.6 - 772.9)

Volume	Invert	Avail.Storage	Storage Description
#1	604.00'	1,400 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
604.00	300	0	0
606.00	1,100	1,400	1,400

Device	Routing	Invert	Outlet Devices
#1	Primary	603.00'	12.0" Round Culvert L= 65.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 603.00' / 602.30' S= 0.0108 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	604.00'	2.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	605.00'	2.2' long 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

Primary OutFlow Max=3.57 cfs @ 12.06 hrs HW=605.63' TW=0.00' (Dynamic Tailwater)

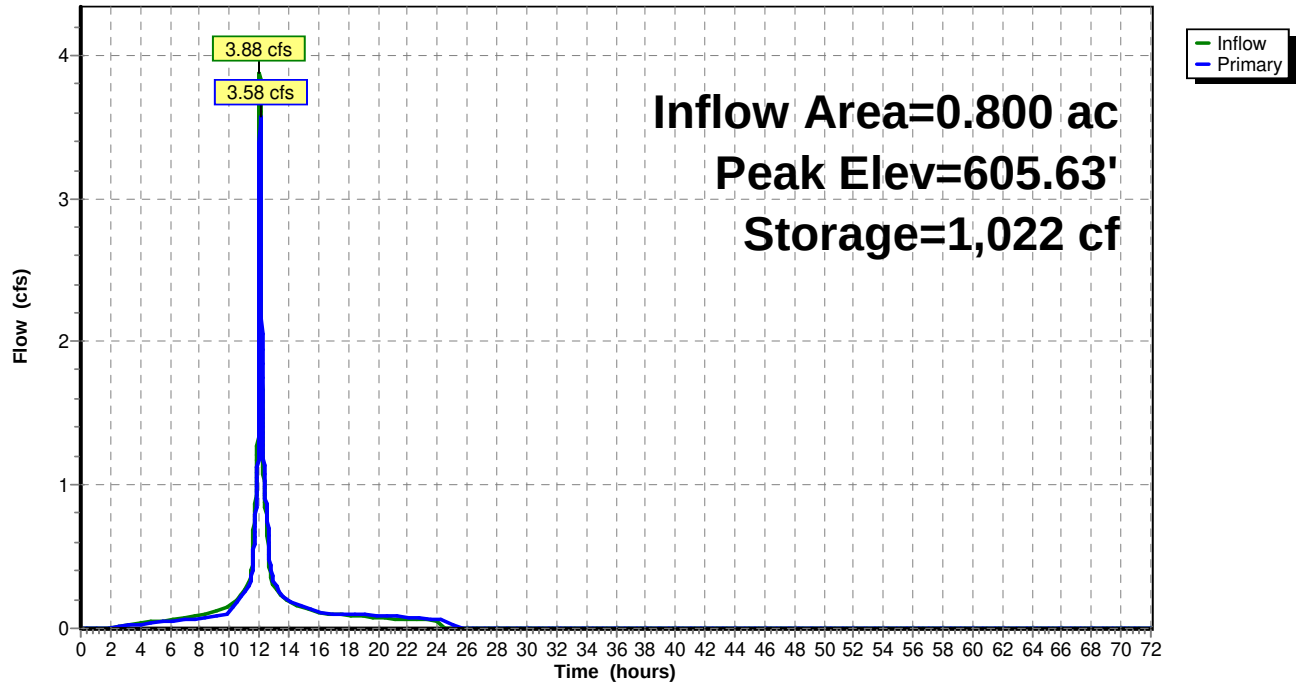
↑ **1=Culvert** (Passes 3.57 cfs of 5.35 cfs potential flow)

↑ **2=Orifice/Grate** (Orifice Controls 0.13 cfs @ 5.99 fps)

↑ **3=Broad-Crested Rectangular Weir** (Weir Controls 3.44 cfs @ 2.48 fps)

Pond 2.2P: Wet Swale

Hydrograph



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 121

Stage-Area-Storage for Pond 2.2P: Wet Swale

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
604.00	300	0	605.04	716	528
604.02	308	6	605.06	724	543
604.04	316	12	605.08	732	557
604.06	324	19	605.10	740	572
604.08	332	25	605.12	748	587
604.10	340	32	605.14	756	602
604.12	348	39	605.16	764	617
604.14	356	46	605.18	772	632
604.16	364	53	605.20	780	648
604.18	372	60	605.22	788	664
604.20	380	68	605.24	796	680
604.22	388	76	605.26	804	696
604.24	396	84	605.28	812	712
604.26	404	92	605.30	820	728
604.28	412	100	605.32	828	744
604.30	420	108	605.34	836	761
604.32	428	116	605.36	844	778
604.34	436	125	605.38	852	795
604.36	444	134	605.40	860	812
604.38	452	143	605.42	868	829
604.40	460	152	605.44	876	847
604.42	468	161	605.46	884	864
604.44	476	171	605.48	892	882
604.46	484	180	605.50	900	900
604.48	492	190	605.52	908	918
604.50	500	200	605.54	916	936
604.52	508	210	605.56	924	955
604.54	516	220	605.58	932	973
604.56	524	231	605.60	940	992
604.58	532	241	605.62	948	1,011
604.60	540	252	605.64	956	1,030
604.62	548	263	605.66	964	1,049
604.64	556	274	605.68	972	1,068
604.66	564	285	605.70	980	1,088
604.68	572	296	605.72	988	1,108
604.70	580	308	605.74	996	1,128
604.72	588	320	605.76	1,004	1,148
604.74	596	332	605.78	1,012	1,168
604.76	604	344	605.80	1,020	1,188
604.78	612	356	605.82	1,028	1,208
604.80	620	368	605.84	1,036	1,229
604.82	628	380	605.86	1,044	1,250
604.84	636	393	605.88	1,052	1,271
604.86	644	406	605.90	1,060	1,292
604.88	652	419	605.92	1,068	1,313
604.90	660	432	605.94	1,076	1,335
604.92	668	445	605.96	1,084	1,356
604.94	676	459	605.98	1,092	1,378
604.96	684	472	606.00	1,100	1,400
604.98	692	486			
605.00	700	500			
605.02	708	514			

Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 122

Summary for Pond FS1.3:

Inflow Area = 1.648 ac, 69.66% Impervious, Inflow Depth = 3.60" for 10-yr event
 Inflow = 6.87 cfs @ 12.04 hrs, Volume= 0.495 af
 Outflow = 6.87 cfs @ 12.04 hrs, Volume= 0.495 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.75 cfs @ 12.04 hrs, Volume= 0.469 af
 Secondary = 3.13 cfs @ 12.04 hrs, Volume= 0.026 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

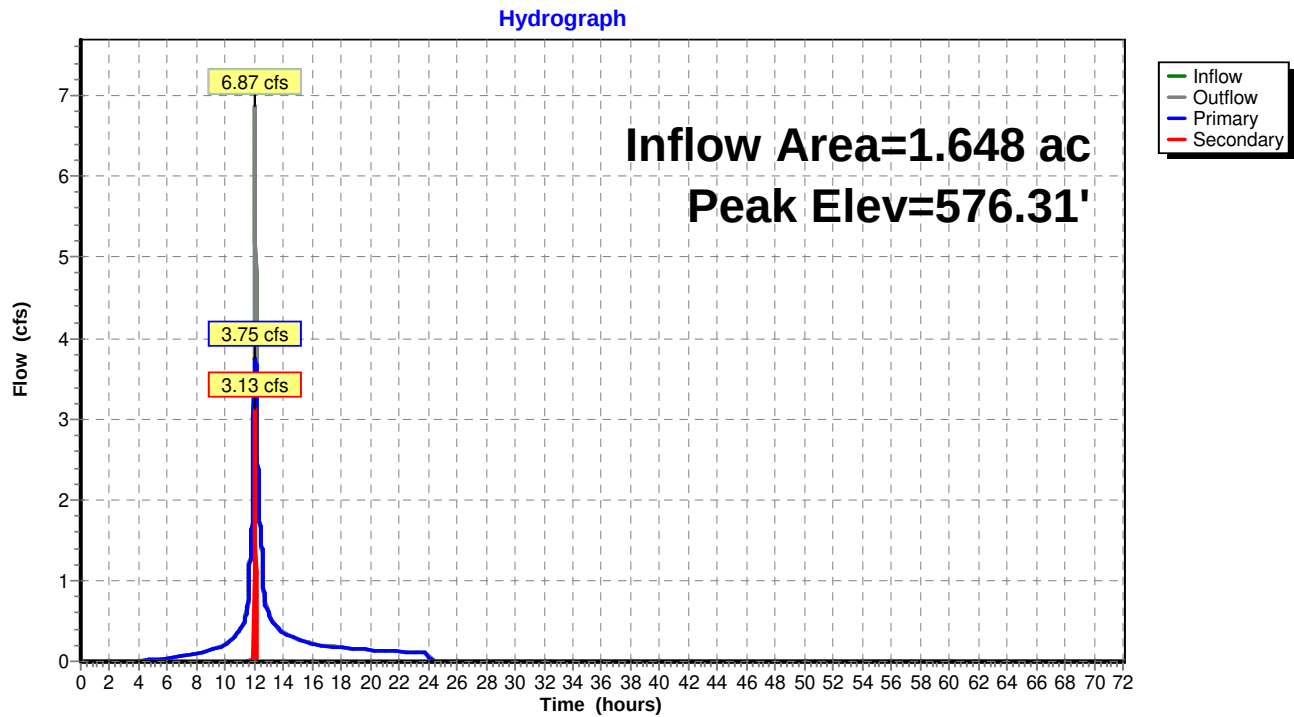
Peak Elev= 576.31' @ 12.04 hrs

Flood Elev= 577.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	570.20'	12.0" Round Culvert L= 365.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.20' / 566.50' S= 0.0101 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	570.20'	7.7" Vert. Orifice/Grate C= 0.600
#3	Device 4	575.90'	4.0' long 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
#4	Secondary	570.20'	18.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.20' / 569.70' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.75 cfs @ 12.04 hrs HW=576.31' TW=564.69' (Dynamic Tailwater)↑**1=Culvert** (Passes 3.75 cfs of 5.20 cfs potential flow)↑**2=Orifice/Grate** (Orifice Controls 3.75 cfs @ 11.59 fps)**Secondary OutFlow** Max=3.11 cfs @ 12.04 hrs HW=576.31' TW=0.00' (Dynamic Tailwater)↑**4=Culvert** (Passes 3.11 cfs of 19.70 cfs potential flow)↑**3=Broad-Crested Rectangular Weir** (Weir Controls 3.11 cfs @ 1.88 fps)

Pond FS1.3:



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 124

Stage-Area-Storage for Pond FS1.3:

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
570.20	0	575.40	0
570.30	0	575.50	0
570.40	0	575.60	0
570.50	0	575.70	0
570.60	0	575.80	0
570.70	0	575.90	0
570.80	0	576.00	0
570.90	0	576.10	0
571.00	0	576.20	0
571.10	0	576.30	0
571.20	0	576.40	0
571.30	0	576.50	0
571.40	0	576.60	0
571.50	0	576.70	0
571.60	0	576.80	0
571.70	0	576.90	0
571.80	0	577.00	0
571.90	0	577.10	0
572.00	0	577.20	0
572.10	0	577.30	0
572.20	0	577.40	0
572.30	0	577.50	0
572.40	0		
572.50	0		
572.60	0		
572.70	0		
572.80	0		
572.90	0		
573.00	0		
573.10	0		
573.20	0		
573.30	0		
573.40	0		
573.50	0		
573.60	0		
573.70	0		
573.80	0		
573.90	0		
574.00	0		
574.10	0		
574.20	0		
574.30	0		
574.40	0		
574.50	0		
574.60	0		
574.70	0		
574.80	0		
574.90	0		
575.00	0		
575.10	0		
575.20	0		
575.30	0		

Trailside Somers - Post Development (Wit *NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"*

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 125

Summary for Pond FS1.5:

Inflow Area = 0.800 ac, 87.50% Impervious, Inflow Depth = 4.24" for 10-yr event
Inflow = 3.77 cfs @ 12.04 hrs, Volume= 0.282 af
Outflow = 3.77 cfs @ 12.04 hrs, Volume= 0.282 af, Atten= 0%, Lag= 0.0 min
Primary = 2.34 cfs @ 12.04 hrs, Volume= 0.272 af
Secondary = 1.42 cfs @ 12.04 hrs, Volume= 0.010 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 568.15' @ 12.04 hrs

Flood Elev= 569.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	565.60'	8.0" Round Culvert L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 565.60' / 565.30' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 3	567.90'	4.0' long 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
#3	Secondary	565.60'	15.0" Round Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 565.60' / 565.20' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.34 cfs @ 12.04 hrs HW=568.15' TW=563.22' (Dynamic Tailwater)

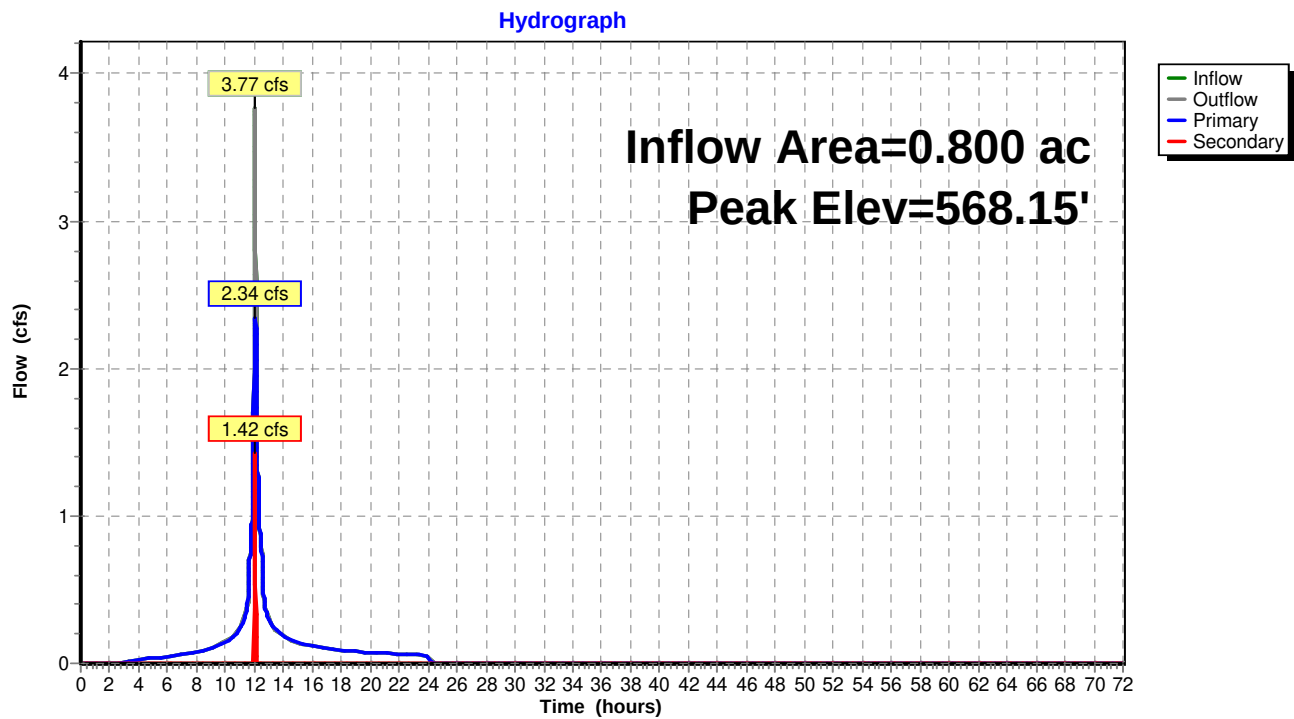
↑**1=Culvert** (Barrel Controls 2.34 cfs @ 6.72 fps)

Secondary OutFlow Max=1.41 cfs @ 12.04 hrs HW=568.15' TW=0.00' (Dynamic Tailwater)

↑**3=Culvert** (Passes 1.41 cfs of 8.20 cfs potential flow)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 1.41 cfs @ 1.41 fps)

Pond FS1.5:



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 127

Stage-Area-Storage for Pond FS1.5:

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
565.60	0	568.20	0
565.65	0	568.25	0
565.70	0	568.30	0
565.75	0	568.35	0
565.80	0	568.40	0
565.85	0	568.45	0
565.90	0	568.50	0
565.95	0	568.55	0
566.00	0	568.60	0
566.05	0	568.65	0
566.10	0	568.70	0
566.15	0	568.75	0
566.20	0	568.80	0
566.25	0	568.85	0
566.30	0	568.90	0
566.35	0	568.95	0
566.40	0	569.00	0
566.45	0	569.05	0
566.50	0	569.10	0
566.55	0	569.15	0
566.60	0	569.20	0
566.65	0	569.25	0
566.70	0	569.30	0
566.75	0	569.35	0
566.80	0	569.40	0
566.85	0	569.45	0
566.90	0	569.50	0
566.95	0		
567.00	0		
567.05	0		
567.10	0		
567.15	0		
567.20	0		
567.25	0		
567.30	0		
567.35	0		
567.40	0		
567.45	0		
567.50	0		
567.55	0		
567.60	0		
567.65	0		
567.70	0		
567.75	0		
567.80	0		
567.85	0		
567.90	0		
567.95	0		
568.00	0		
568.05	0		
568.10	0		
568.15	0		

Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 128

Summary for Pond FS1.6:

Inflow Area = 1.800 ac, 88.89% Impervious, Inflow Depth = 4.35" for 10-yr event
Inflow = 8.61 cfs @ 12.04 hrs, Volume= 0.652 af
Outflow = 8.61 cfs @ 12.04 hrs, Volume= 0.652 af, Atten= 0%, Lag= 0.0 min
Primary = 5.98 cfs @ 12.04 hrs, Volume= 0.635 af
Secondary = 2.62 cfs @ 12.04 hrs, Volume= 0.017 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 603.37' @ 12.04 hrs

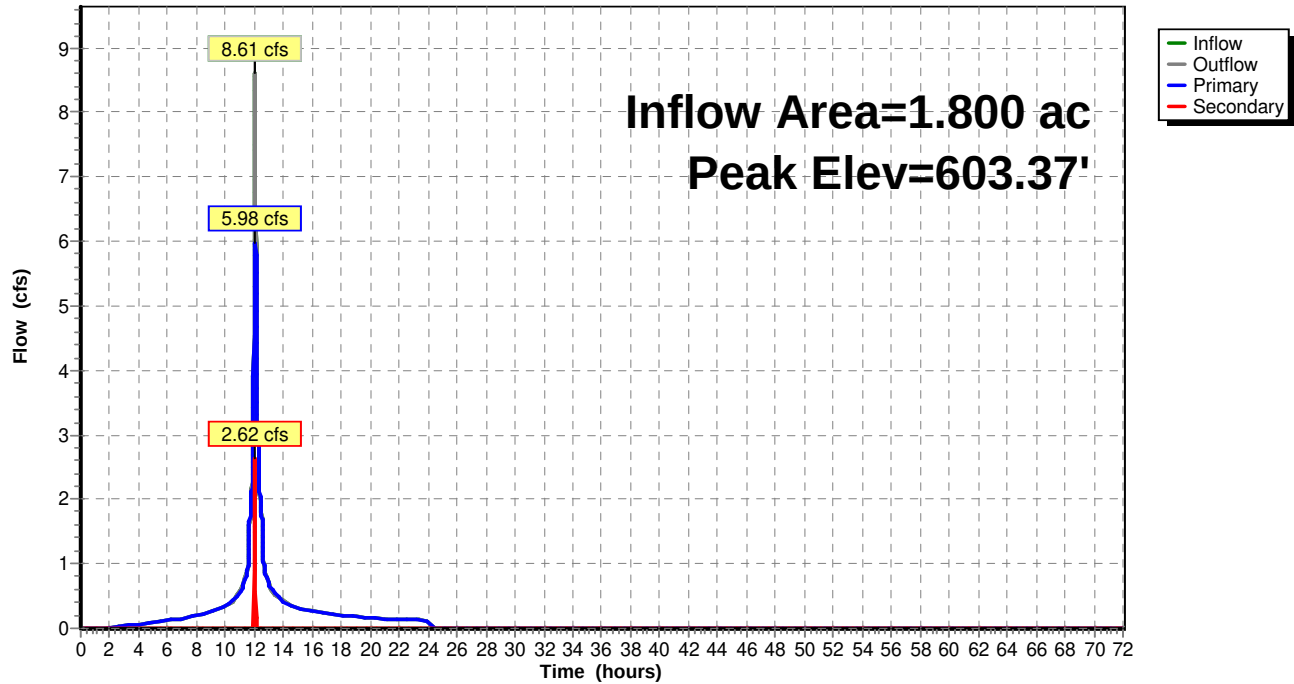
Flood Elev= 604.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	598.50'	12.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 598.50' / 598.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	598.50'	10.4" Vert. Orifice/Grate C= 0.600
#3	Device 4	603.00'	4.0' long 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
#4	Secondary	598.50'	15.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 598.50' / 593.50' S= 0.1000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.98 cfs @ 12.04 hrs HW=603.37' TW=596.17' (Dynamic Tailwater)↑**1=Culvert** (Passes 5.98 cfs of 7.52 cfs potential flow)↑**2=Orifice/Grate** (Orifice Controls 5.98 cfs @ 10.14 fps)**Secondary OutFlow** Max=2.60 cfs @ 12.04 hrs HW=603.37' TW=0.00' (Dynamic Tailwater)↑**4=Culvert** (Passes 2.60 cfs of 12.17 cfs potential flow)↑**3=Broad-Crested Rectangular Weir** (Weir Controls 2.60 cfs @ 1.76 fps)

Pond FS1.6:

Hydrograph



Trailside Somers - Post Development (Wit NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 130

Stage-Area-Storage for Pond FS1.6:

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
598.50	0	600.58	0	602.66	0
598.54	0	600.62	0	602.70	0
598.58	0	600.66	0	602.74	0
598.62	0	600.70	0	602.78	0
598.66	0	600.74	0	602.82	0
598.70	0	600.78	0	602.86	0
598.74	0	600.82	0	602.90	0
598.78	0	600.86	0	602.94	0
598.82	0	600.90	0	602.98	0
598.86	0	600.94	0	603.02	0
598.90	0	600.98	0	603.06	0
598.94	0	601.02	0	603.10	0
598.98	0	601.06	0	603.14	0
599.02	0	601.10	0	603.18	0
599.06	0	601.14	0	603.22	0
599.10	0	601.18	0	603.26	0
599.14	0	601.22	0	603.30	0
599.18	0	601.26	0	603.34	0
599.22	0	601.30	0	603.38	0
599.26	0	601.34	0	603.42	0
599.30	0	601.38	0	603.46	0
599.34	0	601.42	0	603.50	0
599.38	0	601.46	0	603.54	0
599.42	0	601.50	0	603.58	0
599.46	0	601.54	0	603.62	0
599.50	0	601.58	0	603.66	0
599.54	0	601.62	0	603.70	0
599.58	0	601.66	0	603.74	0
599.62	0	601.70	0	603.78	0
599.66	0	601.74	0	603.82	0
599.70	0	601.78	0	603.86	0
599.74	0	601.82	0	603.90	0
599.78	0	601.86	0	603.94	0
599.82	0	601.90	0	603.98	0
599.86	0	601.94	0		
599.90	0	601.98	0		
599.94	0	602.02	0		
599.98	0	602.06	0		
600.02	0	602.10	0		
600.06	0	602.14	0		
600.10	0	602.18	0		
600.14	0	602.22	0		
600.18	0	602.26	0		
600.22	0	602.30	0		
600.26	0	602.34	0		
600.30	0	602.38	0		
600.34	0	602.42	0		
600.38	0	602.46	0		
600.42	0	602.50	0		
600.46	0	602.54	0		
600.50	0	602.58	0		
600.54	0	602.62	0		

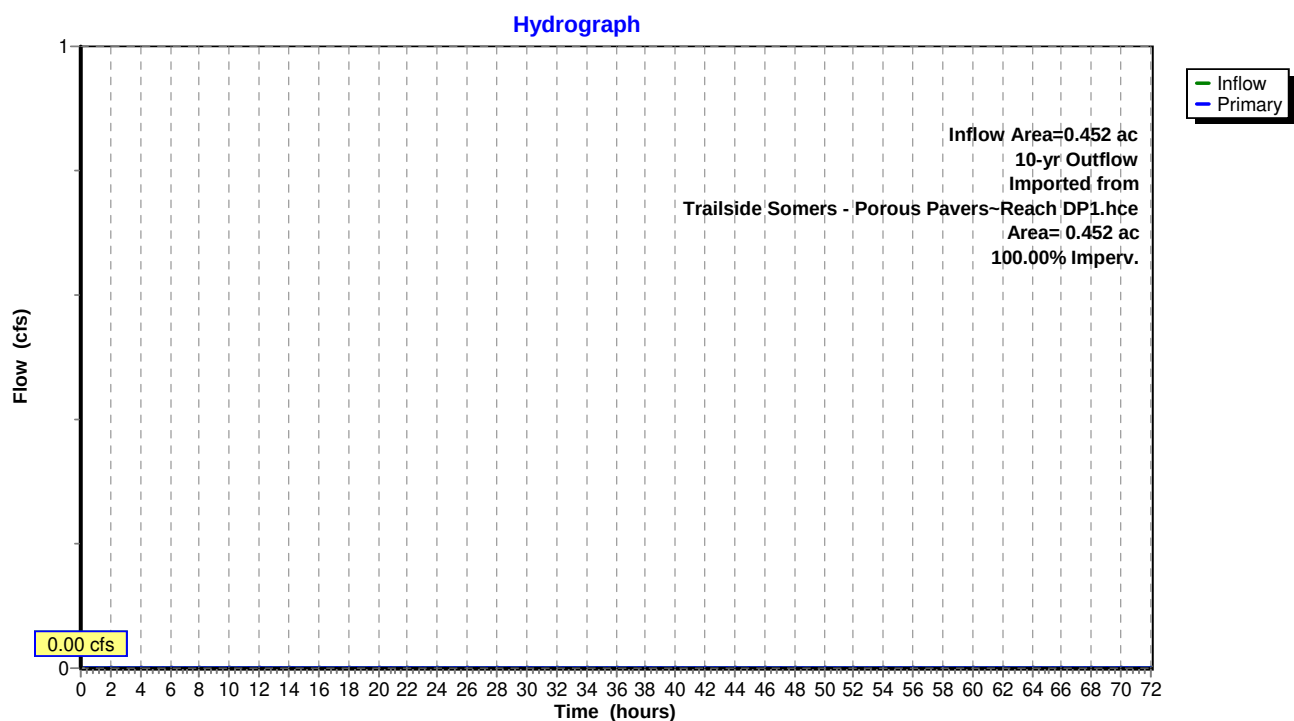
Summary for Link 1.9S: PPP (15 Units)

Inflow Area = 0.452 ac, 100.00% Impervious, Inflow Depth = 0.00" for 10-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

10-yr Outflow Imported from Trailside Somers - Porous Pavers~Reach DP1.hce

Link 1.9S: PPP (15 Units)



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 132

Summary for Subcatchment 1.0S:

Runoff = 71.46 cfs @ 12.70 hrs, Volume= 14.833 af, Depth= 5.17"

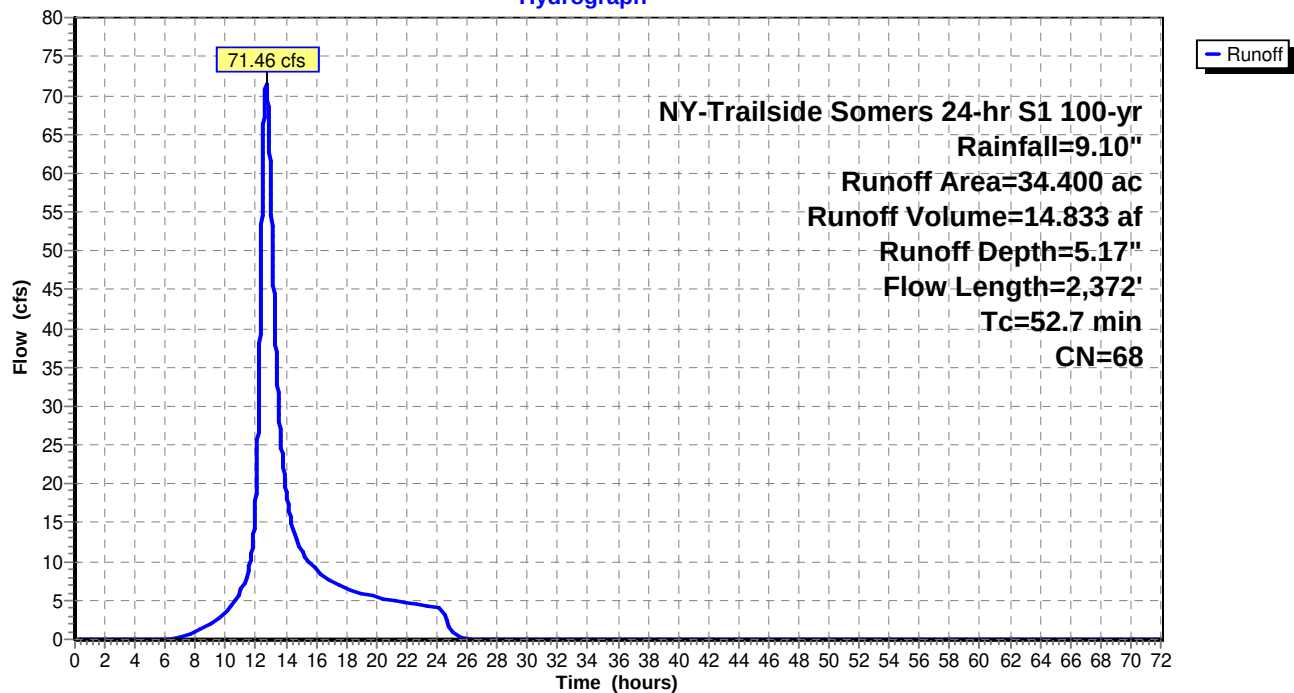
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (ac)	CN	Description
2.600	55	Woods, Good, HSG B
14.700	70	Woods, Good, HSG C
9.200	77	Woods, Good, HSG D
4.900	61	>75% Grass cover, Good, HSG B
2.900	58	Woods/grass comb., Good, HSG B
0.100	74	>75% Grass cover, Good, HSG C
34.400	68	Weighted Average
34.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0	100	0.0150	0.07		Sheet Flow, Grass: Bermuda n= 0.410 P2= 3.35"
14.8	630	0.0200	0.71		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
7.9	476	0.0400	1.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
3.1	743	0.0330	4.01	10.83	Channel Flow, Area= 2.7 sf Perim= 7.2' r= 0.38' n= 0.035 Earth, dense weeds
2.9	423	0.0210	2.39	4.07	Channel Flow, Area= 1.7 sf Perim= 7.0' r= 0.24' n= 0.035 Earth, dense weeds
52.7	2,372	Total			

Subcatchment 1.0S:

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 134

Summary for Subcatchment 1.1S:

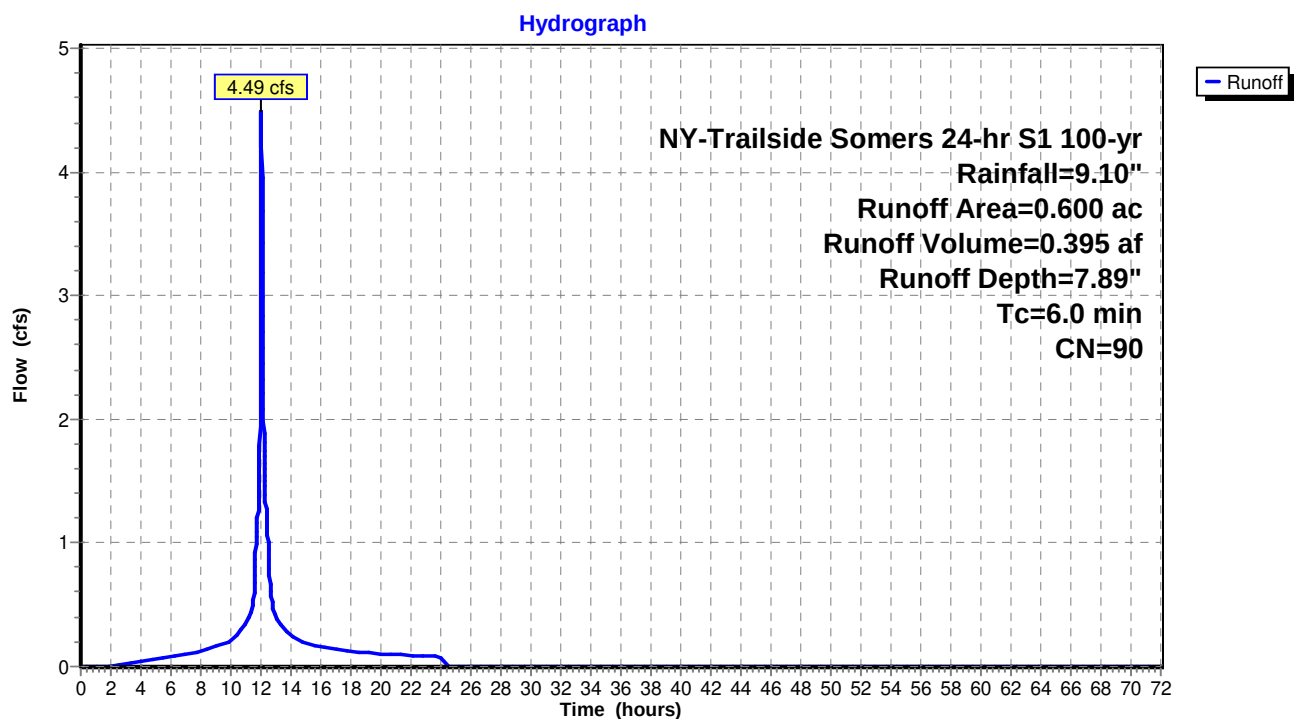
Runoff = 4.49 cfs @ 12.04 hrs, Volume= 0.395 af, Depth= 7.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (ac)	CN	Description
0.400	98	Paved parking, HSG B
0.200	74	>75% Grass cover, Good, HSG C
0.600	90	Weighted Average
0.200		33.33% Pervious Area
0.400		66.67% Impervious Area

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

Subcatchment 1.1S:



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 135

Summary for Subcatchment 1.2S:

Runoff = 16.63 cfs @ 12.04 hrs, Volume= 1.407 af, Depth= 7.03"

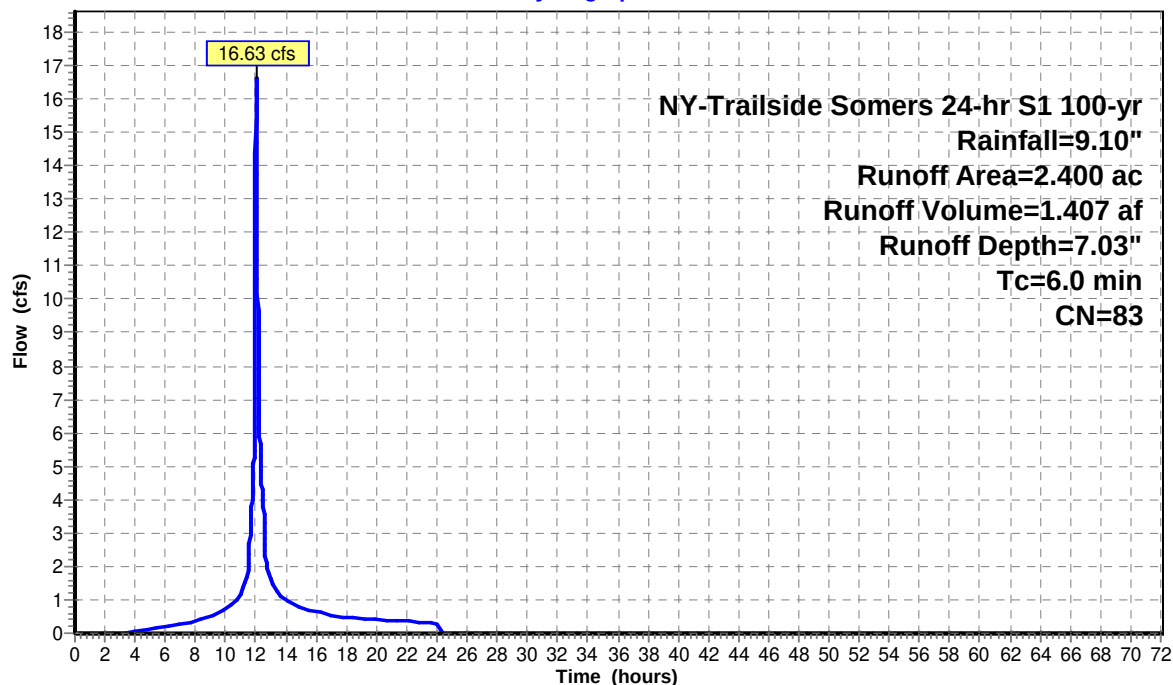
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (ac)	CN	Description
1.300	98	Paved parking, HSG B
0.900	61	>75% Grass cover, Good, HSG B
0.200	80	>75% Grass cover, Good, HSG D
2.400	83	Weighted Average
1.100		45.83% Pervious Area
1.300		54.17% Impervious Area

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

Subcatchment 1.2S:

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 136

Summary for Subcatchment 1.3S:

Runoff = 11.98 cfs @ 12.04 hrs, Volume= 1.033 af, Depth= 7.52"

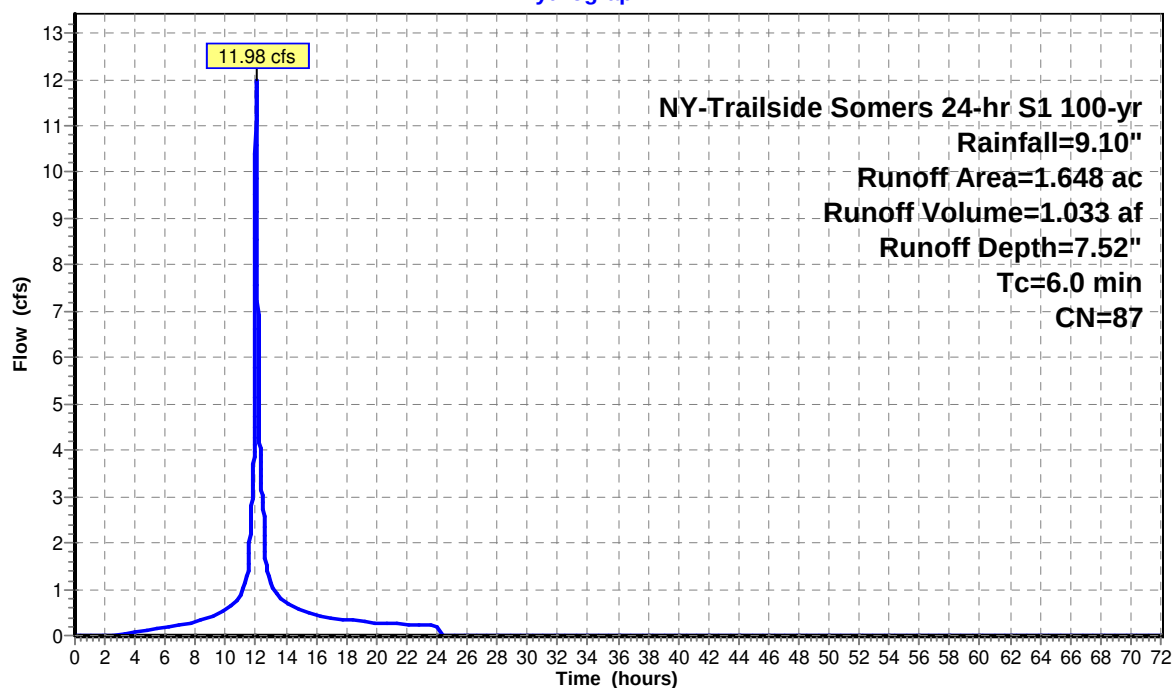
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (ac)	CN	Description
* 1.148	98	Paved parking
0.500	61	>75% Grass cover, Good, HSG B
1.648	87	Weighted Average
0.500		30.34% Pervious Area
1.148		69.66% Impervious Area

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

Subcatchment 1.3S:

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 137

Summary for Subcatchment 1.4S:

Runoff = 2.47 cfs @ 12.11 hrs, Volume= 0.259 af, Depth= 5.17"

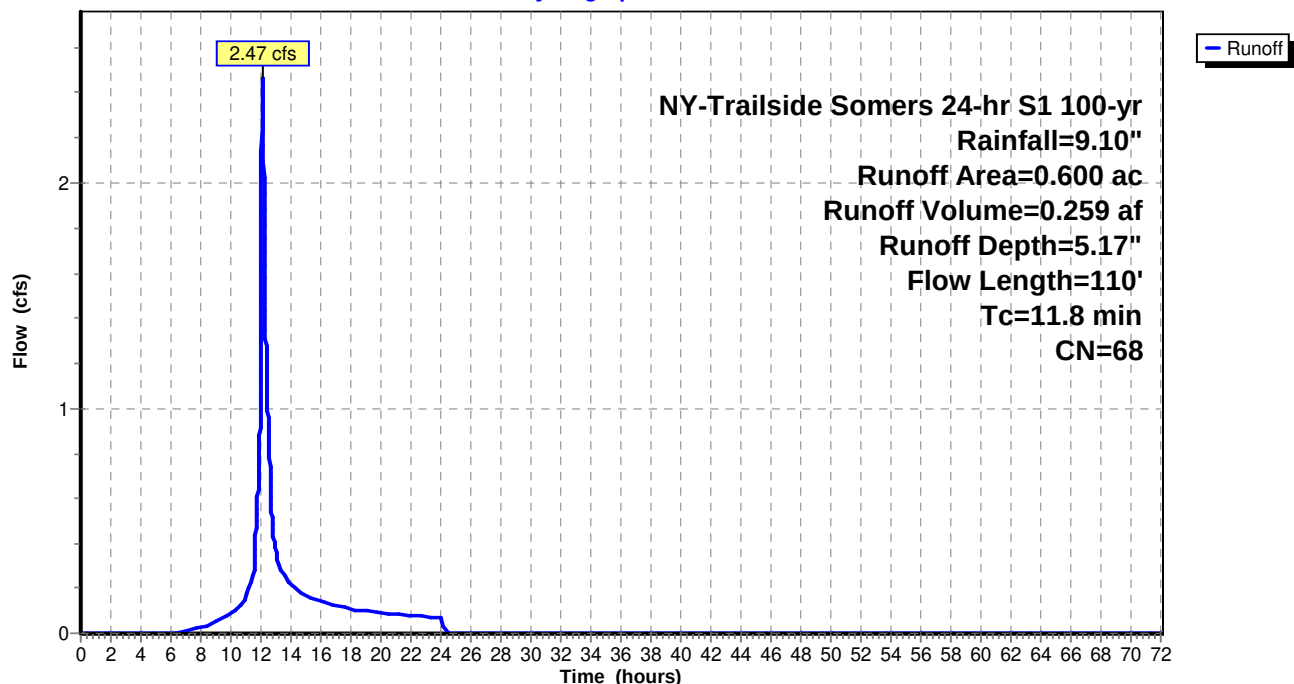
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (ac)	CN	Description
0.300	61	>75% Grass cover, Good, HSG B
0.300	74	>75% Grass cover, Good, HSG C
0.600	68	Weighted Average
0.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	80	0.0200	0.11		Sheet Flow, Grass: Dense n= 0.240 P2= 3.35"
0.1	30	0.3000	3.83		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.8	110	Total			

Subcatchment 1.4S:

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 138

Summary for Subcatchment 1.5S:

Runoff = 6.12 cfs @ 12.04 hrs, Volume= 0.550 af, Depth= 8.26"

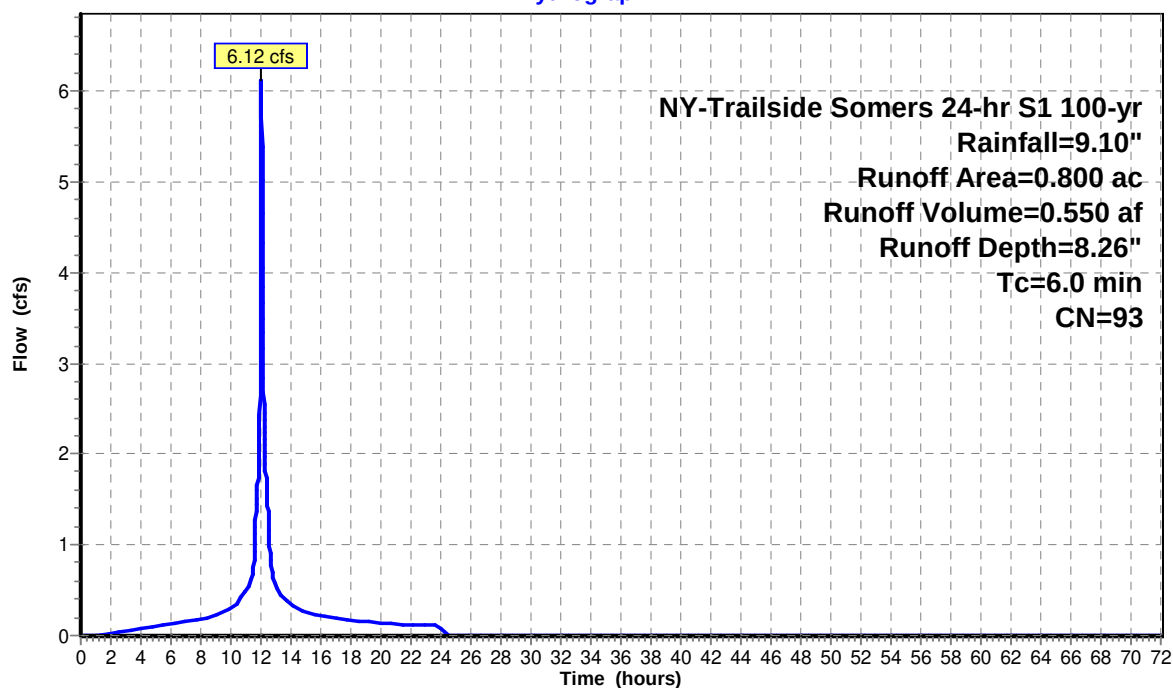
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG B
0.100	61	>75% Grass cover, Good, HSG B
0.800	93	Weighted Average
0.100		12.50% Pervious Area
0.700		87.50% Impervious Area

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

Subcatchment 1.5S:

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 139

Summary for Subcatchment 1.6S:

Runoff = 13.85 cfs @ 12.04 hrs, Volume= 1.256 af, Depth= 8.38"

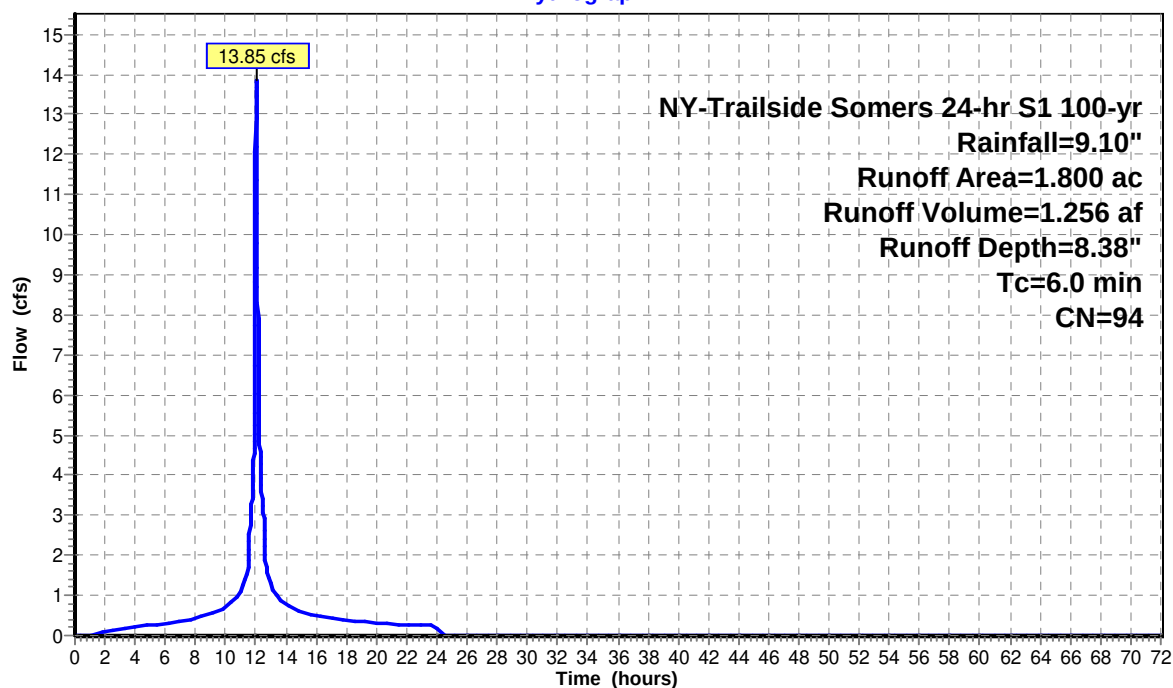
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (ac)	CN	Description
1.600	98	Paved parking, HSG B
0.200	61	>75% Grass cover, Good, HSG B
1.800	94	Weighted Average
0.200		11.11% Pervious Area
1.600		88.89% Impervious Area

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

Subcatchment 1.6S:

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 140

Summary for Subcatchment 1.7S:

Runoff = 15.30 cfs @ 12.18 hrs, Volume= 1.908 af, Depth= 7.16"

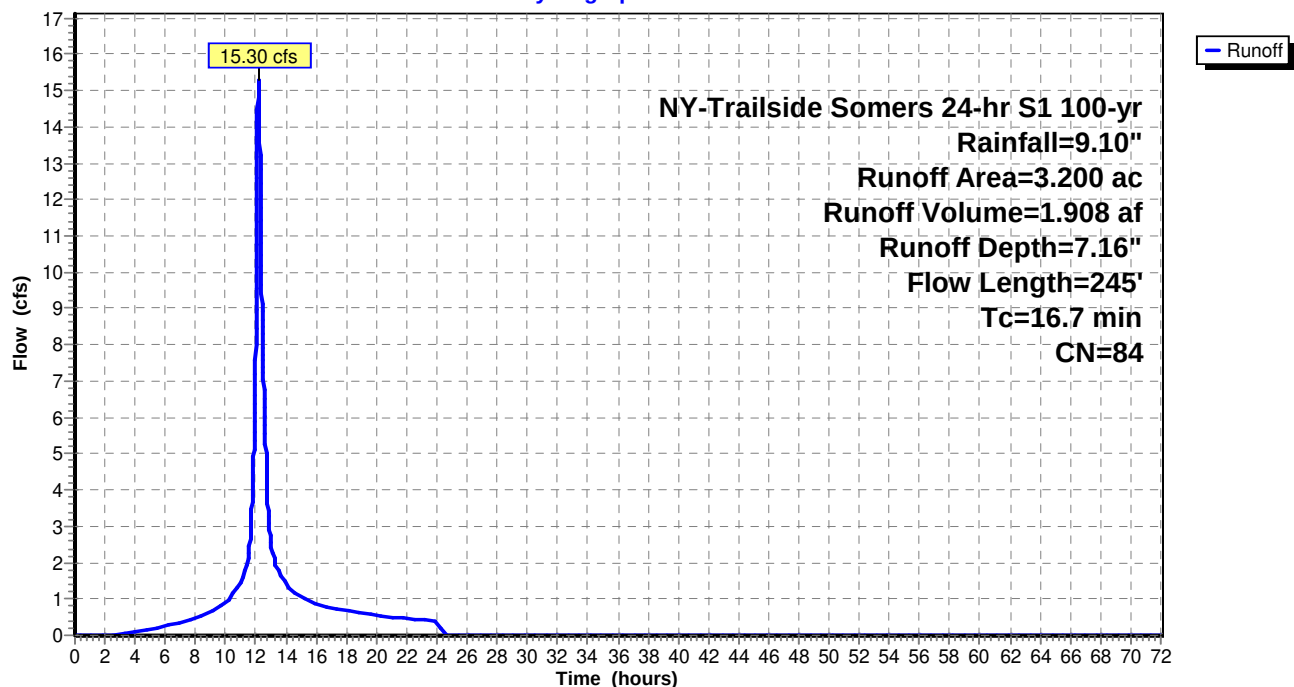
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (ac)	CN	Description
1.700	98	Paved parking, HSG B
0.700	61	>75% Grass cover, Good, HSG B
0.800	74	>75% Grass cover, Good, HSG C
3.200	84	Weighted Average
1.500		46.88% Pervious Area
1.700		53.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0200	0.12		Sheet Flow, Grass: Dense n= 0.240 P2= 3.35"
2.8	145	0.0150	0.86		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
16.7	245	Total			

Subcatchment 1.7S:

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 141

Summary for Subcatchment 1.8S:

Runoff = 3.04 cfs @ 12.04 hrs, Volume= 0.271 af, Depth= 8.13"

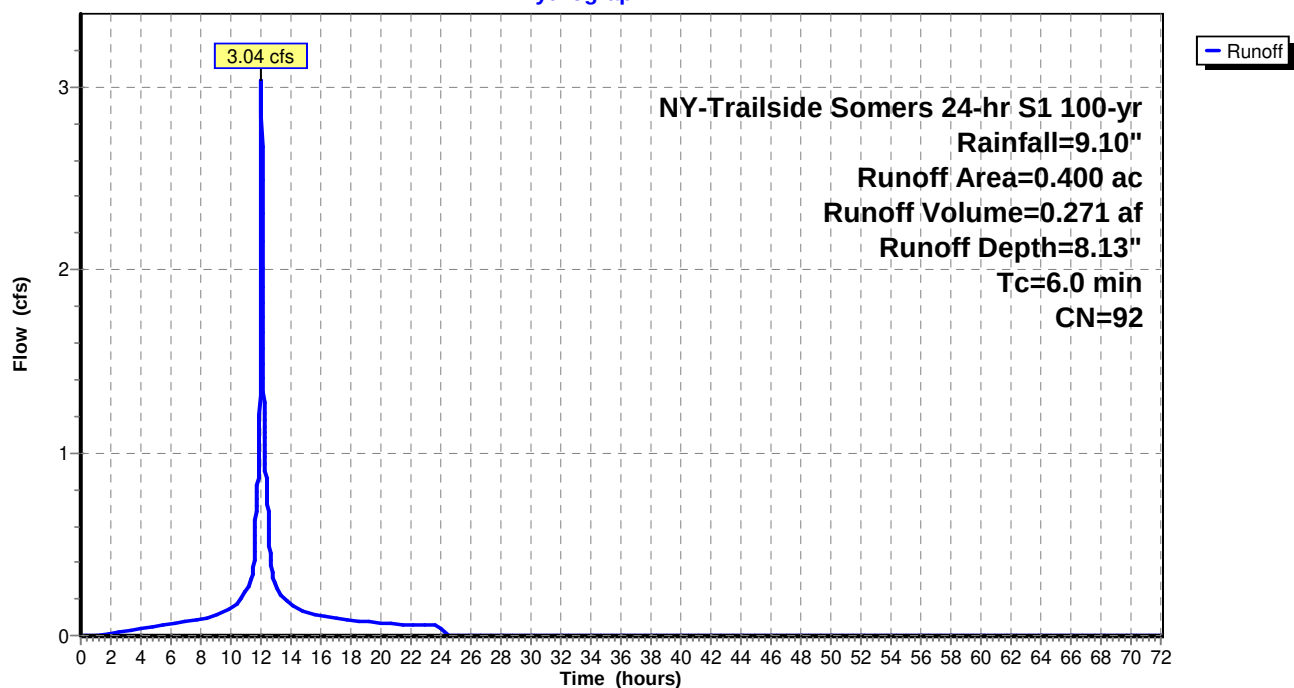
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (ac)	CN	Description
0.300	98	Paved parking, HSG C
0.100	74	>75% Grass cover, Good, HSG C
0.400	92	Weighted Average
0.100		25.00% Pervious Area
0.300		75.00% Impervious Area

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

Subcatchment 1.8S:

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 142

Summary for Subcatchment 2.0S:

Runoff = 28.19 cfs @ 12.30 hrs, Volume= 4.067 af, Depth= 5.42"

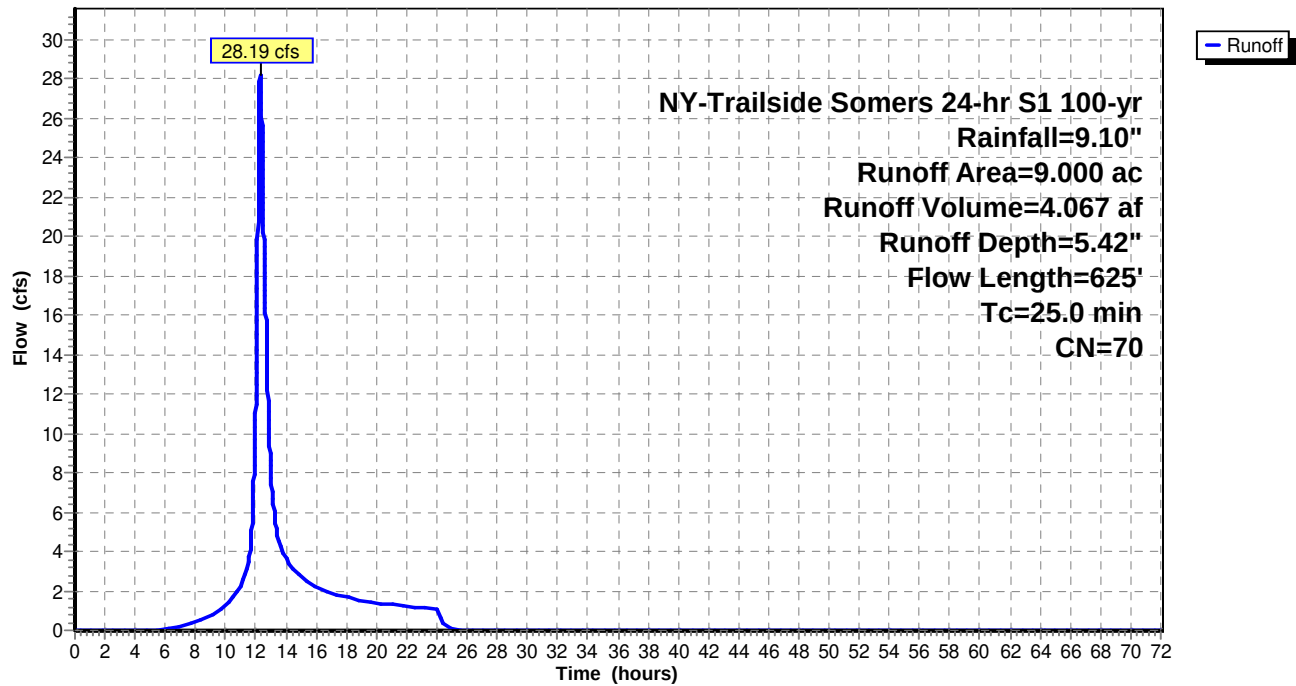
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (ac)	CN	Description
0.700	55	Woods, Good, HSG B
7.400	70	Woods, Good, HSG C
0.900	77	Woods, Good, HSG D
9.000	70	Weighted Average
9.000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.9	100	0.0400	0.10		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.35"
1.6	110	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
1.8	85	0.0250	0.79		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.8	165	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.9	165	0.0350	0.94		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
25.0	625	Total			

Subcatchment 2.0S:

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 144

Summary for Subcatchment 2.1S:

Runoff = 9.24 cfs @ 12.04 hrs, Volume= 0.789 af, Depth= 7.28"

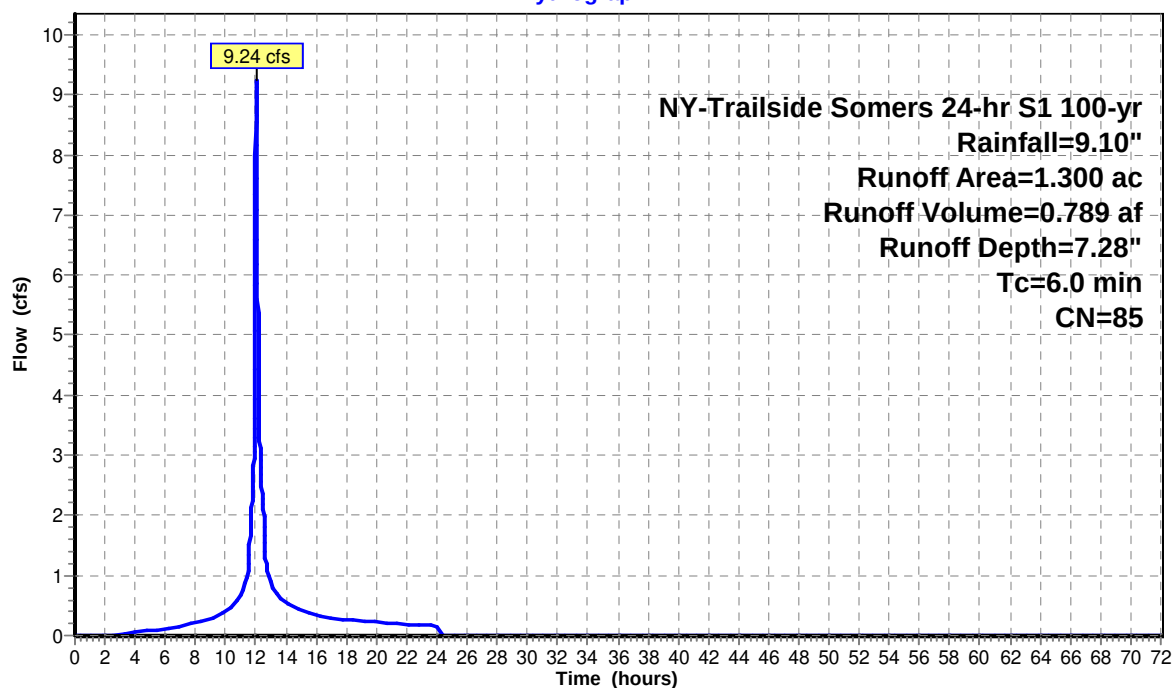
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (ac)	CN	Description
0.600	98	Paved parking, HSG C
0.700	74	>75% Grass cover, Good, HSG C
1.300	85	Weighted Average
0.700		53.85% Pervious Area
0.600		46.15% Impervious Area

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

Subcatchment 2.1S:

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 145

Summary for Subcatchment 2.2S:

Runoff = 6.19 cfs @ 12.04 hrs, Volume= 0.567 af, Depth= 8.50"

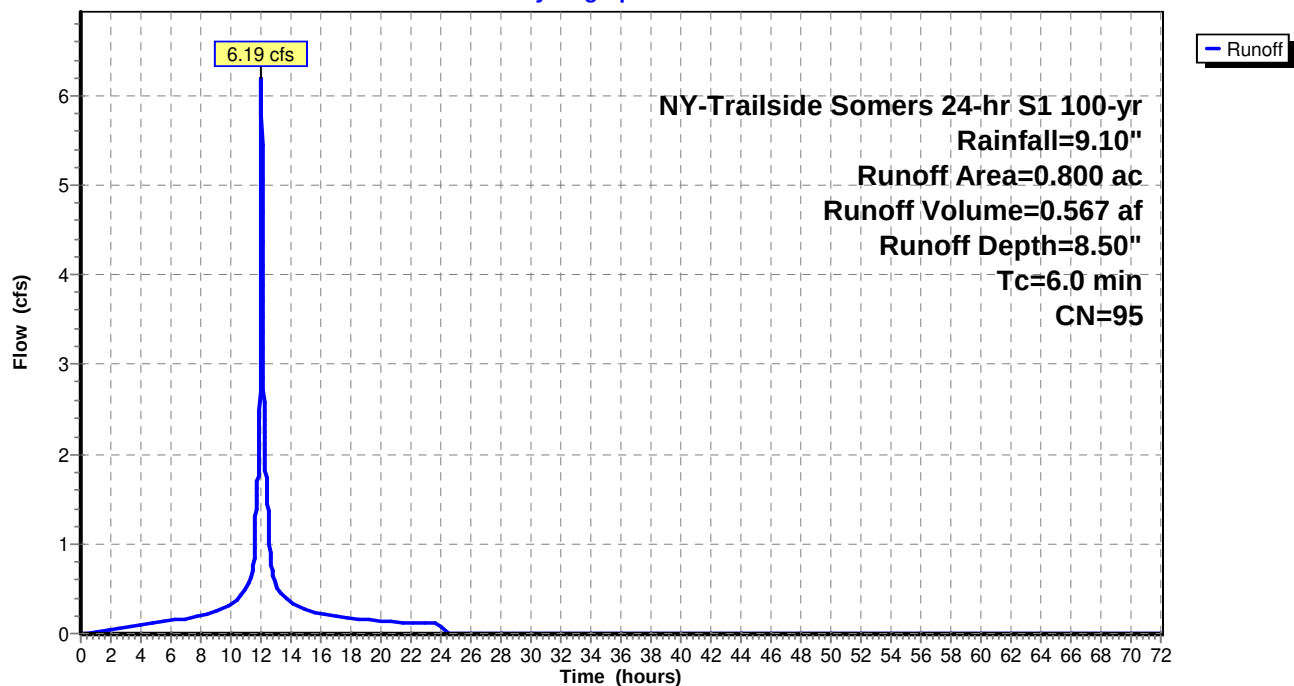
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (ac)	CN	Description
0.700	98	Paved parking, HSG C
0.100	74	>75% Grass cover, Good, HSG C
0.800	95	Weighted Average
0.100		12.50% Pervious Area
0.700		87.50% Impervious Area

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

Subcatchment 2.2S:

Hydrograph

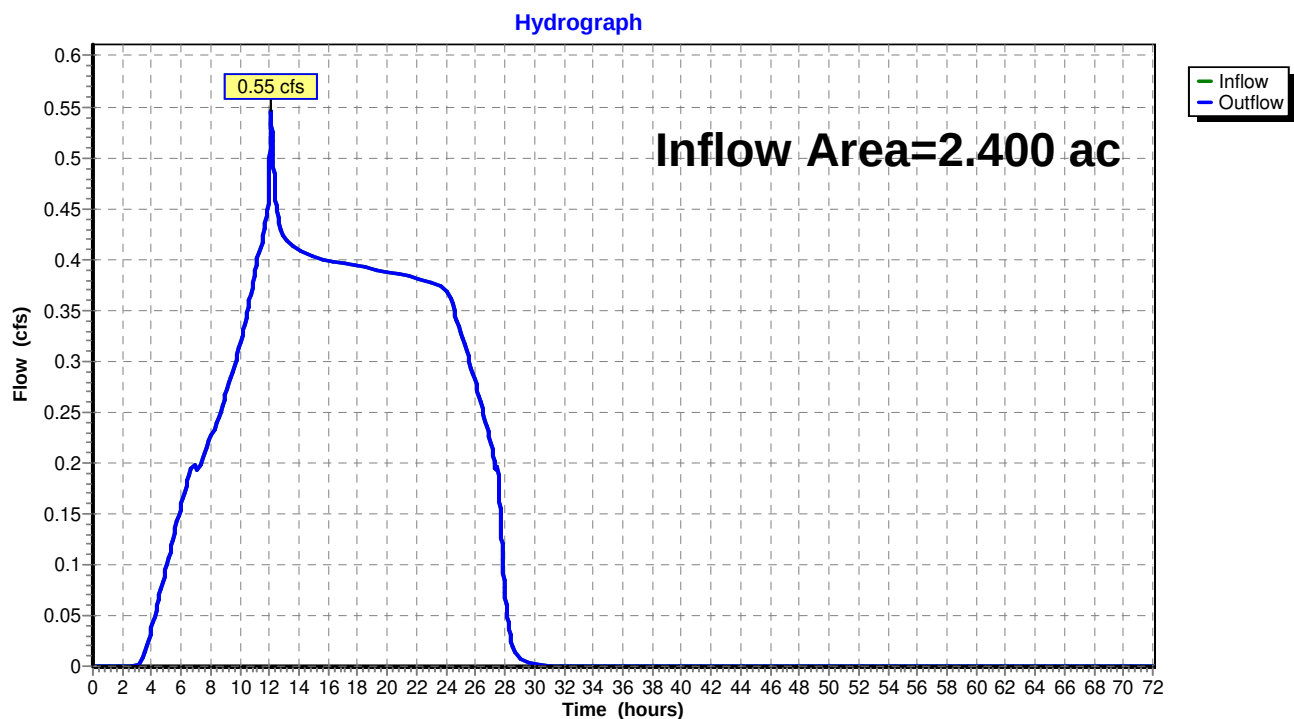


Summary for Reach 1.2F: Jellyfish Filter

Inflow Area = 2.400 ac, 54.17% Impervious, Inflow Depth = 3.22" for 100-yr event
Inflow = 0.55 cfs @ 12.10 hrs, Volume= 0.644 af
Outflow = 0.55 cfs @ 12.10 hrs, Volume= 0.644 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach 1.2F: Jellyfish Filter

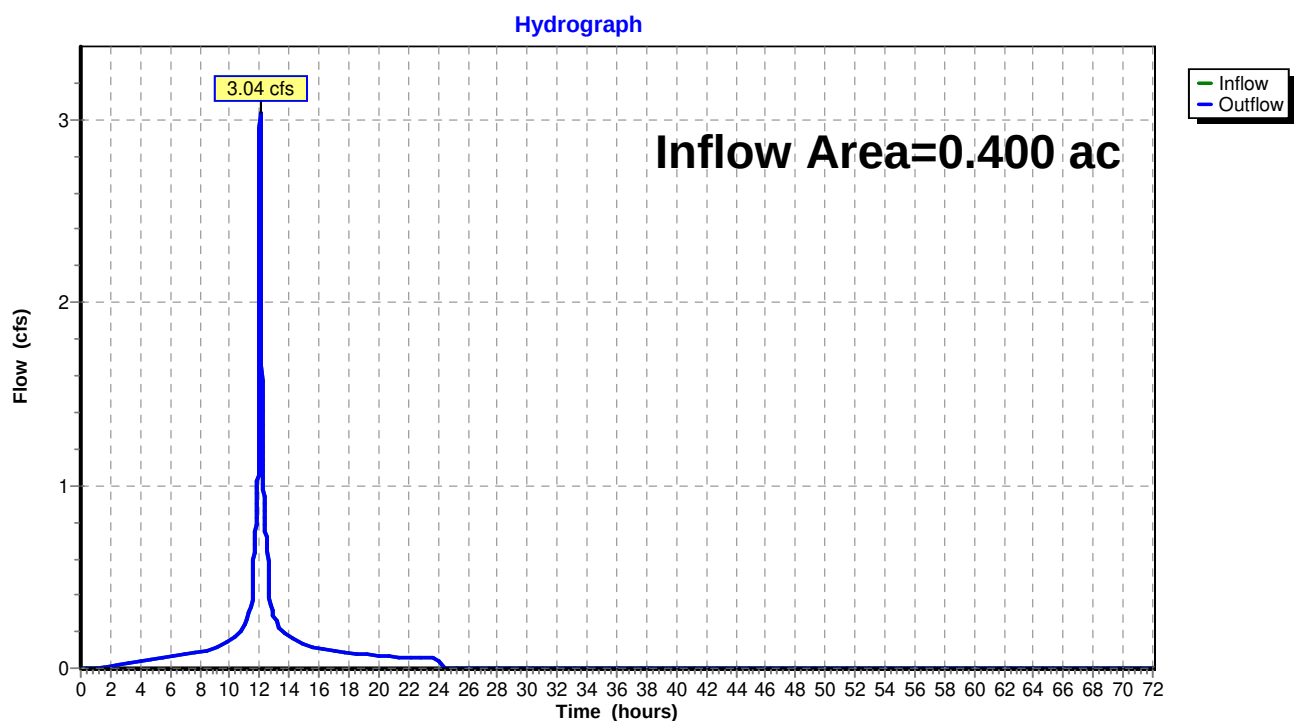


Summary for Reach 1.8F: Jellyfish Filter

Inflow Area = 0.400 ac, 75.00% Impervious, Inflow Depth = 8.13" for 100-yr event
Inflow = 3.04 cfs @ 12.04 hrs, Volume= 0.271 af
Outflow = 3.04 cfs @ 12.04 hrs, Volume= 0.271 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach 1.8F: Jellyfish Filter

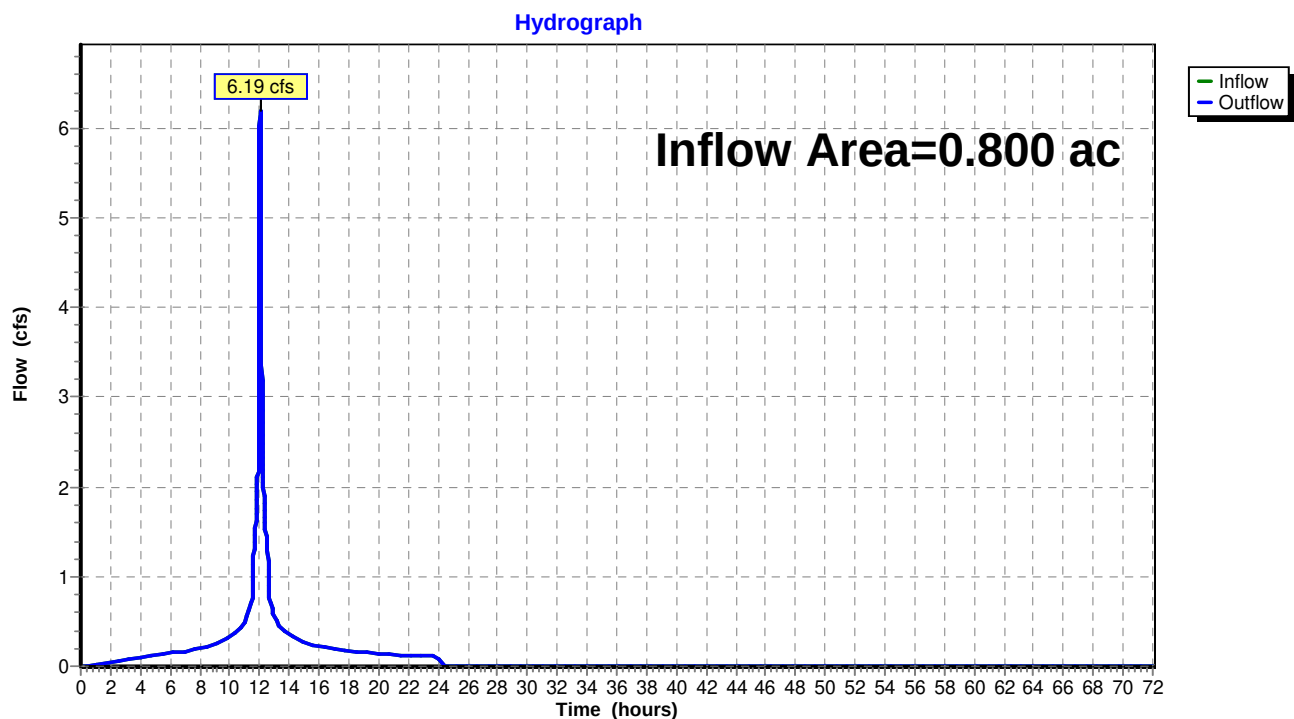


Summary for Reach 2.2F: Jellyfish Filter

Inflow Area = 0.800 ac, 87.50% Impervious, Inflow Depth = 8.50" for 100-yr event
Inflow = 6.19 cfs @ 12.04 hrs, Volume= 0.567 af
Outflow = 6.19 cfs @ 12.04 hrs, Volume= 0.567 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach 2.2F: Jellyfish Filter



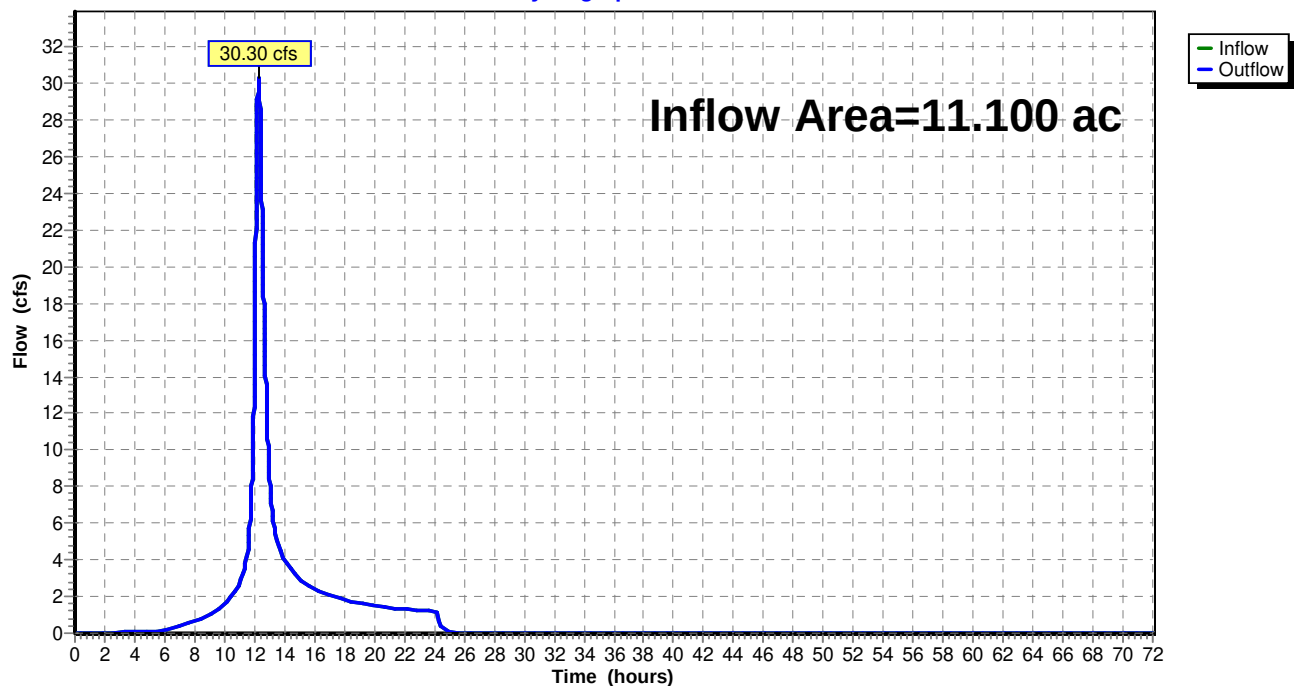
Summary for Reach DP 2: Design Point 2

Inflow Area = 11.100 ac, 11.71% Impervious, Inflow Depth = 5.01" for 100-yr event
Inflow = 30.30 cfs @ 12.28 hrs, Volume= 4.634 af
Outflow = 30.30 cfs @ 12.28 hrs, Volume= 4.634 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach DP 2: Design Point 2

Hydrograph

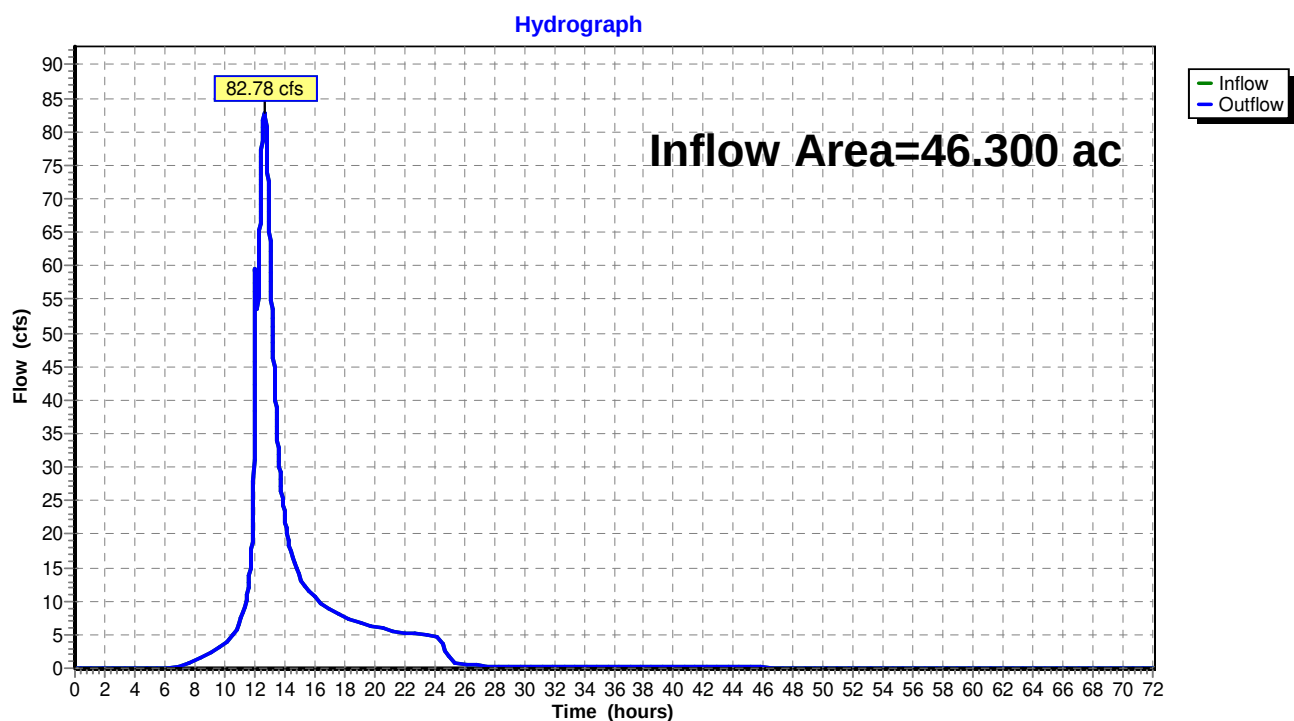


Summary for Reach DP1: Design Point 1

Inflow Area = 46.300 ac, 16.41% Impervious, Inflow Depth > 4.83" for 100-yr event
Inflow = 82.78 cfs @ 12.65 hrs, Volume= 18.618 af
Outflow = 82.78 cfs @ 12.65 hrs, Volume= 18.618 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach DP1: Design Point 1



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 151

Summary for Pond 1.1P: Wet Swale

Inflow Area = 0.600 ac, 66.67% Impervious, Inflow Depth = 7.89" for 100-yr event
Inflow = 4.49 cfs @ 12.04 hrs, Volume= 0.395 af
Outflow = 4.25 cfs @ 12.06 hrs, Volume= 0.395 af, Atten= 5%, Lag= 1.3 min
Primary = 4.25 cfs @ 12.06 hrs, Volume= 0.395 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 553.66' @ 12.06 hrs Surf.Area= 928 sf Storage= 851 cf

Plug-Flow detention time= 27.2 min calculated for 0.394 af (100% of inflow)
Center-of-Mass det. time= 27.3 min (806.7 - 779.4)

Volume	Invert	Avail.Storage	Storage Description
#1	552.00'	1,200 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
552.00	100	0	0
554.00	1,100	1,200	1,200

Device	Routing	Invert	Outlet Devices
#1	Primary	551.00'	12.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 551.00' / 550.50' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	552.00'	1.5" Vert. Orifice/Grate C= 0.600
#3	Device 1	553.00'	2.5' long 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

Primary OutFlow Max=4.24 cfs @ 12.06 hrs HW=553.66' TW=548.12' (Dynamic Tailwater)

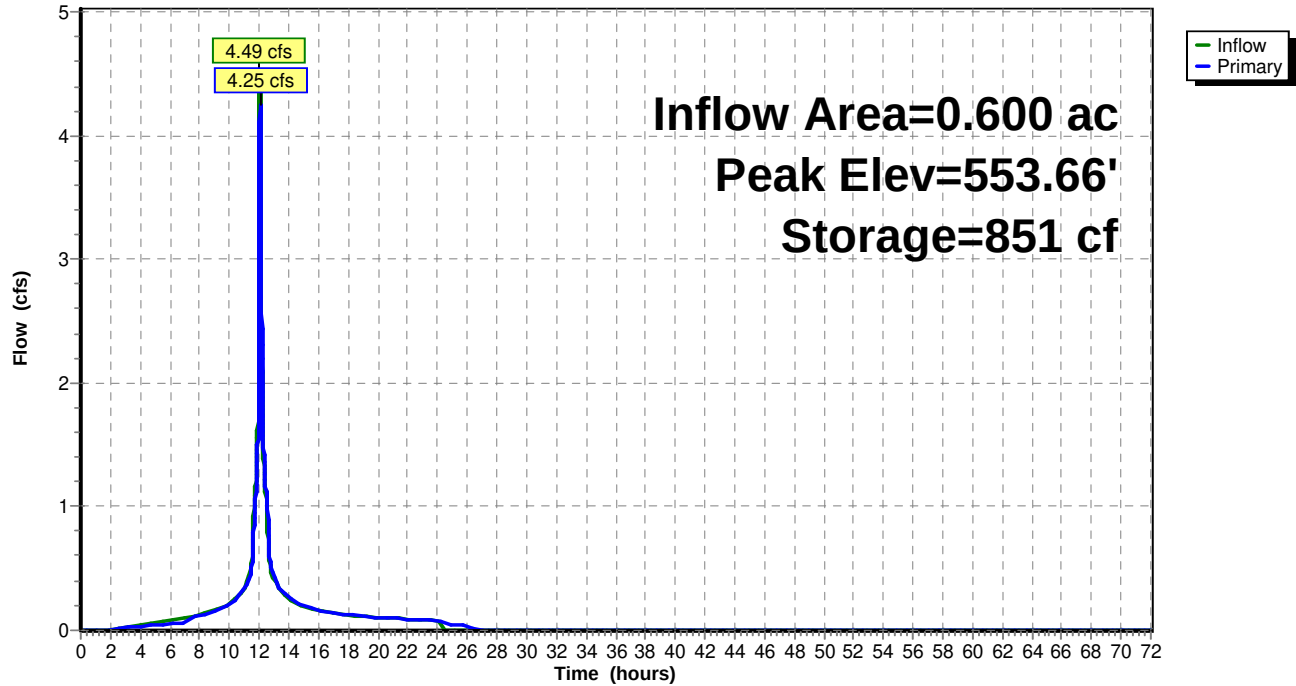
↑ **1=Culvert** (Passes 4.24 cfs of 5.49 cfs potential flow)

↑ **2=Orifice/Grate** (Orifice Controls 0.07 cfs @ 6.08 fps)

↑ **3=Broad-Crested Rectangular Weir** (Weir Controls 4.17 cfs @ 2.54 fps)

Pond 1.1P: Wet Swale

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 153

Stage-Area-Storage for Pond 1.1P: Wet Swale

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
552.00	100	0	553.04	620	374
552.02	110	2	553.06	630	387
552.04	120	4	553.08	640	400
552.06	130	7	553.10	650	413
552.08	140	10	553.12	660	426
552.10	150	13	553.14	670	439
552.12	160	16	553.16	680	452
552.14	170	19	553.18	690	466
552.16	180	22	553.20	700	480
552.18	190	26	553.22	710	494
552.20	200	30	553.24	720	508
552.22	210	34	553.26	730	523
552.24	220	38	553.28	740	538
552.26	230	43	553.30	750	552
552.28	240	48	553.32	760	568
552.30	250	52	553.34	770	583
552.32	260	58	553.36	780	598
552.34	270	63	553.38	790	614
552.36	280	68	553.40	800	630
552.38	290	74	553.42	810	646
552.40	300	80	553.44	820	662
552.42	310	86	553.46	830	679
552.44	320	92	553.48	840	696
552.46	330	99	553.50	850	713
552.48	340	106	553.52	860	730
552.50	350	113	553.54	870	747
552.52	360	120	553.56	880	764
552.54	370	127	553.58	890	782
552.56	380	134	553.60	900	800
552.58	390	142	553.62	910	818
552.60	400	150	553.64	920	836
552.62	410	158	553.66	930	855
552.64	420	166	553.68	940	874
552.66	430	175	553.70	950	893
552.68	440	184	553.72	960	912
552.70	450	193	553.74	970	931
552.72	460	202	553.76	980	950
552.74	470	211	553.78	990	970
552.76	480	220	553.80	1,000	990
552.78	490	230	553.82	1,010	1,010
552.80	500	240	553.84	1,020	1,030
552.82	510	250	553.86	1,030	1,051
552.84	520	260	553.88	1,040	1,072
552.86	530	271	553.90	1,050	1,092
552.88	540	282	553.92	1,060	1,114
552.90	550	292	553.94	1,070	1,135
552.92	560	304	553.96	1,080	1,156
552.94	570	315	553.98	1,090	1,178
552.96	580	326	554.00	1,100	1,200
552.98	590	338			
553.00	600	350			
553.02	610	362			

Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 154

Summary for Pond 1.2DS: Detention

Inflow Area = 2.400 ac, 54.17% Impervious, Inflow Depth = 7.03" for 100-yr event
 Inflow = 16.63 cfs @ 12.04 hrs, Volume= 1.407 af
 Outflow = 12.02 cfs @ 12.10 hrs, Volume= 1.407 af, Atten= 28%, Lag= 3.7 min
 Primary = 0.55 cfs @ 12.10 hrs, Volume= 0.644 af
 Secondary = 11.47 cfs @ 12.10 hrs, Volume= 0.762 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 657.87' @ 12.10 hrs Surf.Area= 0.018 ac Storage= 0.215 af

Plug-Flow detention time= 75.7 min calculated for 1.406 af (100% of inflow)
 Center-of-Mass det. time= 75.7 min (879.8 - 804.1)

Volume	Invert	Avail.Storage	Storage Description

#1	653.00'	0.216 af	60.0" Round Pipe Storage x 4 L= 120.0'

Device	Routing	Invert	Outlet Devices

#1	Primary	653.00'	4.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 653.00' / 652.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Secondary	655.30'	18.0" Round Culvert L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 655.30' / 654.50' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.55 cfs @ 12.10 hrs HW=657.87' TW=0.00' (Dynamic Tailwater)

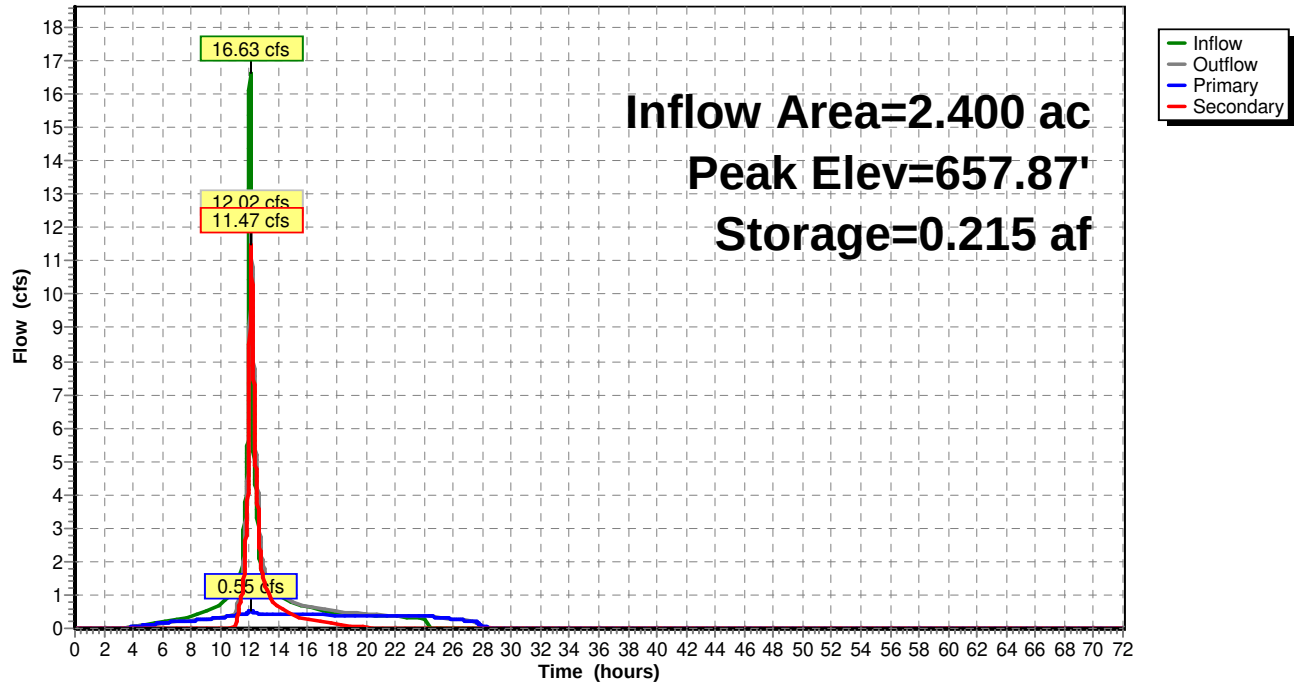
↑**1=Culvert** (Barrel Controls 0.55 cfs @ 6.25 fps)

Secondary OutFlow Max=11.47 cfs @ 12.10 hrs HW=657.87' TW=0.00' (Dynamic Tailwater)

↑**2=Culvert** (Inlet Controls 11.47 cfs @ 6.49 fps)

Pond 1.2DS: Detention

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 156

Stage-Area-Storage for Pond 1.2DS: Detention

Elevation (feet)	Storage (acre-feet)	Elevation (feet)	Storage (acre-feet)
653.00	0.000	655.60	0.114
653.05	0.000	655.65	0.116
653.10	0.001	655.70	0.119
653.15	0.002	655.75	0.122
653.20	0.003	655.80	0.125
653.25	0.004	655.85	0.127
653.30	0.005	655.90	0.130
653.35	0.007	655.95	0.133
653.40	0.008	656.00	0.136
653.45	0.010	656.05	0.138
653.50	0.011	656.10	0.141
653.55	0.013	656.15	0.144
653.60	0.015	656.20	0.146
653.65	0.017	656.25	0.149
653.70	0.018	656.30	0.151
653.75	0.020	656.35	0.154
653.80	0.022	656.40	0.157
653.85	0.024	656.45	0.159
653.90	0.026	656.50	0.162
653.95	0.029	656.55	0.164
654.00	0.031	656.60	0.167
654.05	0.033	656.65	0.169
654.10	0.035	656.70	0.172
654.15	0.038	656.75	0.174
654.20	0.040	656.80	0.176
654.25	0.042	656.85	0.179
654.30	0.045	656.90	0.181
654.35	0.047	656.95	0.183
654.40	0.050	657.00	0.186
654.45	0.052	657.05	0.188
654.50	0.055	657.10	0.190
654.55	0.057	657.15	0.192
654.60	0.060	657.20	0.194
654.65	0.062	657.25	0.196
654.70	0.065	657.30	0.198
654.75	0.067	657.35	0.200
654.80	0.070	657.40	0.202
654.85	0.073	657.45	0.203
654.90	0.075	657.50	0.205
654.95	0.078	657.55	0.207
655.00	0.081	657.60	0.208
655.05	0.084	657.65	0.210
655.10	0.086	657.70	0.211
655.15	0.089	657.75	0.212
655.20	0.092	657.80	0.213
655.25	0.094	657.85	0.214
655.30	0.097	657.90	0.215
655.35	0.100	657.95	0.216
655.40	0.103	658.00	0.216
655.45	0.105		
655.50	0.108		
655.55	0.111		

Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 157

Summary for Pond 1.2P: P-1 Pond

Inflow Area = 3.600 ac, 47.22% Impervious, Inflow Depth = 4.32" for 100-yr event
 Inflow = 6.97 cfs @ 12.07 hrs, Volume= 1.297 af
 Outflow = 0.81 cfs @ 14.59 hrs, Volume= 1.280 af, Atten= 88%, Lag= 151.1 min
 Primary = 0.81 cfs @ 14.59 hrs, Volume= 1.280 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Starting Elev= 546.00' Surf.Area= 5,700 sf Storage= 6,700 cf

Peak Elev= 548.96' @ 14.59 hrs Surf.Area= 14,616 sf Storage= 30,029 cf (23,329 cf above start)

Plug-Flow detention time= 969.7 min calculated for 1.126 af (87% of inflow)

Center-of-Mass det. time= 753.3 min (1,669.3 - 916.0)

Volume	Invert	Avail.Storage	Storage Description
#1	541.00'	3,500 cf	Forebay (Prismatic) Listed below (Recalc)
#2	541.00'	39,900 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
		43,400 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
541.00	50	0	0
543.00	350	400	400
545.00	900	1,250	1,650
546.00	2,800	1,850	3,500

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
541.00	50	0	0
543.00	250	300	300
545.00	800	1,050	1,350
546.00	2,900	1,850	3,200
548.00	10,000	12,900	16,100
550.00	13,800	23,800	39,900

Device	Routing	Invert	Outlet Devices
#1	Primary	546.00'	24.0" Round Culvert L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 546.00' / 545.70' S= 0.0120 ' / Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	546.00'	2.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	548.40'	0.5' long 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

Primary OutFlow Max=0.81 cfs @ 14.59 hrs HW=548.96' TW=0.00' (Dynamic Tailwater)

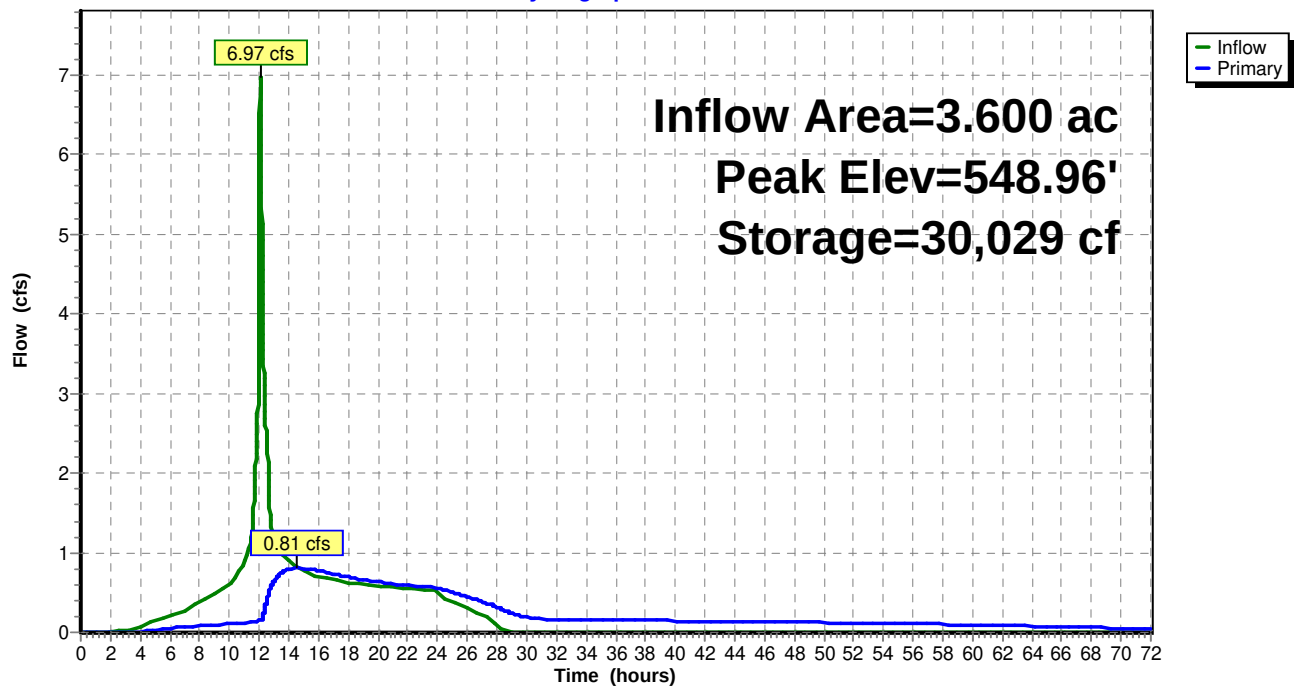
1=Culvert (Passes 0.81 cfs of 21.16 cfs potential flow)

2=Orifice/Grate (Orifice Controls 0.18 cfs @ 8.16 fps)

3=Broad-Crested Rectangular Weir (Weir Controls 0.63 cfs @ 2.27 fps)

Pond 1.2P: P-1 Pond

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 159

Stage-Area-Storage for Pond 1.2P: P-1 Pond

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
541.00	0	546.20	7,351
541.10	11	546.30	7,730
541.20	25	546.40	8,144
541.30	41	546.50	8,594
541.40	60	546.60	9,079
541.50	81	546.70	9,600
541.60	105	546.80	10,156
541.70	131	546.90	10,748
541.80	160	547.00	11,375
541.90	191	547.10	12,038
542.00	225	547.20	12,736
542.10	261	547.30	13,470
542.20	300	547.40	14,239
542.30	341	547.50	15,044
542.40	385	547.60	15,884
542.50	431	547.70	16,760
542.60	480	547.80	17,671
542.70	531	547.90	18,618
542.80	585	548.00	19,600
542.90	641	548.10	20,610
543.00	700	548.20	21,638
543.10	763	548.30	22,685
543.20	831	548.40	23,752
543.30	905	548.50	24,838
543.40	984	548.60	25,942
543.50	1,069	548.70	27,066
543.60	1,159	548.80	28,208
543.70	1,255	548.90	29,369
543.80	1,356	549.00	30,550
543.90	1,463	549.10	31,750
544.00	1,575	549.20	32,968
544.10	1,693	549.30	34,205
544.20	1,816	549.40	35,462
544.30	1,945	549.50	36,738
544.40	2,079	549.60	38,032
544.50	2,219	549.70	39,346
544.60	2,364	549.80	40,678
544.70	2,515	549.90	42,029
544.80	2,671	550.00	43,400
544.90	2,833		
545.00	3,000		
545.10	3,190		
545.20	3,420		
545.30	3,690		
545.40	4,000		
545.50	4,350		
545.60	4,740		
545.70	5,170		
545.80	5,640		
545.90	6,150		
546.00	6,700		
546.10	7,008		

Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 160

Summary for Pond 1.3P: Infiltration System

Inflow Area = 1.648 ac, 69.66% Impervious, Inflow Depth = 6.72" for 100-yr event
 Inflow = 3.85 cfs @ 12.04 hrs, Volume= 0.923 af
 Outflow = 1.07 cfs @ 13.06 hrs, Volume= 0.923 af, Atten= 72%, Lag= 61.7 min
 Discarded = 0.77 cfs @ 10.95 hrs, Volume= 0.894 af
 Primary = 0.30 cfs @ 13.06 hrs, Volume= 0.028 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 566.86' @ 13.06 hrs Surf.Area= 5,528 sf Storage= 10,557 cf

Plug-Flow detention time= 93.9 min calculated for 0.923 af (100% of inflow)
 Center-of-Mass det. time= 93.9 min (892.6 - 798.7)

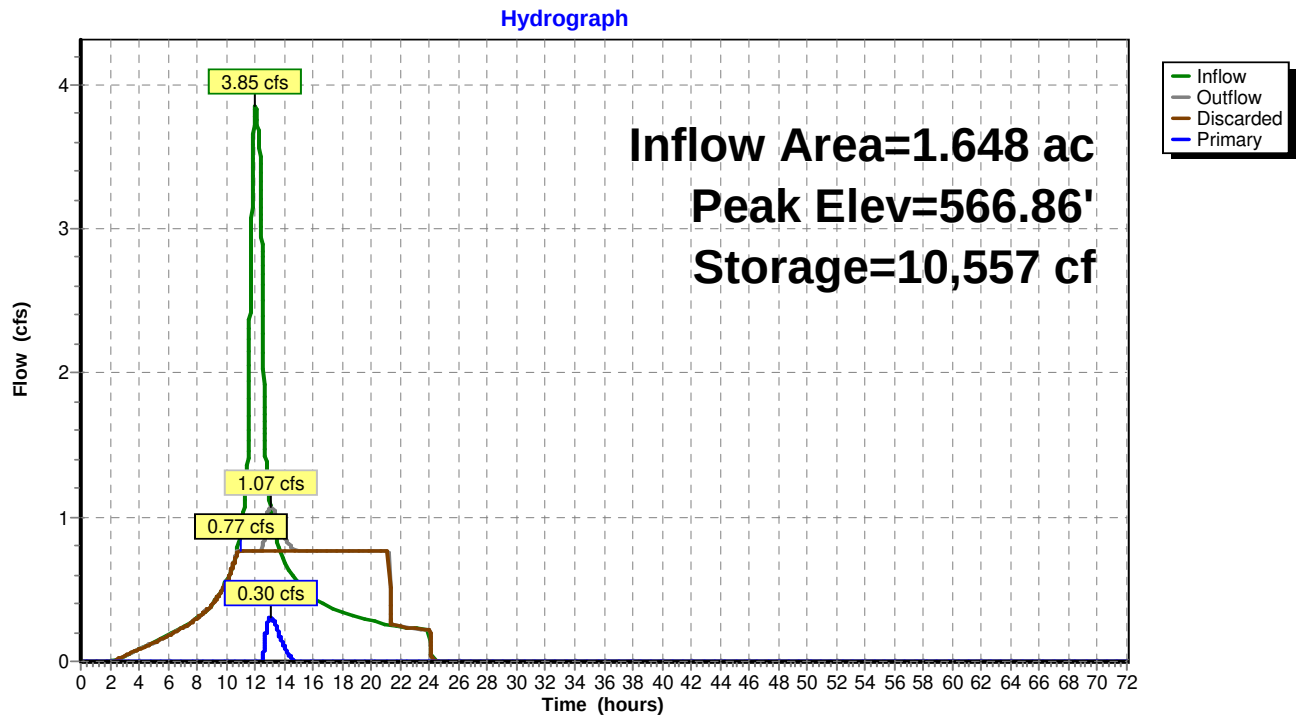
Volume	Invert	Avail.Storage	Storage Description
#1A	564.00'	4,901 cf	34.75'W x 159.08'L x 3.50'H Field A 19,348 cf Overall - 7,095 cf Embedded = 12,253 cf x 40.0% Voids
#2A	564.50'	7,095 cf	ADS StormTech SC-740 x 154 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 7 rows
		11,996 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	564.00'	6.000 in/hr Exfiltration over Horizontal area Phase-In= 0.02'
#2	Primary	566.50'	6.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 566.50' / 562.00' S= 0.0900 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.77 cfs @ 10.95 hrs HW=564.04' (Free Discharge)↑ **1=Exfiltration** (Exfiltration Controls 0.77 cfs)**Primary OutFlow** Max=0.30 cfs @ 13.06 hrs HW=566.86' TW=0.00' (Dynamic Tailwater)↑ **2=Culvert** (Inlet Controls 0.30 cfs @ 2.03 fps)

Pond 1.3P: Infiltration System



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 162

Stage-Area-Storage for Pond 1.3P: Infiltration System

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
564.00	5,528	0	566.60	5,528	9,843
564.05	5,528	111	566.65	5,528	9,998
564.10	5,528	221	566.70	5,528	10,146
564.15	5,528	332	566.75	5,528	10,286
564.20	5,528	442	566.80	5,528	10,417
564.25	5,528	553	566.85	5,528	10,542
564.30	5,528	663	566.90	5,528	10,662
564.35	5,528	774	566.95	5,528	10,778
564.40	5,528	884	567.00	5,528	10,890
564.45	5,528	995	567.05	5,528	11,001
564.50	5,528	1,106	567.10	5,528	11,112
564.55	5,528	1,339	567.15	5,528	11,222
564.60	5,528	1,572	567.20	5,528	11,333
564.65	5,528	1,805	567.25	5,528	11,443
564.70	5,528	2,037	567.30	5,528	11,554
564.75	5,528	2,268	567.35	5,528	11,664
564.80	5,528	2,499	567.40	5,528	11,775
564.85	5,528	2,729	567.45	5,528	11,885
564.90	5,528	2,958	567.50	5,528	11,996
564.95	5,528	3,186			
565.00	5,528	3,413			
565.05	5,528	3,639			
565.10	5,528	3,864			
565.15	5,528	4,088			
565.20	5,528	4,311			
565.25	5,528	4,533			
565.30	5,528	4,754			
565.35	5,528	4,973			
565.40	5,528	5,191			
565.45	5,528	5,408			
565.50	5,528	5,624			
565.55	5,528	5,838			
565.60	5,528	6,050			
565.65	5,528	6,261			
565.70	5,528	6,470			
565.75	5,528	6,678			
565.80	5,528	6,883			
565.85	5,528	7,087			
565.90	5,528	7,289			
565.95	5,528	7,489			
566.00	5,528	7,687			
566.05	5,528	7,883			
566.10	5,528	8,076			
566.15	5,528	8,267			
566.20	5,528	8,455			
566.25	5,528	8,640			
566.30	5,528	8,822			
566.35	5,528	9,001			
566.40	5,528	9,177			
566.45	5,528	9,350			
566.50	5,528	9,519			
566.55	5,528	9,683			

Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 163

Summary for Pond 1.5P: Infiltration System

Inflow Area = 0.800 ac, 87.50% Impervious, Inflow Depth = 7.61" for 100-yr event
 Inflow = 2.45 cfs @ 12.04 hrs, Volume= 0.507 af
 Outflow = 0.87 cfs @ 11.63 hrs, Volume= 0.507 af, Atten= 65%, Lag= 0.0 min
 Discarded = 0.87 cfs @ 11.63 hrs, Volume= 0.507 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 564.21' @ 12.62 hrs Surf.Area= 3,753 sf Storage= 3,551 cf

Plug-Flow detention time= 18.3 min calculated for 0.507 af (100% of inflow)

Center-of-Mass det. time= 18.3 min (788.8 - 770.5)

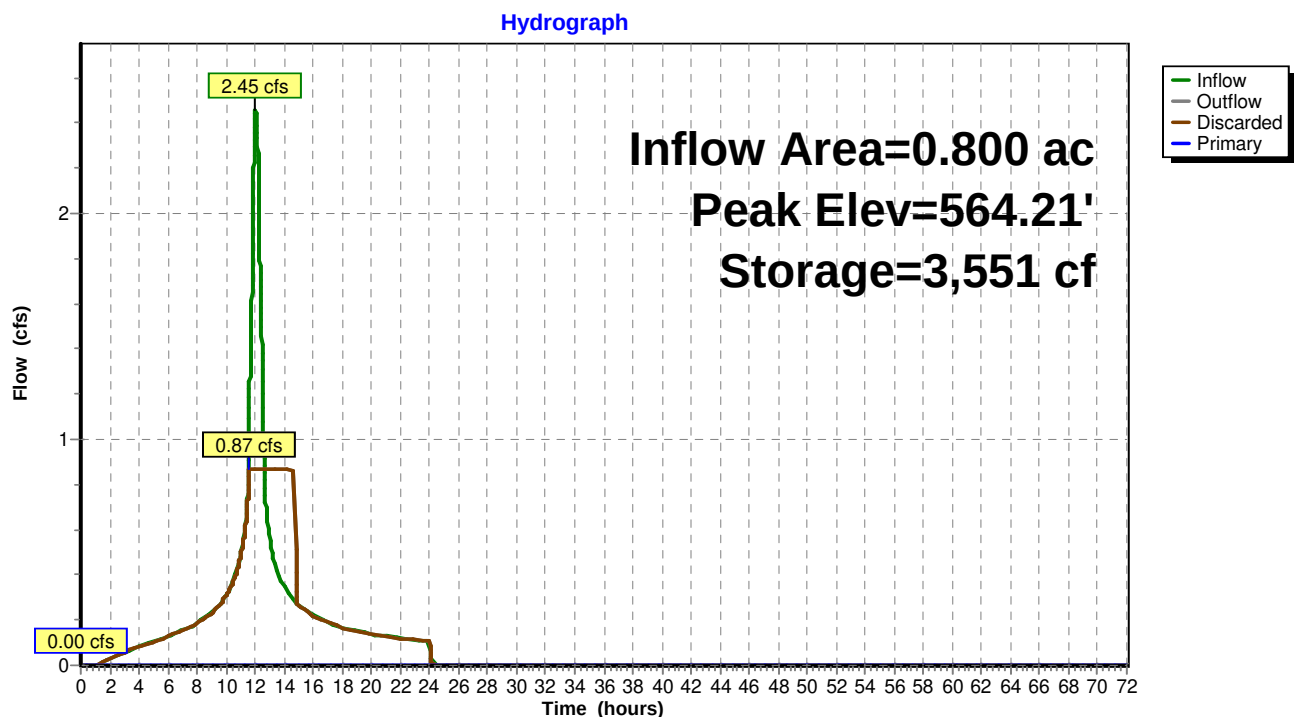
Volume	Invert	Avail.Storage	Storage Description
#1A	562.80'	3,333 cf	39.50'W x 95.00'L x 3.50'H Field A 13,134 cf Overall - 4,800 cf Embedded = 8,333 cf x 40.0% Voids
#2A	563.30'	4,800 cf	ADS StormTech SC-740 x 104 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 8 rows
		8,134 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	562.80'	10.000 in/hr Exfiltration over Horizontal area Phase-In= 0.04'
#2	Primary	565.30'	6.0" Round Culvert L= 90.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 565.30' / 556.00' S= 0.1033 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.87 cfs @ 11.63 hrs HW=562.88' (Free Discharge)↑ **1=Exfiltration** (Exfiltration Controls 0.87 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=562.80' TW=0.00' (Dynamic Tailwater)↑ **2=Culvert** (Controls 0.00 cfs)

Pond 1.5P: Infiltration System



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 165

Stage-Area-Storage for Pond 1.5P: Infiltration System

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
562.80	3,753	0	565.40	3,753	6,673
562.85	3,753	75	565.45	3,753	6,778
562.90	3,753	150	565.50	3,753	6,878
562.95	3,753	225	565.55	3,753	6,973
563.00	3,753	300	565.60	3,753	7,062
563.05	3,753	375	565.65	3,753	7,147
563.10	3,753	450	565.70	3,753	7,228
563.15	3,753	525	565.75	3,753	7,307
563.20	3,753	600	565.80	3,753	7,383
563.25	3,753	675	565.85	3,753	7,458
563.30	3,753	751	565.90	3,753	7,533
563.35	3,753	909	565.95	3,753	7,608
563.40	3,753	1,066	566.00	3,753	7,683
563.45	3,753	1,224	566.05	3,753	7,759
563.50	3,753	1,381	566.10	3,753	7,834
563.55	3,753	1,538	566.15	3,753	7,909
563.60	3,753	1,695	566.20	3,753	7,984
563.65	3,753	1,850	566.25	3,753	8,059
563.70	3,753	2,006	566.30	3,753	8,134
563.75	3,753	2,160			
563.80	3,753	2,314			
563.85	3,753	2,468			
563.90	3,753	2,620			
563.95	3,753	2,772			
564.00	3,753	2,923			
564.05	3,753	3,073			
564.10	3,753	3,223			
564.15	3,753	3,372			
564.20	3,753	3,519			
564.25	3,753	3,666			
564.30	3,753	3,812			
564.35	3,753	3,958			
564.40	3,753	4,102			
564.45	3,753	4,244			
564.50	3,753	4,386			
564.55	3,753	4,527			
564.60	3,753	4,666			
564.65	3,753	4,804			
564.70	3,753	4,941			
564.75	3,753	5,077			
564.80	3,753	5,211			
564.85	3,753	5,344			
564.90	3,753	5,475			
564.95	3,753	5,604			
565.00	3,753	5,732			
565.05	3,753	5,857			
565.10	3,753	5,980			
565.15	3,753	6,102			
565.20	3,753	6,221			
565.25	3,753	6,338			
565.30	3,753	6,453			
565.35	3,753	6,564			

Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 166

Summary for Pond 1.6P: Infiltration System

Inflow Area = 1.800 ac, 88.89% Impervious, Inflow Depth = 7.84" for 100-yr event
Inflow = 6.21 cfs @ 12.04 hrs, Volume= 1.175 af
Outflow = 0.86 cfs @ 10.78 hrs, Volume= 1.175 af, Atten= 86%, Lag= 0.0 min
Discarded = 0.86 cfs @ 10.78 hrs, Volume= 1.175 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 597.97' @ 13.75 hrs Surf.Area= 9,246 sf Storage= 15,579 cf

Plug-Flow detention time= 133.8 min calculated for 1.175 af (100% of inflow)
Center-of-Mass det. time= 133.8 min (898.6 - 764.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	595.50'	8,308 cf	20.50'W x 451.00'L x 3.50'H Field A 32,359 cf Overall - 11,588 cf Embedded = 20,771 cf x 40.0% Voids
#2A	596.00'	11,588 cf	ADS StormTech SC-740 x 252 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.45 sf x 4 rows
		19,897 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	595.50'	4.000 in/hr Exfiltration over Horizontal area Phase-In= 0.02'
#2	Primary	598.00'	6.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 598.00' / 597.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Discarded OutFlow Max=0.86 cfs @ 10.78 hrs HW=595.54' (Free Discharge)

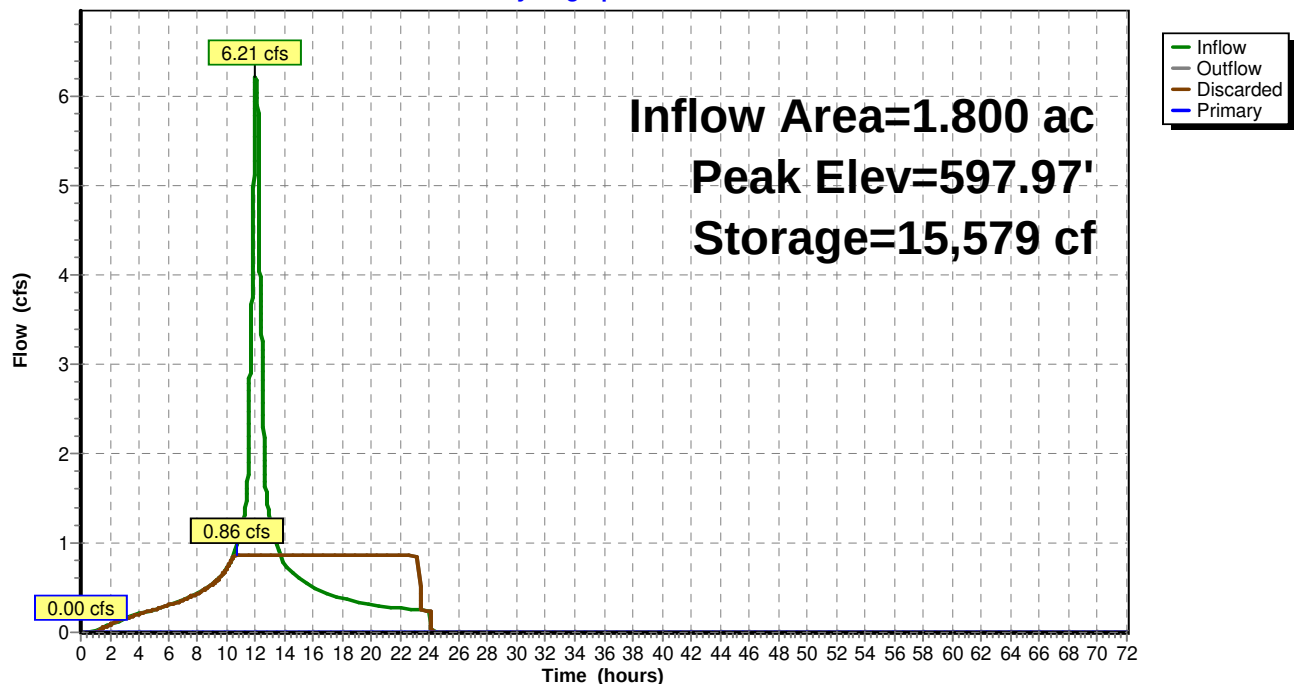
↑ **1=Exfiltration** (Exfiltration Controls 0.86 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=595.50' TW=0.00' (Dynamic Tailwater)

↑ **2=Culvert** (Controls 0.00 cfs)

Pond 1.6P: Infiltration System

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 168

Stage-Area-Storage for Pond 1.6P: Infiltration System

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
595.50	9,246	0	598.10	9,246	16,303
595.55	9,246	185	598.15	9,246	16,560
595.60	9,246	370	598.20	9,246	16,806
595.65	9,246	555	598.25	9,246	17,038
595.70	9,246	740	598.30	9,246	17,258
595.75	9,246	925	598.35	9,246	17,465
595.80	9,246	1,109	598.40	9,246	17,665
595.85	9,246	1,294	598.45	9,246	17,859
595.90	9,246	1,479	598.50	9,246	18,048
595.95	9,246	1,664	598.55	9,246	18,232
596.00	9,246	1,849	598.60	9,246	18,417
596.05	9,246	2,234	598.65	9,246	18,602
596.10	9,246	2,619	598.70	9,246	18,787
596.15	9,246	3,004	598.75	9,246	18,972
596.20	9,246	3,387	598.80	9,246	19,157
596.25	9,246	3,770	598.85	9,246	19,342
596.30	9,246	4,151	598.90	9,246	19,527
596.35	9,246	4,530	598.95	9,246	19,712
596.40	9,246	4,909	599.00	9,246	19,897
596.45	9,246	5,286			
596.50	9,246	5,661			
596.55	9,246	6,035			
596.60	9,246	6,407			
596.65	9,246	6,777			
596.70	9,246	7,146			
596.75	9,246	7,513			
596.80	9,246	7,877			
596.85	9,246	8,240			
596.90	9,246	8,601			
596.95	9,246	8,959			
597.00	9,246	9,315			
597.05	9,246	9,669			
597.10	9,246	10,021			
597.15	9,246	10,370			
597.20	9,246	10,715			
597.25	9,246	11,058			
597.30	9,246	11,399			
597.35	9,246	11,736			
597.40	9,246	12,070			
597.45	9,246	12,401			
597.50	9,246	12,728			
597.55	9,246	13,052			
597.60	9,246	13,373			
597.65	9,246	13,689			
597.70	9,246	14,001			
597.75	9,246	14,307			
597.80	9,246	14,609			
597.85	9,246	14,905			
597.90	9,246	15,197			
597.95	9,246	15,483			
598.00	9,246	15,764			
598.05	9,246	16,037			

Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 169

Summary for Pond 1.7P: Infiltration Basin

Inflow Area = 3.200 ac, 53.13% Impervious, Inflow Depth > 4.10" for 100-yr event
 Inflow = 1.20 cfs @ 12.52 hrs, Volume= 1.095 af
 Outflow = 1.20 cfs @ 12.53 hrs, Volume= 1.095 af, Atten= 0%, Lag= 0.5 min
 Discarded = 1.20 cfs @ 12.53 hrs, Volume= 1.095 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 606.00' @ 12.53 hrs Surf.Area= 10,605 sf Storage= 37 cf

Plug-Flow detention time= 0.5 min calculated for 1.094 af (100% of inflow)

Center-of-Mass det. time= 0.5 min (1,048.4 - 1,047.9)

Volume	Invert	Avail.Storage	Storage Description
#1	606.00'	37,800 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

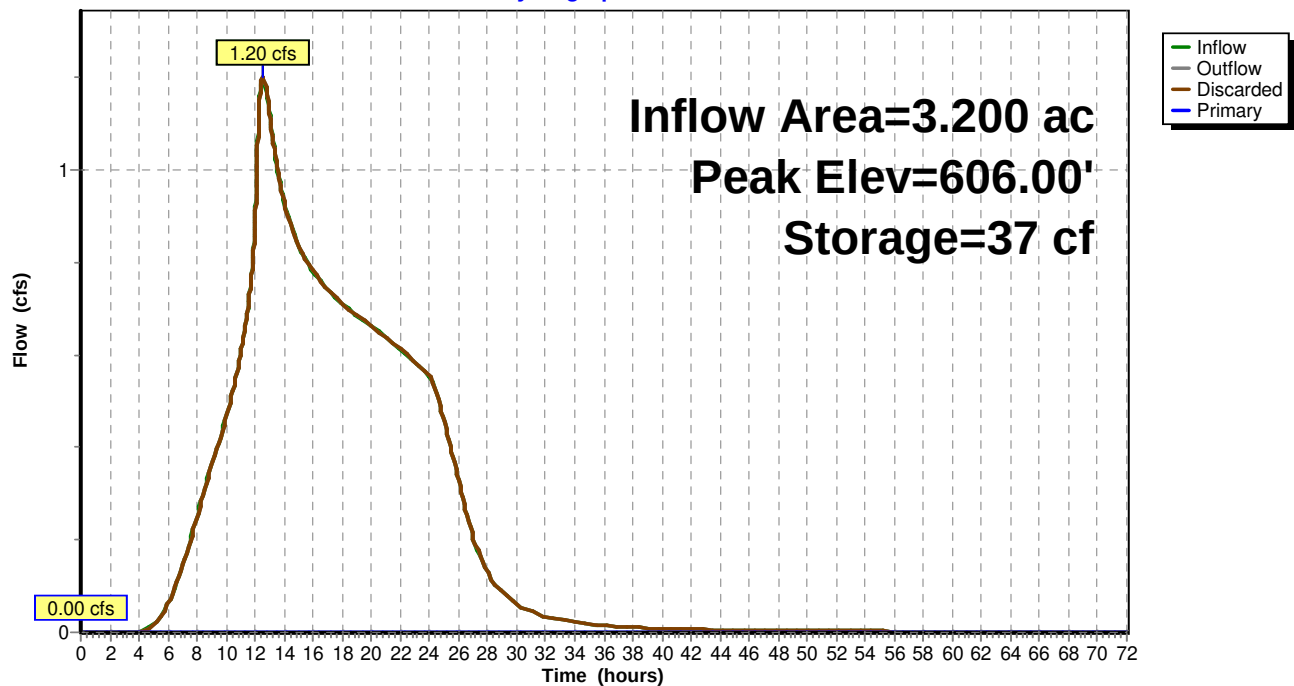
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
606.00	10,600	0	0
609.00	14,600	37,800	37,800

Device	Routing	Invert	Outlet Devices
#1	Discarded	606.00'	14.000 in/hr Exfiltration over Horizontal area Phase-In= 0.01'
#2	Primary	607.60'	4.0' long 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=1.20 cfs @ 12.53 hrs HW=606.00' (Free Discharge)↑ **1=Exfiltration** (Exfiltration Controls 1.20 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=606.00' TW=0.00' (Dynamic Tailwater)↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.7P: Infiltration Basin

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 171

Stage-Area-Storage for Pond 1.7P: Infiltration Basin

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
606.00	10,600	10,600	0
606.10	10,733	10,733	1,067
606.20	10,867	10,867	2,147
606.30	11,000	11,000	3,240
606.40	11,133	11,133	4,347
606.50	11,267	11,267	5,467
606.60	11,400	11,400	6,600
606.70	11,533	11,533	7,747
606.80	11,667	11,667	8,907
606.90	11,800	11,800	10,080
607.00	11,933	11,933	11,267
607.10	12,067	12,067	12,467
607.20	12,200	12,200	13,680
607.30	12,333	12,333	14,907
607.40	12,467	12,467	16,147
607.50	12,600	12,600	17,400
607.60	12,733	12,733	18,667
607.70	12,867	12,867	19,947
607.80	13,000	13,000	21,240
607.90	13,133	13,133	22,547
608.00	13,267	13,267	23,867
608.10	13,400	13,400	25,200
608.20	13,533	13,533	26,547
608.30	13,667	13,667	27,907
608.40	13,800	13,800	29,280
608.50	13,933	13,933	30,667
608.60	14,067	14,067	32,067
608.70	14,200	14,200	33,480
608.80	14,333	14,333	34,907
608.90	14,467	14,467	36,347
609.00	14,600	14,600	37,800

Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 172

Summary for Pond 1.7PT: Pretreatment Basin

Inflow Area = 3.200 ac, 53.13% Impervious, Inflow Depth = 7.16" for 100-yr event
 Inflow = 15.30 cfs @ 12.18 hrs, Volume= 1.908 af
 Outflow = 6.98 cfs @ 12.52 hrs, Volume= 1.905 af, Atten= 54%, Lag= 20.3 min
 Primary = 1.20 cfs @ 12.52 hrs, Volume= 1.095 af
 Secondary = 5.78 cfs @ 12.52 hrs, Volume= 0.811 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 609.84' @ 12.52 hrs Surf.Area= 10,661 sf Storage= 25,609 cf

Plug-Flow detention time= 135.1 min calculated for 1.905 af (100% of inflow)
 Center-of-Mass det. time= 134.1 min (944.9 - 810.8)

Volume	Invert	Avail.Storage	Storage Description
#1	607.00'	38,800 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
607.00	7,400	0	0
611.00	12,000	38,800	38,800

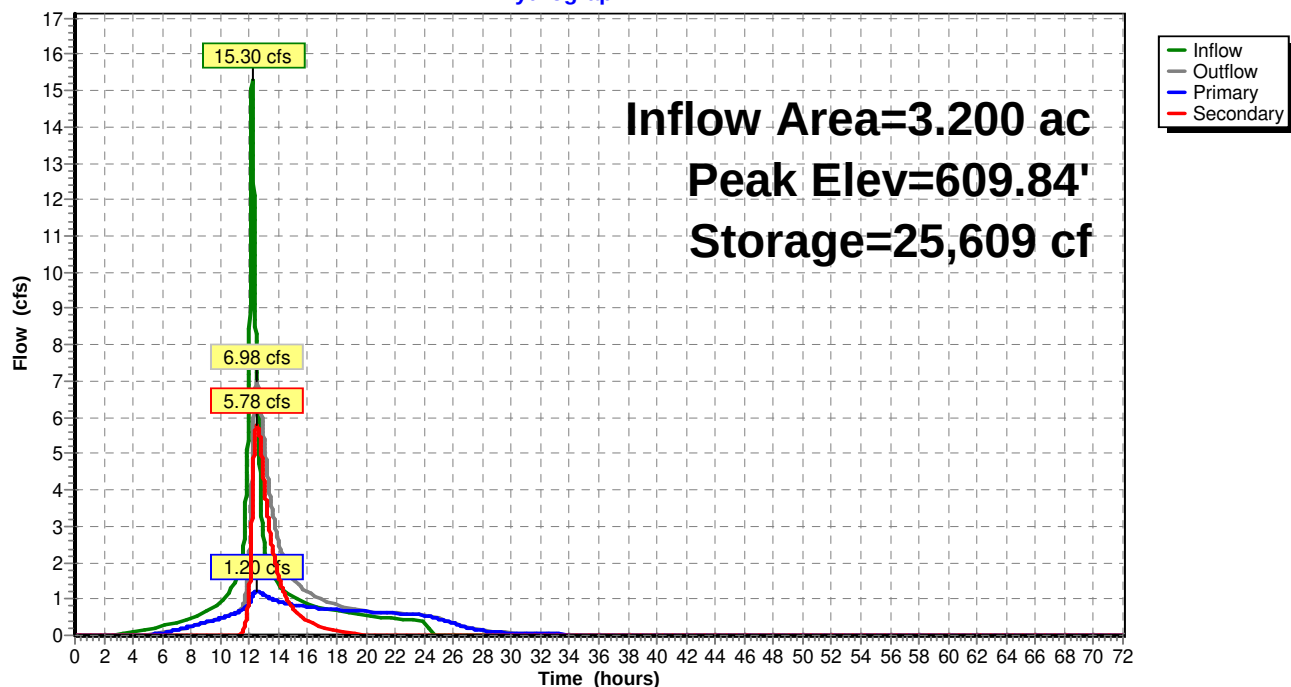
Device	Routing	Invert	Outlet Devices
#1	Primary	607.00'	6.0" Round Culvert L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 607.00' / 606.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	608.00'	0.7' long x 0.5' breadth Broad-Crested 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

Primary OutFlow Max=1.20 cfs @ 12.52 hrs HW=609.84' TW=606.00' (Dynamic Tailwater)
 ↑1=Culvert (Inlet Controls 1.20 cfs @ 6.11 fps)

Secondary OutFlow Max=5.78 cfs @ 12.52 hrs HW=609.84' TW=0.00' (Dynamic Tailwater)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 5.78 cfs @ 4.50 fps)

Pond 1.7PT: Pretreatment Basin

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 174

Stage-Area-Storage for Pond 1.7PT: Pretreatment Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
607.00	7,400	0	609.60	10,390	23,127
607.05	7,457	371	609.65	10,447	23,648
607.10	7,515	746	609.70	10,505	24,172
607.15	7,572	1,123	609.75	10,563	24,698
607.20	7,630	1,503	609.80	10,620	25,228
607.25	7,688	1,886	609.85	10,678	25,760
607.30	7,745	2,272	609.90	10,735	26,296
607.35	7,803	2,660	609.95	10,793	26,834
607.40	7,860	3,052	610.00	10,850	27,375
607.45	7,918	3,446	610.05	10,907	27,919
607.50	7,975	3,844	610.10	10,965	28,466
607.55	8,032	4,244	610.15	11,022	29,015
607.60	8,090	4,647	610.20	11,080	29,568
607.65	8,147	5,053	610.25	11,138	30,123
607.70	8,205	5,462	610.30	11,195	30,682
607.75	8,263	5,873	610.35	11,253	31,243
607.80	8,320	6,288	610.40	11,310	31,807
607.85	8,378	6,705	610.45	11,368	32,374
607.90	8,435	7,126	610.50	11,425	32,944
607.95	8,493	7,549	610.55	11,482	33,516
608.00	8,550	7,975	610.60	11,540	34,092
608.05	8,607	8,404	610.65	11,597	34,670
608.10	8,665	8,836	610.70	11,655	35,252
608.15	8,722	9,270	610.75	11,713	35,836
608.20	8,780	9,708	610.80	11,770	36,423
608.25	8,838	10,148	610.85	11,828	37,013
608.30	8,895	10,592	610.90	11,885	37,606
608.35	8,953	11,038	610.95	11,943	38,201
608.40	9,010	11,487	611.00	12,000	38,800
608.45	9,068	11,939			
608.50	9,125	12,394			
608.55	9,182	12,851			
608.60	9,240	13,312			
608.65	9,297	13,775			
608.70	9,355	14,242			
608.75	9,413	14,711			
608.80	9,470	15,183			
608.85	9,528	15,658			
608.90	9,585	16,136			
608.95	9,643	16,616			
609.00	9,700	17,100			
609.05	9,757	17,586			
609.10	9,815	18,076			
609.15	9,872	18,568			
609.20	9,930	19,063			
609.25	9,988	19,561			
609.30	10,045	20,062			
609.35	10,103	20,565			
609.40	10,160	21,072			
609.45	10,218	21,581			
609.50	10,275	22,094			
609.55	10,332	22,609			

Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 175

Summary for Pond 1.8P: Wet Swale

Inflow Area = 0.400 ac, 75.00% Impervious, Inflow Depth = 8.13" for 100-yr event
Inflow = 3.04 cfs @ 12.04 hrs, Volume= 0.271 af
Outflow = 2.88 cfs @ 12.06 hrs, Volume= 0.271 af, Atten= 5%, Lag= 1.3 min
Primary = 2.88 cfs @ 12.06 hrs, Volume= 0.271 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 605.59' @ 12.06 hrs Surf.Area= 658 sf Storage= 604 cf

Plug-Flow detention time= 29.0 min calculated for 0.271 af (100% of inflow)
Center-of-Mass det. time= 29.1 min (800.3 - 771.2)

Volume	Invert	Avail.Storage	Storage Description
#1	604.00'	900 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
604.00	100	0	0
606.00	800	900	900

Device	Routing	Invert	Outlet Devices
#1	Primary	603.00'	12.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 603.00' / 602.50' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	604.00'	1.5" Vert. Orifice/Grate C= 0.600
#3	Device 1	605.00'	2.0' long 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

Primary OutFlow Max=2.88 cfs @ 12.06 hrs HW=605.59' TW=0.00' (Dynamic Tailwater)

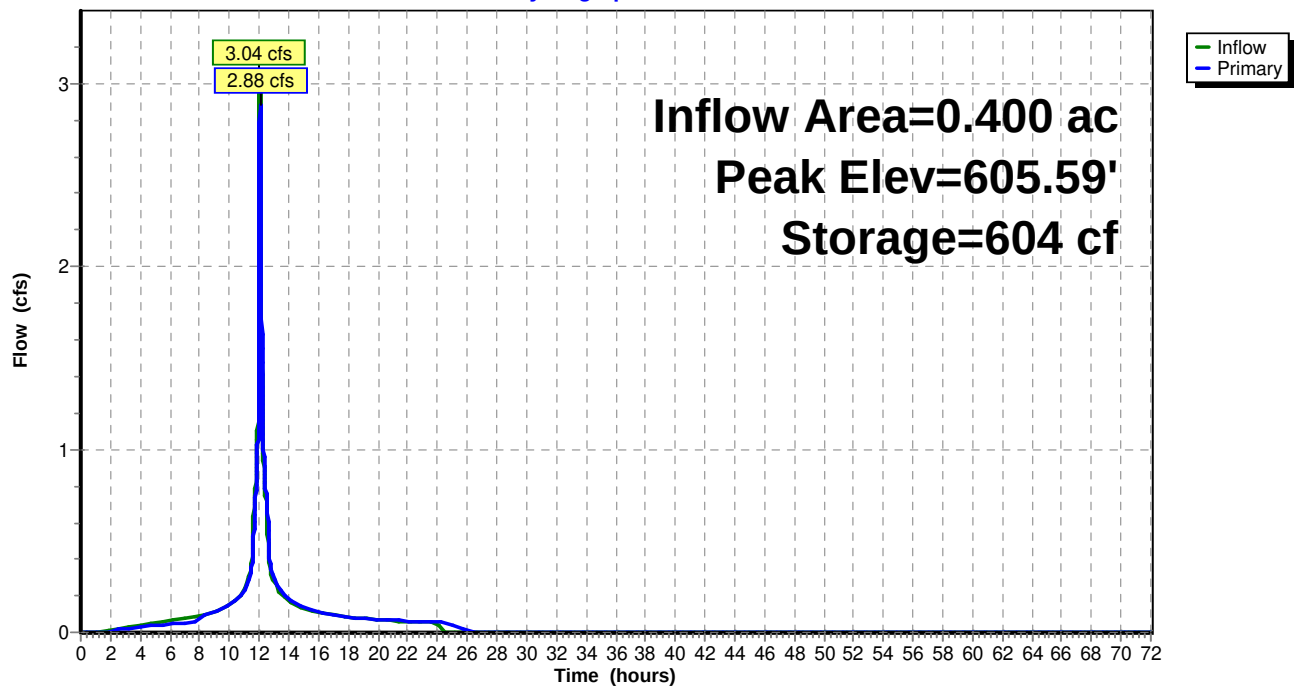
↑ **1=Culvert** (Passes 2.88 cfs of 5.41 cfs potential flow)

↑ **2=Orifice/Grate** (Orifice Controls 0.07 cfs @ 5.96 fps)

↑ **3=Broad-Crested Rectangular Weir** (Weir Controls 2.80 cfs @ 2.37 fps)

Pond 1.8P: Wet Swale

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 177

Stage-Area-Storage for Pond 1.8P: Wet Swale

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
604.00	100	0	605.04	464	293
604.02	107	2	605.06	471	303
604.04	114	4	605.08	478	312
604.06	121	7	605.10	485	322
604.08	128	9	605.12	492	332
604.10	135	12	605.14	499	341
604.12	142	15	605.16	506	351
604.14	149	17	605.18	513	362
604.16	156	20	605.20	520	372
604.18	163	24	605.22	527	382
604.20	170	27	605.24	534	393
604.22	177	30	605.26	541	404
604.24	184	34	605.28	548	415
604.26	191	38	605.30	555	426
604.28	198	42	605.32	562	437
604.30	205	46	605.34	569	448
604.32	212	50	605.36	576	460
604.34	219	54	605.38	583	471
604.36	226	59	605.40	590	483
604.38	233	63	605.42	597	495
604.40	240	68	605.44	604	507
604.42	247	73	605.46	611	519
604.44	254	78	605.48	618	531
604.46	261	83	605.50	625	544
604.48	268	88	605.52	632	556
604.50	275	94	605.54	639	569
604.52	282	99	605.56	646	582
604.54	289	105	605.58	653	595
604.56	296	111	605.60	660	608
604.58	303	117	605.62	667	621
604.60	310	123	605.64	674	635
604.62	317	129	605.66	681	648
604.64	324	136	605.68	688	662
604.66	331	142	605.70	695	676
604.68	338	149	605.72	702	690
604.70	345	156	605.74	709	704
604.72	352	163	605.76	716	718
604.74	359	170	605.78	723	732
604.76	366	177	605.80	730	747
604.78	373	184	605.82	737	762
604.80	380	192	605.84	744	776
604.82	387	200	605.86	751	791
604.84	394	207	605.88	758	807
604.86	401	215	605.90	765	822
604.88	408	224	605.92	772	837
604.90	415	232	605.94	779	853
604.92	422	240	605.96	786	868
604.94	429	249	605.98	793	884
604.96	436	257	606.00	800	900
604.98	443	266			
605.00	450	275			
605.02	457	284			

Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 178

Summary for Pond 2.1P: Infiltration Basin

Inflow Area = 1.300 ac, 46.15% Impervious, Inflow Depth > 4.85" for 100-yr event
 Inflow = 0.99 cfs @ 12.18 hrs, Volume= 0.525 af
 Outflow = 0.30 cfs @ 16.19 hrs, Volume= 0.525 af, Atten= 70%, Lag= 240.9 min
 Discarded = 0.30 cfs @ 16.19 hrs, Volume= 0.525 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 607.65' @ 16.19 hrs Surf.Area= 4,272 sf Storage= 5,902 cf

Plug-Flow detention time= 220.5 min calculated for 0.525 af (100% of inflow)

Center-of-Mass det. time= 220.5 min (1,149.8 - 929.3)

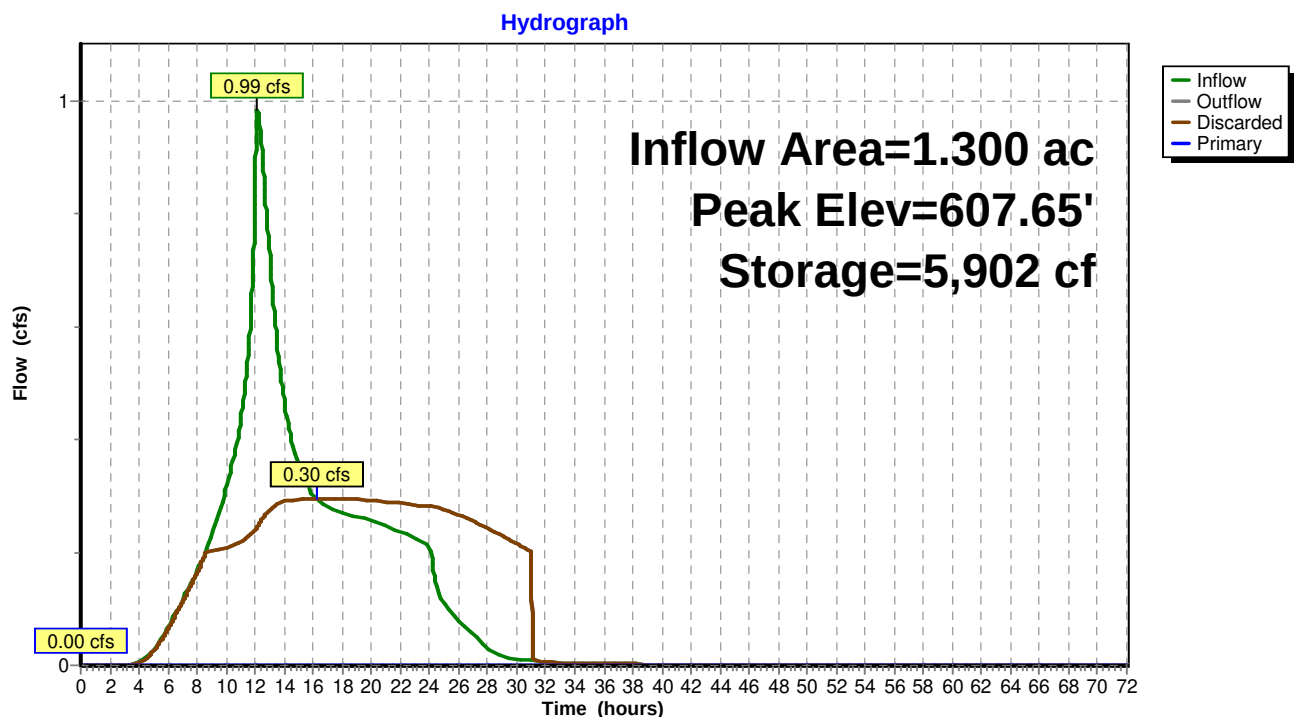
Volume	Invert	Avail.Storage	Storage Description
#1	606.00'	12,450 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
606.00	2,900	0	0
609.00	5,400	12,450	12,450

Device	Routing	Invert	Outlet Devices
#1	Discarded	606.00'	3.000 in/hr Exfiltration over Horizontal area Phase-In= 0.01'
#2	Primary	607.80'	2.0' long 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=0.30 cfs @ 16.19 hrs HW=607.65' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.30 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=606.00' TW=0.00' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2.1P: Infiltration Basin



Stage-Area-Storage for Pond 2.1P: Infiltration Basin

Elevation (feet)	Surface (sq-ft)	Horizontal (sq-ft)	Storage (cubic-feet)
606.00	2,900	2,900	0
606.10	2,983	2,983	294
606.20	3,067	3,067	597
606.30	3,150	3,150	907
606.40	3,233	3,233	1,227
606.50	3,317	3,317	1,554
606.60	3,400	3,400	1,890
606.70	3,483	3,483	2,234
606.80	3,567	3,567	2,587
606.90	3,650	3,650	2,947
607.00	3,733	3,733	3,317
607.10	3,817	3,817	3,694
607.20	3,900	3,900	4,080
607.30	3,983	3,983	4,474
607.40	4,067	4,067	4,877
607.50	4,150	4,150	5,288
607.60	4,233	4,233	5,707
607.70	4,317	4,317	6,134
607.80	4,400	4,400	6,570
607.90	4,483	4,483	7,014
608.00	4,567	4,567	7,467
608.10	4,650	4,650	7,928
608.20	4,733	4,733	8,397
608.30	4,817	4,817	8,874
608.40	4,900	4,900	9,360
608.50	4,983	4,983	9,854
608.60	5,067	5,067	10,357
608.70	5,150	5,150	10,868
608.80	5,233	5,233	11,387
608.90	5,317	5,317	11,914
609.00	5,400	5,400	12,450

Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 181

Summary for Pond 2.1PT: Pretreatment Basin

Inflow Area = 1.300 ac, 46.15% Impervious, Inflow Depth = 7.28" for 100-yr event
 Inflow = 9.24 cfs @ 12.04 hrs, Volume= 0.789 af
 Outflow = 4.40 cfs @ 12.18 hrs, Volume= 0.788 af, Atten= 52%, Lag= 8.4 min
 Primary = 0.99 cfs @ 12.18 hrs, Volume= 0.525 af
 Secondary = 3.42 cfs @ 12.18 hrs, Volume= 0.263 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 608.99' @ 12.18 hrs Surf.Area= 4,428 sf Storage= 7,301 cf

Plug-Flow detention time= 78.5 min calculated for 0.788 af (100% of inflow)

Center-of-Mass det. time= 78.5 min (876.1 - 797.5)

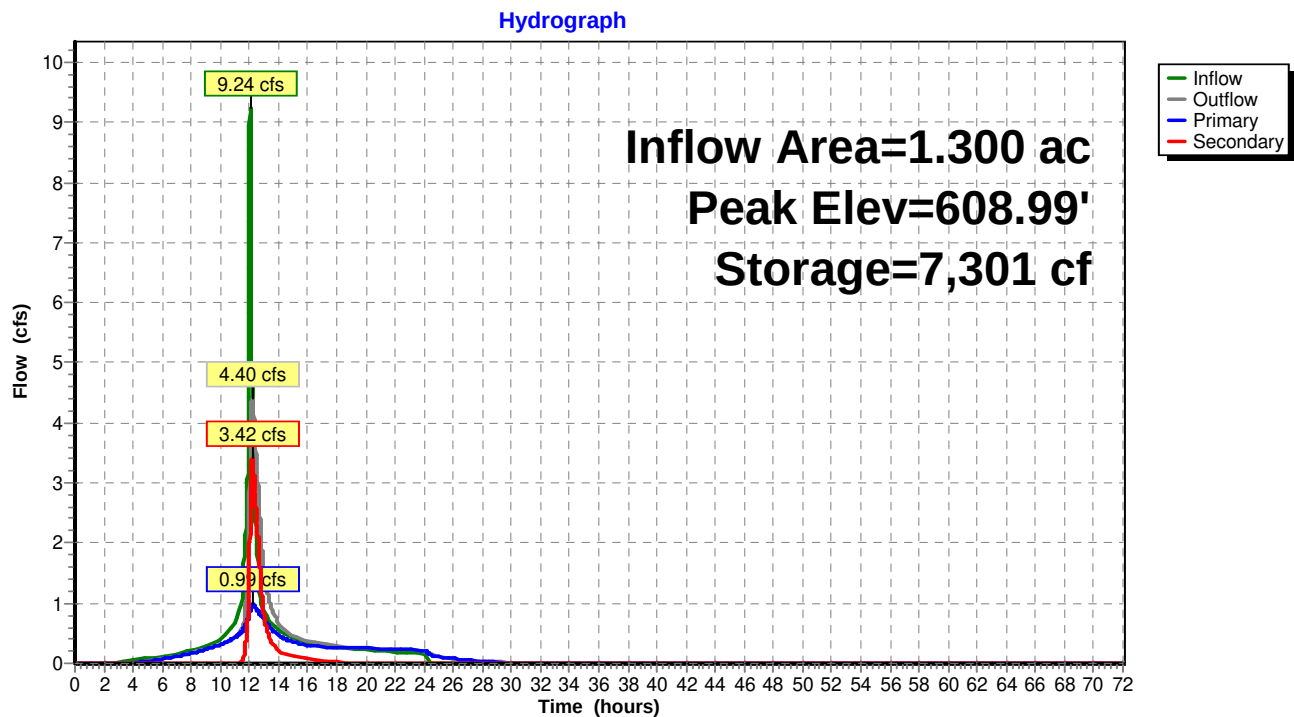
Volume	Invert	Avail.Storage	Storage Description
#1	607.00'	12,150 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
607.00	2,900	0	0
610.00	5,200	12,150	12,150

Device	Routing	Invert	Outlet Devices
#1	Primary	607.00'	6.0" Round Culvert L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 607.00' / 606.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Secondary	607.70'	0.7' long 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

Primary OutFlow Max=0.99 cfs @ 12.18 hrs HW=608.99' TW=606.78' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 0.99 cfs @ 5.02 fps)**Secondary OutFlow** Max=3.41 cfs @ 12.18 hrs HW=608.99' TW=0.00' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Weir Controls 3.41 cfs @ 3.77 fps)

Pond 2.1PT: Pretreatment Basin



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 183

Stage-Area-Storage for Pond 2.1PT: Pretreatment Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
607.00	2,900	0	609.60	4,893	10,131
607.05	2,938	146	609.65	4,932	10,377
607.10	2,977	294	609.70	4,970	10,625
607.15	3,015	444	609.75	5,008	10,874
607.20	3,053	595	609.80	5,047	11,125
607.25	3,092	749	609.85	5,085	11,379
607.30	3,130	904	609.90	5,123	11,634
607.35	3,168	1,062	609.95	5,162	11,891
607.40	3,207	1,221	610.00	5,200	12,150
607.45	3,245	1,383			
607.50	3,283	1,546			
607.55	3,322	1,711			
607.60	3,360	1,878			
607.65	3,398	2,047			
607.70	3,437	2,218			
607.75	3,475	2,391			
607.80	3,513	2,565			
607.85	3,552	2,742			
607.90	3,590	2,920			
607.95	3,628	3,101			
608.00	3,667	3,283			
608.05	3,705	3,468			
608.10	3,743	3,654			
608.15	3,782	3,842			
608.20	3,820	4,032			
608.25	3,858	4,224			
608.30	3,897	4,418			
608.35	3,935	4,614			
608.40	3,973	4,811			
608.45	4,012	5,011			
608.50	4,050	5,213			
608.55	4,088	5,416			
608.60	4,127	5,621			
608.65	4,165	5,829			
608.70	4,203	6,038			
608.75	4,242	6,249			
608.80	4,280	6,462			
608.85	4,318	6,677			
608.90	4,357	6,894			
608.95	4,395	7,113			
609.00	4,433	7,333			
609.05	4,472	7,556			
609.10	4,510	7,781			
609.15	4,548	8,007			
609.20	4,587	8,235			
609.25	4,625	8,466			
609.30	4,663	8,698			
609.35	4,702	8,932			
609.40	4,740	9,168			
609.45	4,778	9,406			
609.50	4,817	9,646			
609.55	4,855	9,888			

Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 184

Summary for Pond 2.2P: Wet Swale

Inflow Area = 0.800 ac, 87.50% Impervious, Inflow Depth = 8.50" for 100-yr event
Inflow = 6.19 cfs @ 12.04 hrs, Volume= 0.567 af
Outflow = 5.60 cfs @ 12.07 hrs, Volume= 0.566 af, Atten= 9%, Lag= 1.8 min
Primary = 5.60 cfs @ 12.07 hrs, Volume= 0.566 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 605.86' @ 12.07 hrs Surf.Area= 1,044 sf Storage= 1,250 cf

Plug-Flow detention time= 28.5 min calculated for 0.566 af (100% of inflow)
Center-of-Mass det. time= 28.6 min (785.8 - 757.2)

Volume	Invert	Avail.Storage	Storage Description
#1	604.00'	1,400 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
604.00	300	0	0
606.00	1,100	1,400	1,400

Device	Routing	Invert	Outlet Devices
#1	Primary	603.00'	12.0" Round Culvert L= 65.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 603.00' / 602.30' S= 0.0108 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	604.00'	2.0" Vert. Orifice/Grate C= 0.600
#3	Device 1	605.00'	2.2' long 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

Primary OutFlow Max=5.60 cfs @ 12.07 hrs HW=605.86' TW=0.00' (Dynamic Tailwater)

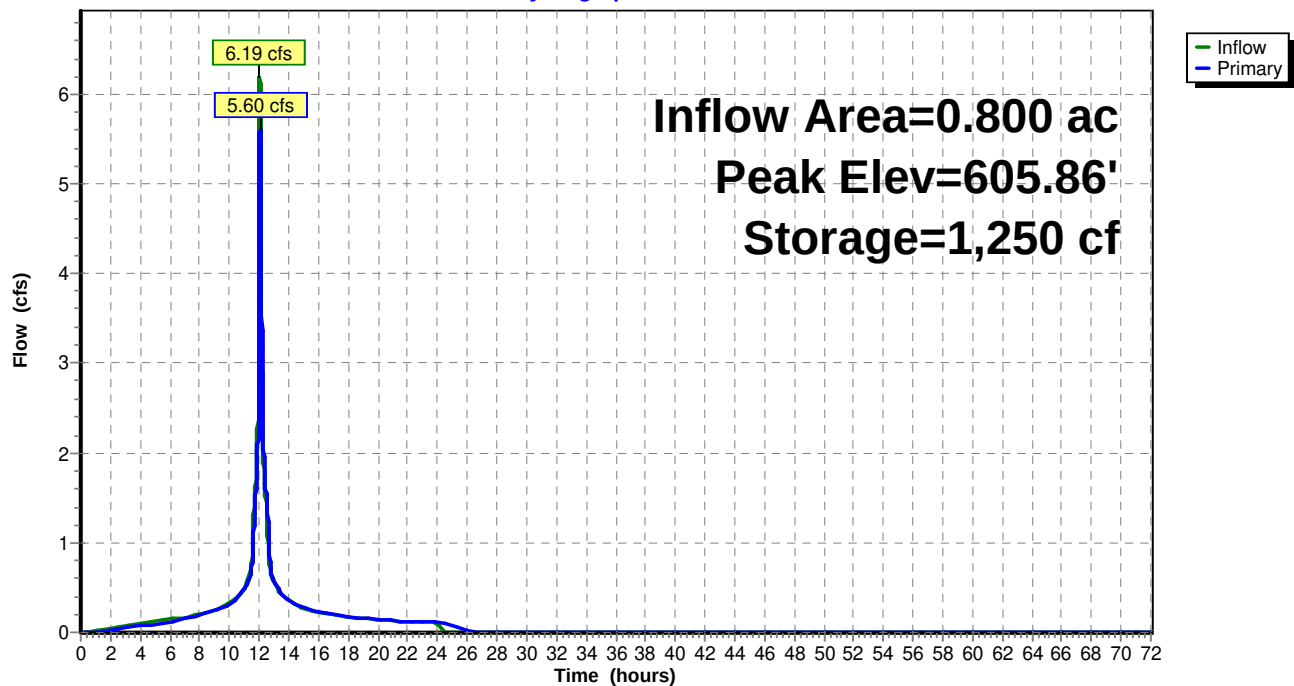
↑ **1=Culvert** (Barrel Controls 5.60 cfs @ 7.13 fps)

↑ **2=Orifice/Grate** (Passes < 0.14 cfs potential flow)

↑ **3=Broad-Crested Rectangular Weir** (Passes < 5.79 cfs potential flow)

Pond 2.2P: Wet Swale

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 186

Stage-Area-Storage for Pond 2.2P: Wet Swale

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
604.00	300	0	605.04	716	528
604.02	308	6	605.06	724	543
604.04	316	12	605.08	732	557
604.06	324	19	605.10	740	572
604.08	332	25	605.12	748	587
604.10	340	32	605.14	756	602
604.12	348	39	605.16	764	617
604.14	356	46	605.18	772	632
604.16	364	53	605.20	780	648
604.18	372	60	605.22	788	664
604.20	380	68	605.24	796	680
604.22	388	76	605.26	804	696
604.24	396	84	605.28	812	712
604.26	404	92	605.30	820	728
604.28	412	100	605.32	828	744
604.30	420	108	605.34	836	761
604.32	428	116	605.36	844	778
604.34	436	125	605.38	852	795
604.36	444	134	605.40	860	812
604.38	452	143	605.42	868	829
604.40	460	152	605.44	876	847
604.42	468	161	605.46	884	864
604.44	476	171	605.48	892	882
604.46	484	180	605.50	900	900
604.48	492	190	605.52	908	918
604.50	500	200	605.54	916	936
604.52	508	210	605.56	924	955
604.54	516	220	605.58	932	973
604.56	524	231	605.60	940	992
604.58	532	241	605.62	948	1,011
604.60	540	252	605.64	956	1,030
604.62	548	263	605.66	964	1,049
604.64	556	274	605.68	972	1,068
604.66	564	285	605.70	980	1,088
604.68	572	296	605.72	988	1,108
604.70	580	308	605.74	996	1,128
604.72	588	320	605.76	1,004	1,148
604.74	596	332	605.78	1,012	1,168
604.76	604	344	605.80	1,020	1,188
604.78	612	356	605.82	1,028	1,208
604.80	620	368	605.84	1,036	1,229
604.82	628	380	605.86	1,044	1,250
604.84	636	393	605.88	1,052	1,271
604.86	644	406	605.90	1,060	1,292
604.88	652	419	605.92	1,068	1,313
604.90	660	432	605.94	1,076	1,335
604.92	668	445	605.96	1,084	1,356
604.94	676	459	605.98	1,092	1,378
604.96	684	472	606.00	1,100	1,400
604.98	692	486			
605.00	700	500			
605.02	708	514			

Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 187

Summary for Pond FS1.3:

Inflow Area = 1.648 ac, 69.66% Impervious, Inflow Depth = 7.52" for 100-yr event
 Inflow = 11.98 cfs @ 12.04 hrs, Volume= 1.033 af
 Outflow = 11.98 cfs @ 12.04 hrs, Volume= 1.033 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.85 cfs @ 12.04 hrs, Volume= 0.923 af
 Secondary = 8.13 cfs @ 12.04 hrs, Volume= 0.111 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 576.63' @ 12.04 hrs

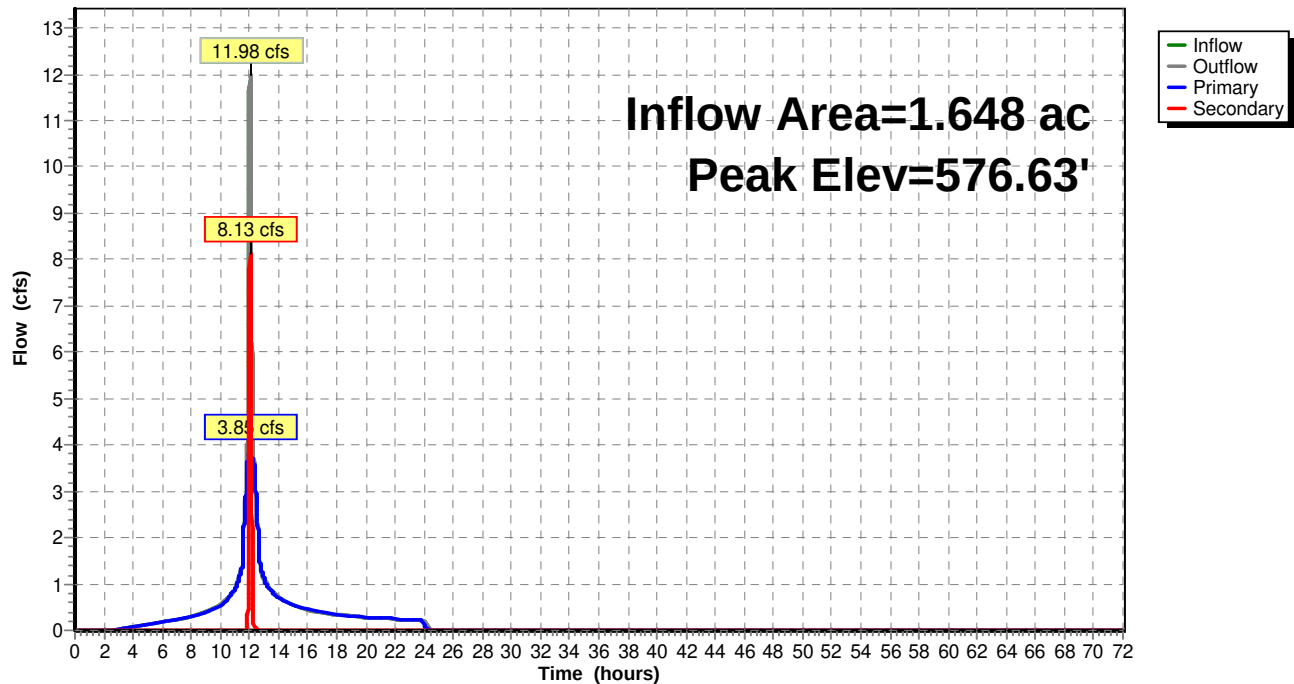
Flood Elev= 577.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	570.20'	12.0" Round Culvert L= 365.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.20' / 566.50' S= 0.0101 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	570.20'	7.7" Vert. Orifice/Grate C= 0.600
#3	Device 4	575.90'	4.0' long 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
#4	Secondary	570.20'	18.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 570.20' / 569.70' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.85 cfs @ 12.04 hrs HW=576.63' TW=565.34' (Dynamic Tailwater)↑ **1=Culvert** (Passes 3.85 cfs of 5.29 cfs potential flow)↑ **2=Orifice/Grate** (Orifice Controls 3.85 cfs @ 11.90 fps)**Secondary OutFlow** Max=8.10 cfs @ 12.04 hrs HW=576.63' TW=0.00' (Dynamic Tailwater)↑ **4=Culvert** (Passes 8.10 cfs of 20.28 cfs potential flow)↑ **3=Broad-Crested Rectangular Weir** (Weir Controls 8.10 cfs @ 2.76 fps)

Pond FS1.3:

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 189

Stage-Area-Storage for Pond FS1.3:

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
570.20	0	575.40	0
570.30	0	575.50	0
570.40	0	575.60	0
570.50	0	575.70	0
570.60	0	575.80	0
570.70	0	575.90	0
570.80	0	576.00	0
570.90	0	576.10	0
571.00	0	576.20	0
571.10	0	576.30	0
571.20	0	576.40	0
571.30	0	576.50	0
571.40	0	576.60	0
571.50	0	576.70	0
571.60	0	576.80	0
571.70	0	576.90	0
571.80	0	577.00	0
571.90	0	577.10	0
572.00	0	577.20	0
572.10	0	577.30	0
572.20	0	577.40	0
572.30	0	577.50	0
572.40	0		
572.50	0		
572.60	0		
572.70	0		
572.80	0		
572.90	0		
573.00	0		
573.10	0		
573.20	0		
573.30	0		
573.40	0		
573.50	0		
573.60	0		
573.70	0		
573.80	0		
573.90	0		
574.00	0		
574.10	0		
574.20	0		
574.30	0		
574.40	0		
574.50	0		
574.60	0		
574.70	0		
574.80	0		
574.90	0		
575.00	0		
575.10	0		
575.20	0		
575.30	0		

Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 190

Summary for Pond FS1.5:

Inflow Area = 0.800 ac, 87.50% Impervious, Inflow Depth = 8.26" for 100-yr event
Inflow = 6.12 cfs @ 12.04 hrs, Volume= 0.550 af
Outflow = 6.12 cfs @ 12.04 hrs, Volume= 0.550 af, Atten= 0%, Lag= 0.0 min
Primary = 2.45 cfs @ 12.04 hrs, Volume= 0.507 af
Secondary = 3.67 cfs @ 12.04 hrs, Volume= 0.043 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 568.36' @ 12.04 hrs

Flood Elev= 569.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	565.60'	8.0" Round Culvert L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 565.60' / 565.30' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 3	567.90'	4.0' long 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
#3	Secondary	565.60'	15.0" Round Culvert L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 565.60' / 565.20' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.45 cfs @ 12.04 hrs HW=568.36' TW=563.56' (Dynamic Tailwater)

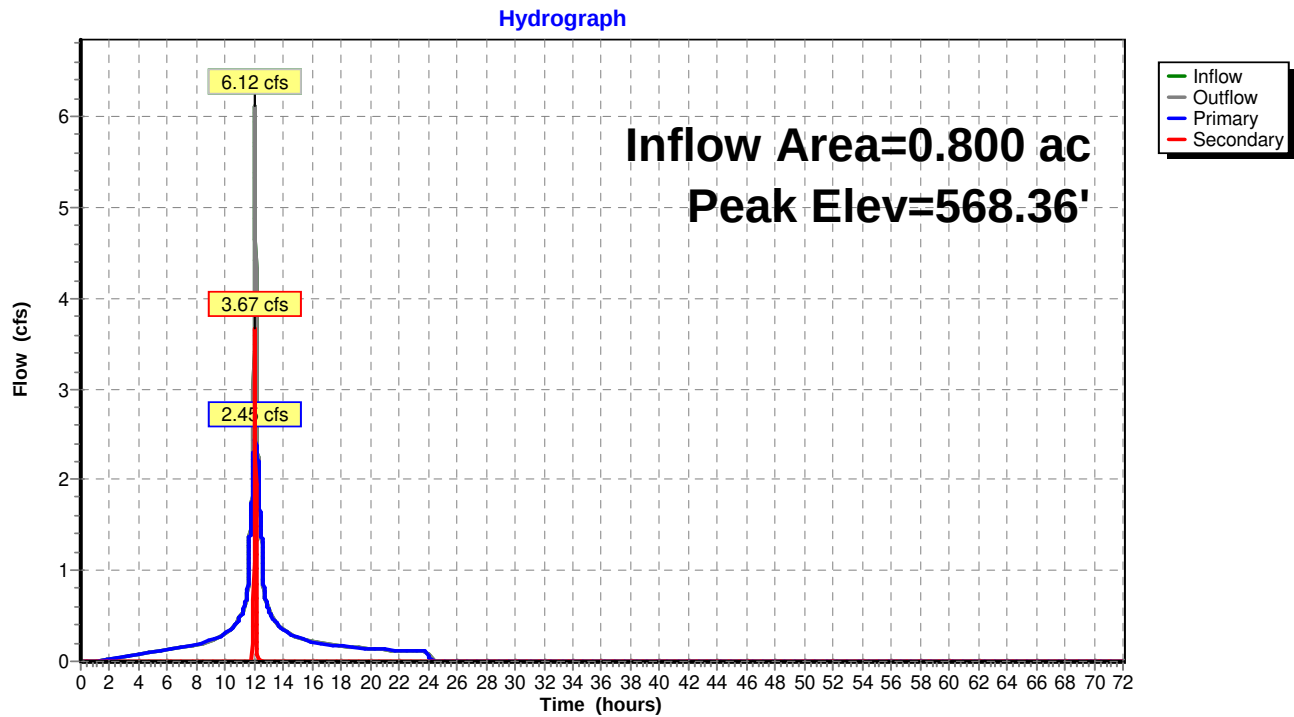
↑ **1=Culvert** (Barrel Controls 2.45 cfs @ 7.03 fps)

Secondary OutFlow Max=3.65 cfs @ 12.04 hrs HW=568.36' TW=0.00' (Dynamic Tailwater)

↑ **3=Culvert** (Passes 3.65 cfs of 8.63 cfs potential flow)

↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 3.65 cfs @ 2.00 fps)

Pond FS1.5:



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 192

Stage-Area-Storage for Pond FS1.5:

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
565.60	0	568.20	0
565.65	0	568.25	0
565.70	0	568.30	0
565.75	0	568.35	0
565.80	0	568.40	0
565.85	0	568.45	0
565.90	0	568.50	0
565.95	0	568.55	0
566.00	0	568.60	0
566.05	0	568.65	0
566.10	0	568.70	0
566.15	0	568.75	0
566.20	0	568.80	0
566.25	0	568.85	0
566.30	0	568.90	0
566.35	0	568.95	0
566.40	0	569.00	0
566.45	0	569.05	0
566.50	0	569.10	0
566.55	0	569.15	0
566.60	0	569.20	0
566.65	0	569.25	0
566.70	0	569.30	0
566.75	0	569.35	0
566.80	0	569.40	0
566.85	0	569.45	0
566.90	0	569.50	0
566.95	0		
567.00	0		
567.05	0		
567.10	0		
567.15	0		
567.20	0		
567.25	0		
567.30	0		
567.35	0		
567.40	0		
567.45	0		
567.50	0		
567.55	0		
567.60	0		
567.65	0		
567.70	0		
567.75	0		
567.80	0		
567.85	0		
567.90	0		
567.95	0		
568.00	0		
568.05	0		
568.10	0		
568.15	0		

Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 193

Summary for Pond FS1.6:

Inflow Area = 1.800 ac, 88.89% Impervious, Inflow Depth = 8.38" for 100-yr event
Inflow = 13.85 cfs @ 12.04 hrs, Volume= 1.256 af
Outflow = 13.85 cfs @ 12.04 hrs, Volume= 1.256 af, Atten= 0%, Lag= 0.0 min
Primary = 6.21 cfs @ 12.04 hrs, Volume= 1.175 af
Secondary = 7.64 cfs @ 12.04 hrs, Volume= 0.081 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 603.71' @ 12.04 hrs

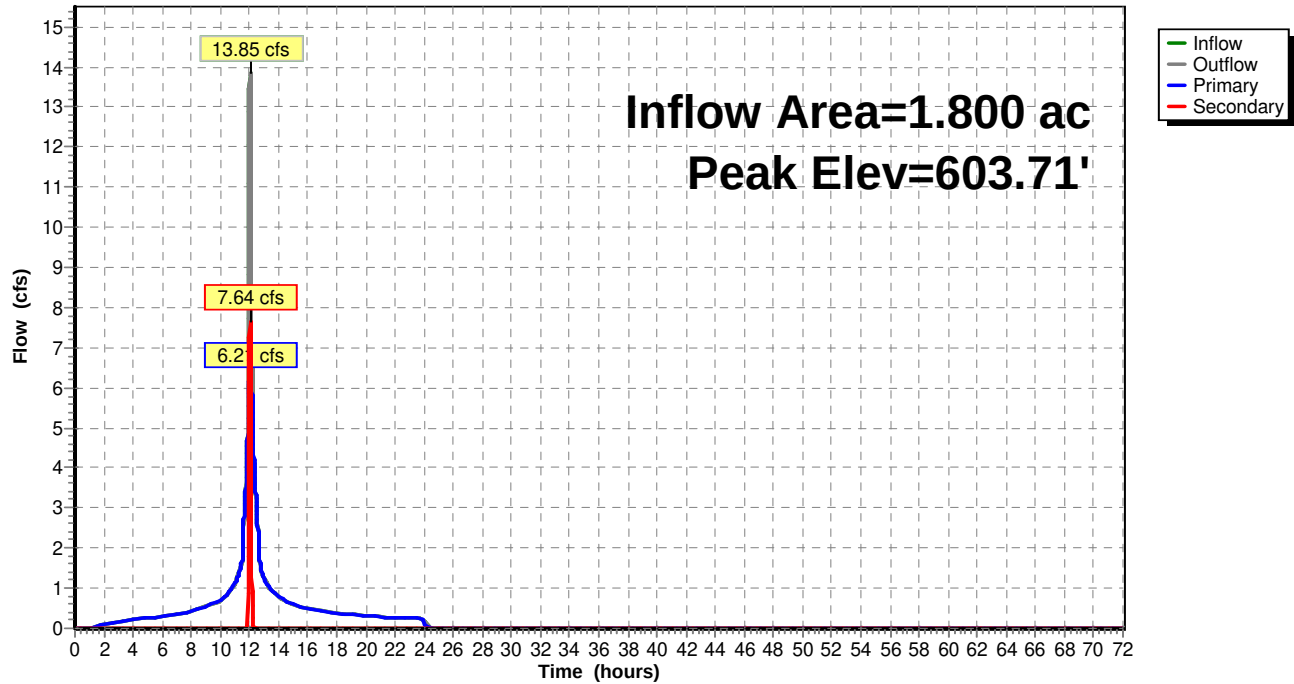
Flood Elev= 604.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	598.50'	12.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 598.50' / 598.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	598.50'	10.4" Vert. Orifice/Grate C= 0.600
#3	Device 4	603.00'	4.0' long 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
#4	Secondary	598.50'	15.0" Round Culvert L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 598.50' / 593.50' S= 0.1000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=6.21 cfs @ 12.04 hrs HW=603.71' TW=596.68' (Dynamic Tailwater)↑ **1=Culvert** (Passes 6.21 cfs of 7.80 cfs potential flow)↑ **2=Orifice/Grate** (Orifice Controls 6.21 cfs @ 10.52 fps)**Secondary OutFlow** Max=7.60 cfs @ 12.04 hrs HW=603.71' TW=0.00' (Dynamic Tailwater)↑ **4=Culvert** (Passes 7.60 cfs of 12.65 cfs potential flow)↑ **3=Broad-Crested Rectangular Weir** (Weir Controls 7.60 cfs @ 2.69 fps)

Pond FS1.6:

Hydrograph



Trailside Somers - Post Development (W NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 195

Stage-Area-Storage for Pond FS1.6:

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
598.50	0	600.58	0	602.66	0
598.54	0	600.62	0	602.70	0
598.58	0	600.66	0	602.74	0
598.62	0	600.70	0	602.78	0
598.66	0	600.74	0	602.82	0
598.70	0	600.78	0	602.86	0
598.74	0	600.82	0	602.90	0
598.78	0	600.86	0	602.94	0
598.82	0	600.90	0	602.98	0
598.86	0	600.94	0	603.02	0
598.90	0	600.98	0	603.06	0
598.94	0	601.02	0	603.10	0
598.98	0	601.06	0	603.14	0
599.02	0	601.10	0	603.18	0
599.06	0	601.14	0	603.22	0
599.10	0	601.18	0	603.26	0
599.14	0	601.22	0	603.30	0
599.18	0	601.26	0	603.34	0
599.22	0	601.30	0	603.38	0
599.26	0	601.34	0	603.42	0
599.30	0	601.38	0	603.46	0
599.34	0	601.42	0	603.50	0
599.38	0	601.46	0	603.54	0
599.42	0	601.50	0	603.58	0
599.46	0	601.54	0	603.62	0
599.50	0	601.58	0	603.66	0
599.54	0	601.62	0	603.70	0
599.58	0	601.66	0	603.74	0
599.62	0	601.70	0	603.78	0
599.66	0	601.74	0	603.82	0
599.70	0	601.78	0	603.86	0
599.74	0	601.82	0	603.90	0
599.78	0	601.86	0	603.94	0
599.82	0	601.90	0	603.98	0
599.86	0	601.94	0		
599.90	0	601.98	0		
599.94	0	602.02	0		
599.98	0	602.06	0		
600.02	0	602.10	0		
600.06	0	602.14	0		
600.10	0	602.18	0		
600.14	0	602.22	0		
600.18	0	602.26	0		
600.22	0	602.30	0		
600.26	0	602.34	0		
600.30	0	602.38	0		
600.34	0	602.42	0		
600.38	0	602.46	0		
600.42	0	602.50	0		
600.46	0	602.54	0		
600.50	0	602.58	0		
600.54	0	602.62	0		

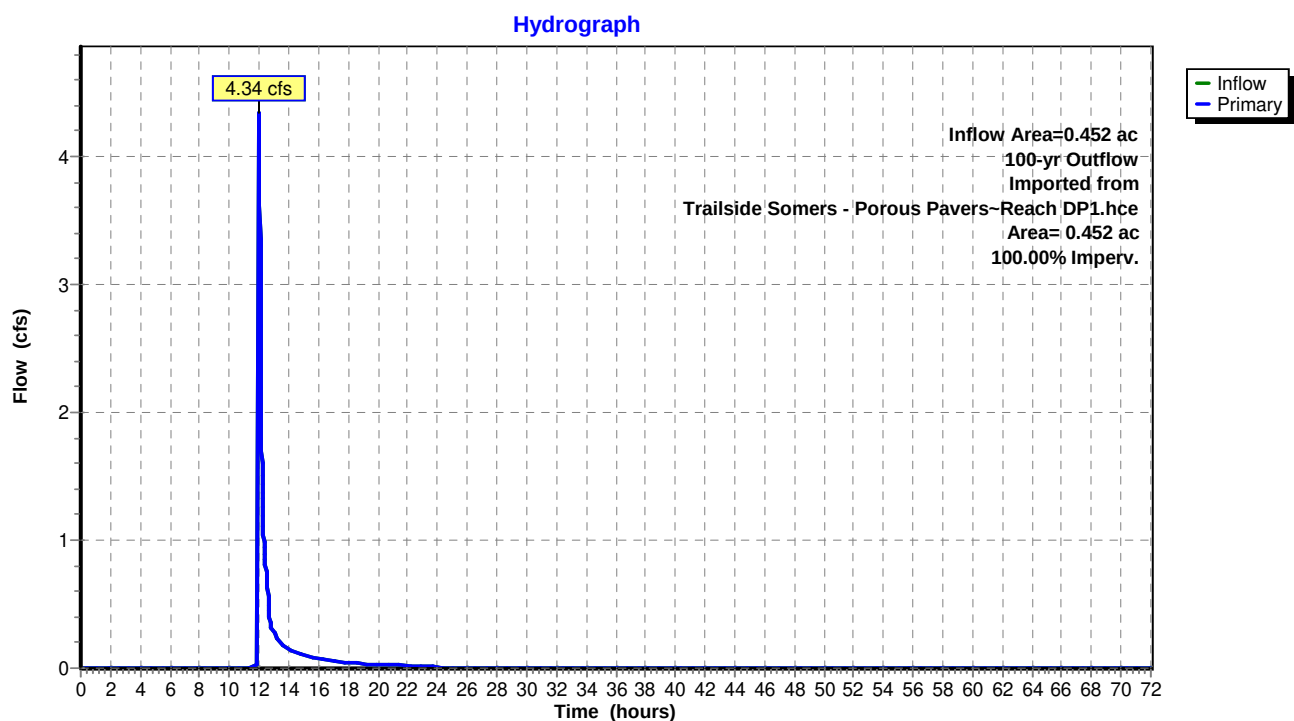
Summary for Link 1.9S: PPP (15 Units)

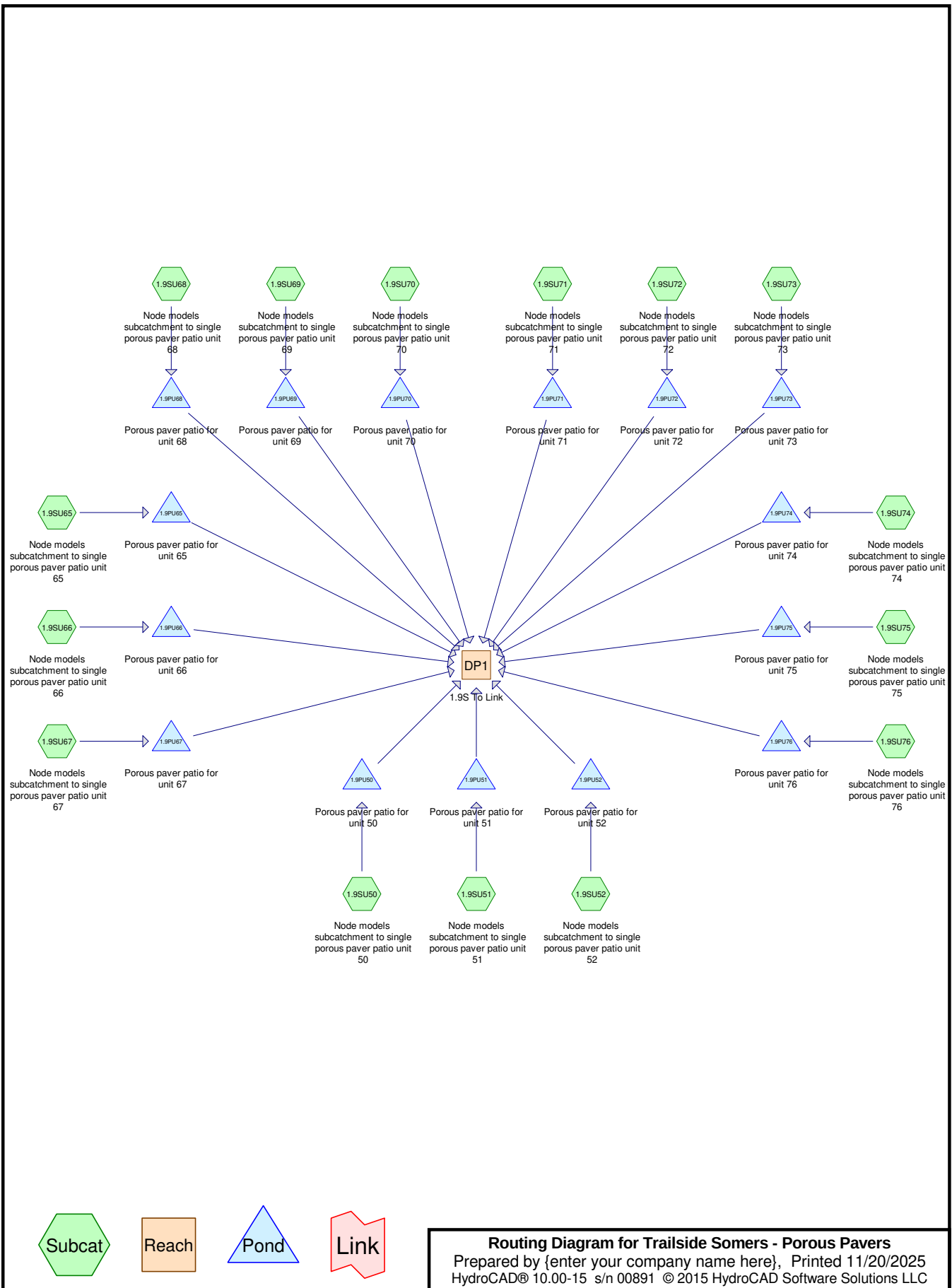
Inflow Area = 0.452 ac, 100.00% Impervious, Inflow Depth = 3.59" for 100-yr event
Inflow = 4.34 cfs @ 12.02 hrs, Volume= 0.135 af
Primary = 4.34 cfs @ 12.02 hrs, Volume= 0.135 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

100-yr Outflow Imported from Trailside Somers - Porous Pavers~Reach DP1.hce

Link 1.9S: PPP (15 Units)





Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 2

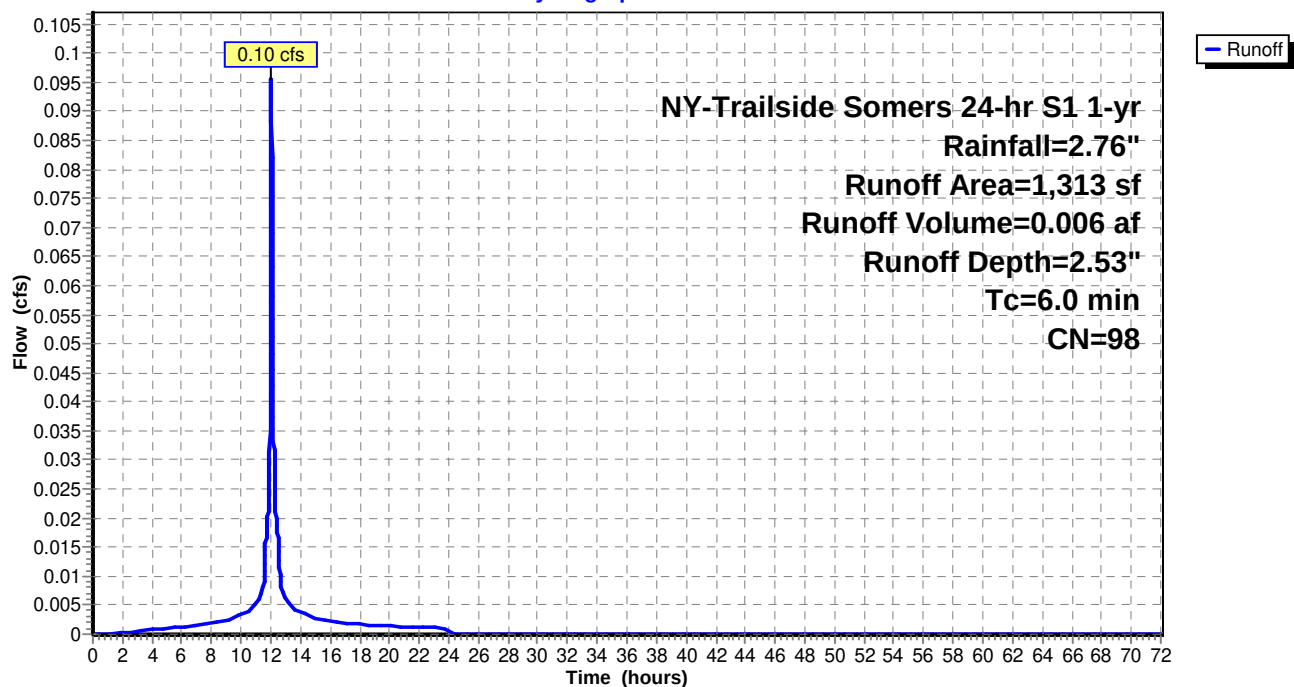
Summary for Subcatchment 1.9SU50: Node models subcatchment to single porous paver patio unit 50

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU50: Node models subcatchment to single porous paver patio unit 50**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 3

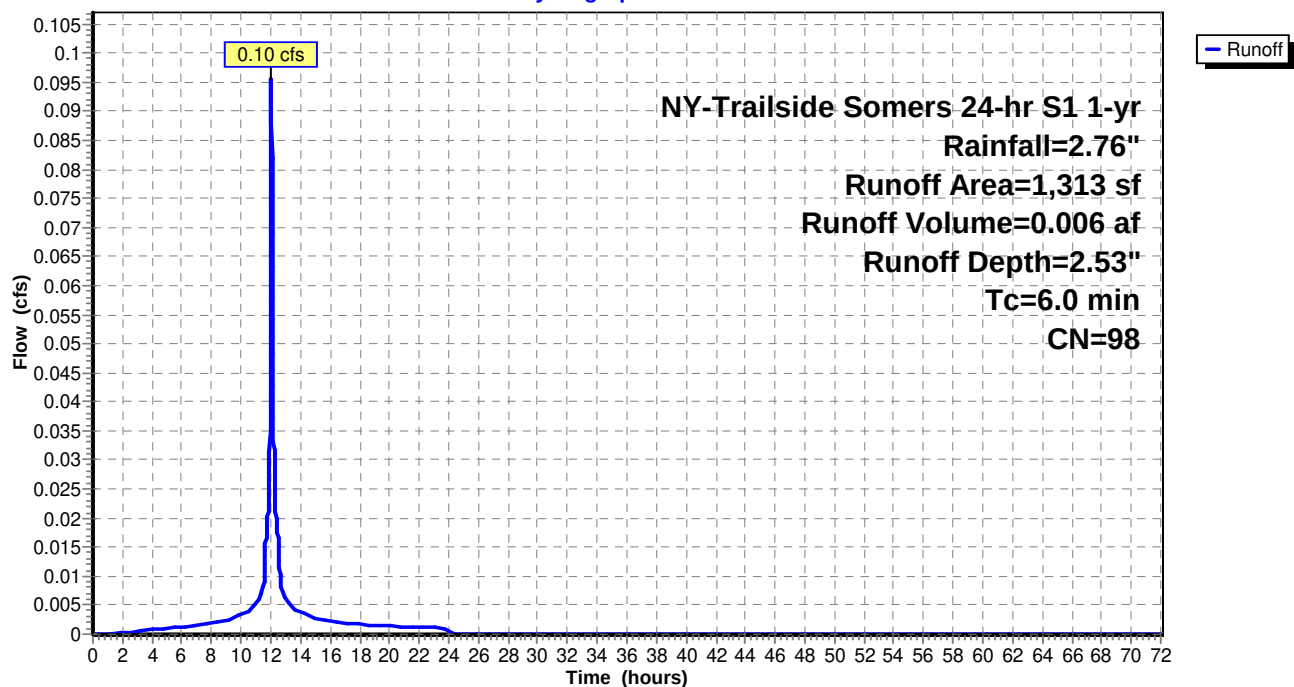
Summary for Subcatchment 1.9SU51: Node models subcatchment to single porous paver patio unit 51

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU51: Node models subcatchment to single porous paver patio unit 51**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 4

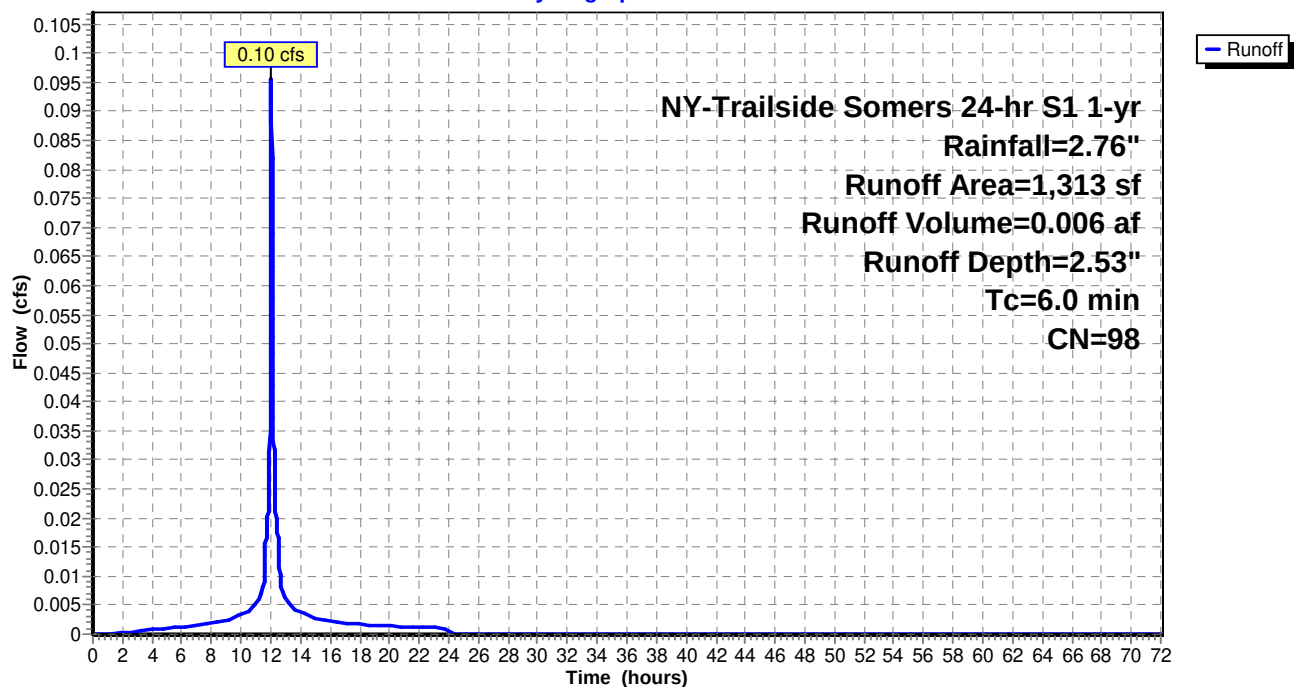
Summary for Subcatchment 1.9SU52: Node models subcatchment to single porous paver patio unit 52

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU52: Node models subcatchment to single porous paver patio unit 52**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 5

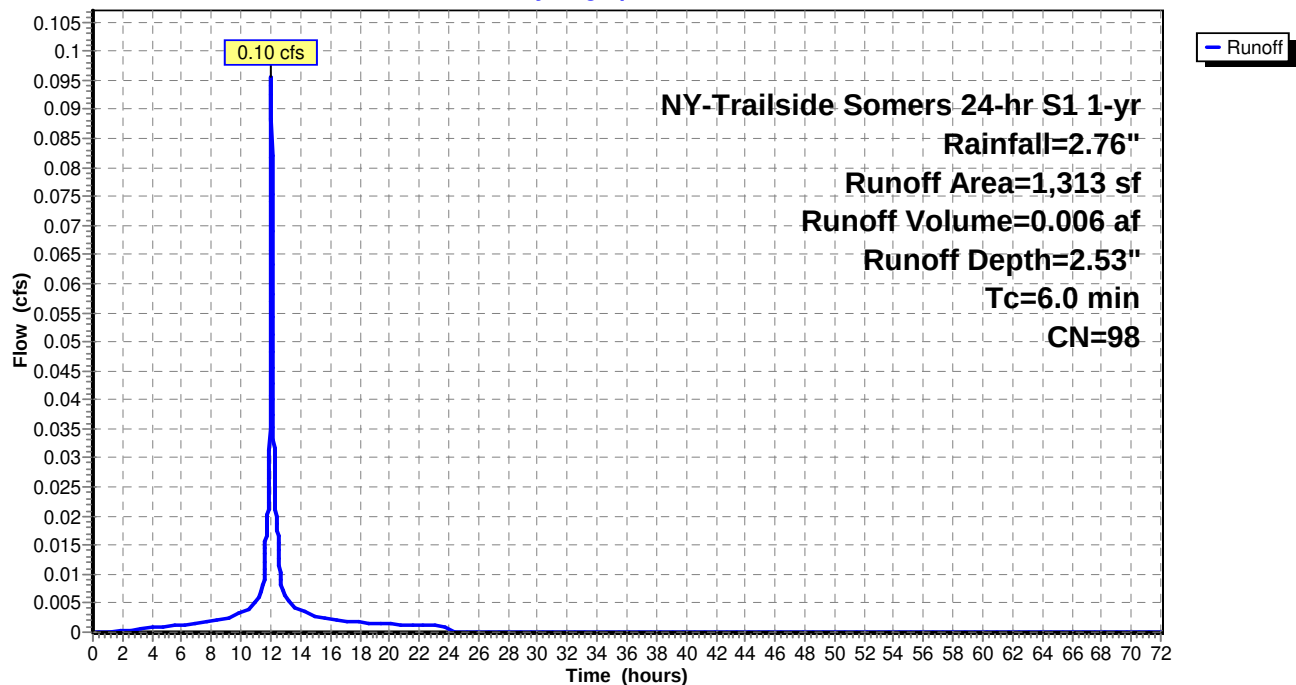
Summary for Subcatchment 1.9SU65: Node models subcatchment to single porous paver patio unit 65

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU65: Node models subcatchment to single porous paver patio unit 65**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 6

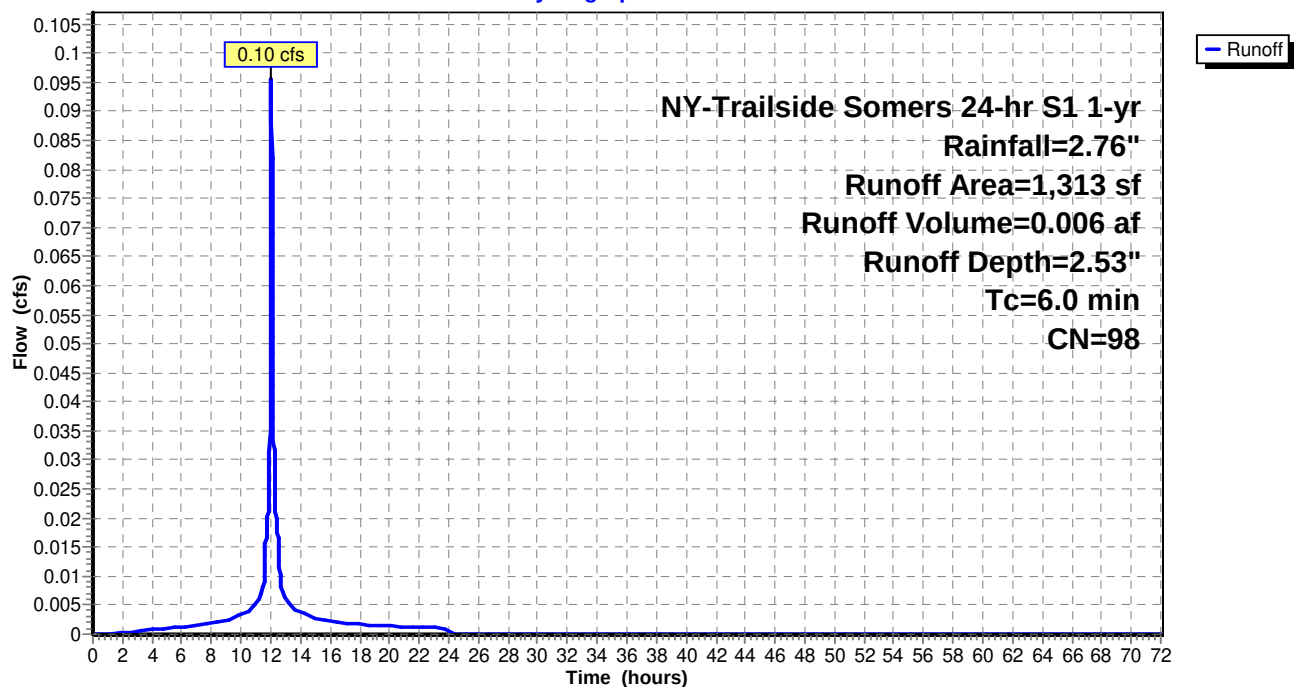
Summary for Subcatchment 1.9SU66: Node models subcatchment to single porous paver patio unit 66

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU66: Node models subcatchment to single porous paver patio unit 66**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 7

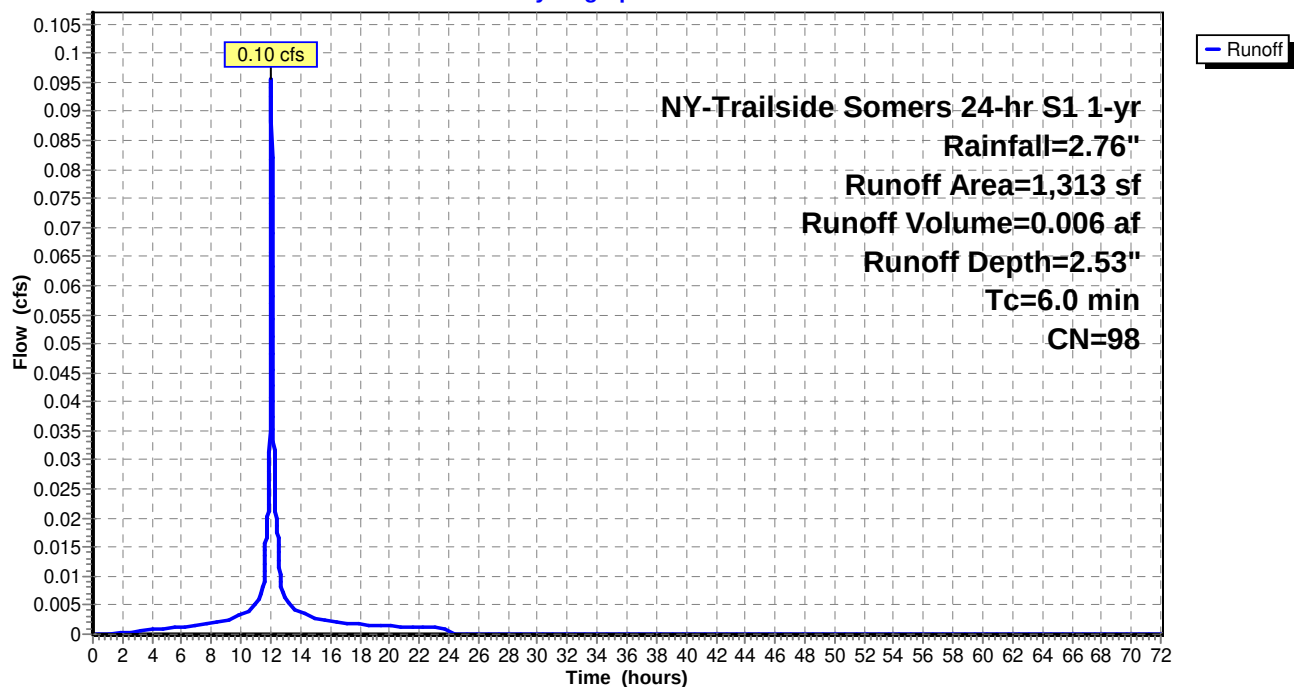
Summary for Subcatchment 1.9SU67: Node models subcatchment to single porous paver patio unit 67

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU67: Node models subcatchment to single porous paver patio unit 67**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 8

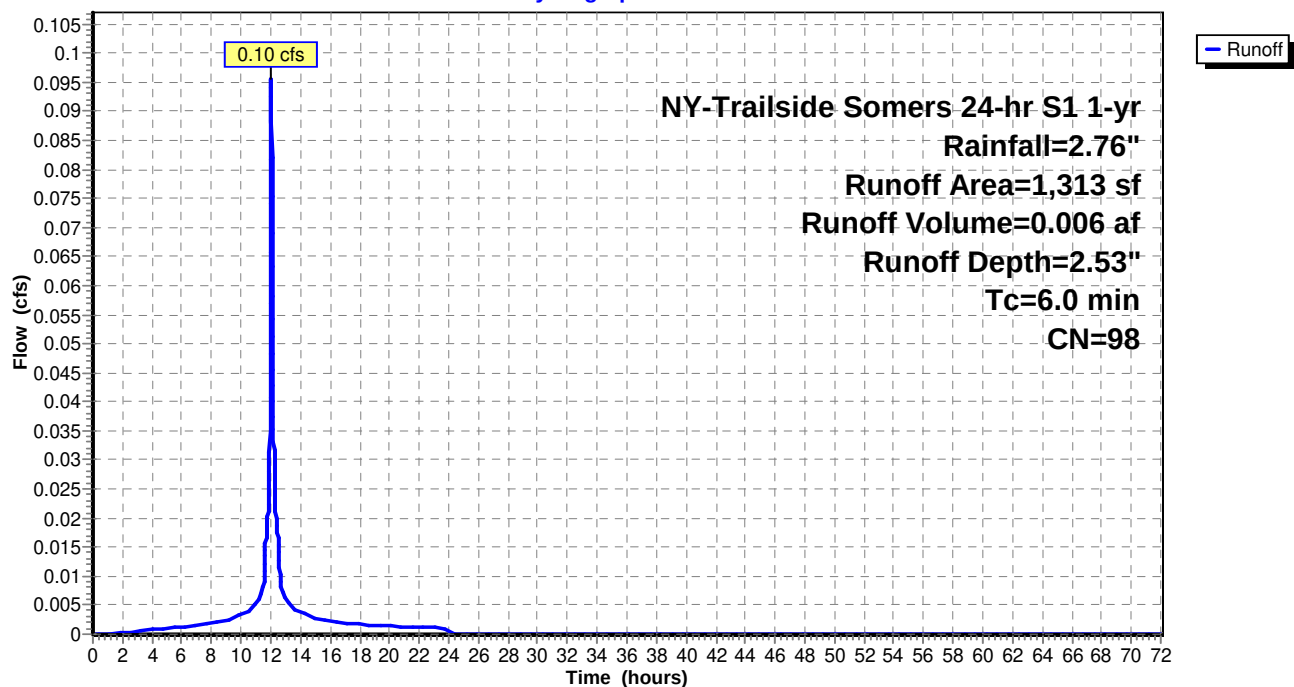
Summary for Subcatchment 1.9SU68: Node models subcatchment to single porous paver patio unit 68

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU68: Node models subcatchment to single porous paver patio unit 68**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 9

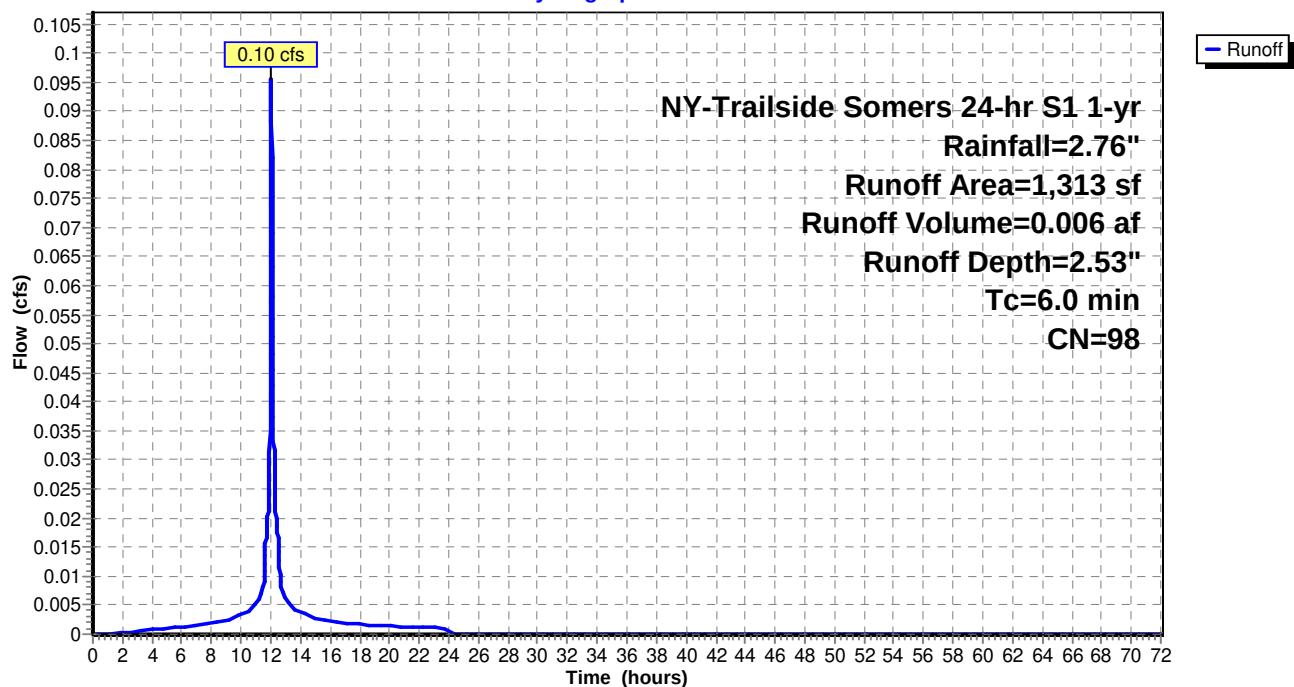
Summary for Subcatchment 1.9SU69: Node models subcatchment to single porous paver patio unit 69

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU69: Node models subcatchment to single porous paver patio unit 69**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 10

Summary for Subcatchment 1.9SU70: Node models subcatchment to single porous paver patio unit 70

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af, Depth= 2.53"

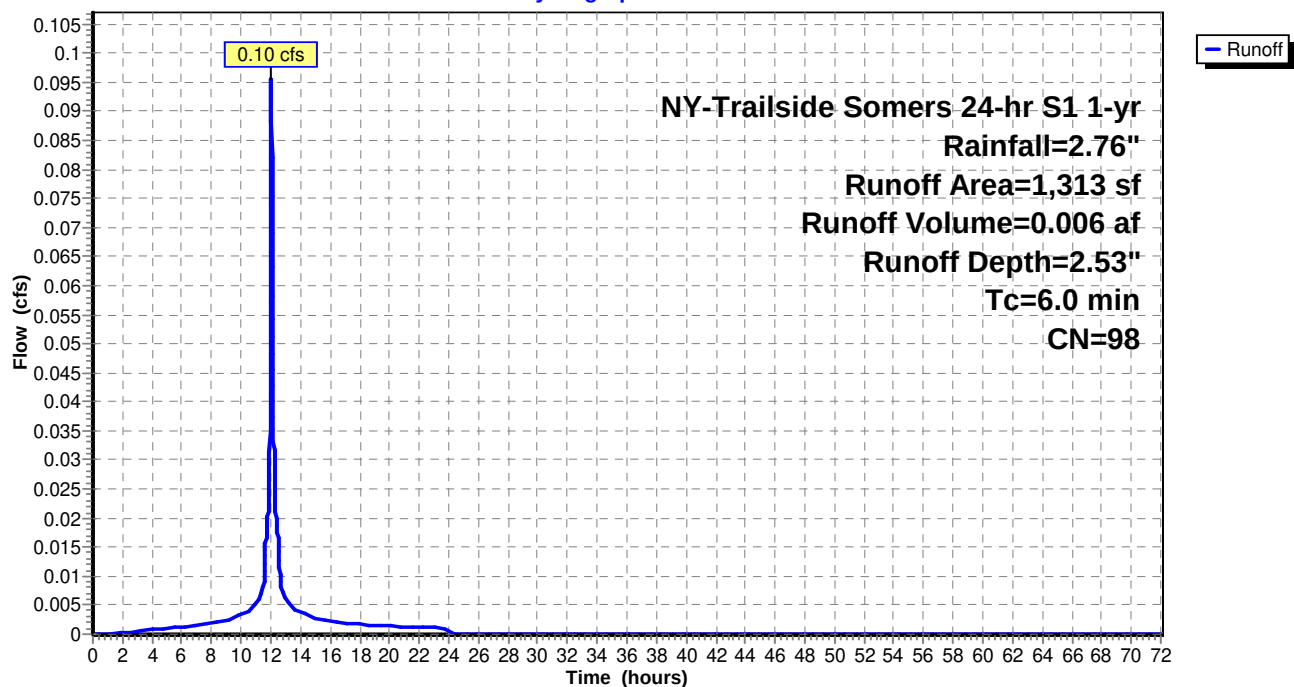
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU70: Node models subcatchment to single porous paver patio unit 70

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 11

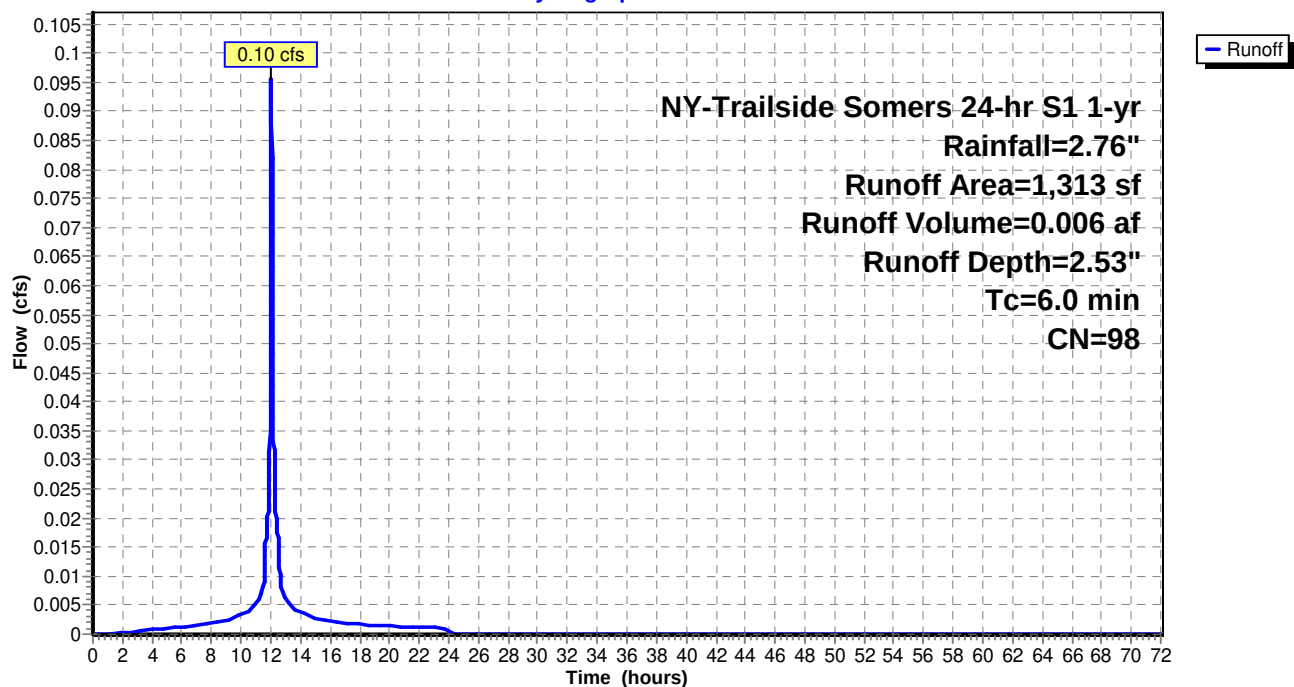
Summary for Subcatchment 1.9SU71: Node models subcatchment to single porous paver patio unit 71

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU71: Node models subcatchment to single porous paver patio unit 71**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 12

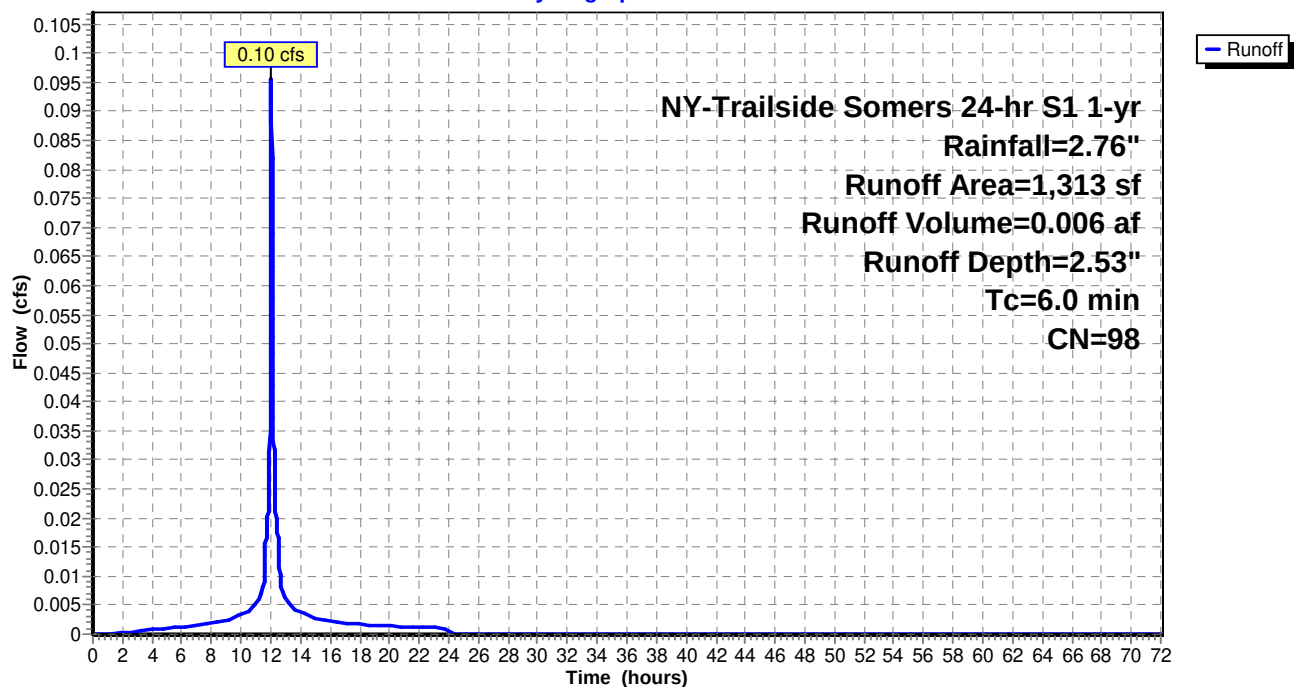
Summary for Subcatchment 1.9SU72: Node models subcatchment to single porous paver patio unit 72

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU72: Node models subcatchment to single porous paver patio unit 72**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 13

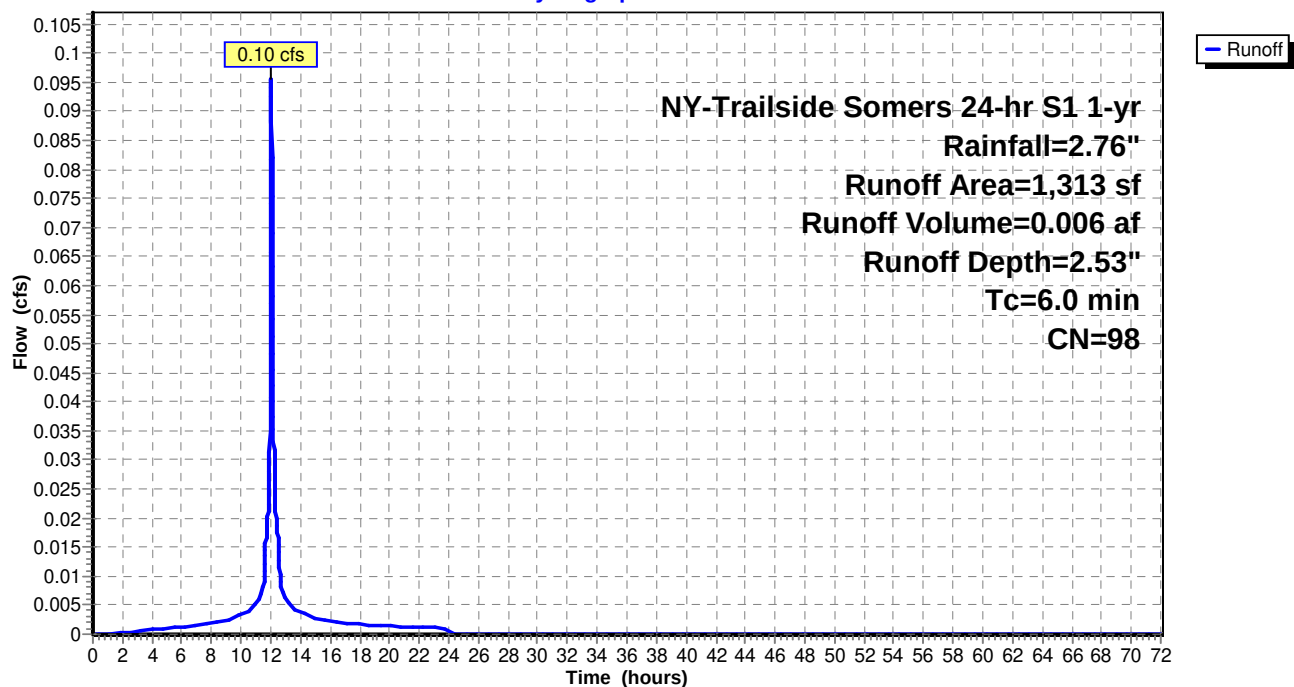
Summary for Subcatchment 1.9SU73: Node models subcatchment to single porous paver patio unit 73

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU73: Node models subcatchment to single porous paver patio unit 73**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 14

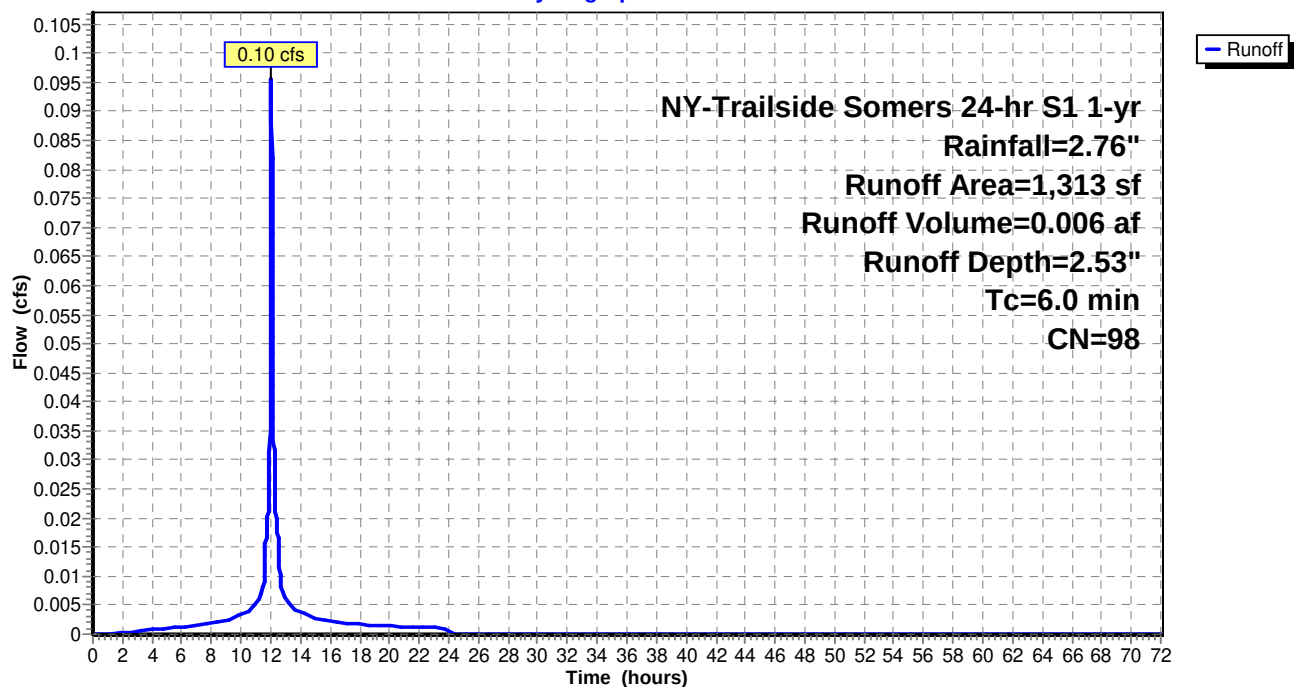
Summary for Subcatchment 1.9SU74: Node models subcatchment to single porous paver patio unit 74

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU74: Node models subcatchment to single porous paver patio unit 74**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 15

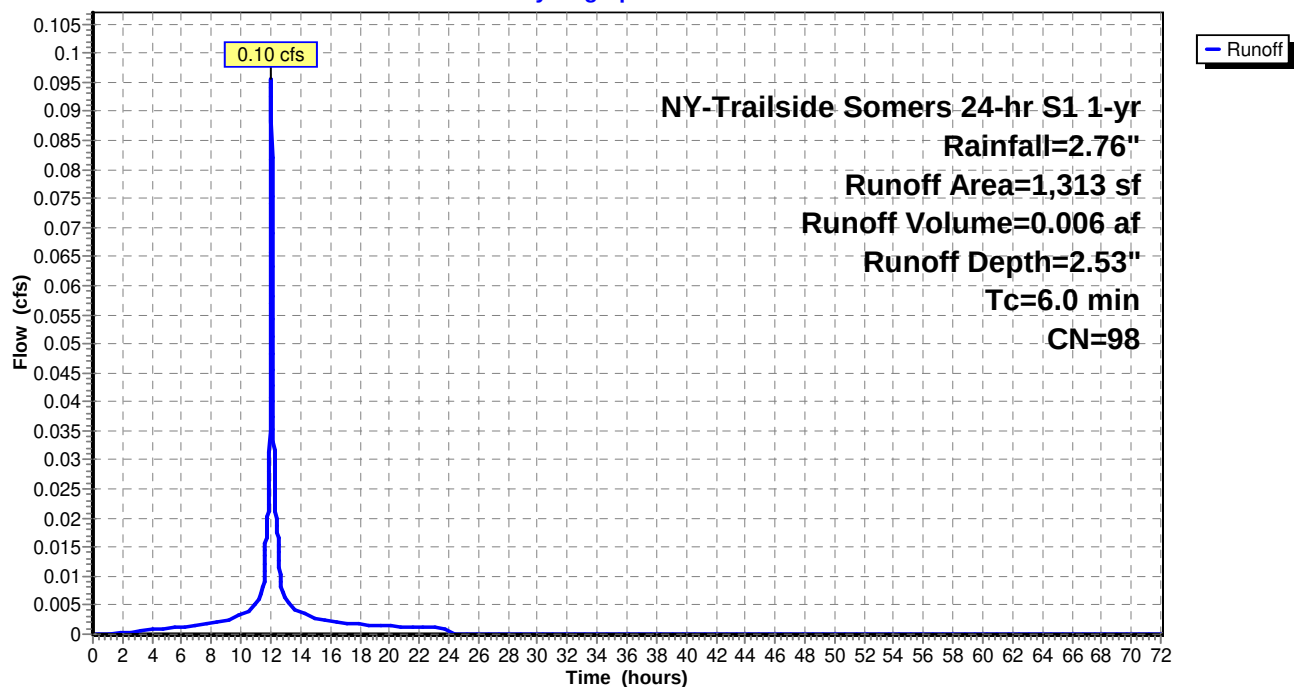
Summary for Subcatchment 1.9SU75: Node models subcatchment to single porous paver patio unit 75

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU75: Node models subcatchment to single porous paver patio unit 75**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 16

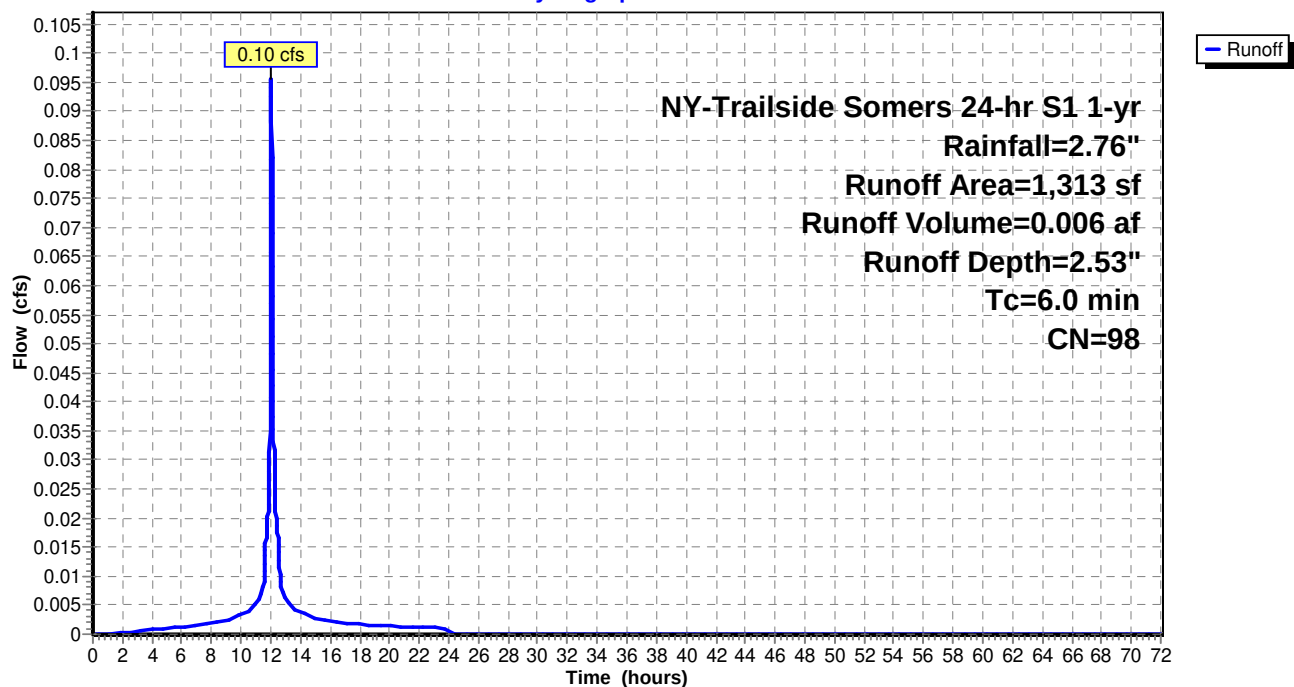
Summary for Subcatchment 1.9SU76: Node models subcatchment to single porous paver patio unit 76

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

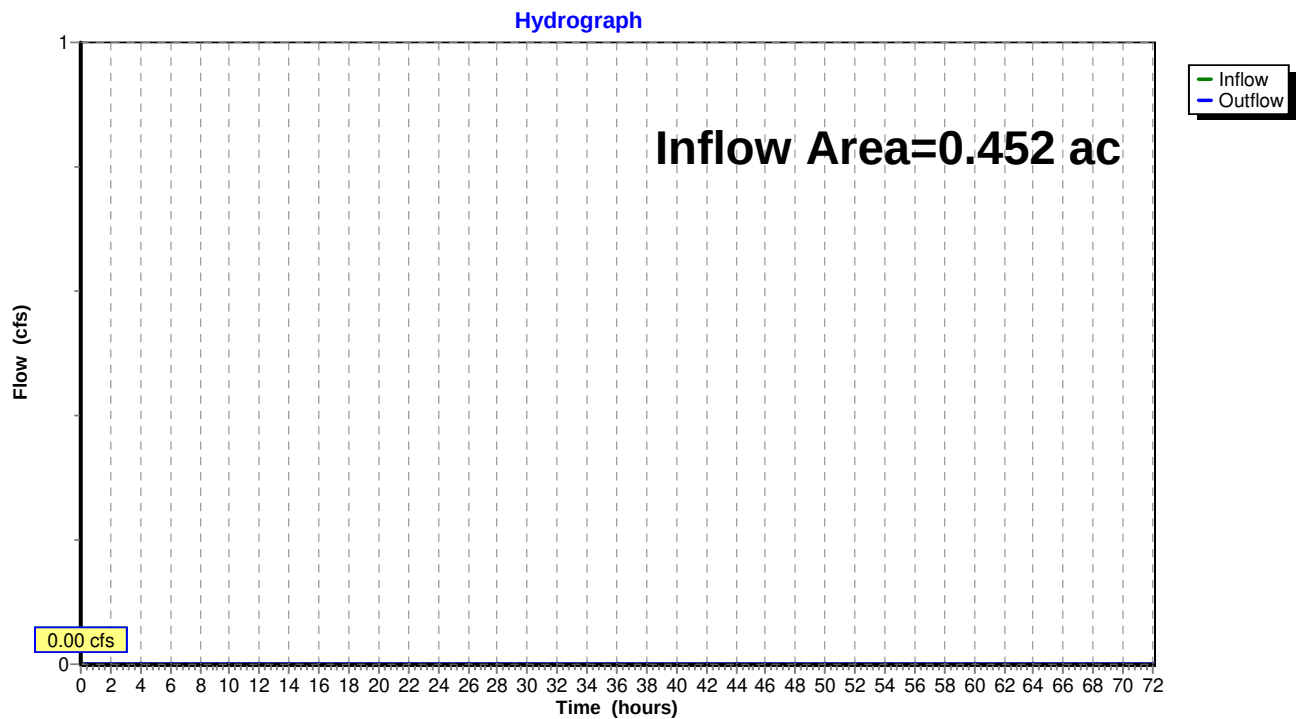
Subcatchment 1.9SU76: Node models subcatchment to single porous paver patio unit 76**Hydrograph**

Summary for Reach DP1: 1.9S To Link

Inflow Area = 0.452 ac, 100.00% Impervious, Inflow Depth = 0.00" for 1-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach DP1: 1.9S To Link



Summary for Pond 1.9PU50: Porous paver patio for unit 50

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 2.53" for 1-yr event
 Inflow = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af
 Outflow = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af, Atten= 97%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 1.09' @ 14.35 hrs Surf.Area= 288 sf Storage= 125 cf

Plug-Flow detention time= 318.5 min calculated for 0.006 af (100% of inflow)
 Center-of-Mass det. time= 318.5 min (1,080.3 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

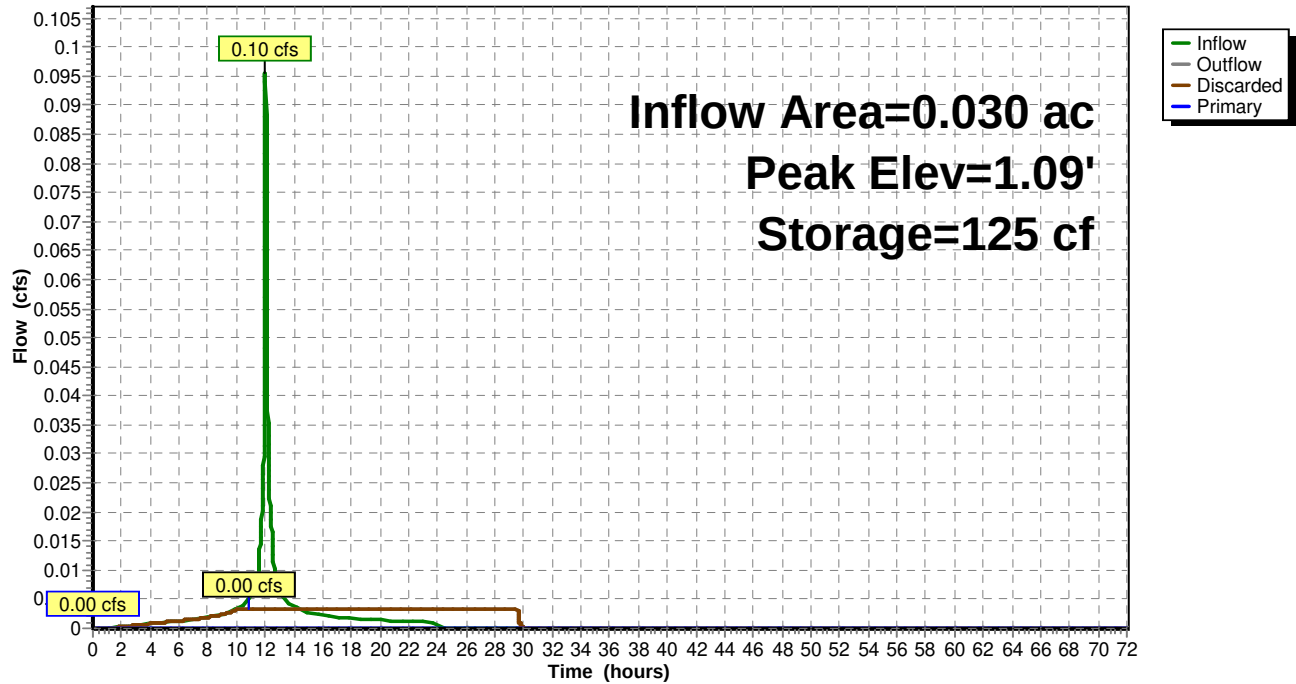
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 10.87 hrs HW=0.03' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU50: Porous paver patio for unit 50

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 20

Stage-Area-Storage for Pond 1.9PU50: Porous paver patio for unit 50

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU51: Porous paver patio for unit 51

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 2.53" for 1-yr event
 Inflow = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af
 Outflow = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af, Atten= 97%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 1.09' @ 14.35 hrs Surf.Area= 288 sf Storage= 125 cf

Plug-Flow detention time= 318.5 min calculated for 0.006 af (100% of inflow)
 Center-of-Mass det. time= 318.5 min (1,080.3 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

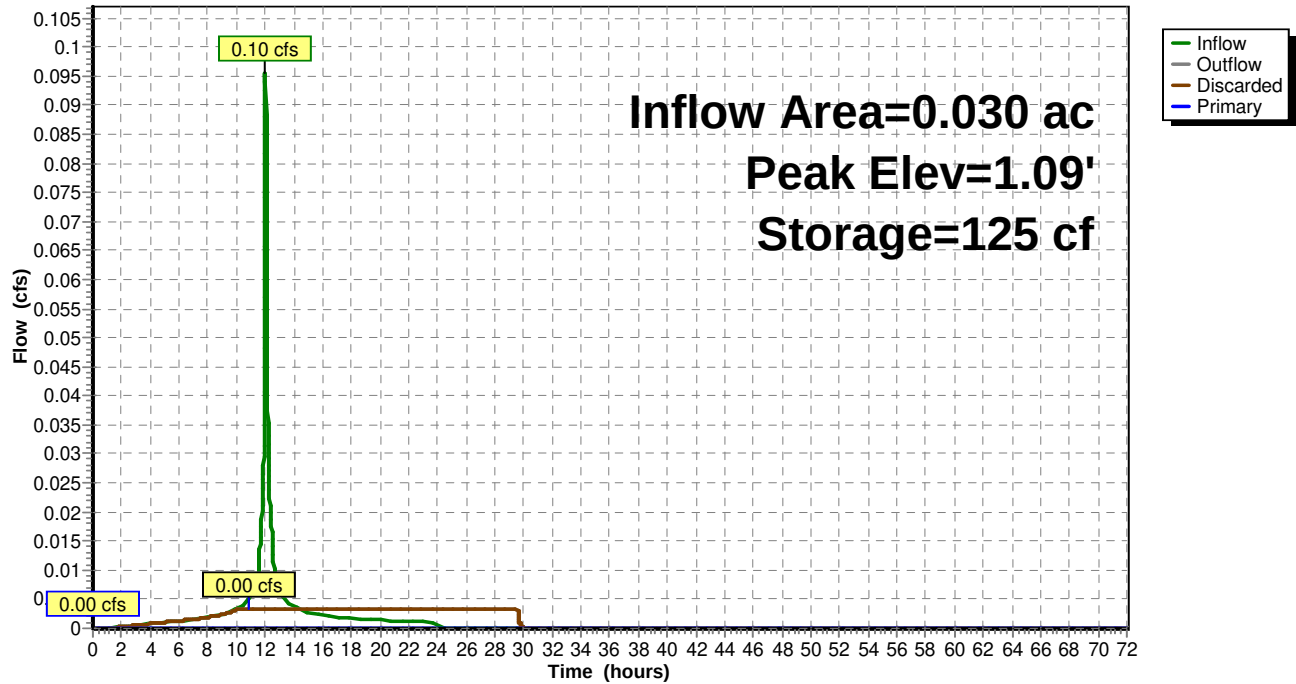
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 10.87 hrs HW=0.03' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU51: Porous paver patio for unit 51

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 23

Stage-Area-Storage for Pond 1.9PU51: Porous paver patio for unit 51

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU52: Porous paver patio for unit 52

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 2.53" for 1-yr event
 Inflow = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af
 Outflow = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af, Atten= 97%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 1.09' @ 14.35 hrs Surf.Area= 288 sf Storage= 125 cf

Plug-Flow detention time= 318.5 min calculated for 0.006 af (100% of inflow)
 Center-of-Mass det. time= 318.5 min (1,080.3 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

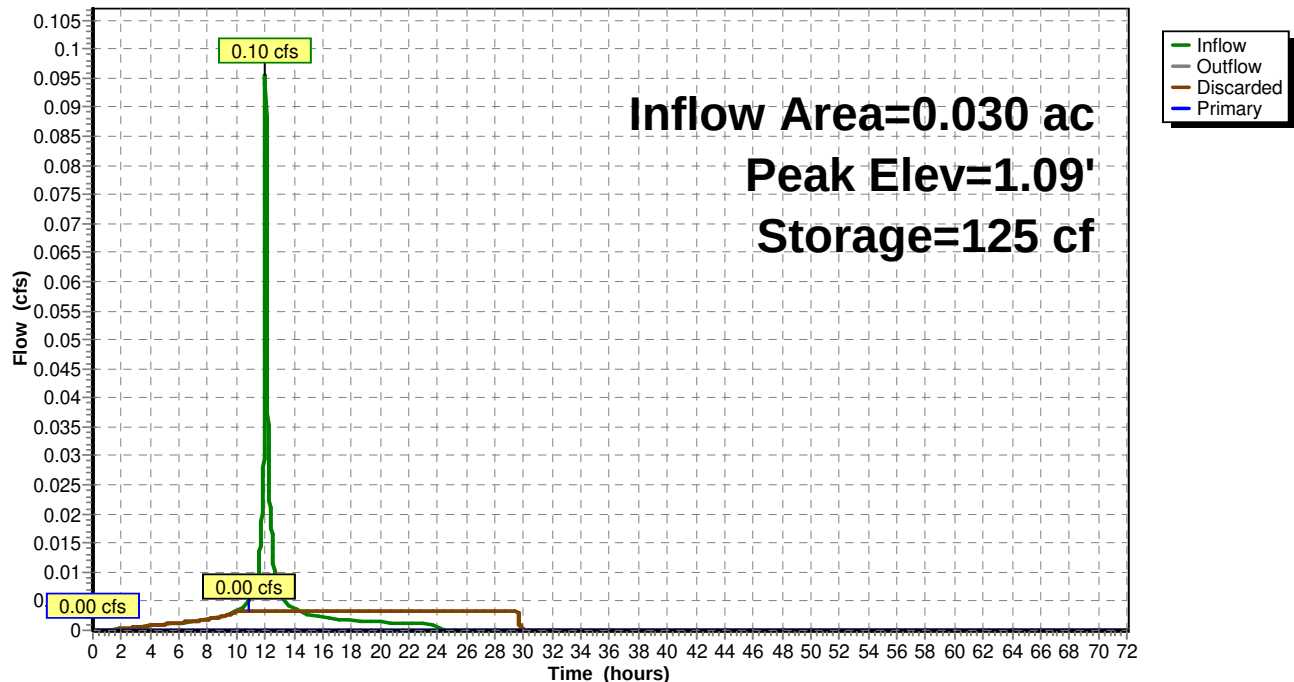
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 10.87 hrs HW=0.03' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU52: Porous paver patio for unit 52

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 26

Stage-Area-Storage for Pond 1.9PU52: Porous paver patio for unit 52

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU65: Porous paver patio for unit 65

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 2.53" for 1-yr event
 Inflow = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af
 Outflow = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af, Atten= 97%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 1.09' @ 14.35 hrs Surf.Area= 288 sf Storage= 125 cf

Plug-Flow detention time= 318.5 min calculated for 0.006 af (100% of inflow)
 Center-of-Mass det. time= 318.5 min (1,080.3 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

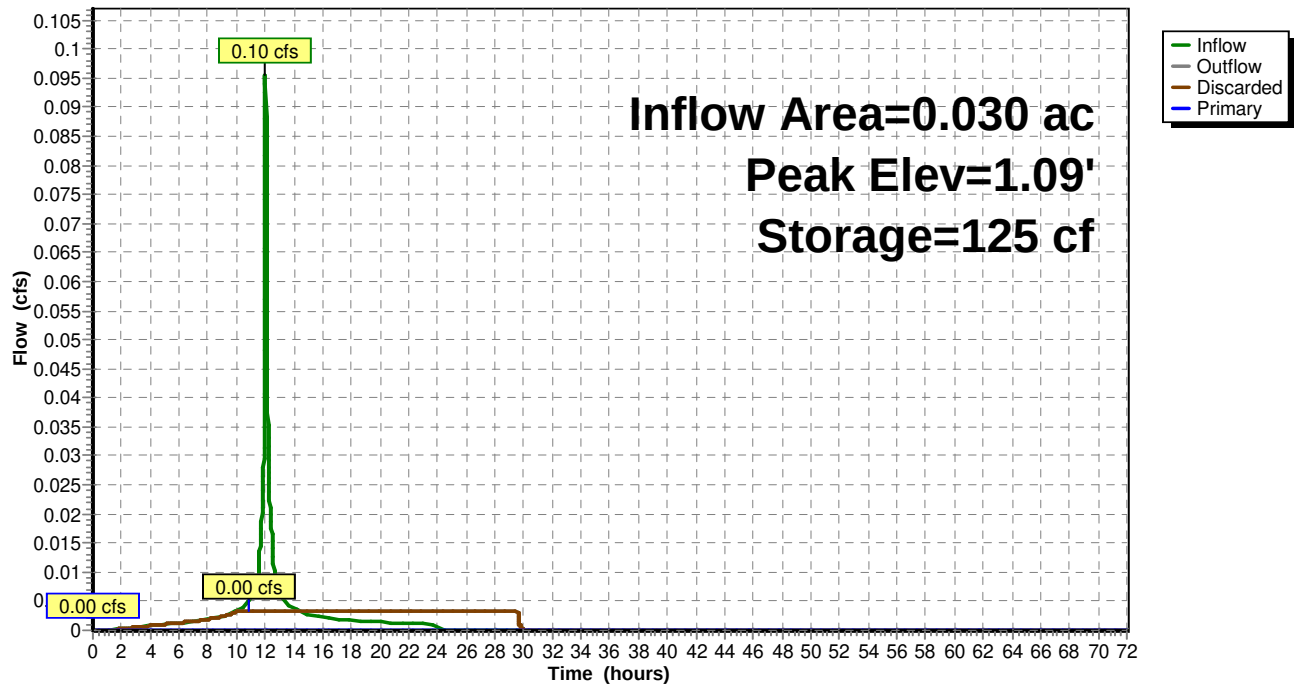
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 10.87 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU65: Porous paver patio for unit 65

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 29

Stage-Area-Storage for Pond 1.9PU65: Porous paver patio for unit 65

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU66: Porous paver patio for unit 66

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 2.53" for 1-yr event
 Inflow = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af
 Outflow = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af, Atten= 97%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 1.09' @ 14.35 hrs Surf.Area= 288 sf Storage= 125 cf

Plug-Flow detention time= 318.5 min calculated for 0.006 af (100% of inflow)
 Center-of-Mass det. time= 318.5 min (1,080.3 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

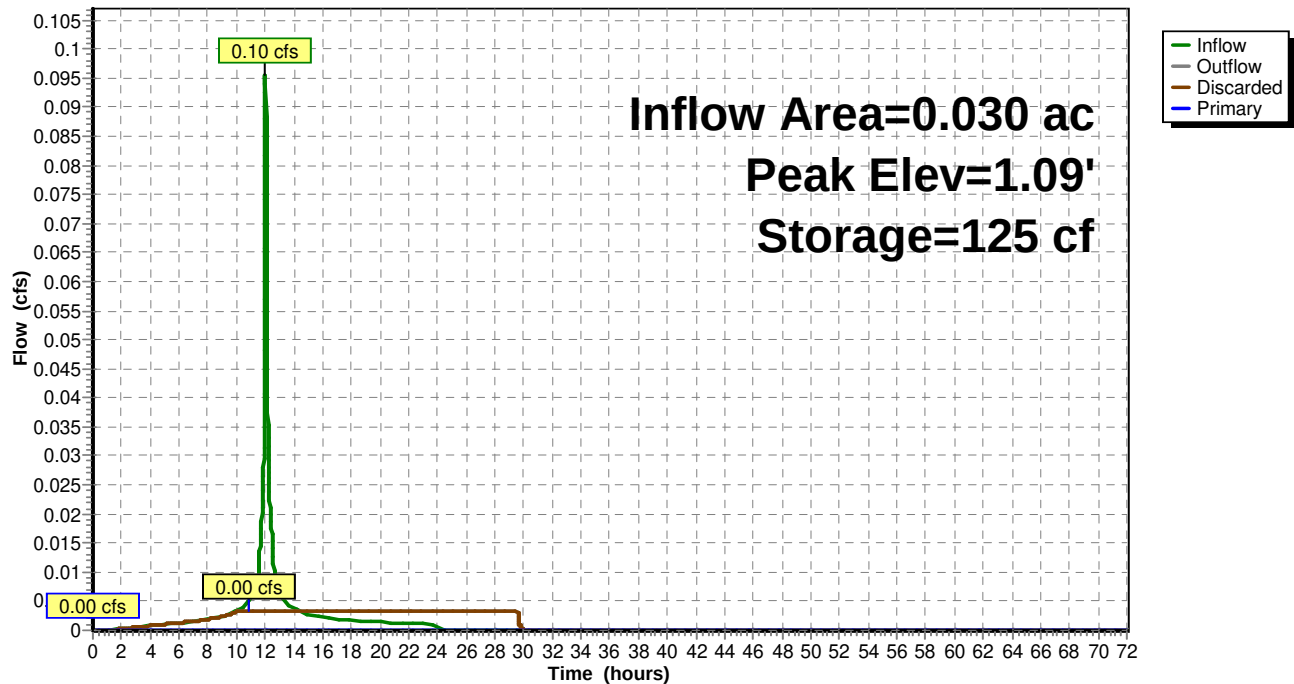
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 10.87 hrs HW=0.03' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU66: Porous paver patio for unit 66

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 32

Stage-Area-Storage for Pond 1.9PU66: Porous paver patio for unit 66

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU67: Porous paver patio for unit 67

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 2.53" for 1-yr event
 Inflow = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af
 Outflow = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af, Atten= 97%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 1.09' @ 14.35 hrs Surf.Area= 288 sf Storage= 125 cf

Plug-Flow detention time= 318.5 min calculated for 0.006 af (100% of inflow)
 Center-of-Mass det. time= 318.5 min (1,080.3 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

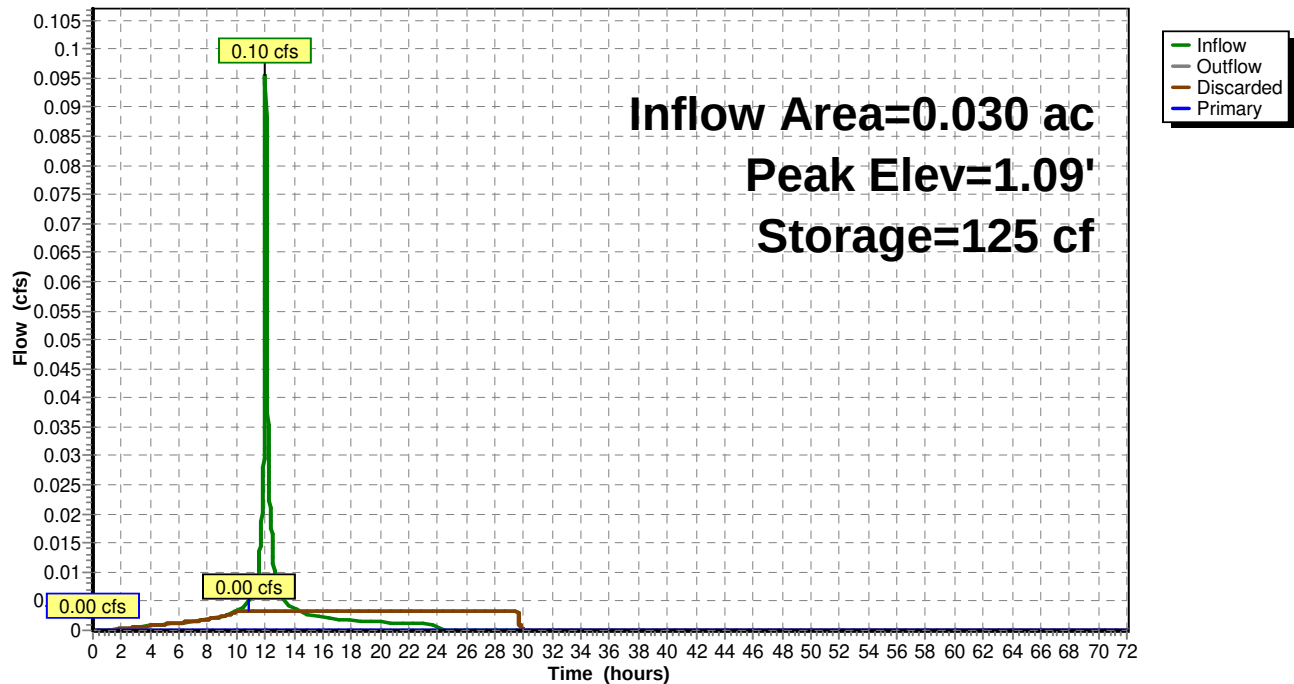
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 10.87 hrs HW=0.03' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU67: Porous paver patio for unit 67

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 35

Stage-Area-Storage for Pond 1.9PU67: Porous paver patio for unit 67

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU68: Porous paver patio for unit 68

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 2.53" for 1-yr event
 Inflow = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af
 Outflow = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af, Atten= 97%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 1.09' @ 14.35 hrs Surf.Area= 288 sf Storage= 125 cf

Plug-Flow detention time= 318.5 min calculated for 0.006 af (100% of inflow)
 Center-of-Mass det. time= 318.5 min (1,080.3 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

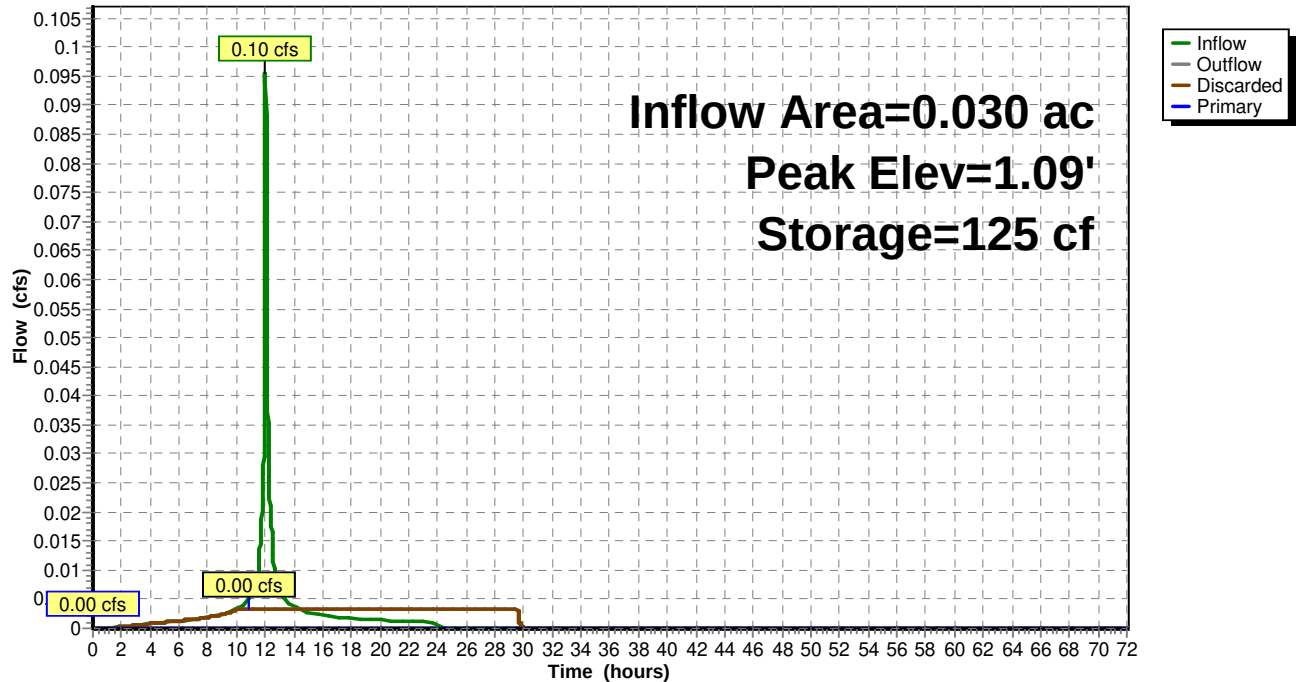
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 10.87 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU68: Porous paver patio for unit 68

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 38

Stage-Area-Storage for Pond 1.9PU68: Porous paver patio for unit 68

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU69: Porous paver patio for unit 69

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 2.53" for 1-yr event
 Inflow = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af
 Outflow = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af, Atten= 97%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 1.09' @ 14.35 hrs Surf.Area= 288 sf Storage= 125 cf

Plug-Flow detention time= 318.5 min calculated for 0.006 af (100% of inflow)
 Center-of-Mass det. time= 318.5 min (1,080.3 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

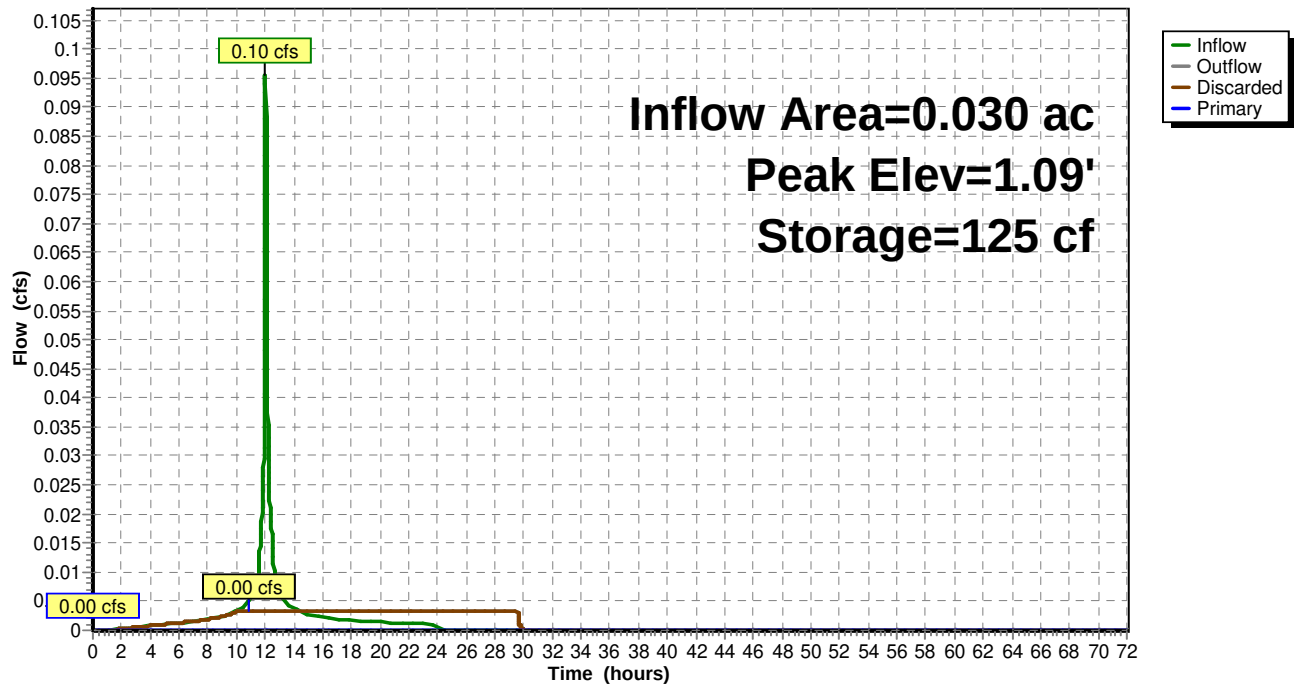
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 10.87 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU69: Porous paver patio for unit 69

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 41

Stage-Area-Storage for Pond 1.9PU69: Porous paver patio for unit 69

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU70: Porous paver patio for unit 70

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 2.53" for 1-yr event
 Inflow = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af
 Outflow = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af, Atten= 97%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 1.09' @ 14.35 hrs Surf.Area= 288 sf Storage= 125 cf

Plug-Flow detention time= 318.5 min calculated for 0.006 af (100% of inflow)
 Center-of-Mass det. time= 318.5 min (1,080.3 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

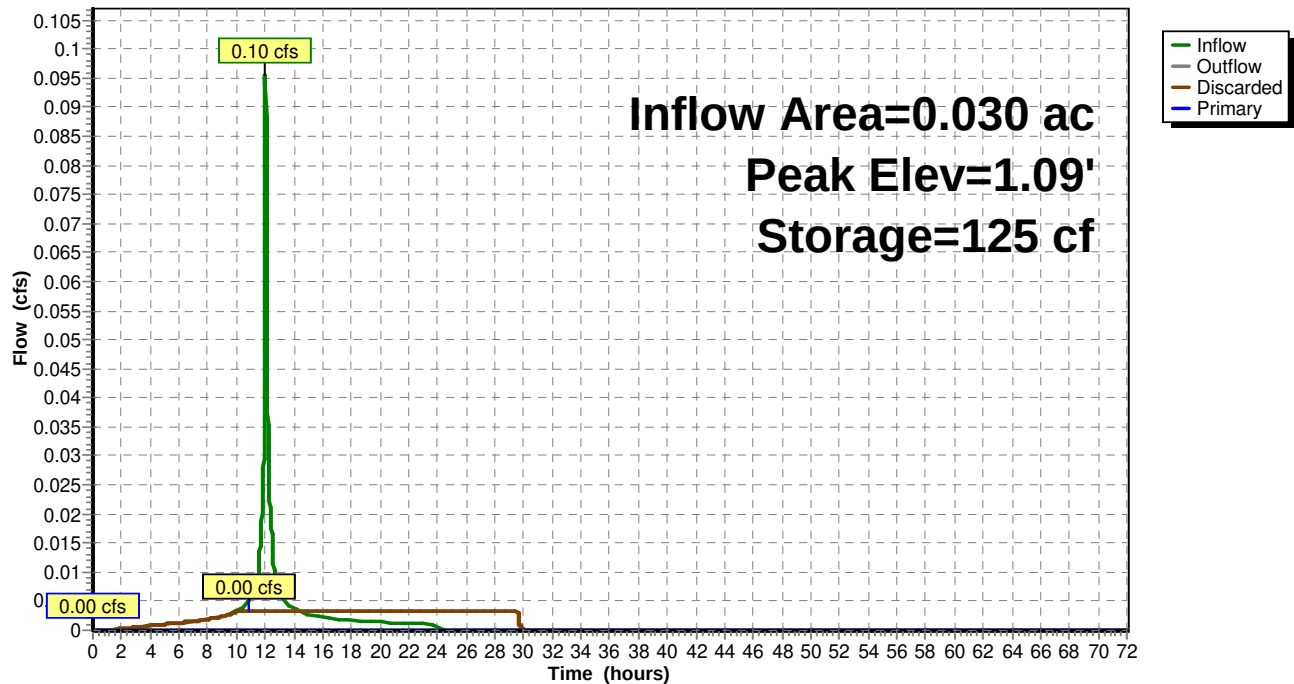
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 10.87 hrs HW=0.03' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU70: Porous paver patio for unit 70

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 44

Stage-Area-Storage for Pond 1.9PU70: Porous paver patio for unit 70

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU71: Porous paver patio for unit 71

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 2.53" for 1-yr event
 Inflow = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af
 Outflow = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af, Atten= 97%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 1.09' @ 14.35 hrs Surf.Area= 288 sf Storage= 125 cf

Plug-Flow detention time= 318.5 min calculated for 0.006 af (100% of inflow)
 Center-of-Mass det. time= 318.5 min (1,080.3 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

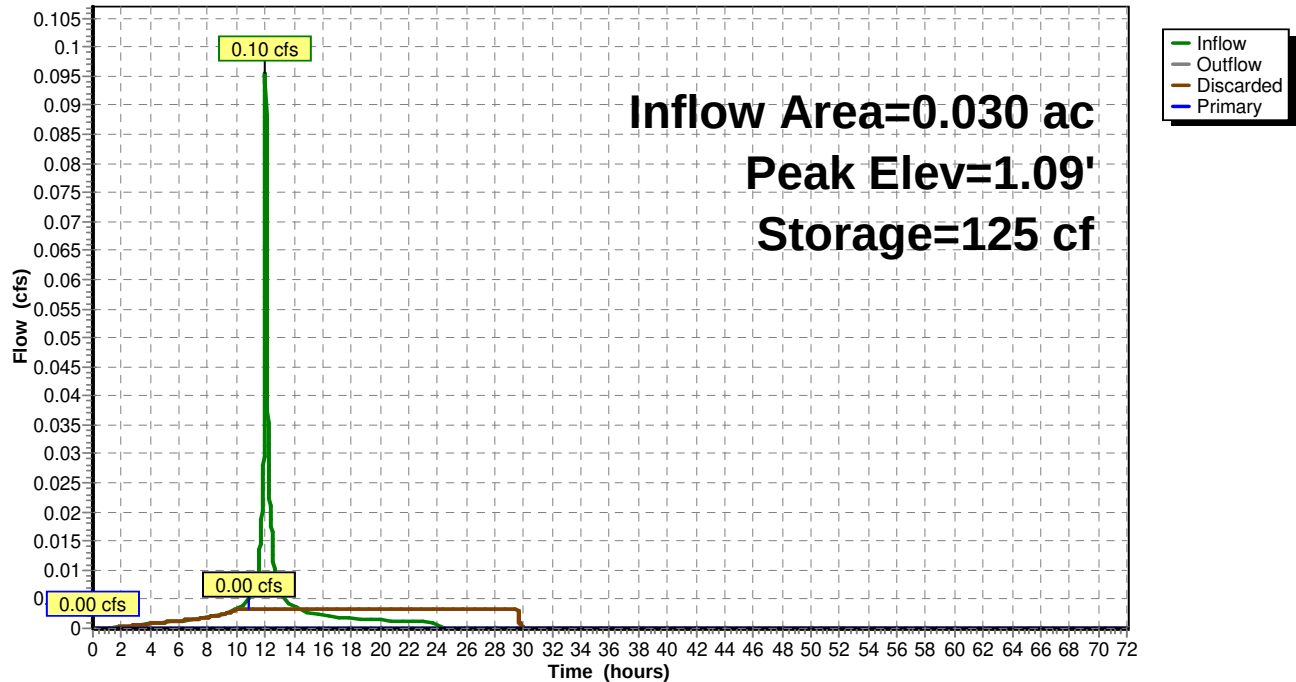
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 10.87 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU71: Porous paver patio for unit 71

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 47

Stage-Area-Storage for Pond 1.9PU71: Porous paver patio for unit 71

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU72: Porous paver patio for unit 72

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 2.53" for 1-yr event
 Inflow = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af
 Outflow = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af, Atten= 97%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 1.09' @ 14.35 hrs Surf.Area= 288 sf Storage= 125 cf

Plug-Flow detention time= 318.5 min calculated for 0.006 af (100% of inflow)
 Center-of-Mass det. time= 318.5 min (1,080.3 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

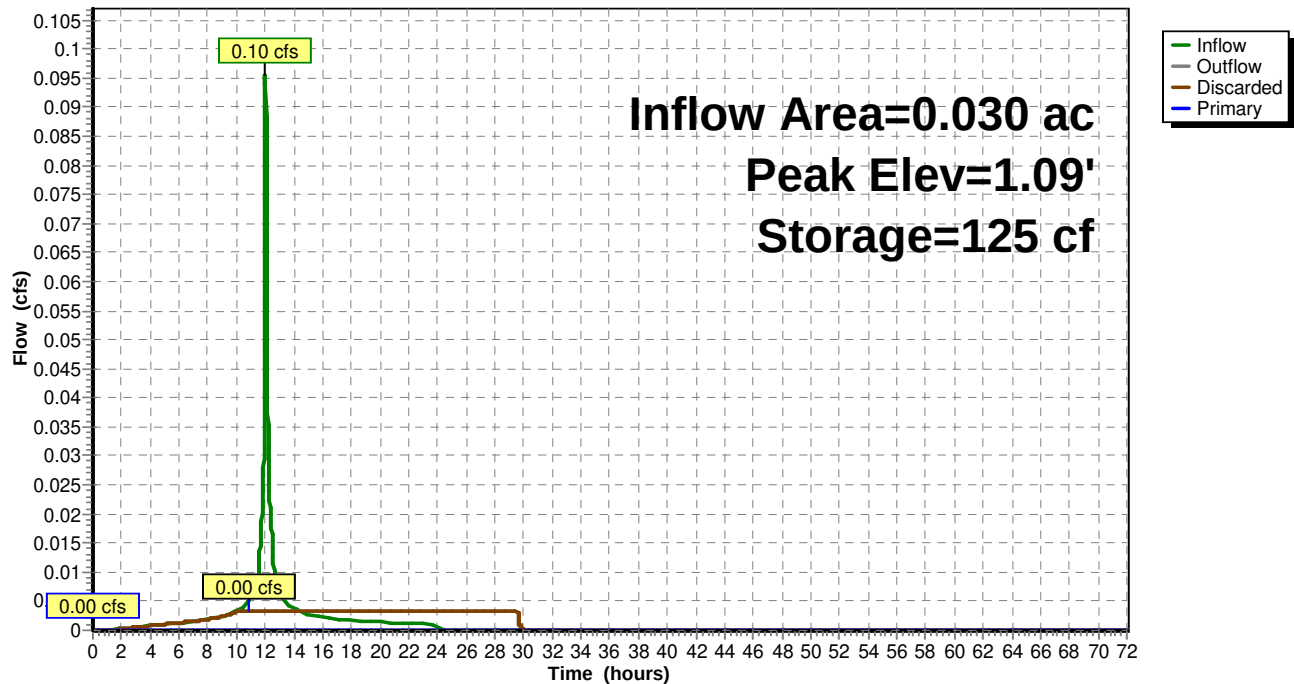
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 10.87 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU72: Porous paver patio for unit 72

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 50

Stage-Area-Storage for Pond 1.9PU72: Porous paver patio for unit 72

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU73: Porous paver patio for unit 73

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 2.53" for 1-yr event
 Inflow = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af
 Outflow = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af, Atten= 97%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 1.09' @ 14.35 hrs Surf.Area= 288 sf Storage= 125 cf

Plug-Flow detention time= 318.5 min calculated for 0.006 af (100% of inflow)
 Center-of-Mass det. time= 318.5 min (1,080.3 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

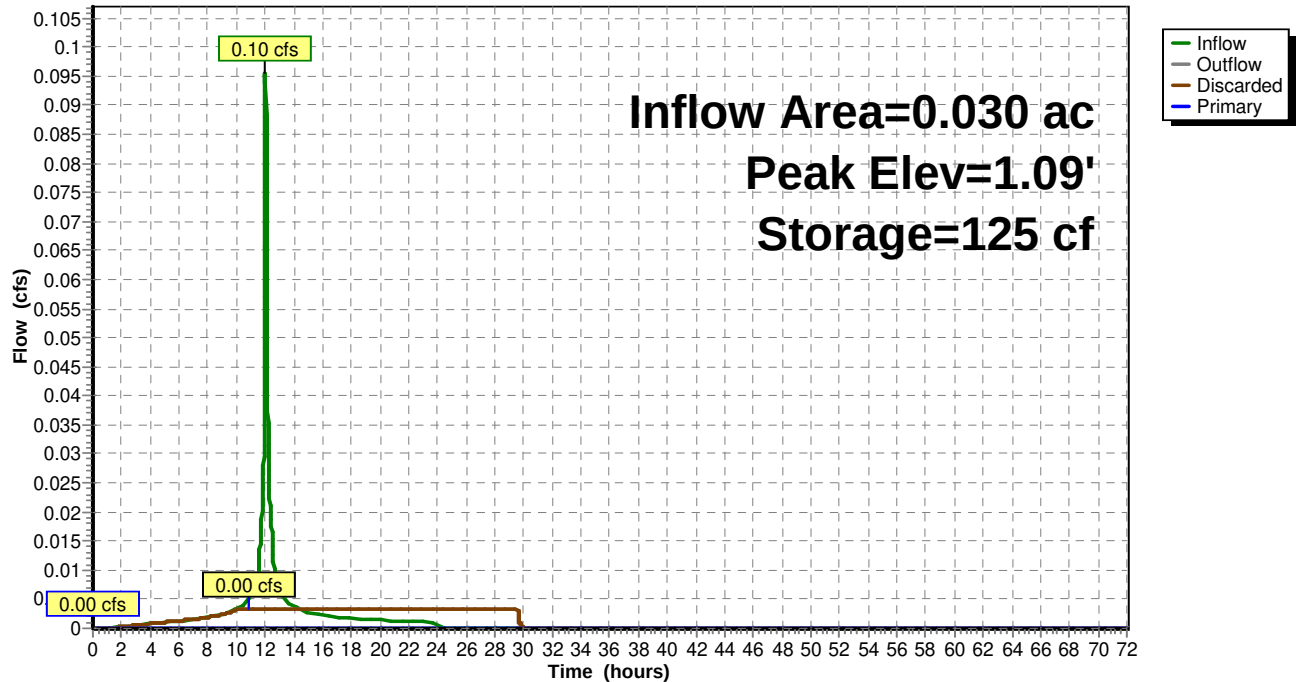
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 10.87 hrs HW=0.03' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU73: Porous paver patio for unit 73

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 53

Stage-Area-Storage for Pond 1.9PU73: Porous paver patio for unit 73

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU74: Porous paver patio for unit 74

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 2.53" for 1-yr event
 Inflow = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af
 Outflow = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af, Atten= 97%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 1.09' @ 14.35 hrs Surf.Area= 288 sf Storage= 125 cf

Plug-Flow detention time= 318.5 min calculated for 0.006 af (100% of inflow)
 Center-of-Mass det. time= 318.5 min (1,080.3 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

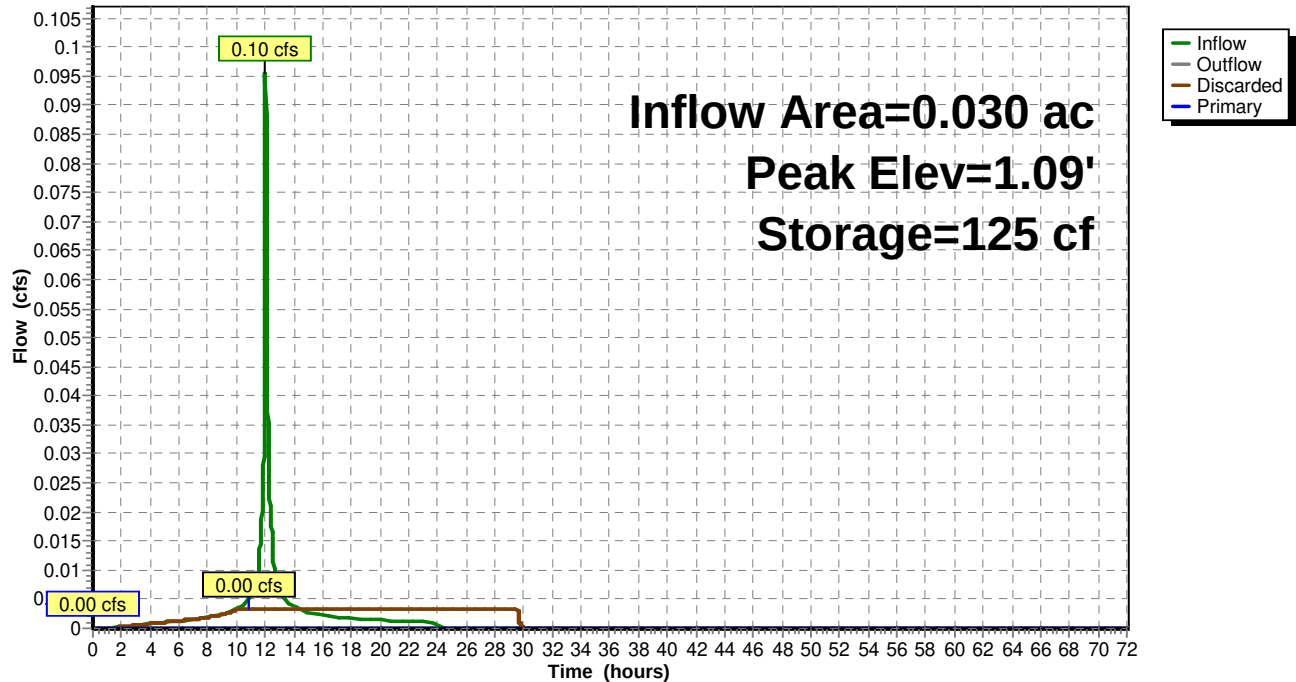
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 10.87 hrs HW=0.03' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU74: Porous paver patio for unit 74

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 56

Stage-Area-Storage for Pond 1.9PU74: Porous paver patio for unit 74

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU75: Porous paver patio for unit 75

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 2.53" for 1-yr event
 Inflow = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af
 Outflow = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af, Atten= 97%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 1.09' @ 14.35 hrs Surf.Area= 288 sf Storage= 125 cf

Plug-Flow detention time= 318.5 min calculated for 0.006 af (100% of inflow)
 Center-of-Mass det. time= 318.5 min (1,080.3 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

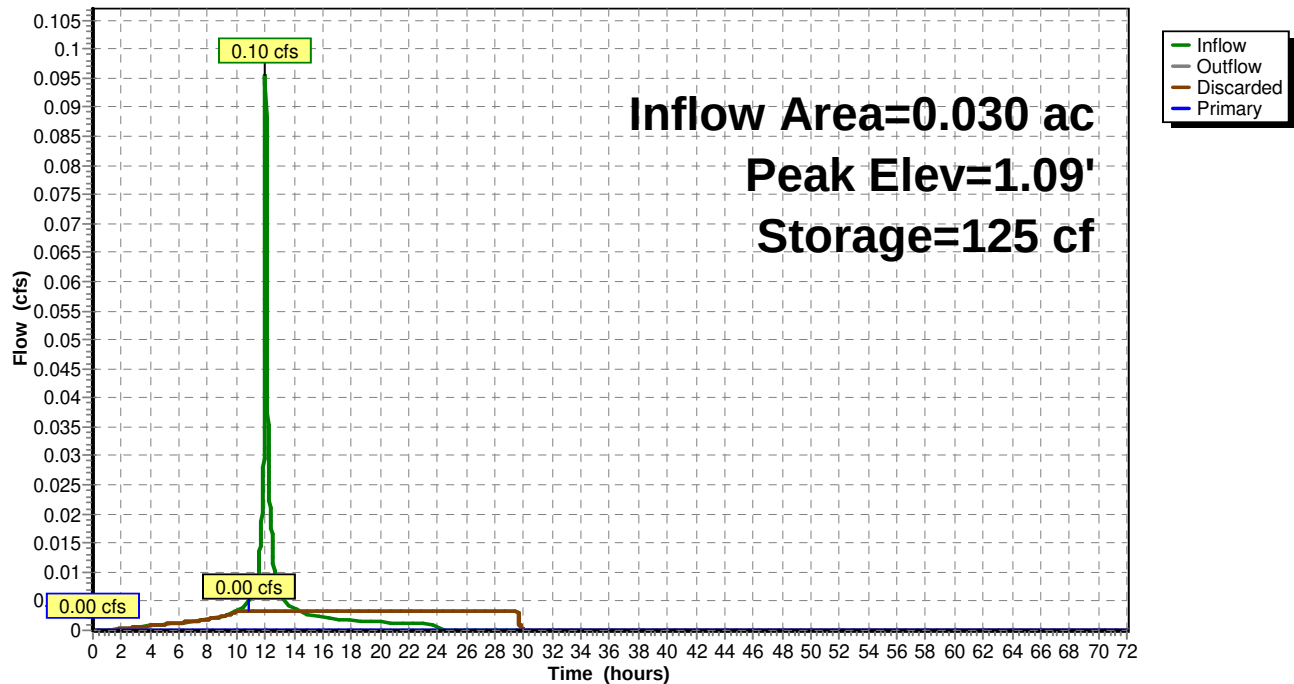
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 10.87 hrs HW=0.03' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU75: Porous paver patio for unit 75

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 59

Stage-Area-Storage for Pond 1.9PU75: Porous paver patio for unit 75

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU76: Porous paver patio for unit 76

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 2.53" for 1-yr event
 Inflow = 0.10 cfs @ 12.04 hrs, Volume= 0.006 af
 Outflow = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af, Atten= 97%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 10.87 hrs, Volume= 0.006 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 1.09' @ 14.35 hrs Surf.Area= 288 sf Storage= 125 cf

Plug-Flow detention time= 318.5 min calculated for 0.006 af (100% of inflow)
 Center-of-Mass det. time= 318.5 min (1,080.3 - 761.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

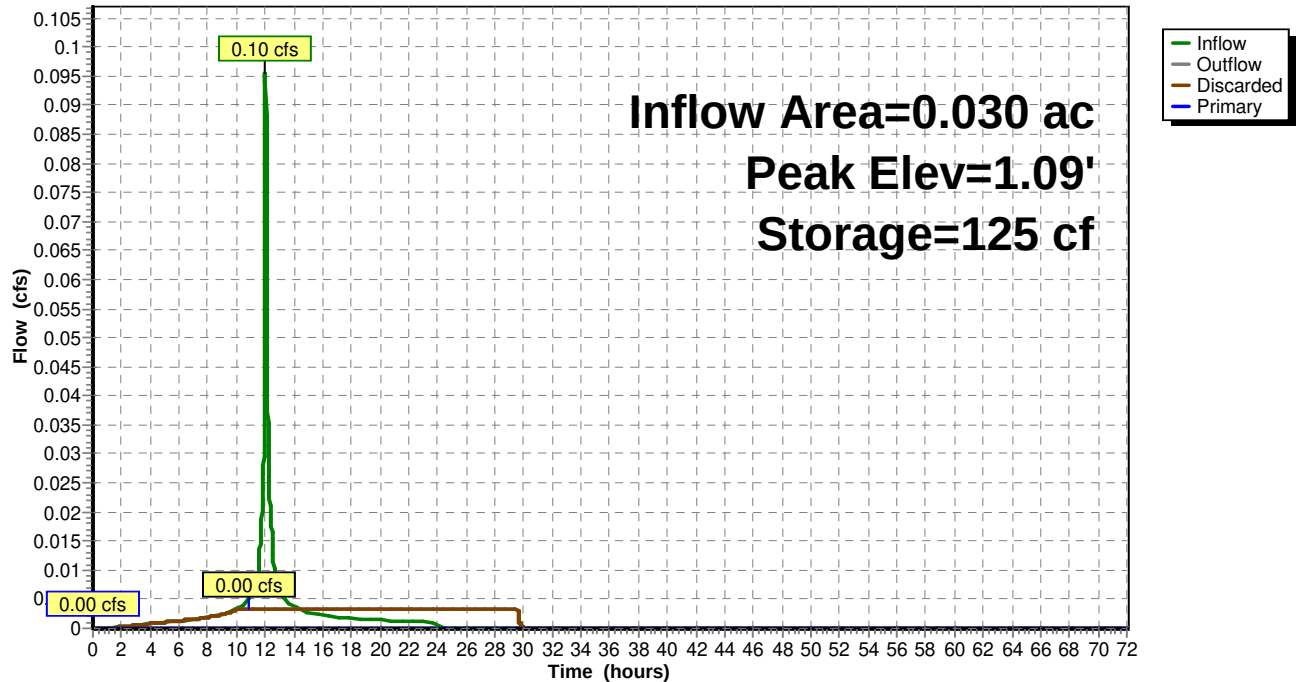
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 10.87 hrs HW=0.03' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU76: Porous paver patio for unit 76

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 1-yr Rainfall=2.76"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 62

Stage-Area-Storage for Pond 1.9PU76: Porous paver patio for unit 76

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 63

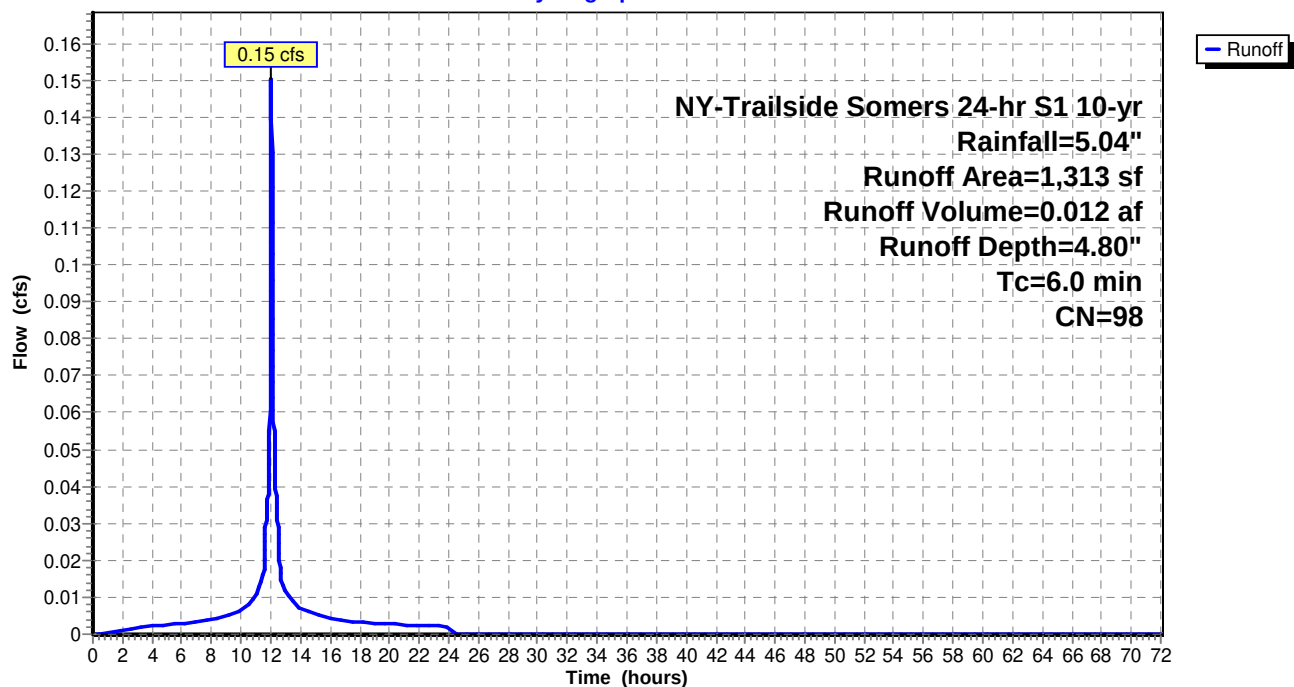
Summary for Subcatchment 1.9SU50: Node models subcatchment to single porous paver patio unit 50

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU50: Node models subcatchment to single porous paver patio unit 50**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 64

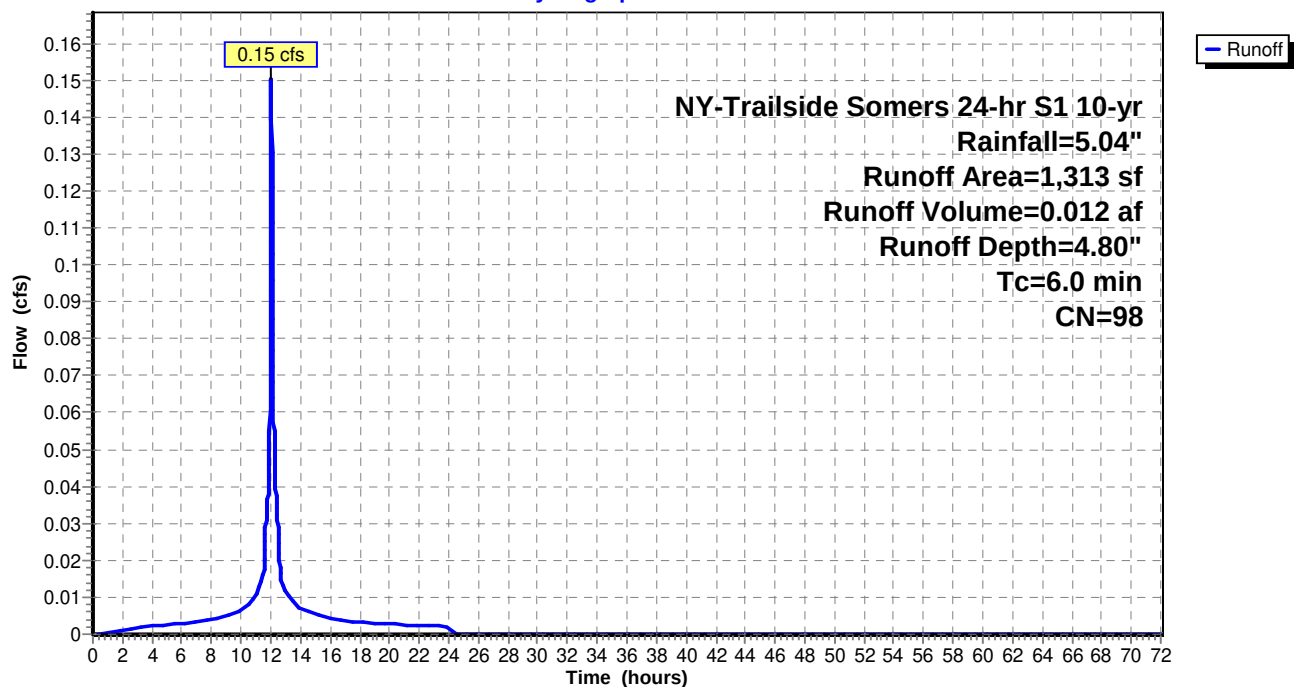
Summary for Subcatchment 1.9SU51: Node models subcatchment to single porous paver patio unit 51

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU51: Node models subcatchment to single porous paver patio unit 51**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 65

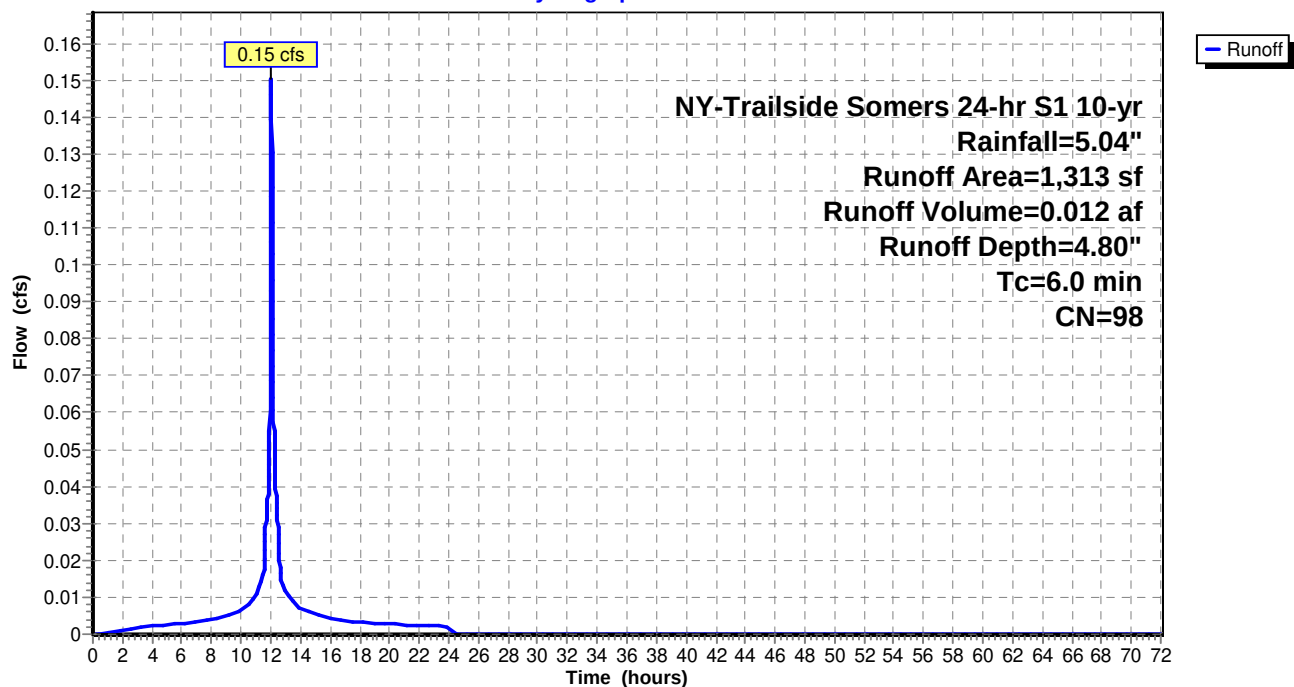
Summary for Subcatchment 1.9SU52: Node models subcatchment to single porous paver patio unit 52

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU52: Node models subcatchment to single porous paver patio unit 52**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 66

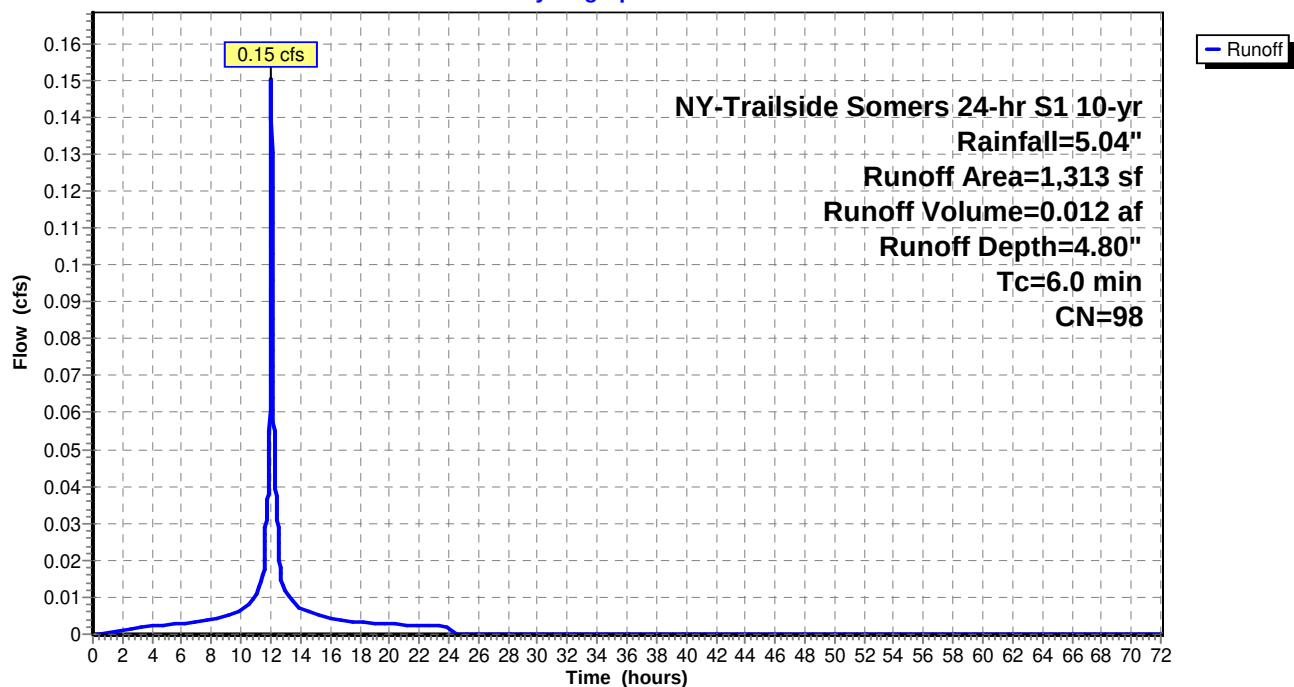
Summary for Subcatchment 1.9SU65: Node models subcatchment to single porous paver patio unit 65

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU65: Node models subcatchment to single porous paver patio unit 65**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 67

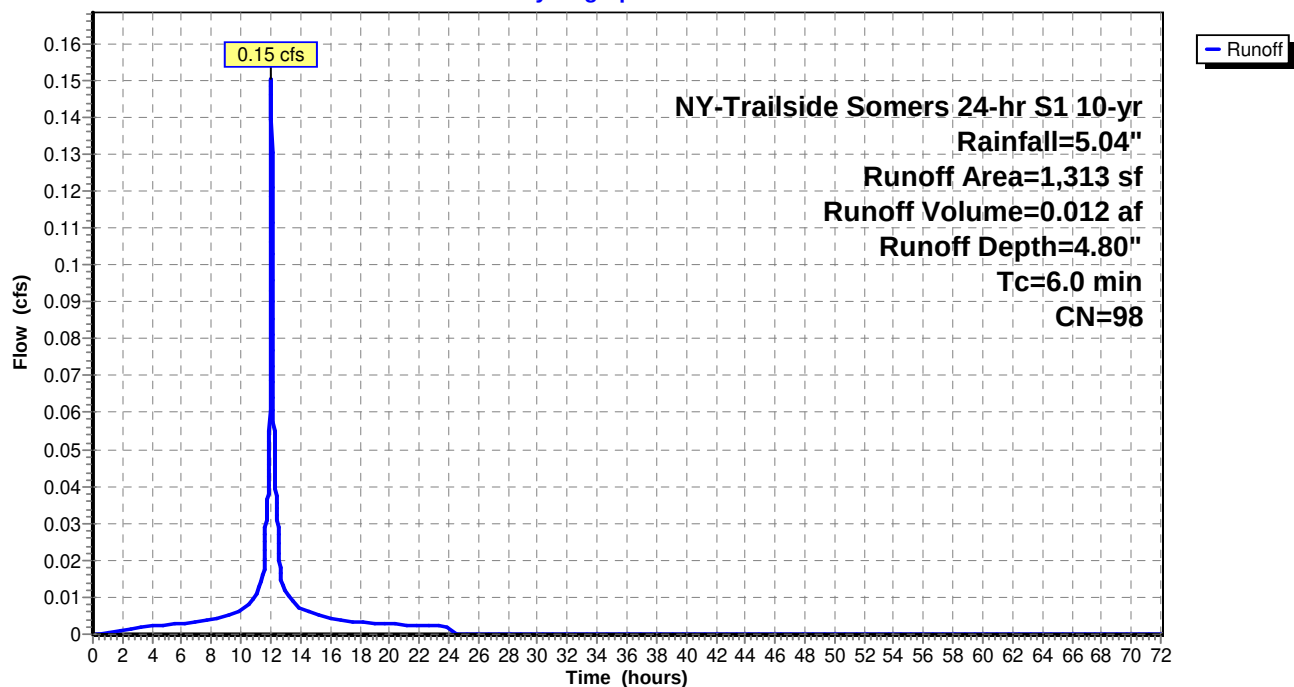
Summary for Subcatchment 1.9SU66: Node models subcatchment to single porous paver patio unit 66

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU66: Node models subcatchment to single porous paver patio unit 66**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 68

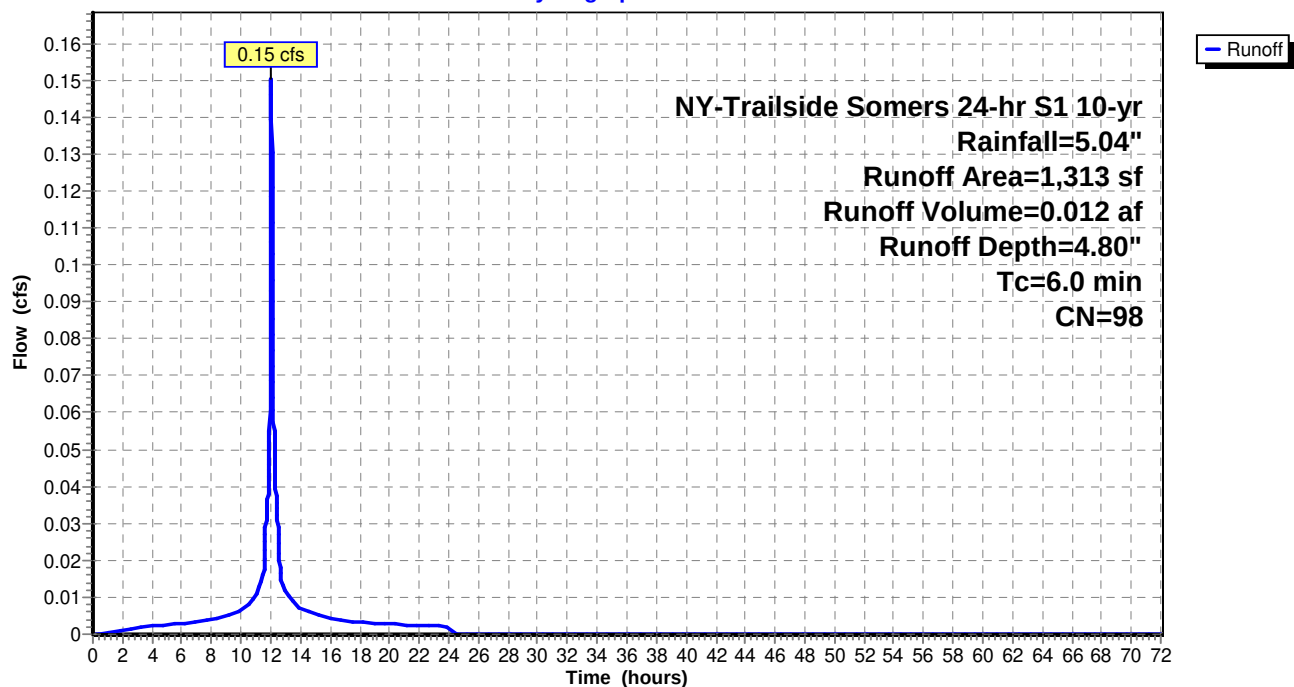
Summary for Subcatchment 1.9SU67: Node models subcatchment to single porous paver patio unit 67

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU67: Node models subcatchment to single porous paver patio unit 67**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 69

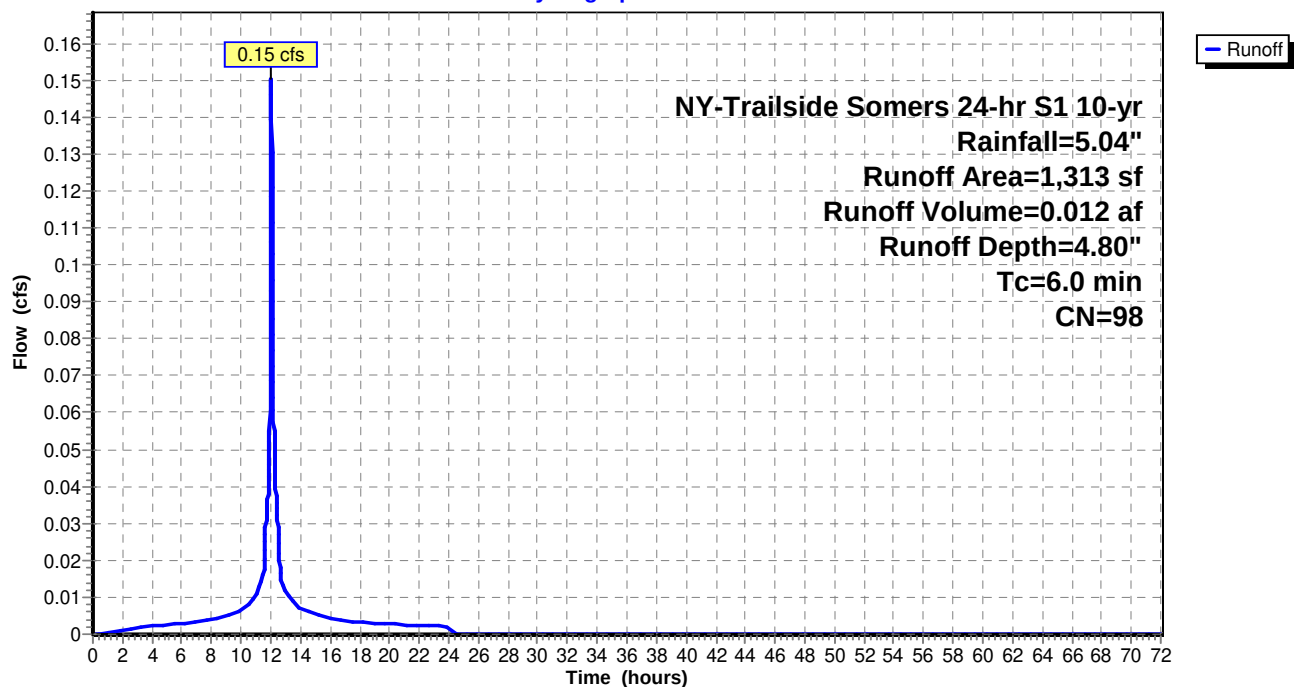
Summary for Subcatchment 1.9SU68: Node models subcatchment to single porous paver patio unit 68

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU68: Node models subcatchment to single porous paver patio unit 68**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 70

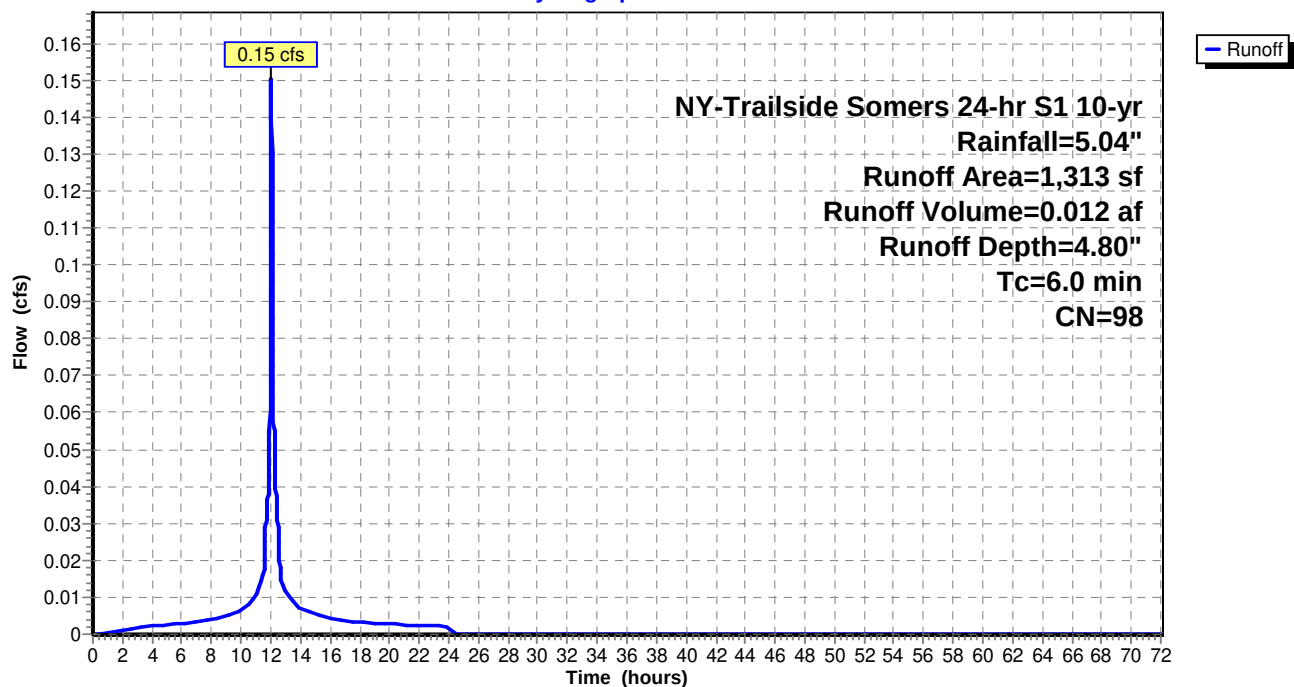
Summary for Subcatchment 1.9SU69: Node models subcatchment to single porous paver patio unit 69

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU69: Node models subcatchment to single porous paver patio unit 69**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 71

Summary for Subcatchment 1.9SU70: Node models subcatchment to single porous paver patio unit 70

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af, Depth= 4.80"

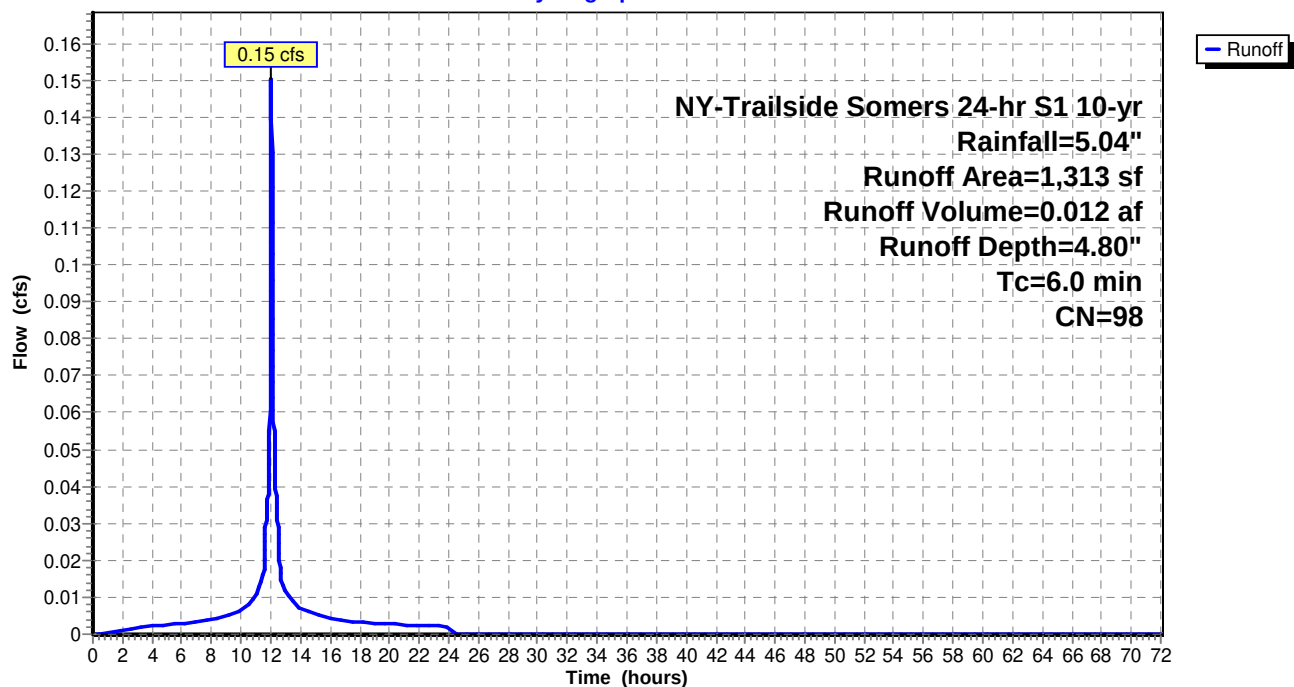
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU70: Node models subcatchment to single porous paver patio unit 70

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 72

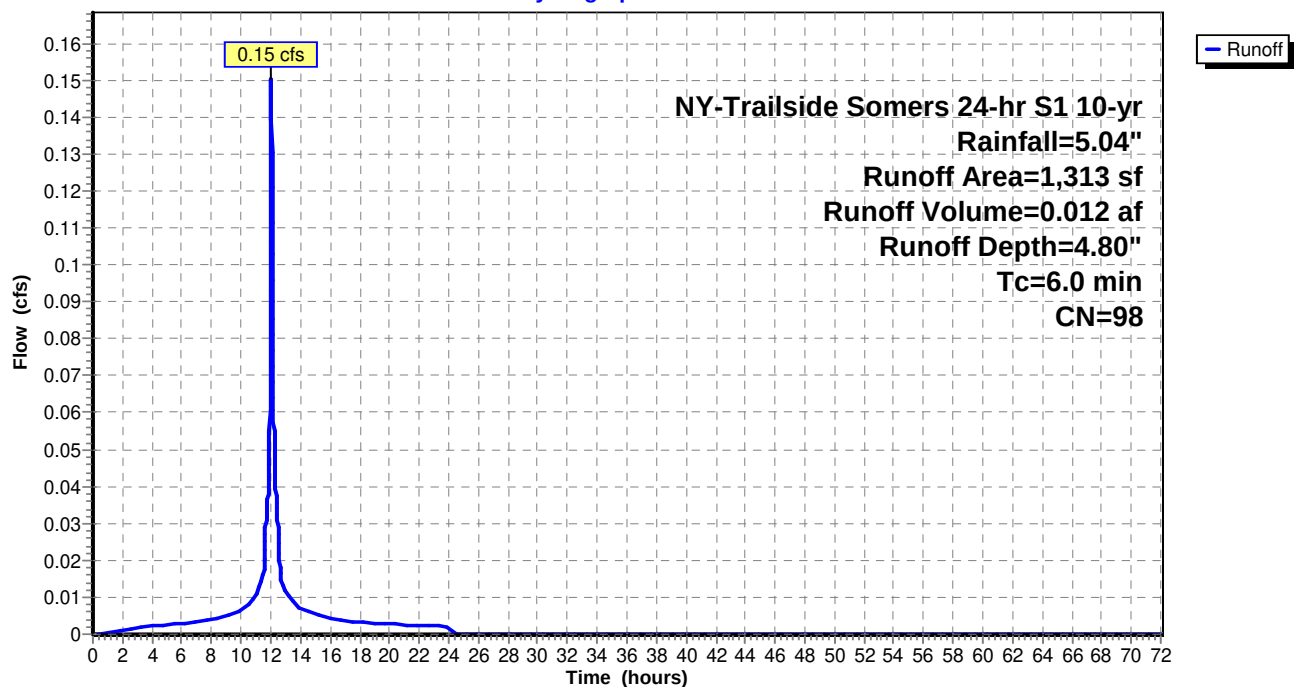
Summary for Subcatchment 1.9SU71: Node models subcatchment to single porous paver patio unit 71

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU71: Node models subcatchment to single porous paver patio unit 71**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 73

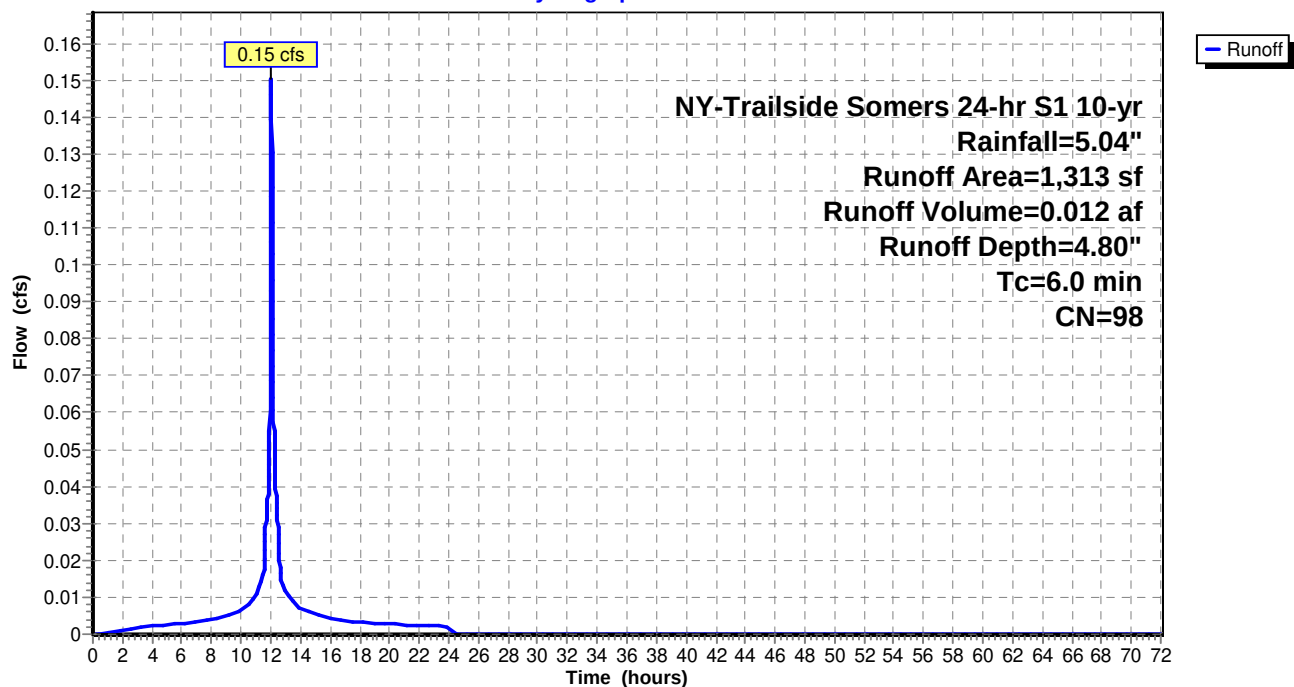
Summary for Subcatchment 1.9SU72: Node models subcatchment to single porous paver patio unit 72

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU72: Node models subcatchment to single porous paver patio unit 72**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 74

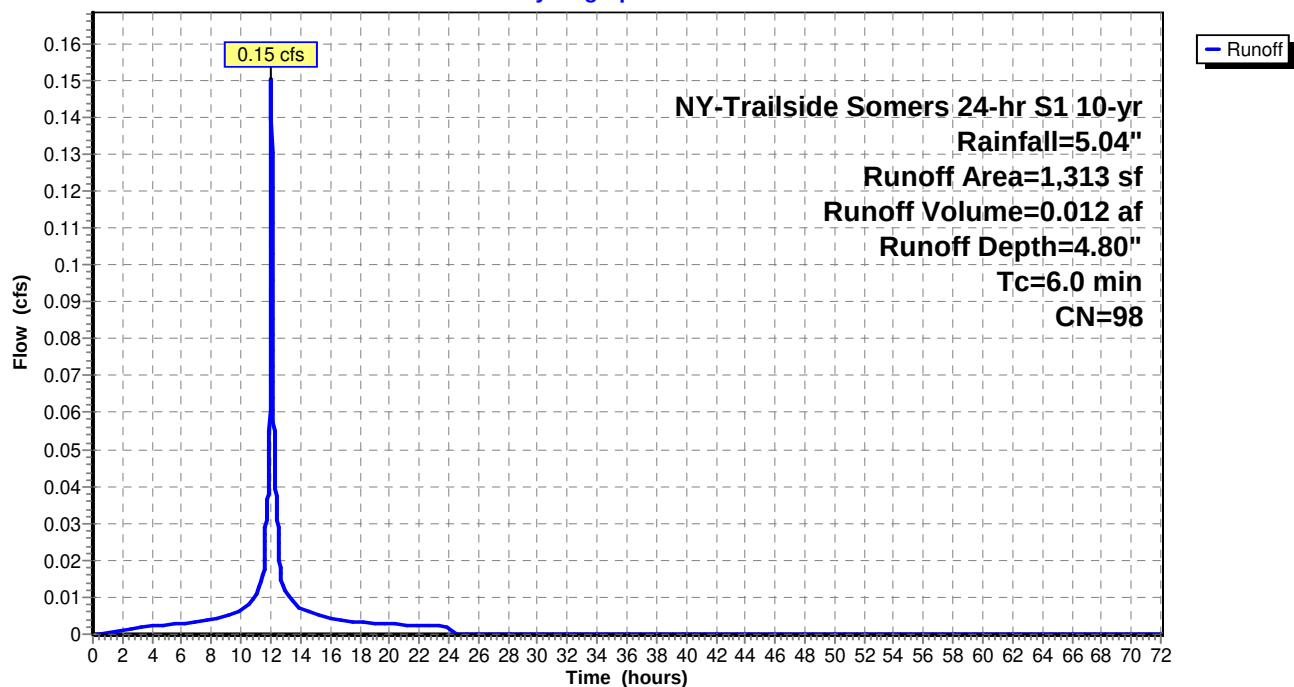
Summary for Subcatchment 1.9SU73: Node models subcatchment to single porous paver patio unit 73

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU73: Node models subcatchment to single porous paver patio unit 73**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 75

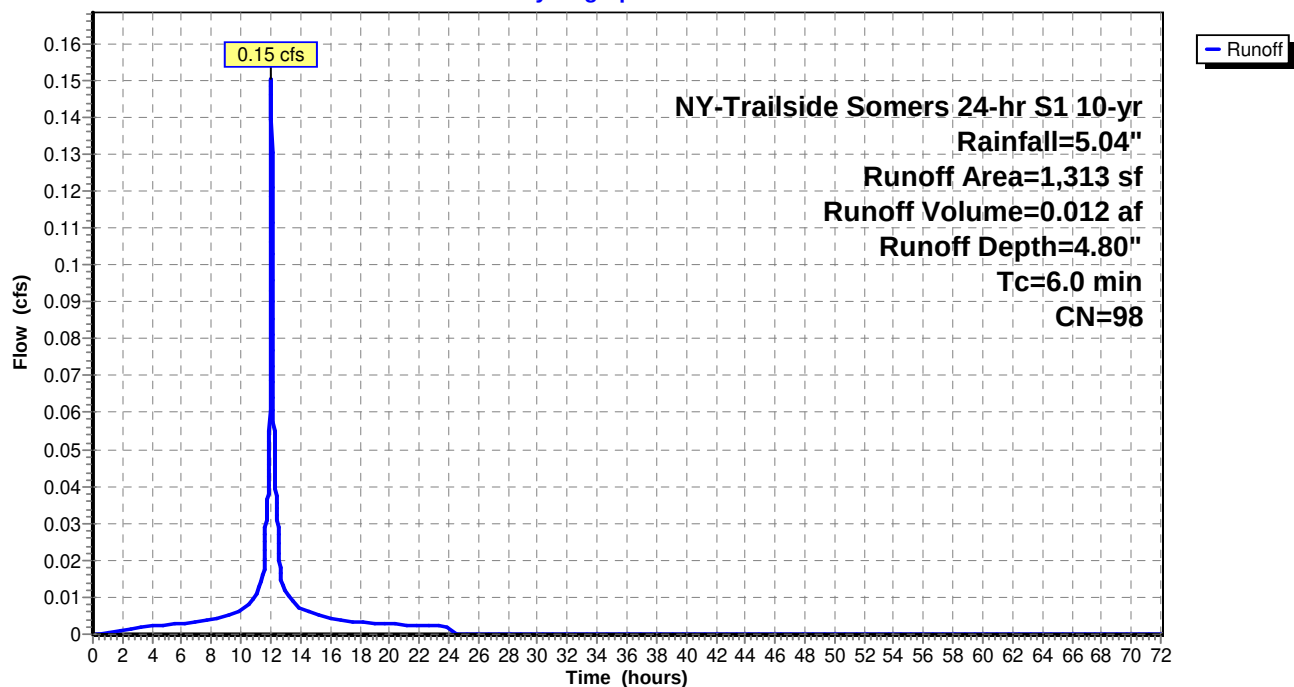
Summary for Subcatchment 1.9SU74: Node models subcatchment to single porous paver patio unit 74

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU74: Node models subcatchment to single porous paver patio unit 74**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 76

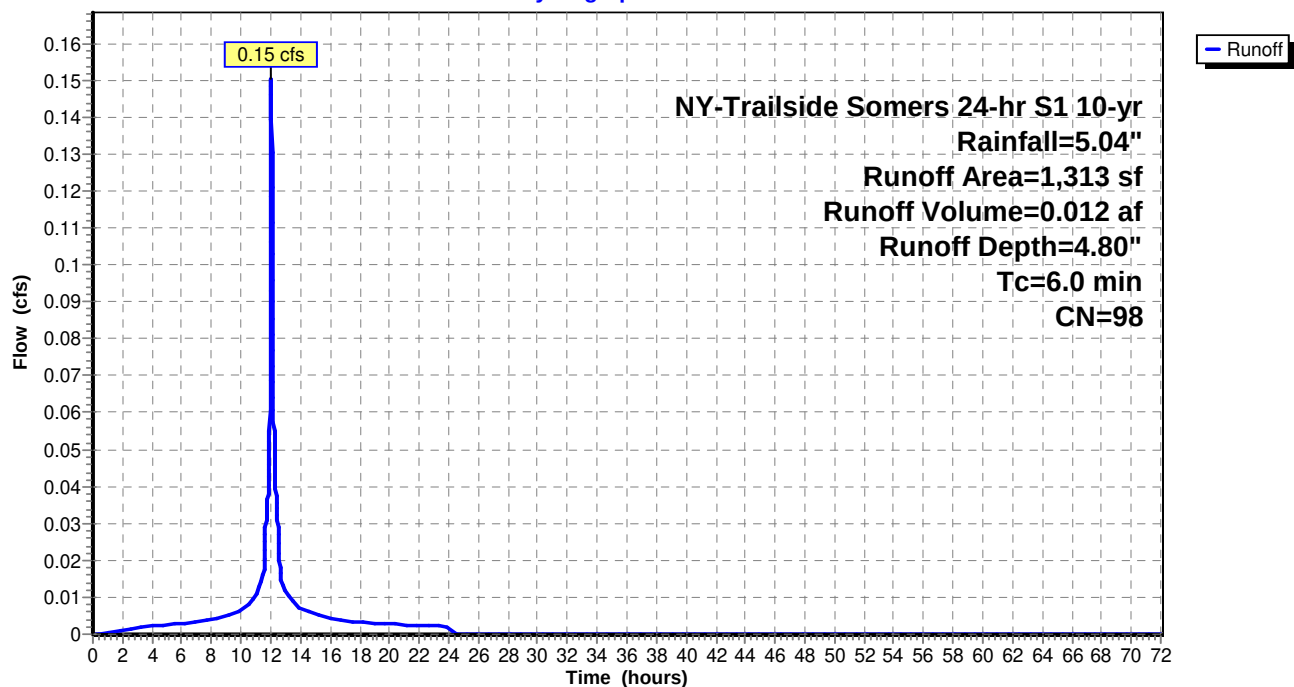
Summary for Subcatchment 1.9SU75: Node models subcatchment to single porous paver patio unit 75

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU75: Node models subcatchment to single porous paver patio unit 75**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 77

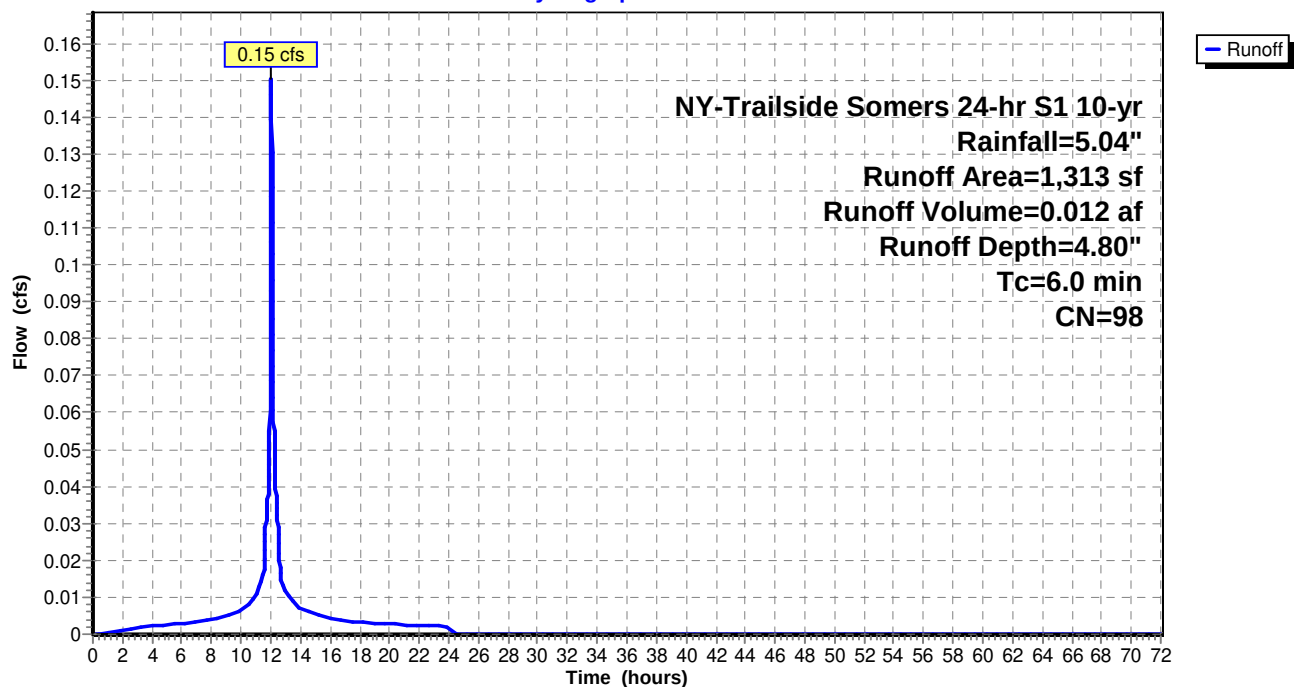
Summary for Subcatchment 1.9SU76: Node models subcatchment to single porous paver patio unit 76

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

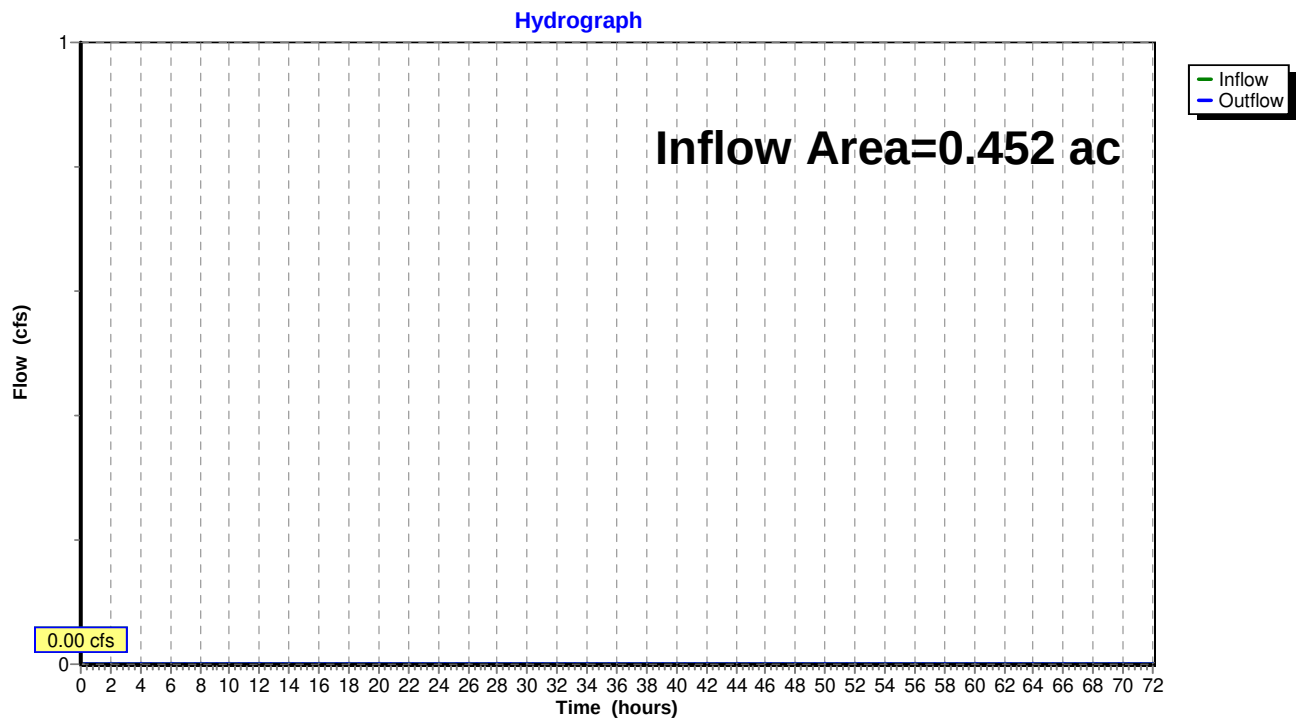
Subcatchment 1.9SU76: Node models subcatchment to single porous paver patio unit 76**Hydrograph**

Summary for Reach DP1: 1.9S To Link

Inflow Area = 0.452 ac, 100.00% Impervious, Inflow Depth = 0.00" for 10-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach DP1: 1.9S To Link



Summary for Pond 1.9PU50: Porous paver patio for unit 50

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 4.80" for 10-yr event
 Inflow = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af
 Outflow = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af, Atten= 98%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.53' @ 18.01 hrs Surf.Area= 288 sf Storage= 292 cf

Plug-Flow detention time= 756.5 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 756.5 min (1,505.5 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

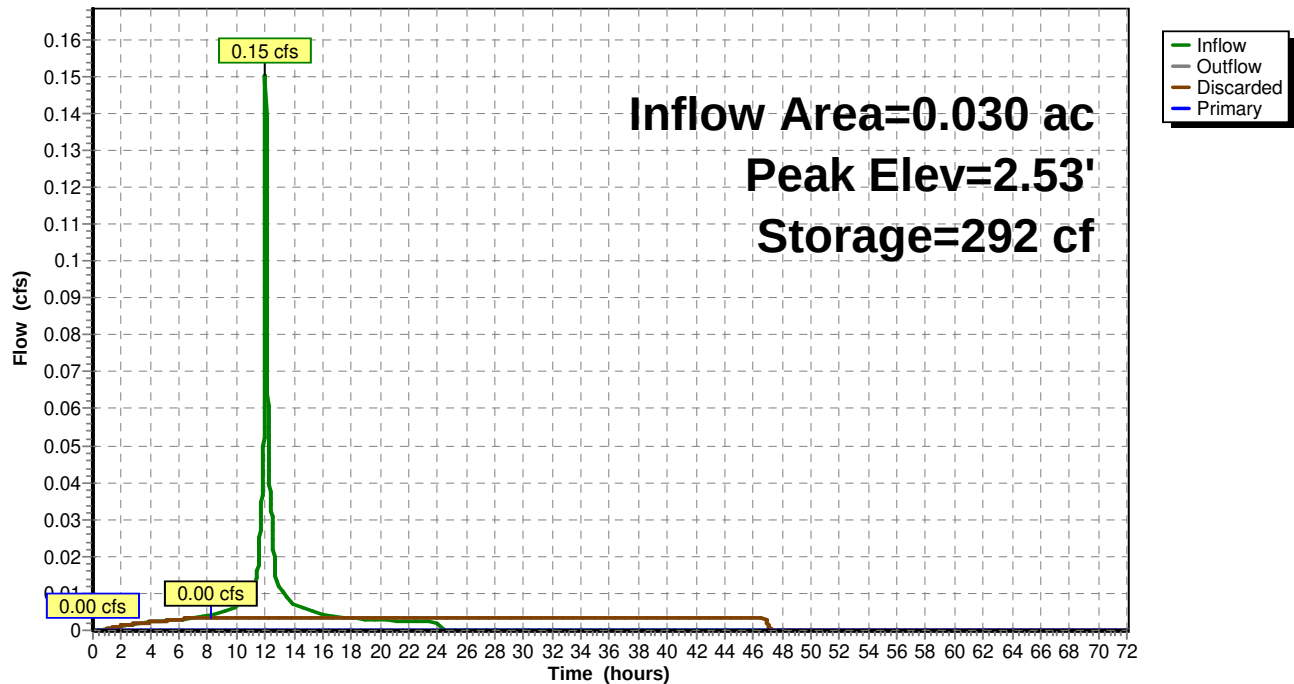
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 8.18 hrs HW=0.03' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU50: Porous paver patio for unit 50

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 81

Stage-Area-Storage for Pond 1.9PU50: Porous paver patio for unit 50

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU51: Porous paver patio for unit 51

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 4.80" for 10-yr event
 Inflow = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af
 Outflow = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af, Atten= 98%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.53' @ 18.01 hrs Surf.Area= 288 sf Storage= 292 cf

Plug-Flow detention time= 756.5 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 756.5 min (1,505.5 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

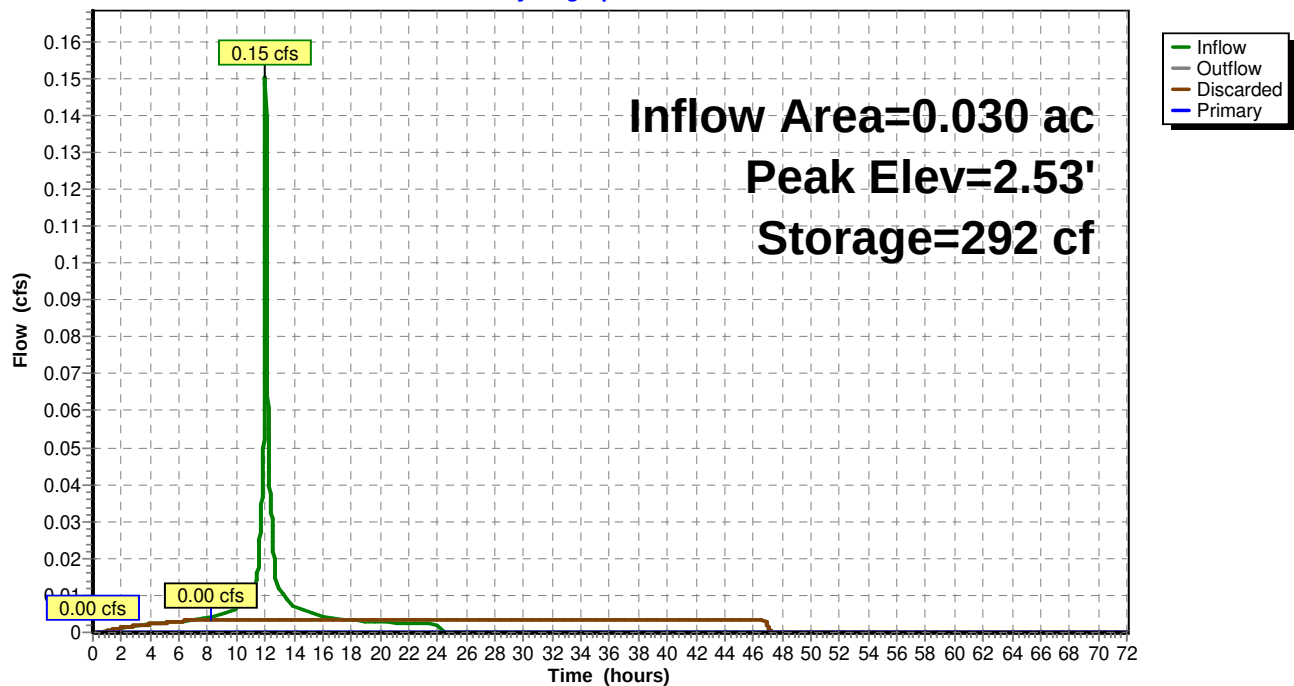
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 8.18 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU51: Porous paver patio for unit 51

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 84

Stage-Area-Storage for Pond 1.9PU51: Porous paver patio for unit 51

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU52: Porous paver patio for unit 52

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 4.80" for 10-yr event
 Inflow = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af
 Outflow = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af, Atten= 98%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.53' @ 18.01 hrs Surf.Area= 288 sf Storage= 292 cf

Plug-Flow detention time= 756.5 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 756.5 min (1,505.5 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

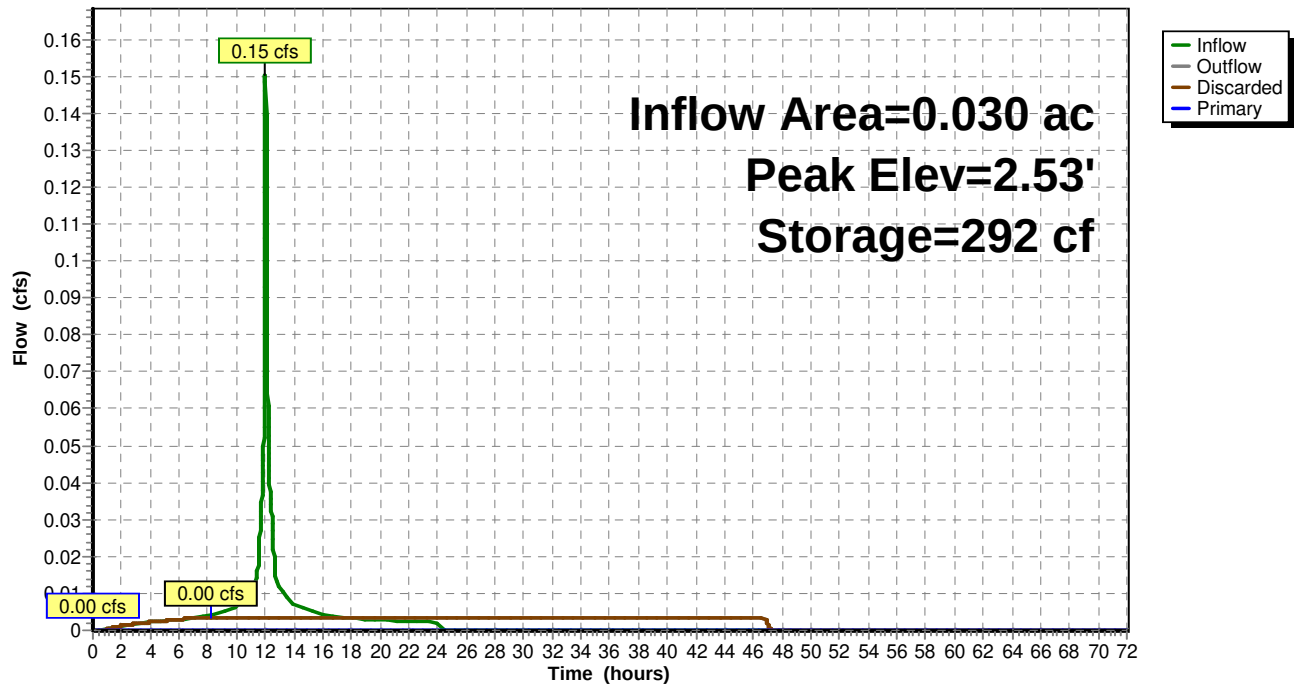
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 8.18 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU52: Porous paver patio for unit 52

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 87

Stage-Area-Storage for Pond 1.9PU52: Porous paver patio for unit 52

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU65: Porous paver patio for unit 65

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 4.80" for 10-yr event
 Inflow = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af
 Outflow = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af, Atten= 98%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.53' @ 18.01 hrs Surf.Area= 288 sf Storage= 292 cf

Plug-Flow detention time= 756.5 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 756.5 min (1,505.5 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

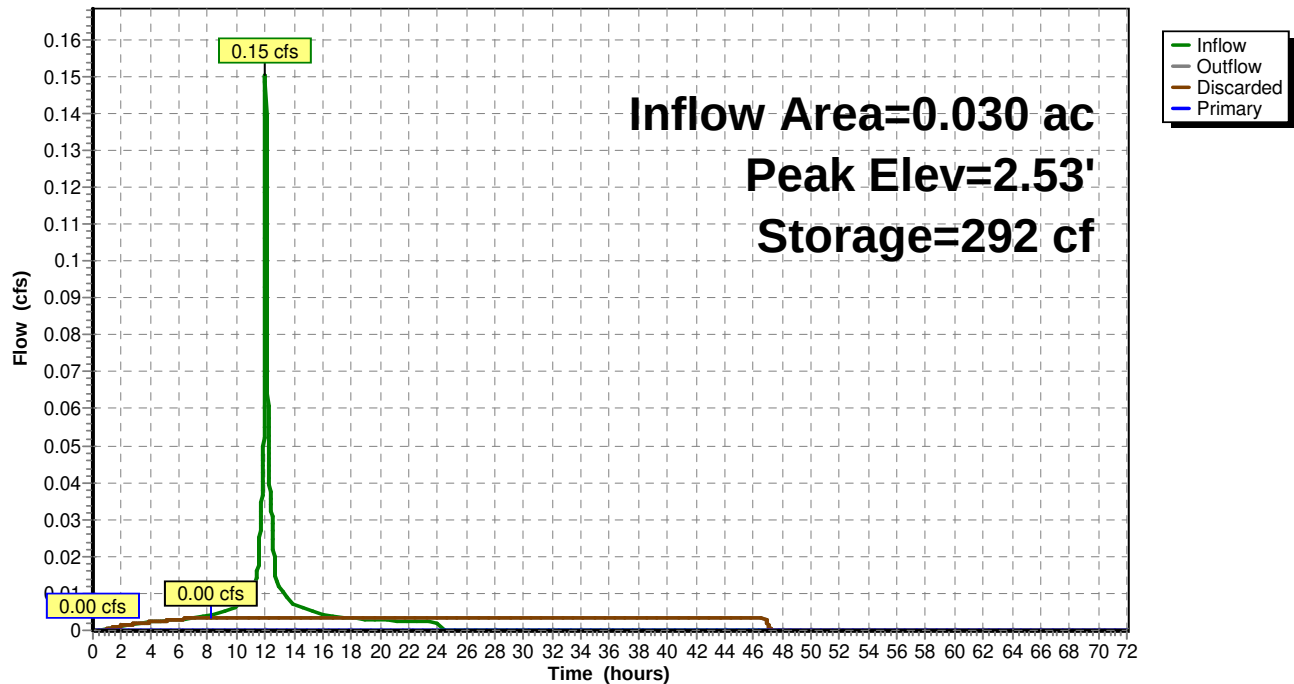
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 8.18 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU65: Porous paver patio for unit 65

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 90

Stage-Area-Storage for Pond 1.9PU65: Porous paver patio for unit 65

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU66: Porous paver patio for unit 66

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 4.80" for 10-yr event
 Inflow = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af
 Outflow = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af, Atten= 98%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.53' @ 18.01 hrs Surf.Area= 288 sf Storage= 292 cf

Plug-Flow detention time= 756.5 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 756.5 min (1,505.5 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

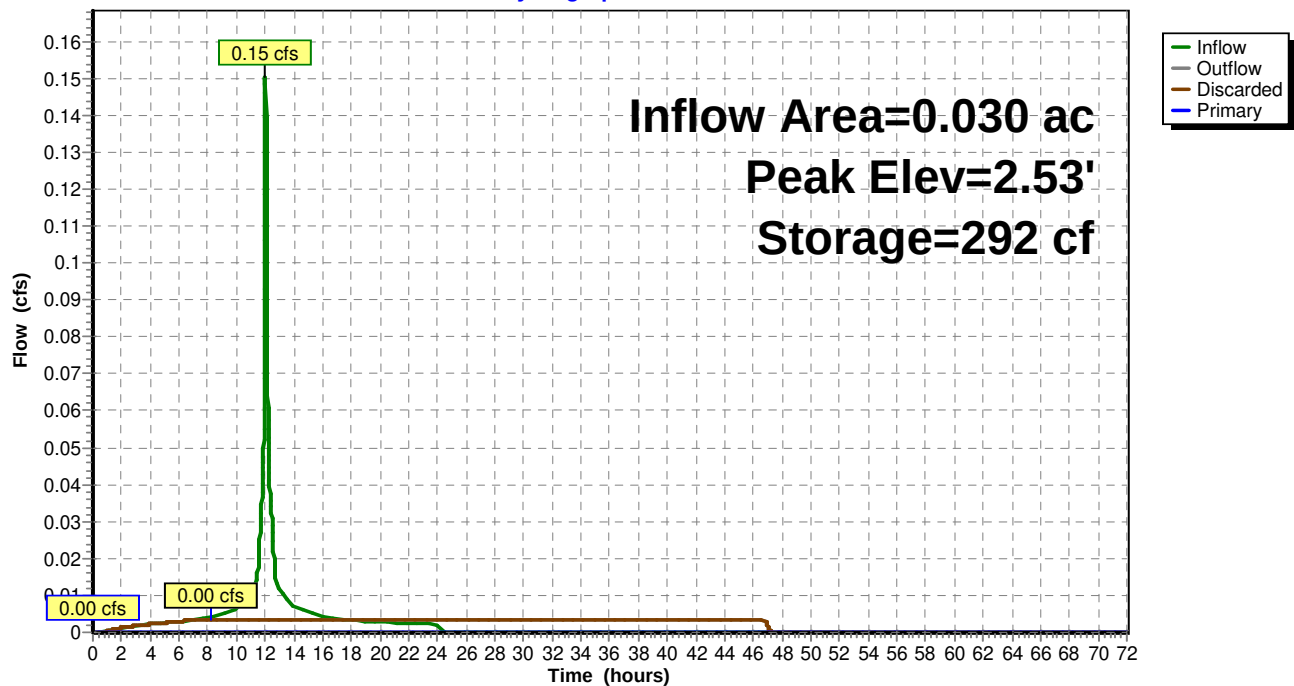
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 8.18 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU66: Porous paver patio for unit 66

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 93

Stage-Area-Storage for Pond 1.9PU66: Porous paver patio for unit 66

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU67: Porous paver patio for unit 67

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 4.80" for 10-yr event
 Inflow = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af
 Outflow = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af, Atten= 98%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.53' @ 18.01 hrs Surf.Area= 288 sf Storage= 292 cf

Plug-Flow detention time= 756.5 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 756.5 min (1,505.5 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

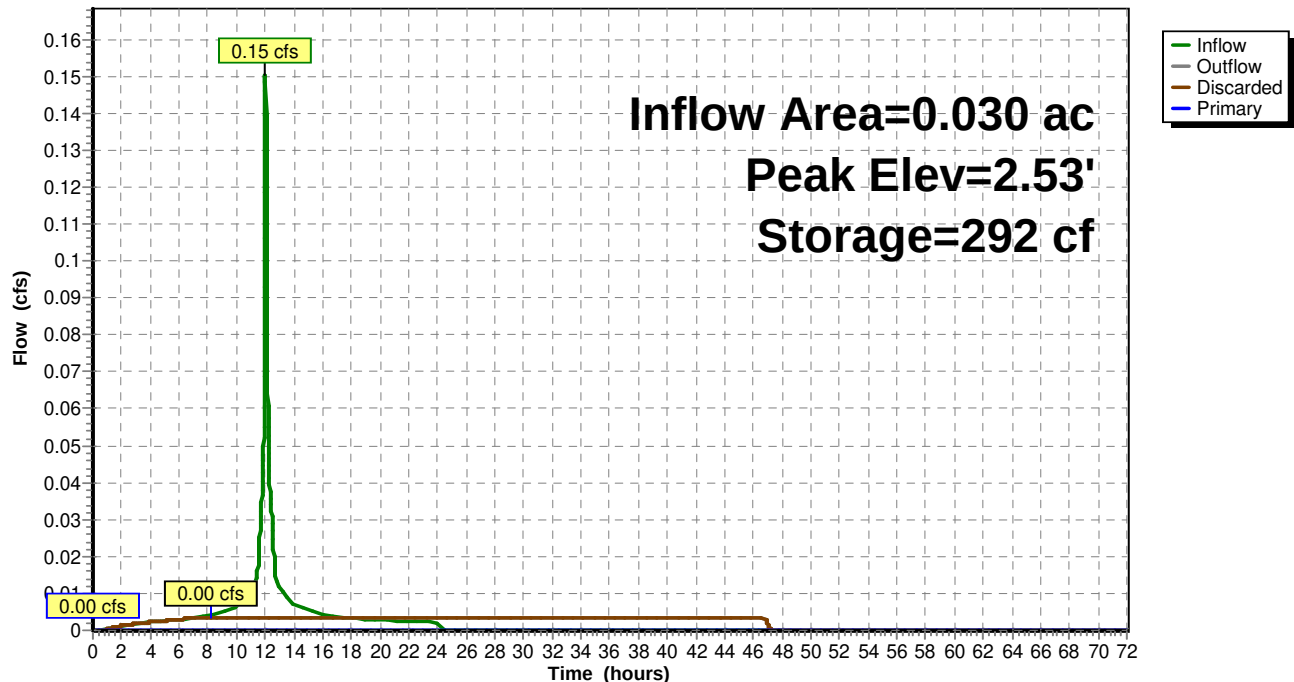
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 8.18 hrs HW=0.03' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU67: Porous paver patio for unit 67

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 96

Stage-Area-Storage for Pond 1.9PU67: Porous paver patio for unit 67

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU68: Porous paver patio for unit 68

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 4.80" for 10-yr event
 Inflow = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af
 Outflow = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af, Atten= 98%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.53' @ 18.01 hrs Surf.Area= 288 sf Storage= 292 cf

Plug-Flow detention time= 756.5 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 756.5 min (1,505.5 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

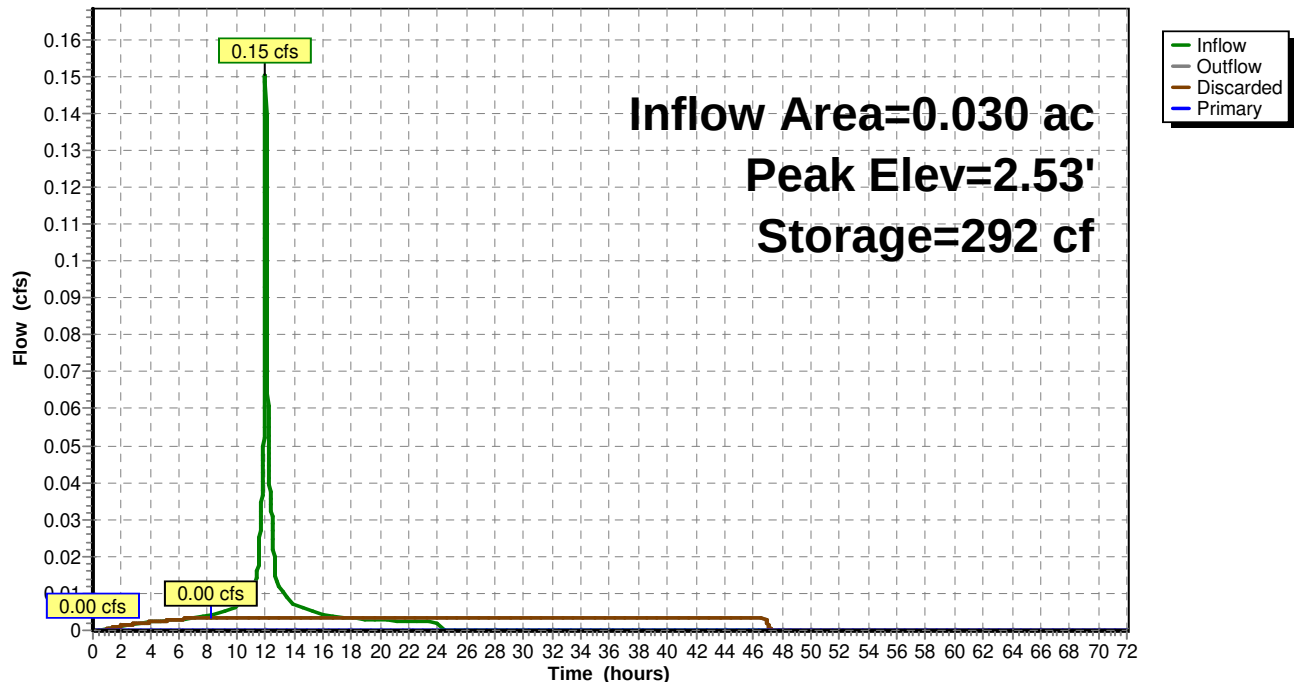
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 8.18 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU68: Porous paver patio for unit 68

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 99

Stage-Area-Storage for Pond 1.9PU68: Porous paver patio for unit 68

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU69: Porous paver patio for unit 69

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 4.80" for 10-yr event
 Inflow = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af
 Outflow = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af, Atten= 98%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.53' @ 18.01 hrs Surf.Area= 288 sf Storage= 292 cf

Plug-Flow detention time= 756.5 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 756.5 min (1,505.5 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

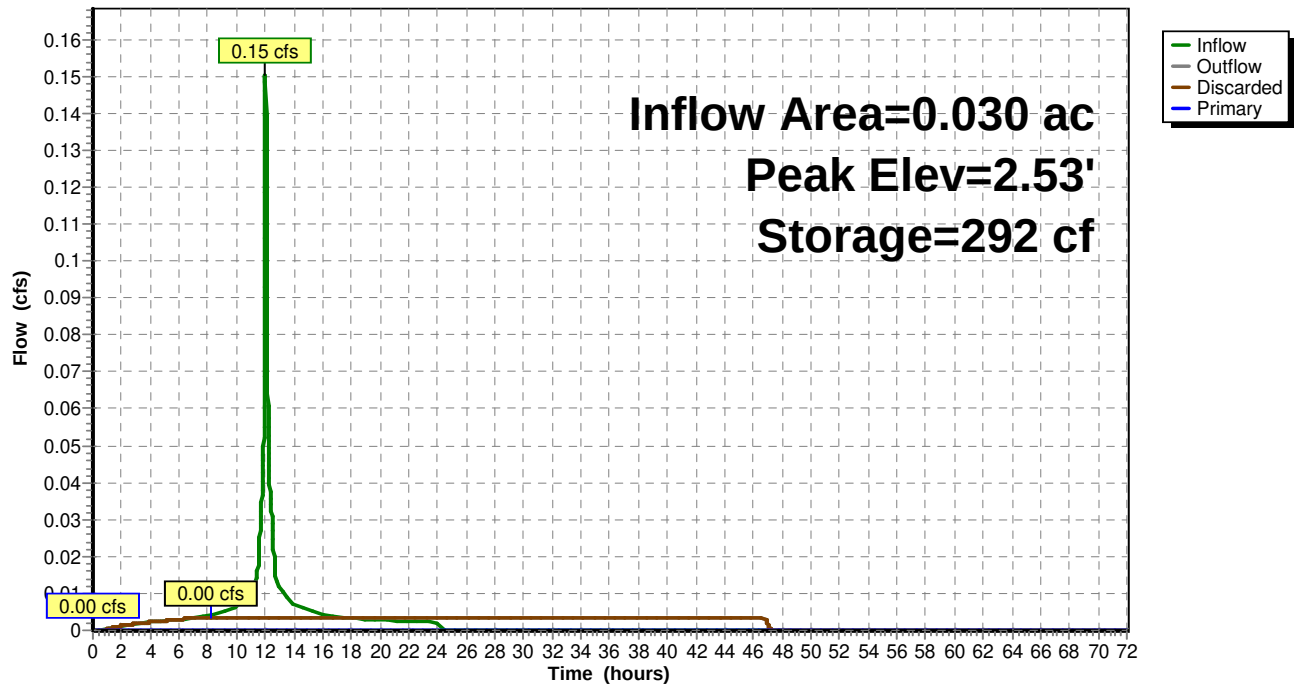
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 8.18 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU69: Porous paver patio for unit 69

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 102

Stage-Area-Storage for Pond 1.9PU69: Porous paver patio for unit 69

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU70: Porous paver patio for unit 70

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 4.80" for 10-yr event
 Inflow = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af
 Outflow = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af, Atten= 98%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.53' @ 18.01 hrs Surf.Area= 288 sf Storage= 292 cf

Plug-Flow detention time= 756.5 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 756.5 min (1,505.5 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

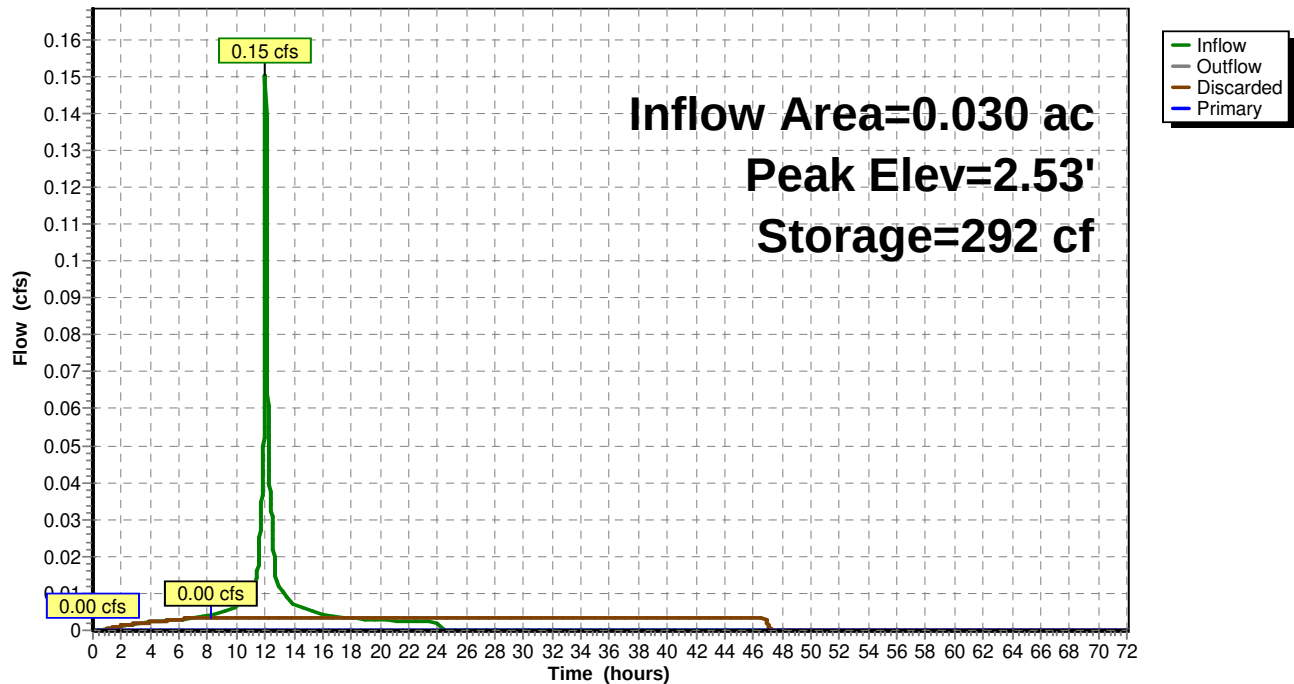
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 8.18 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU70: Porous paver patio for unit 70

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 105

Stage-Area-Storage for Pond 1.9PU70: Porous paver patio for unit 70

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU71: Porous paver patio for unit 71

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 4.80" for 10-yr event
 Inflow = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af
 Outflow = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af, Atten= 98%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.53' @ 18.01 hrs Surf.Area= 288 sf Storage= 292 cf

Plug-Flow detention time= 756.5 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 756.5 min (1,505.5 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

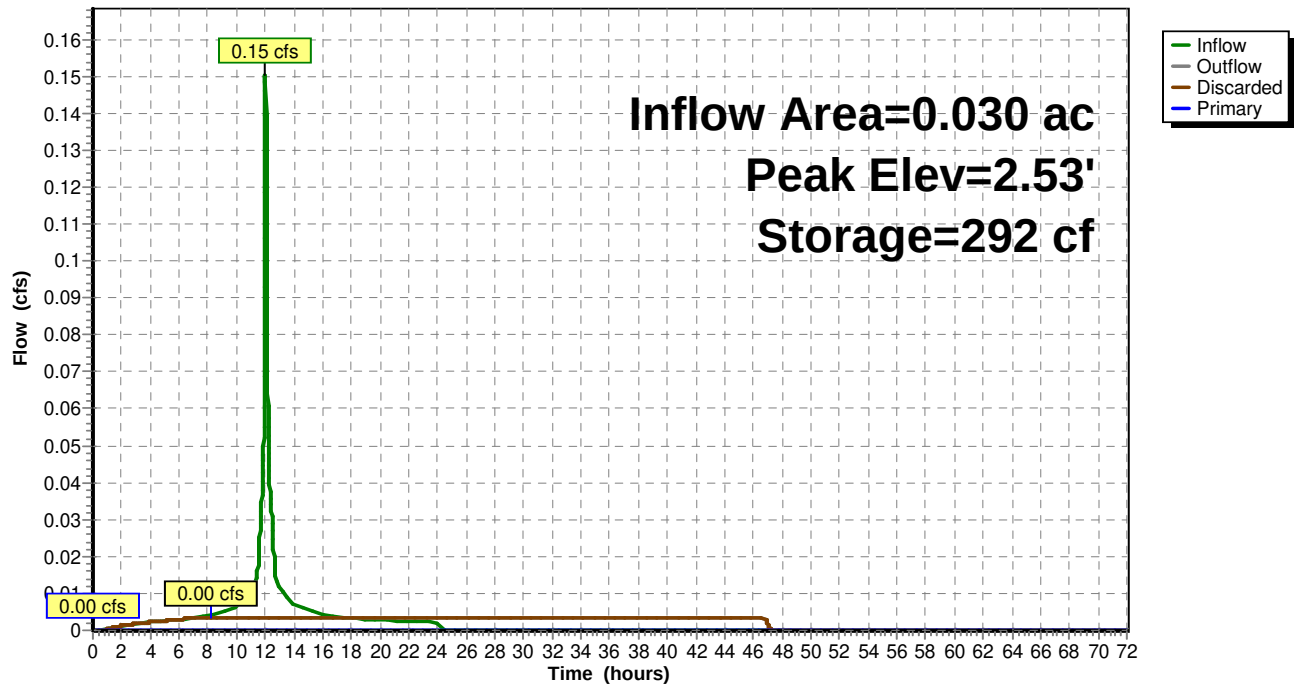
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 8.18 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU71: Porous paver patio for unit 71

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 108

Stage-Area-Storage for Pond 1.9PU71: Porous paver patio for unit 71

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU72: Porous paver patio for unit 72

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 4.80" for 10-yr event
 Inflow = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af
 Outflow = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af, Atten= 98%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.53' @ 18.01 hrs Surf.Area= 288 sf Storage= 292 cf

Plug-Flow detention time= 756.5 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 756.5 min (1,505.5 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

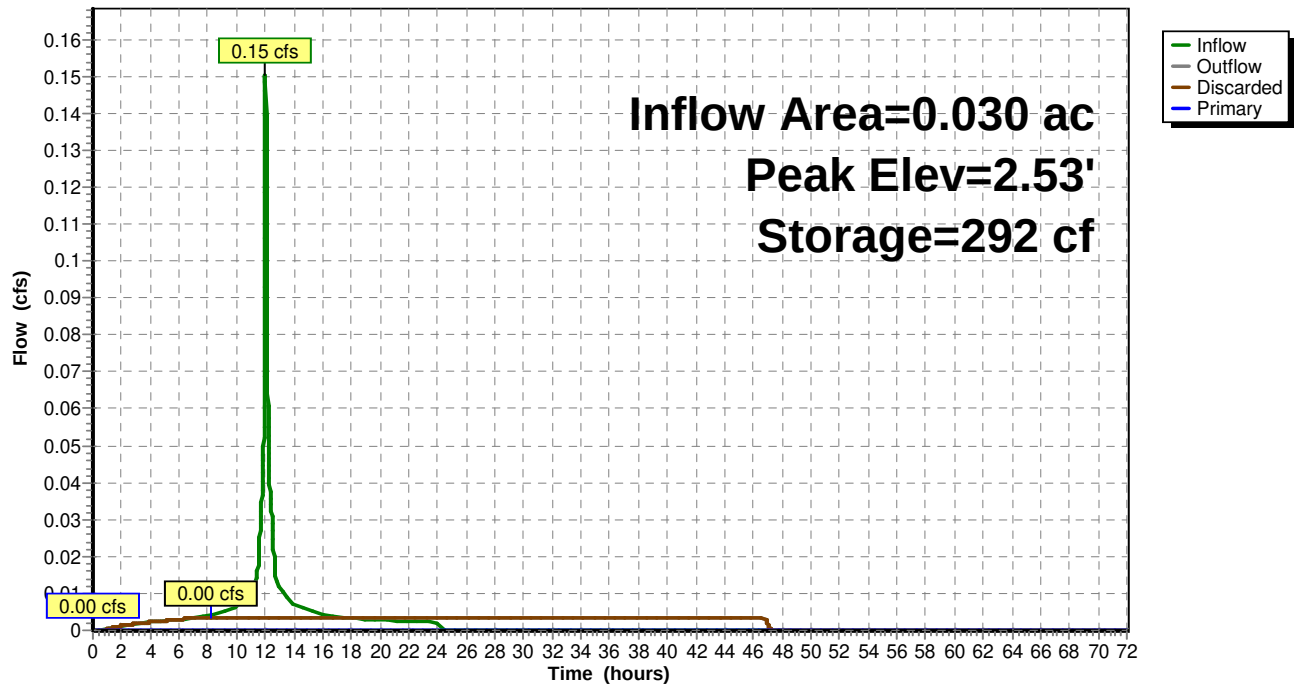
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 8.18 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU72: Porous paver patio for unit 72

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 111

Stage-Area-Storage for Pond 1.9PU72: Porous paver patio for unit 72

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU73: Porous paver patio for unit 73

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 4.80" for 10-yr event
 Inflow = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af
 Outflow = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af, Atten= 98%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.53' @ 18.01 hrs Surf.Area= 288 sf Storage= 292 cf

Plug-Flow detention time= 756.5 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 756.5 min (1,505.5 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

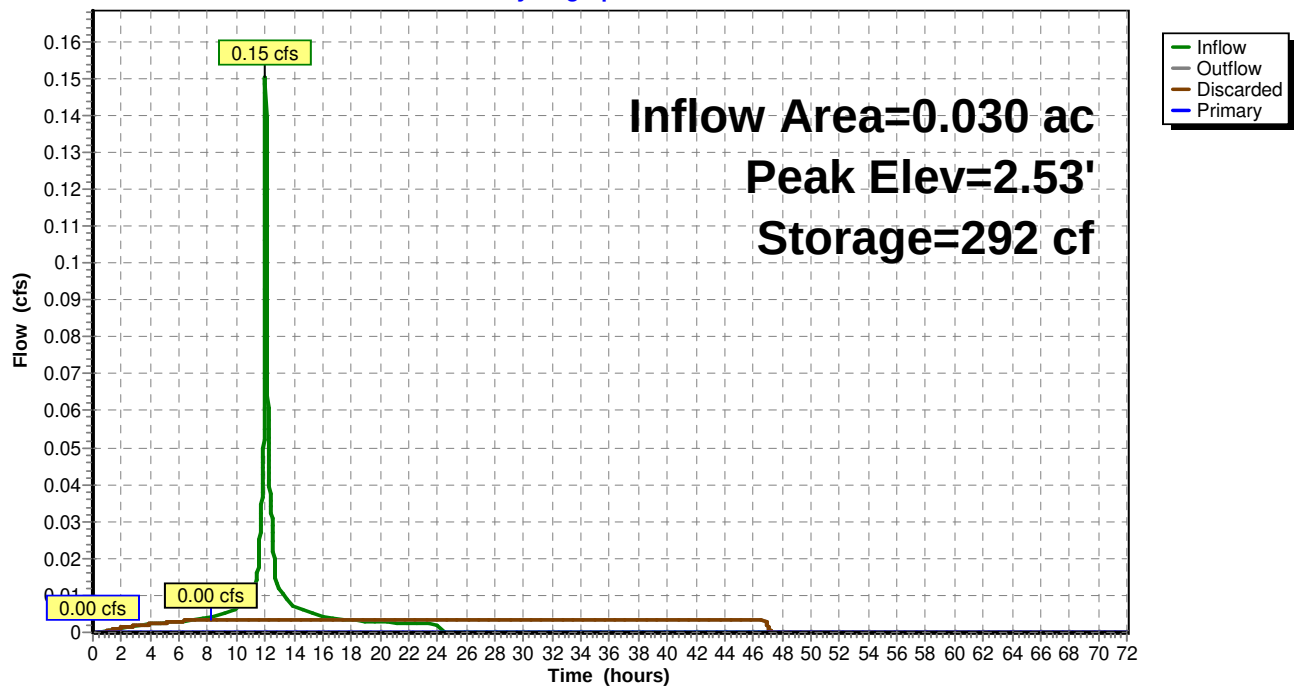
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 8.18 hrs HW=0.03' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU73: Porous paver patio for unit 73

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 114

Stage-Area-Storage for Pond 1.9PU73: Porous paver patio for unit 73

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU74: Porous paver patio for unit 74

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 4.80" for 10-yr event
 Inflow = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af
 Outflow = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af, Atten= 98%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.53' @ 18.01 hrs Surf.Area= 288 sf Storage= 292 cf

Plug-Flow detention time= 756.5 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 756.5 min (1,505.5 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

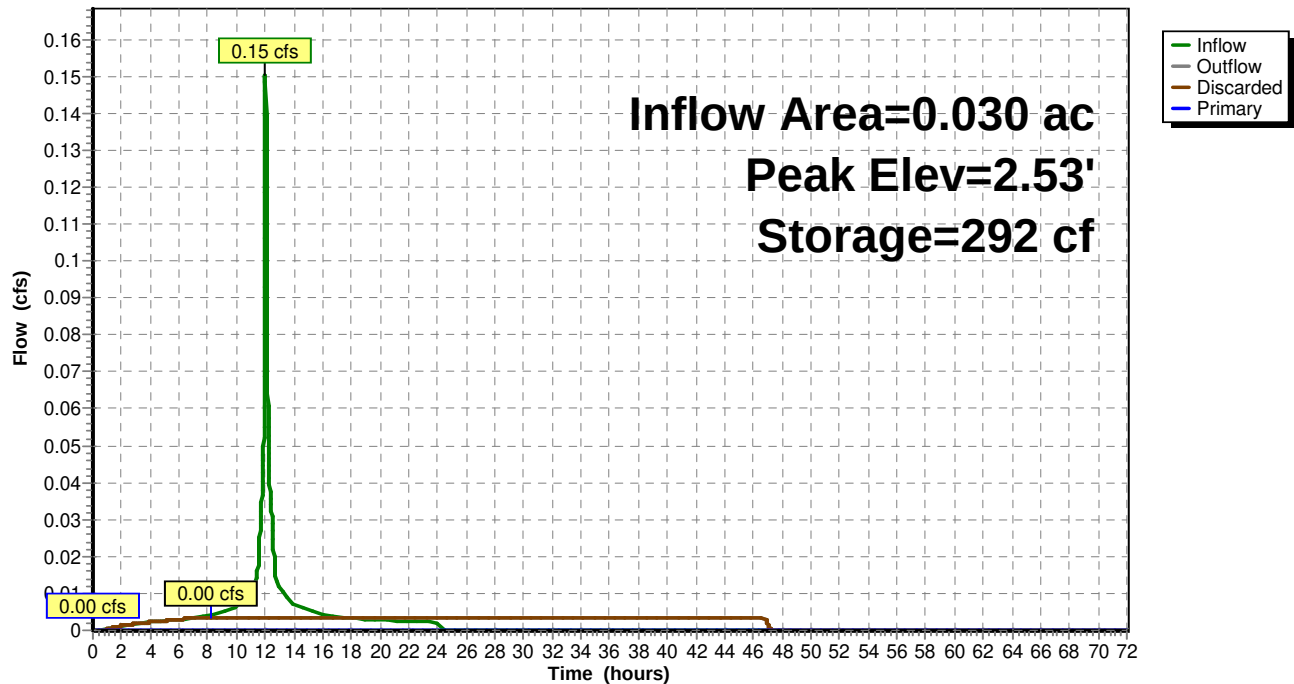
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 8.18 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU74: Porous paver patio for unit 74

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 117

Stage-Area-Storage for Pond 1.9PU74: Porous paver patio for unit 74

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU75: Porous paver patio for unit 75

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 4.80" for 10-yr event
 Inflow = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af
 Outflow = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af, Atten= 98%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.53' @ 18.01 hrs Surf.Area= 288 sf Storage= 292 cf

Plug-Flow detention time= 756.5 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 756.5 min (1,505.5 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

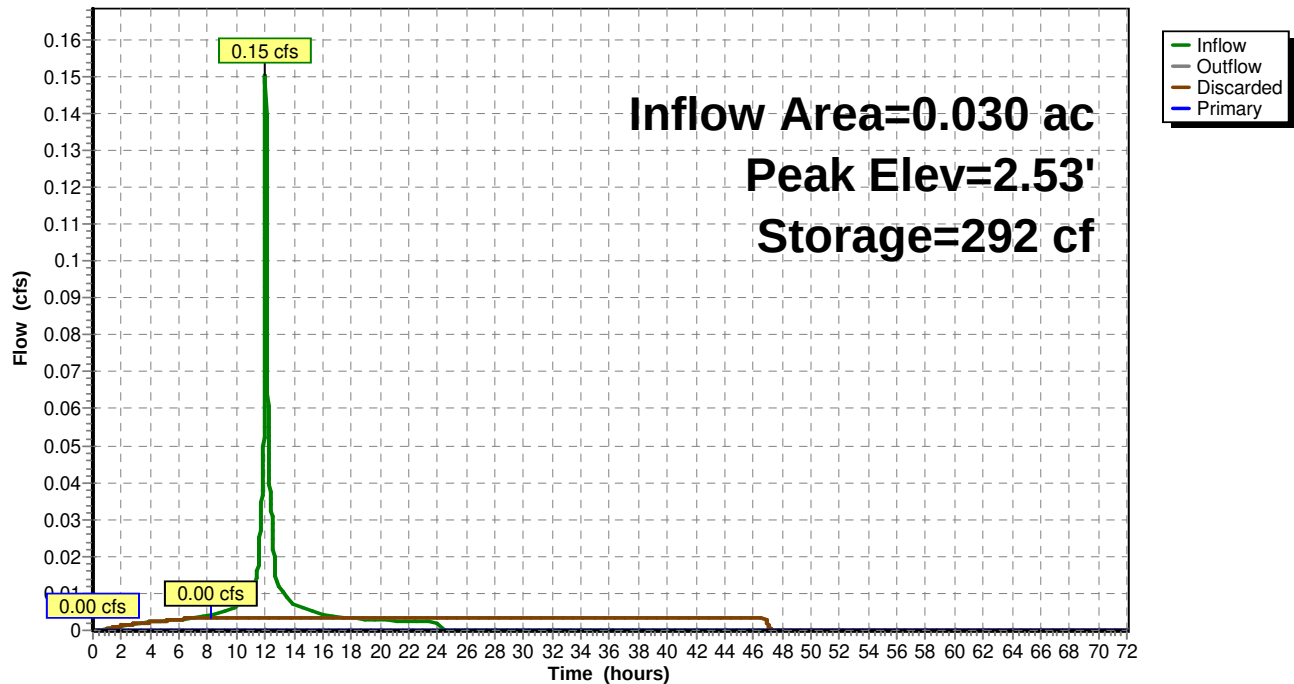
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 8.18 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU75: Porous paver patio for unit 75

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 120

Stage-Area-Storage for Pond 1.9PU75: Porous paver patio for unit 75

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU76: Porous paver patio for unit 76

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 4.80" for 10-yr event
 Inflow = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af
 Outflow = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af, Atten= 98%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.53' @ 18.01 hrs Surf.Area= 288 sf Storage= 292 cf

Plug-Flow detention time= 756.5 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 756.5 min (1,505.5 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

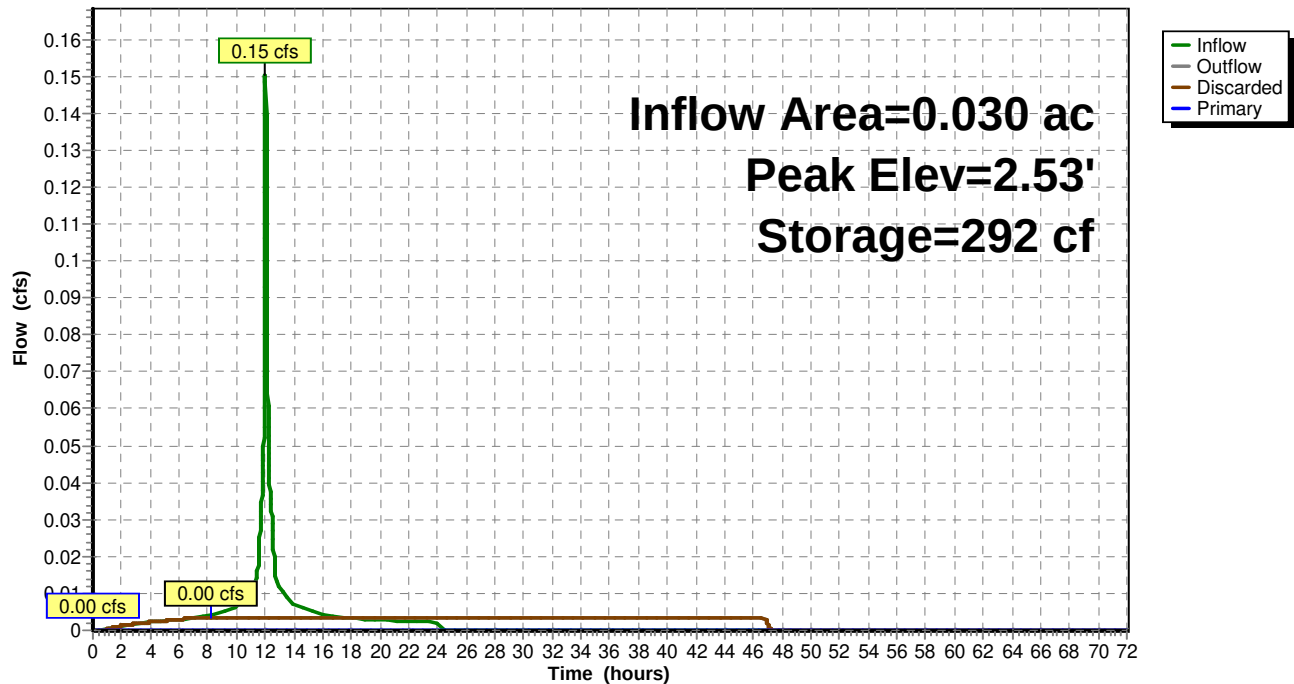
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 8.18 hrs HW=0.03' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)
 ↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1.9PU76: Porous paver patio for unit 76

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 123

Stage-Area-Storage for Pond 1.9PU76: Porous paver patio for unit 76

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 124

Summary for Subcatchment 1.9SU50: Node models subcatchment to single porous paver patio unit 50

Runoff = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af, Depth= 8.86"

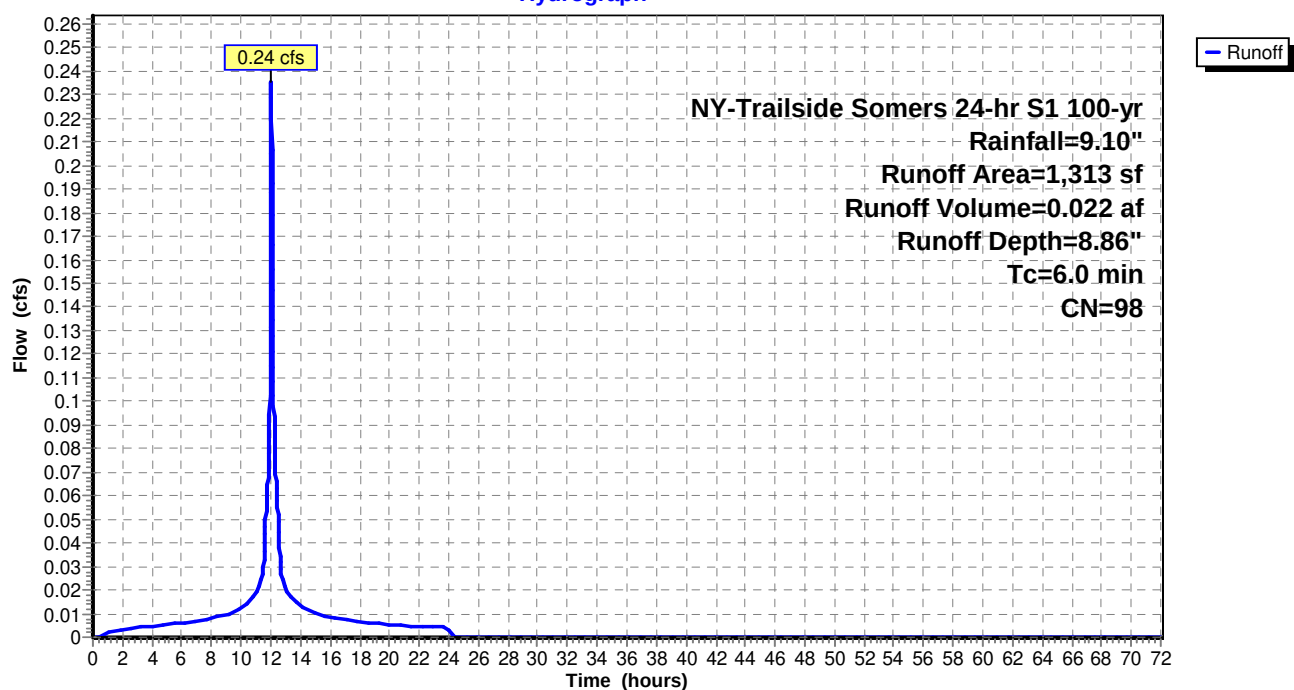
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU50: Node models subcatchment to single porous paver patio unit 50

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 125

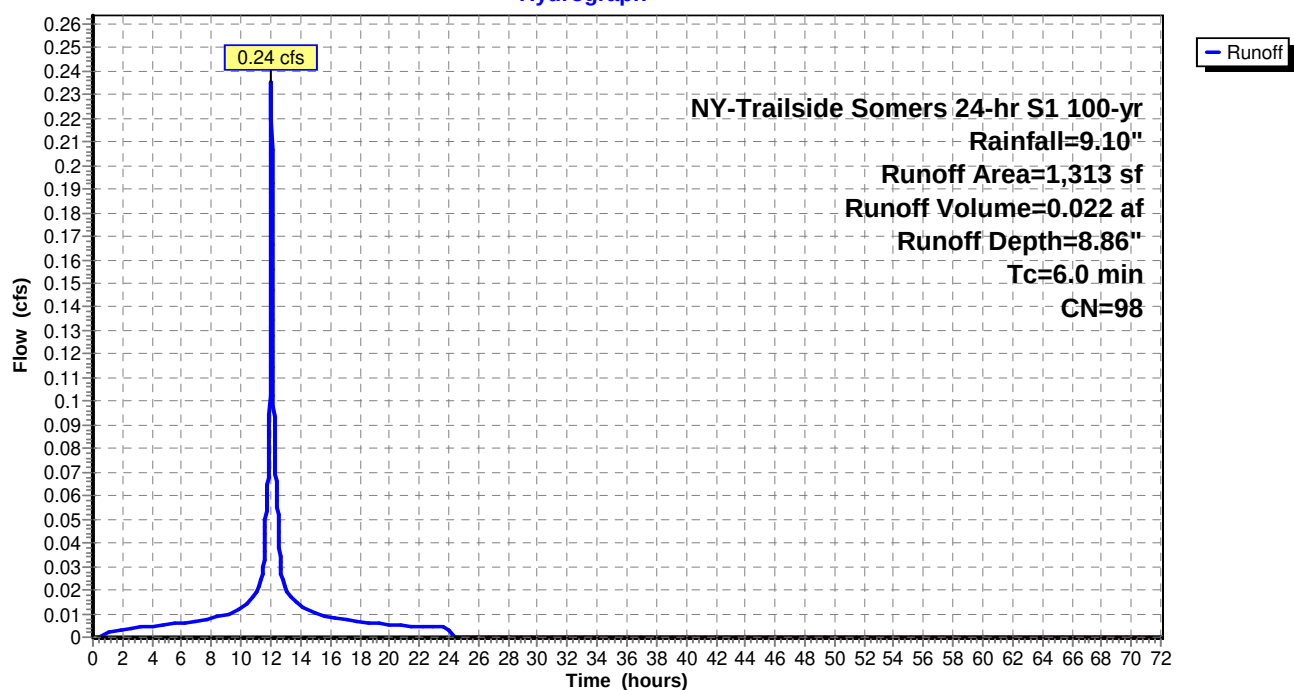
Summary for Subcatchment 1.9SU51: Node models subcatchment to single porous paver patio unit 51

Runoff = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af, Depth= 8.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU51: Node models subcatchment to single porous paver patio unit 51**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 126

Summary for Subcatchment 1.9SU52: Node models subcatchment to single porous paver patio unit 52

Runoff = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af, Depth= 8.86"

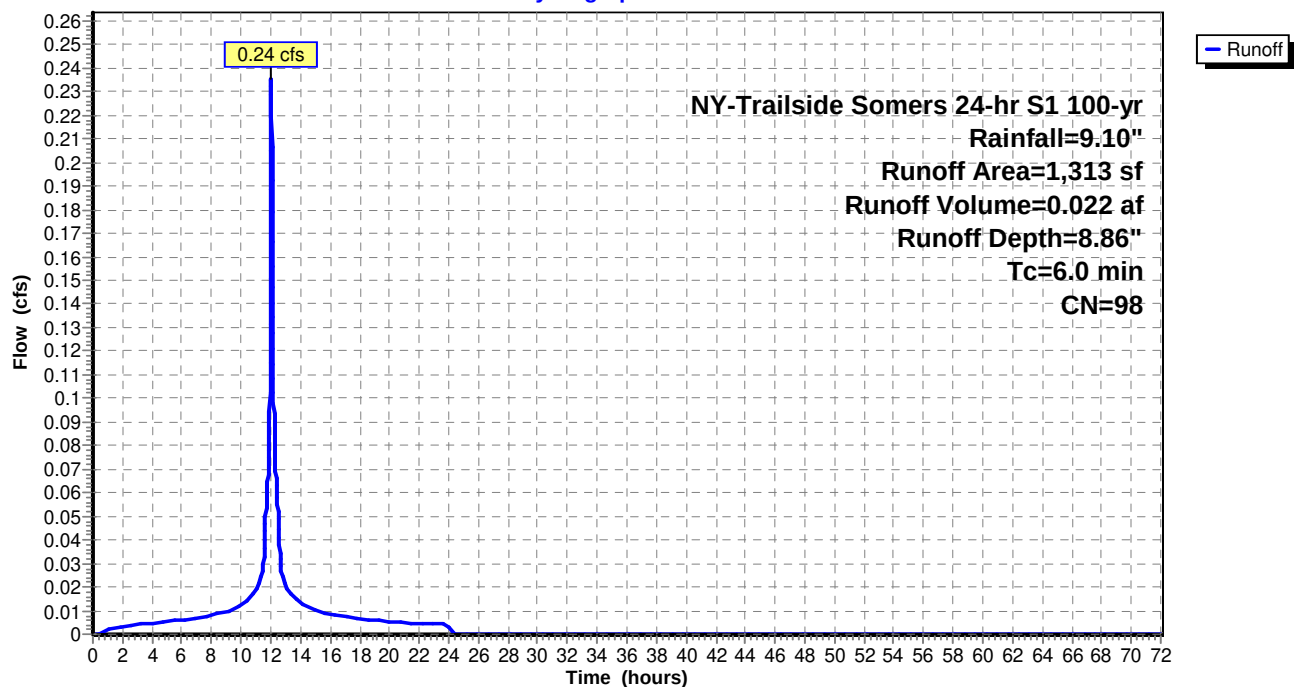
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU52: Node models subcatchment to single porous paver patio unit 52

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 127

Summary for Subcatchment 1.9SU65: Node models subcatchment to single porous paver patio unit 65

Runoff = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af, Depth= 8.86"

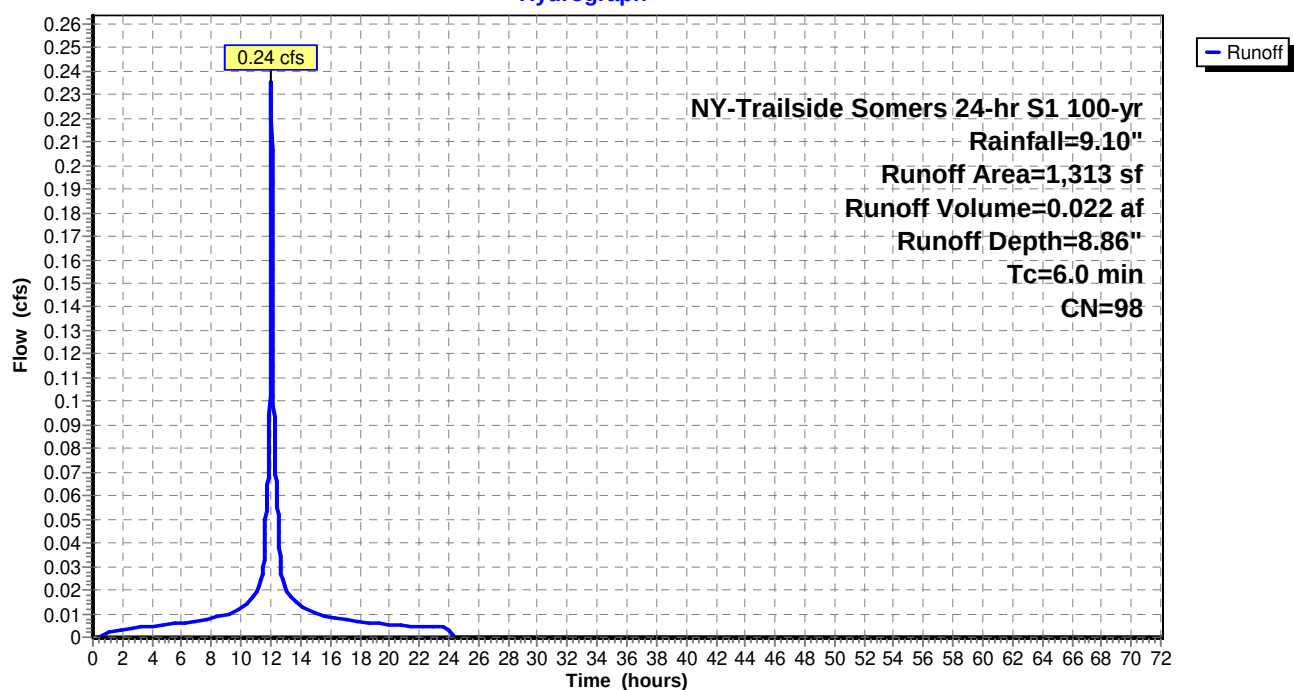
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU65: Node models subcatchment to single porous paver patio unit 65

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 128

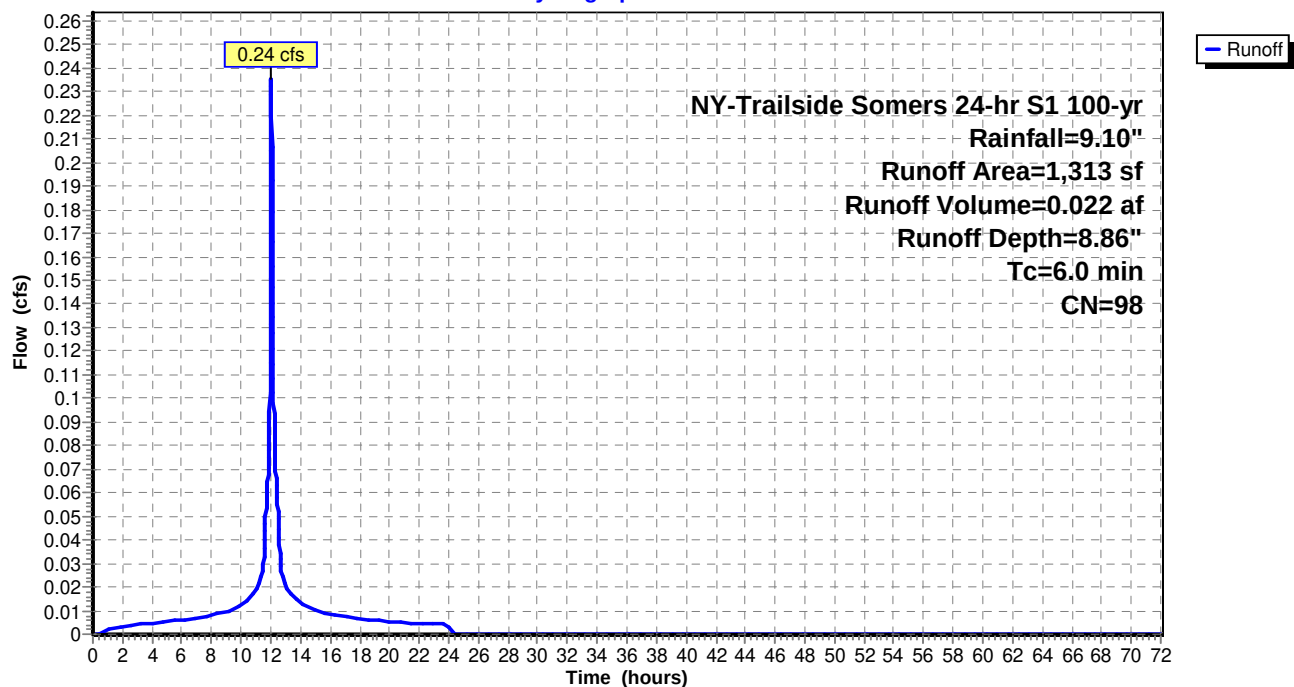
Summary for Subcatchment 1.9SU66: Node models subcatchment to single porous paver patio unit 66

Runoff = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af, Depth= 8.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU66: Node models subcatchment to single porous paver patio unit 66**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 129

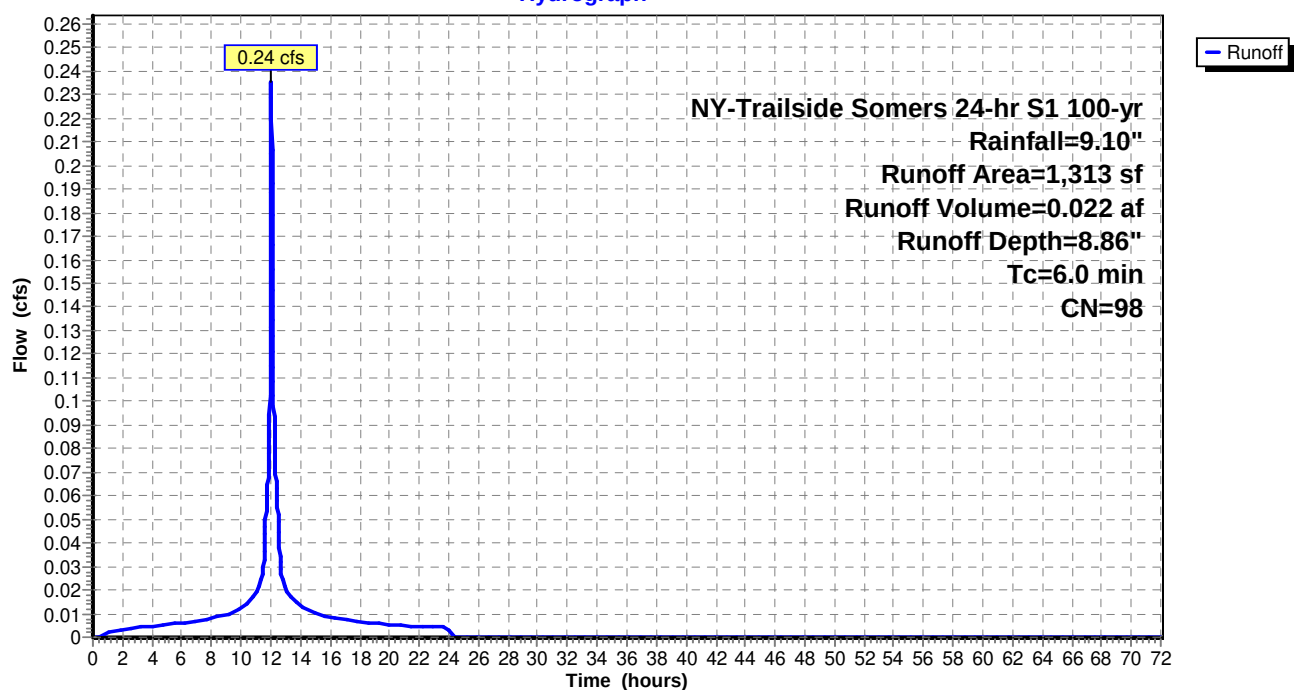
Summary for Subcatchment 1.9SU67: Node models subcatchment to single porous paver patio unit 67

Runoff = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af, Depth= 8.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU67: Node models subcatchment to single porous paver patio unit 67**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 130

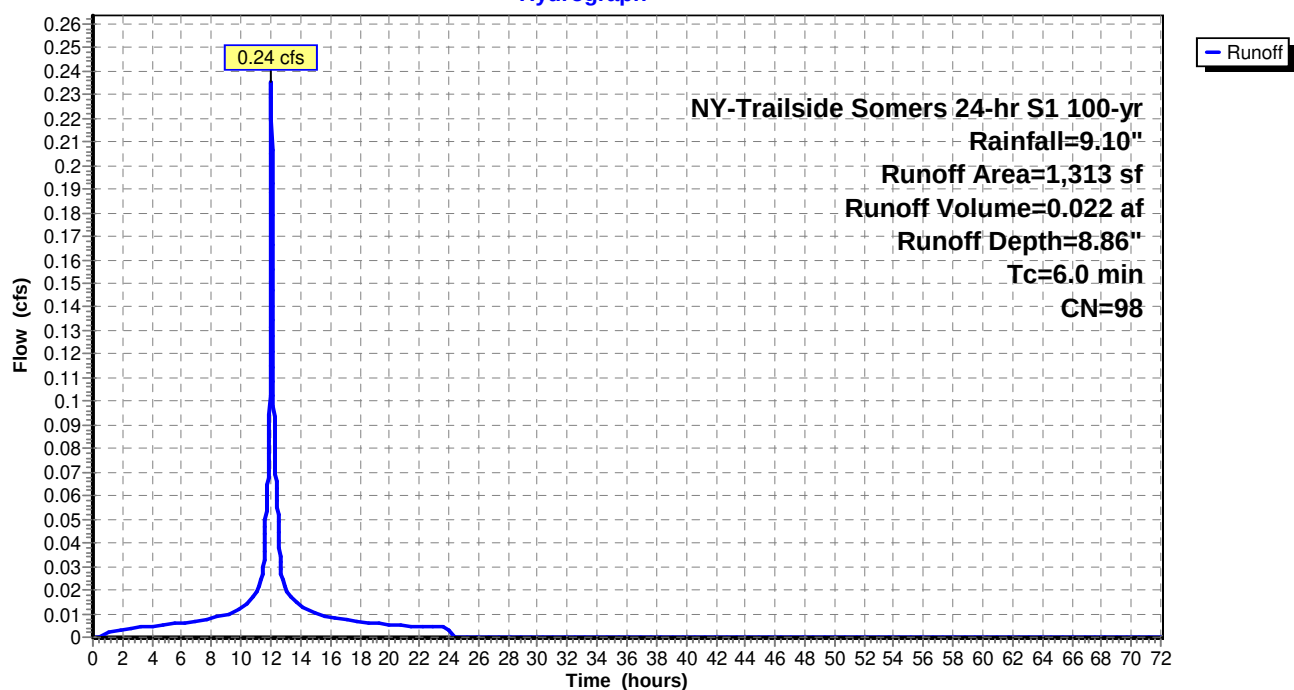
Summary for Subcatchment 1.9SU68: Node models subcatchment to single porous paver patio unit 68

Runoff = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af, Depth= 8.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU68: Node models subcatchment to single porous paver patio unit 68**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 131

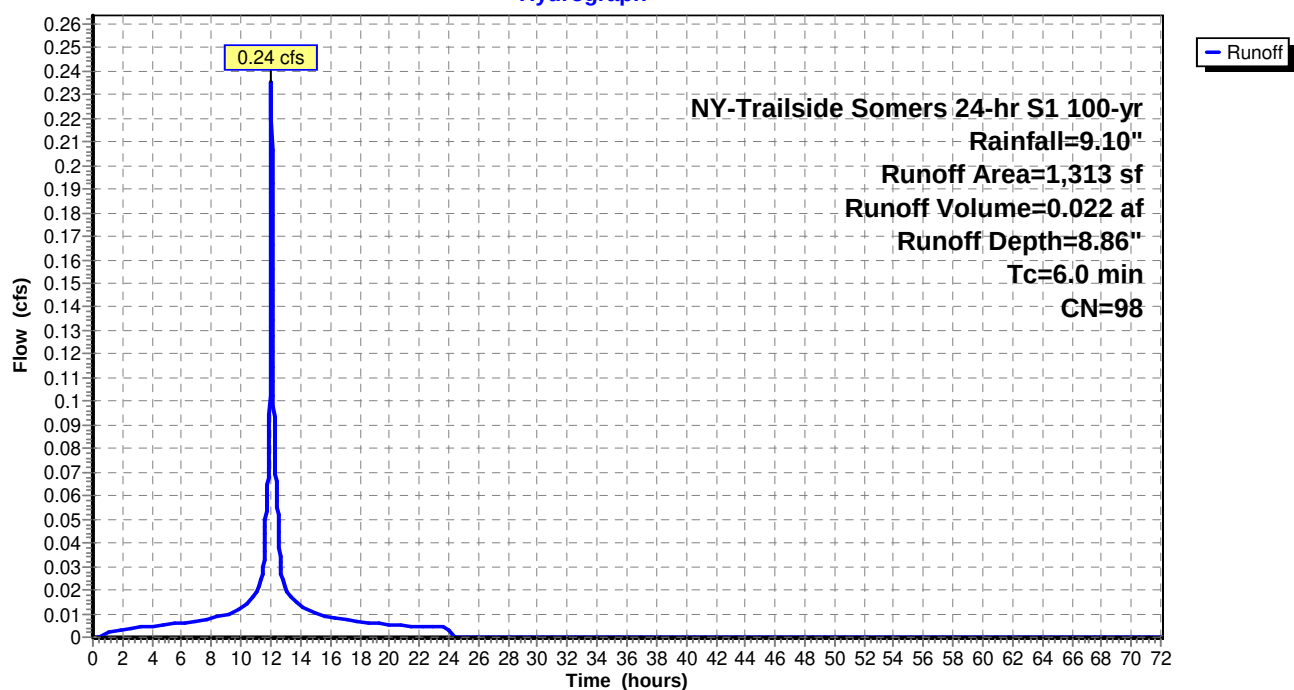
Summary for Subcatchment 1.9SU69: Node models subcatchment to single porous paver patio unit 69

Runoff = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af, Depth= 8.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU69: Node models subcatchment to single porous paver patio unit 69**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 132

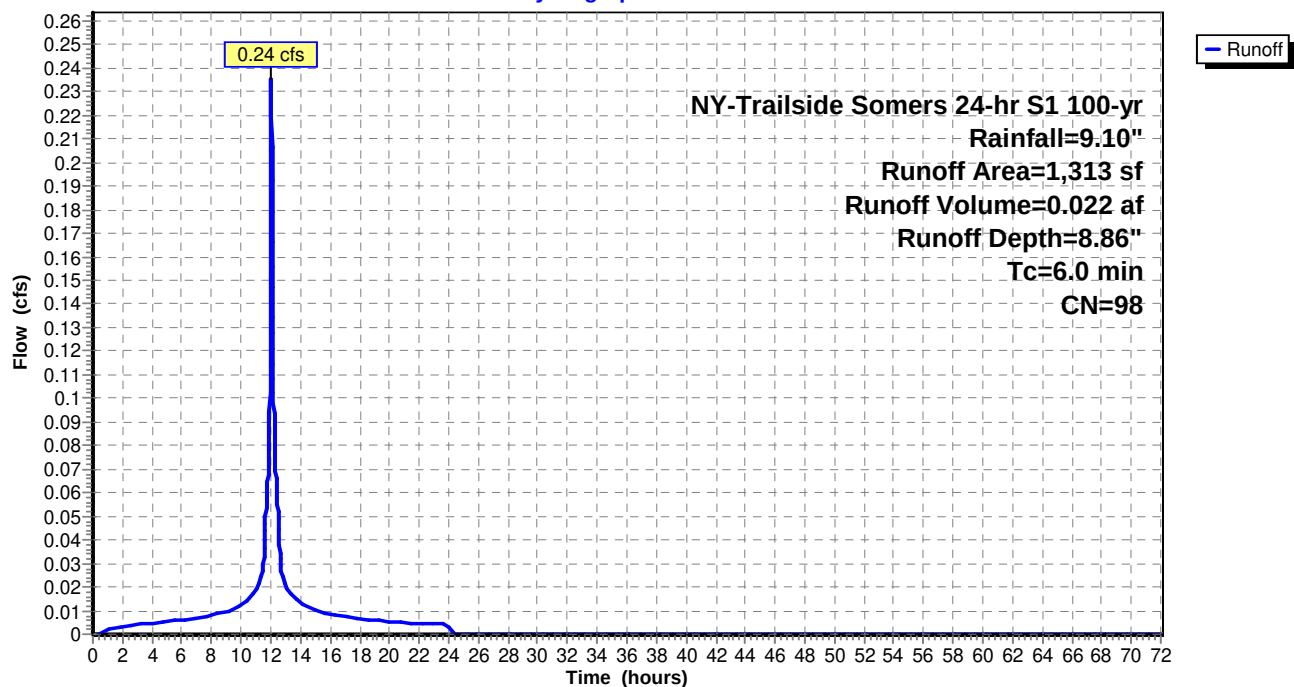
Summary for Subcatchment 1.9SU70: Node models subcatchment to single porous paver patio unit 70

Runoff = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af, Depth= 8.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU70: Node models subcatchment to single porous paver patio unit 70**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 133

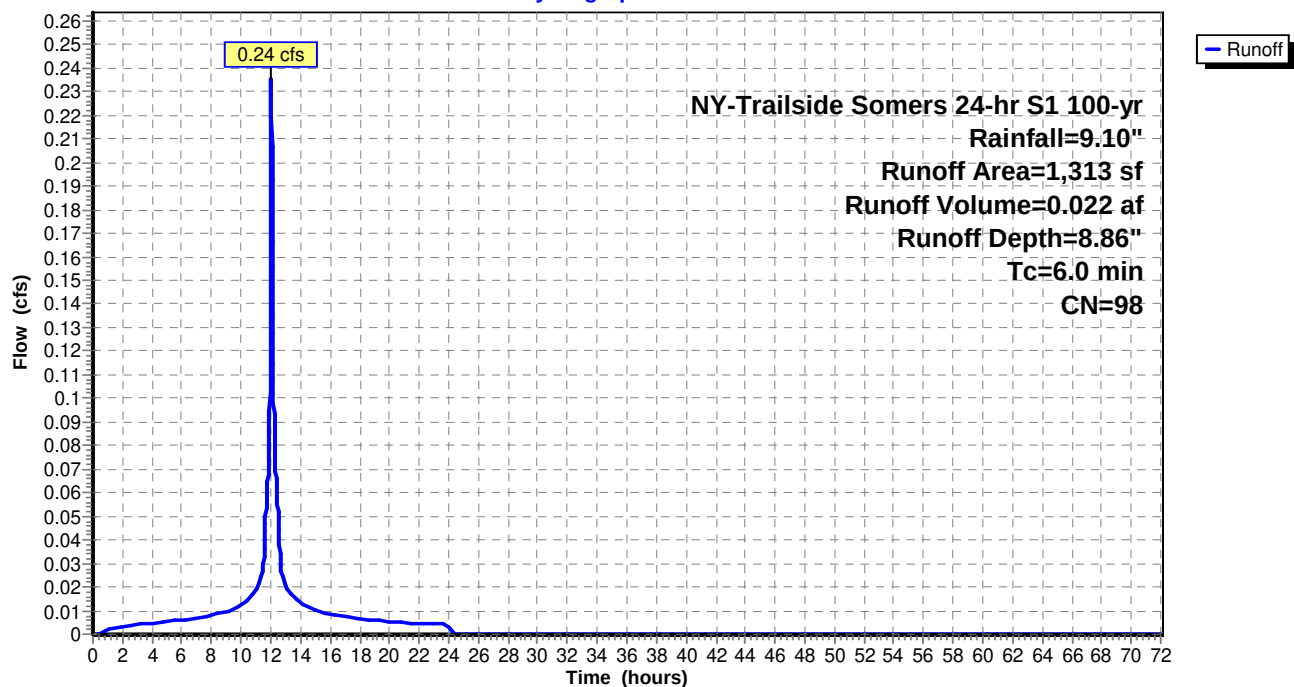
Summary for Subcatchment 1.9SU71: Node models subcatchment to single porous paver patio unit 71

Runoff = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af, Depth= 8.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU71: Node models subcatchment to single porous paver patio unit 71**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 134

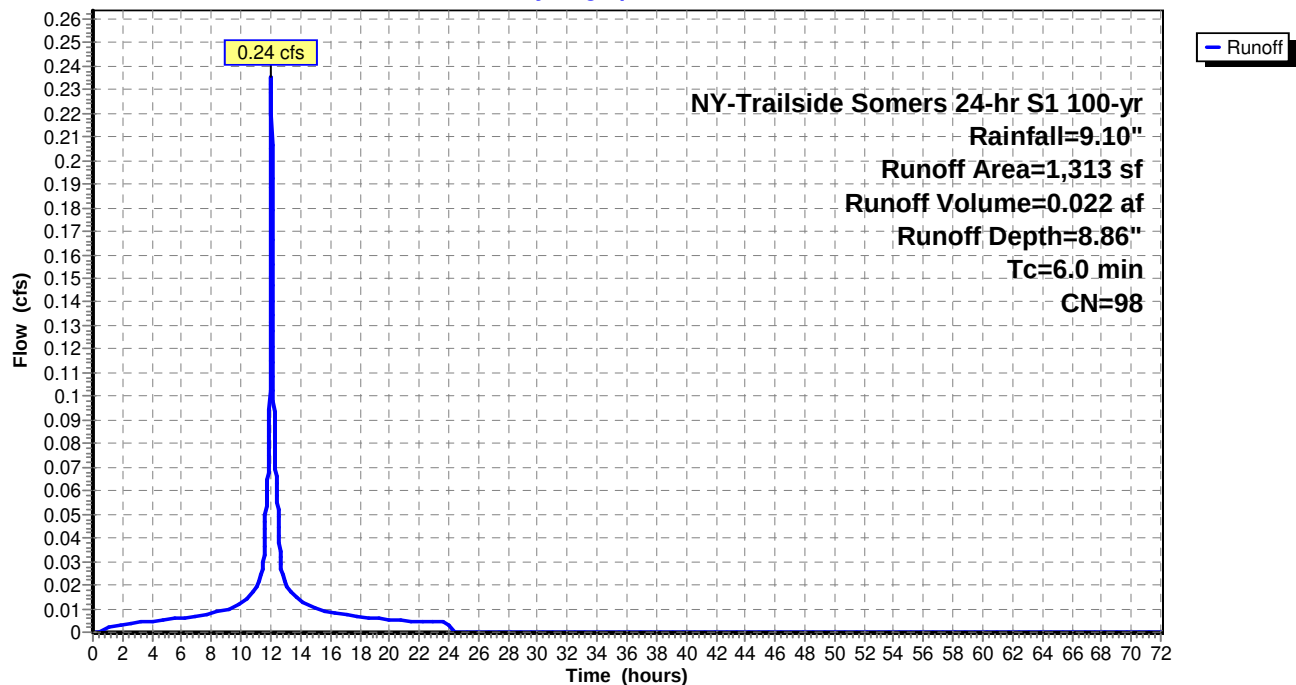
Summary for Subcatchment 1.9SU72: Node models subcatchment to single porous paver patio unit 72

Runoff = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af, Depth= 8.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU72: Node models subcatchment to single porous paver patio unit 72**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 135

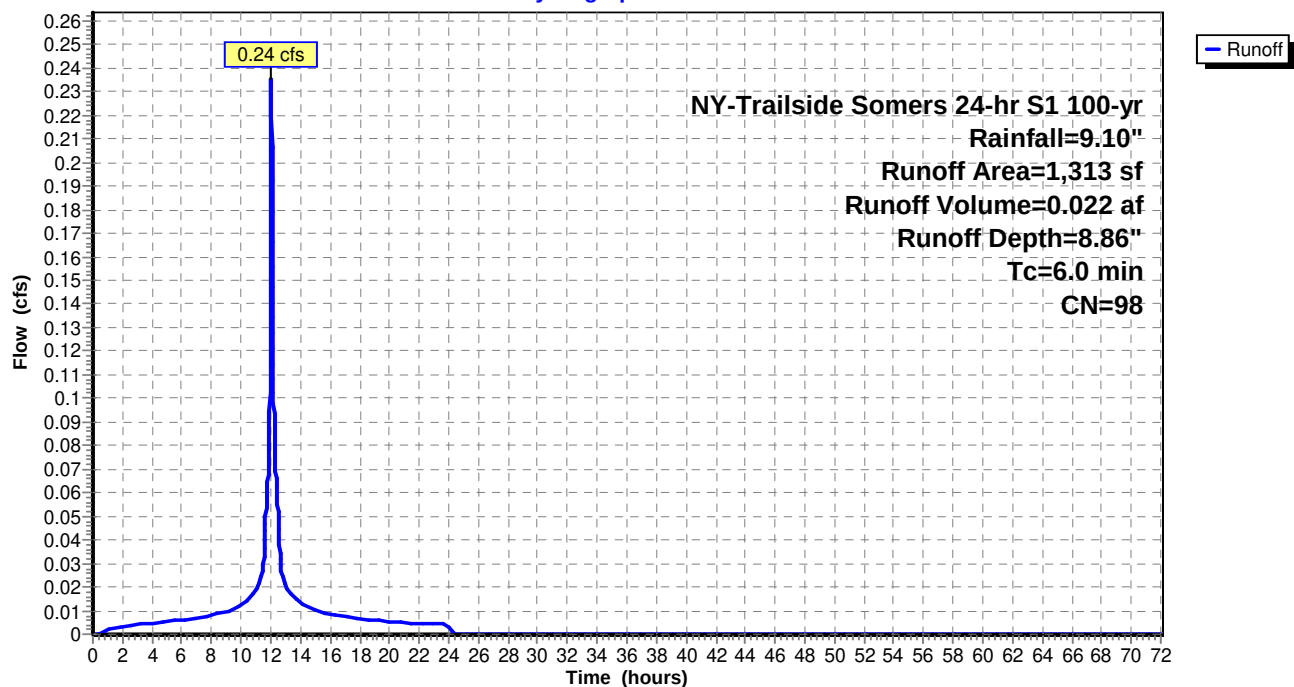
Summary for Subcatchment 1.9SU73: Node models subcatchment to single porous paver patio unit 73

Runoff = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af, Depth= 8.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU73: Node models subcatchment to single porous paver patio unit 73**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 136

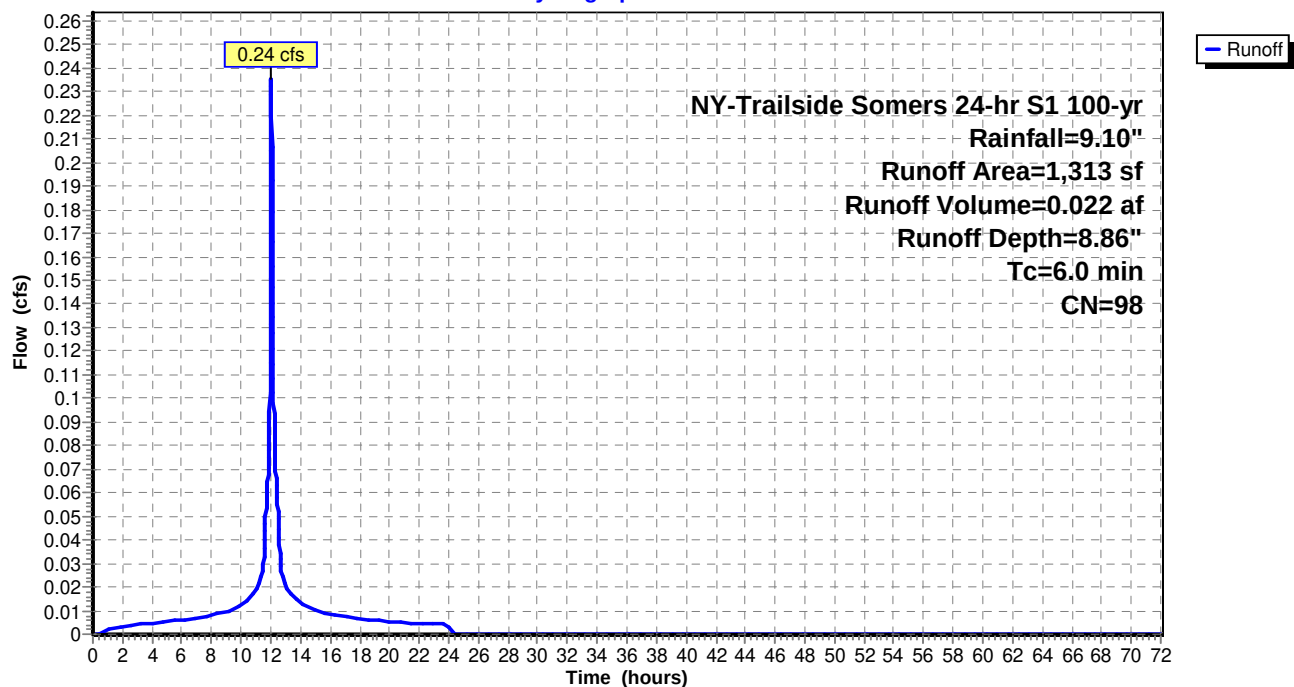
Summary for Subcatchment 1.9SU74: Node models subcatchment to single porous paver patio unit 74

Runoff = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af, Depth= 8.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU74: Node models subcatchment to single porous paver patio unit 74**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 137

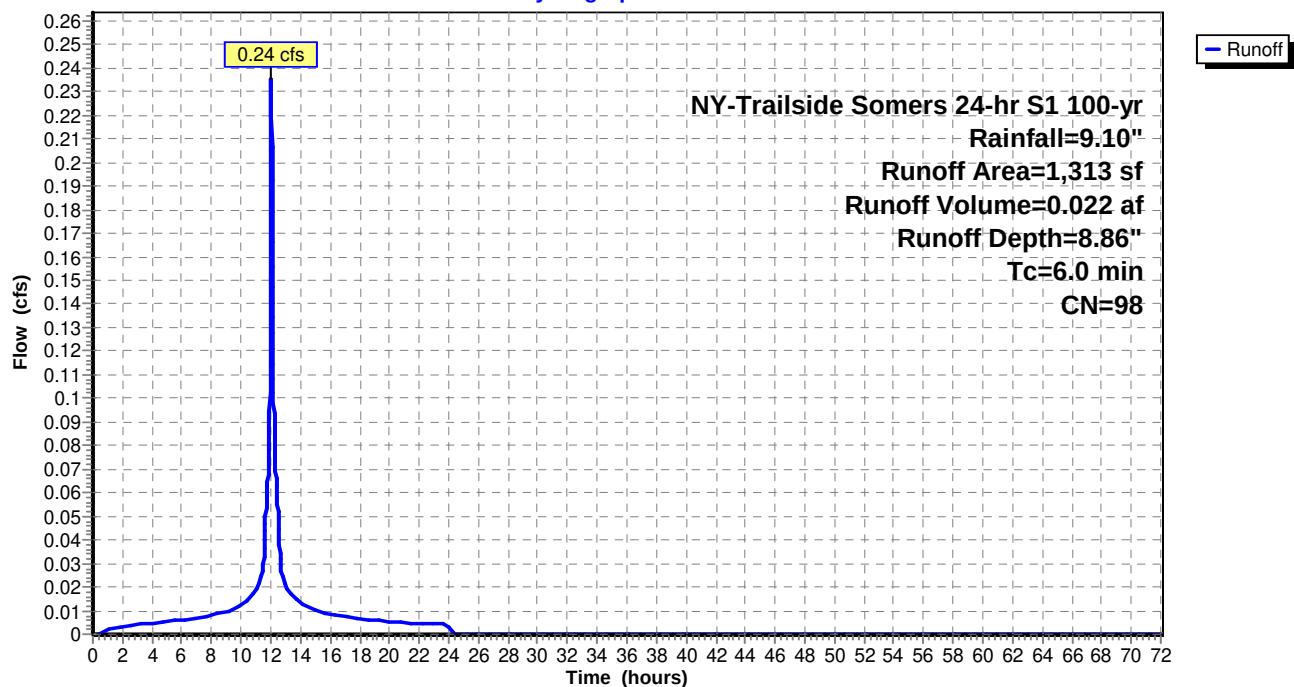
Summary for Subcatchment 1.9SU75: Node models subcatchment to single porous paver patio unit 75

Runoff = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af, Depth= 8.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU75: Node models subcatchment to single porous paver patio unit 75**Hydrograph**

Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 138

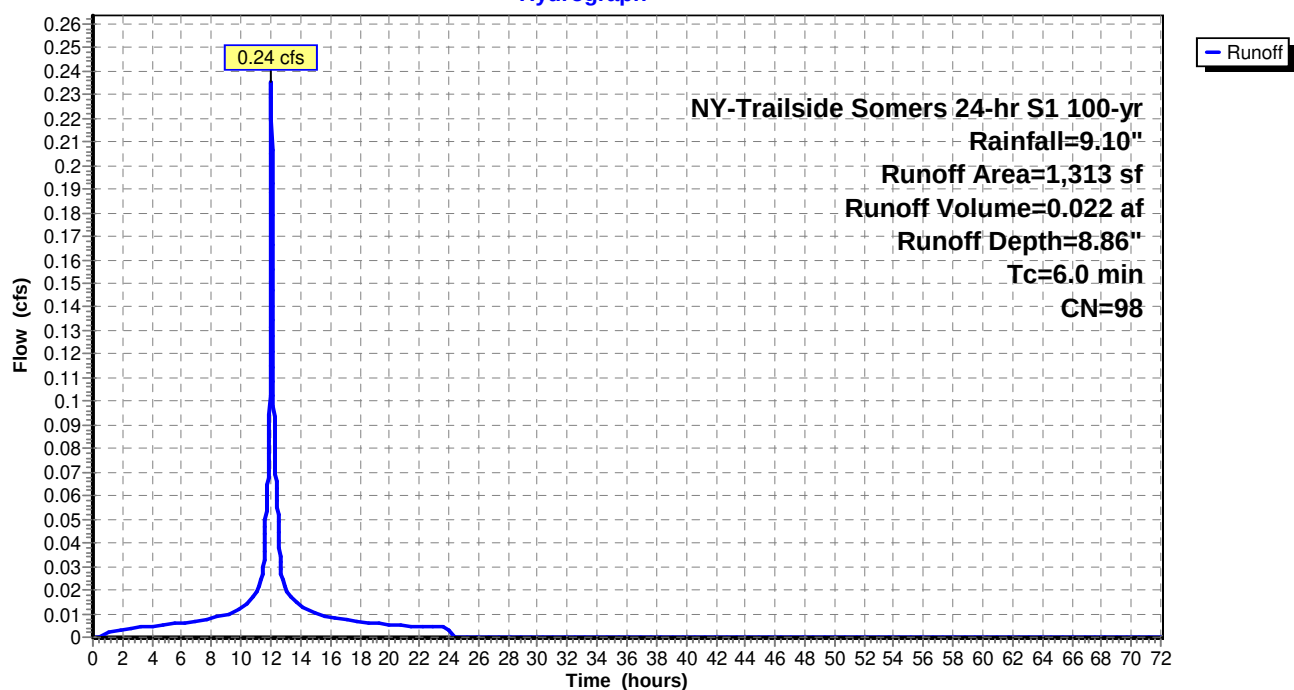
Summary for Subcatchment 1.9SU76: Node models subcatchment to single porous paver patio unit 76

Runoff = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af, Depth= 8.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9SU76: Node models subcatchment to single porous paver patio unit 76**Hydrograph**

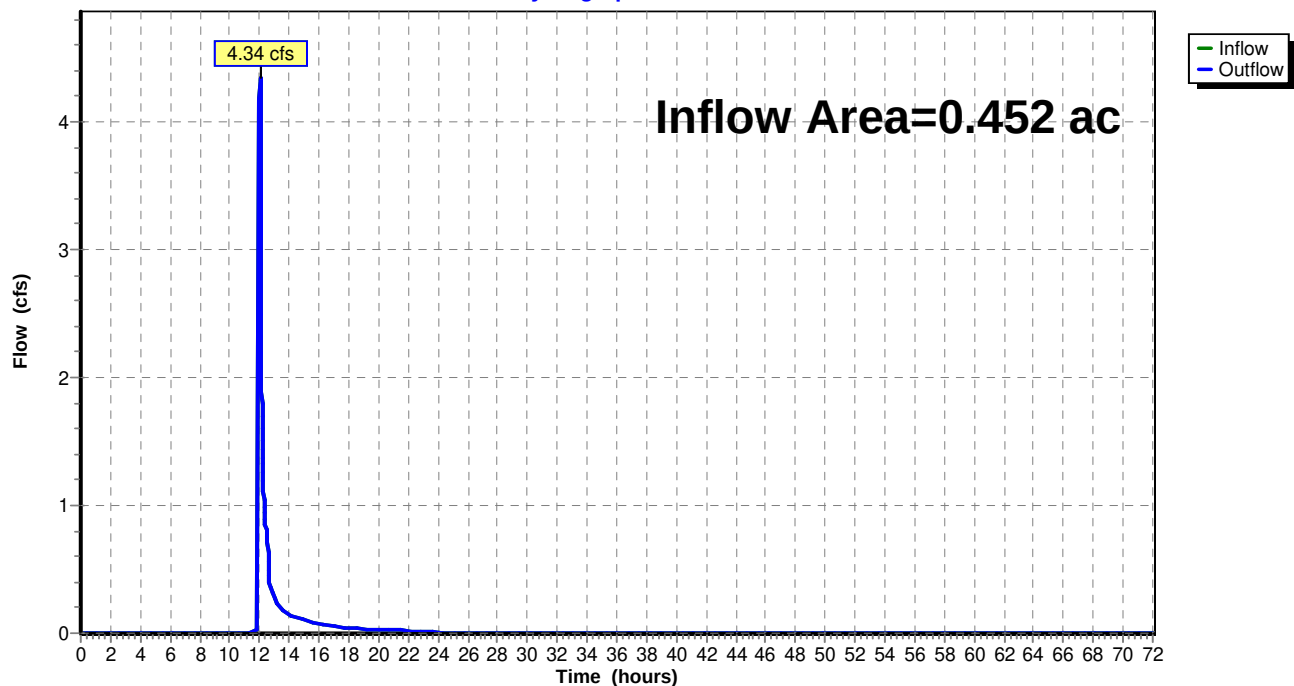
Summary for Reach DP1: 1.9S To Link

Inflow Area = 0.452 ac, 100.00% Impervious, Inflow Depth = 3.59" for 100-yr event
 Inflow = 4.34 cfs @ 12.02 hrs, Volume= 0.135 af
 Outflow = 4.34 cfs @ 12.02 hrs, Volume= 0.135 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Reach DP1: 1.9S To Link

Hydrograph



Summary for Pond 1.9PU50: Porous paver patio for unit 50

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 8.86" for 100-yr event
 Inflow = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af
 Outflow = 0.29 cfs @ 12.02 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 3.04 hrs, Volume= 0.013 af
 Primary = 0.29 cfs @ 12.02 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.63' @ 12.02 hrs Surf.Area= 288 sf Storage= 302 cf

Plug-Flow detention time= 489.5 min calculated for 0.022 af (100% of inflow)
 Center-of-Mass det. time= 489.6 min (1,229.5 - 739.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

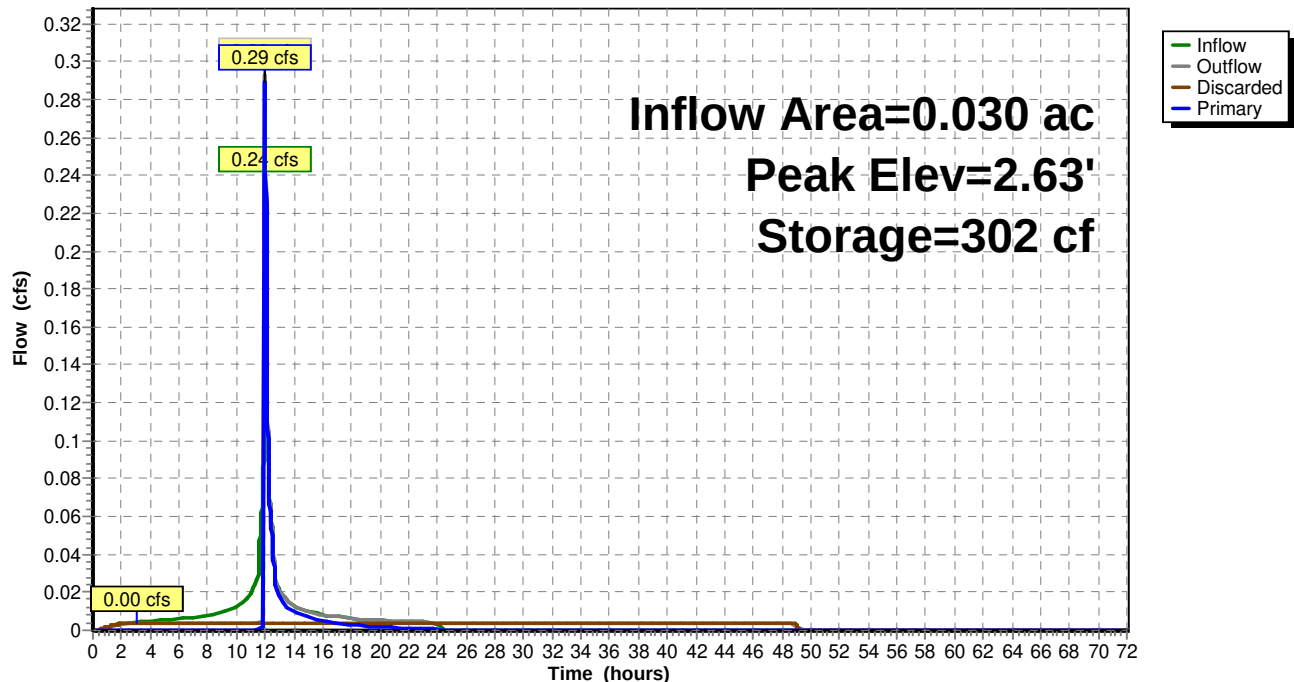
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 3.04 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.26 cfs @ 12.02 hrs HW=2.62' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 0.44 fps)

Pond 1.9PU50: Porous paver patio for unit 50

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 142

Stage-Area-Storage for Pond 1.9PU50: Porous paver patio for unit 50

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU51: Porous paver patio for unit 51

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 8.86" for 100-yr event
 Inflow = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af
 Outflow = 0.29 cfs @ 12.02 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 3.04 hrs, Volume= 0.013 af
 Primary = 0.29 cfs @ 12.02 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.63' @ 12.02 hrs Surf.Area= 288 sf Storage= 302 cf

Plug-Flow detention time= 489.5 min calculated for 0.022 af (100% of inflow)
 Center-of-Mass det. time= 489.6 min (1,229.5 - 739.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

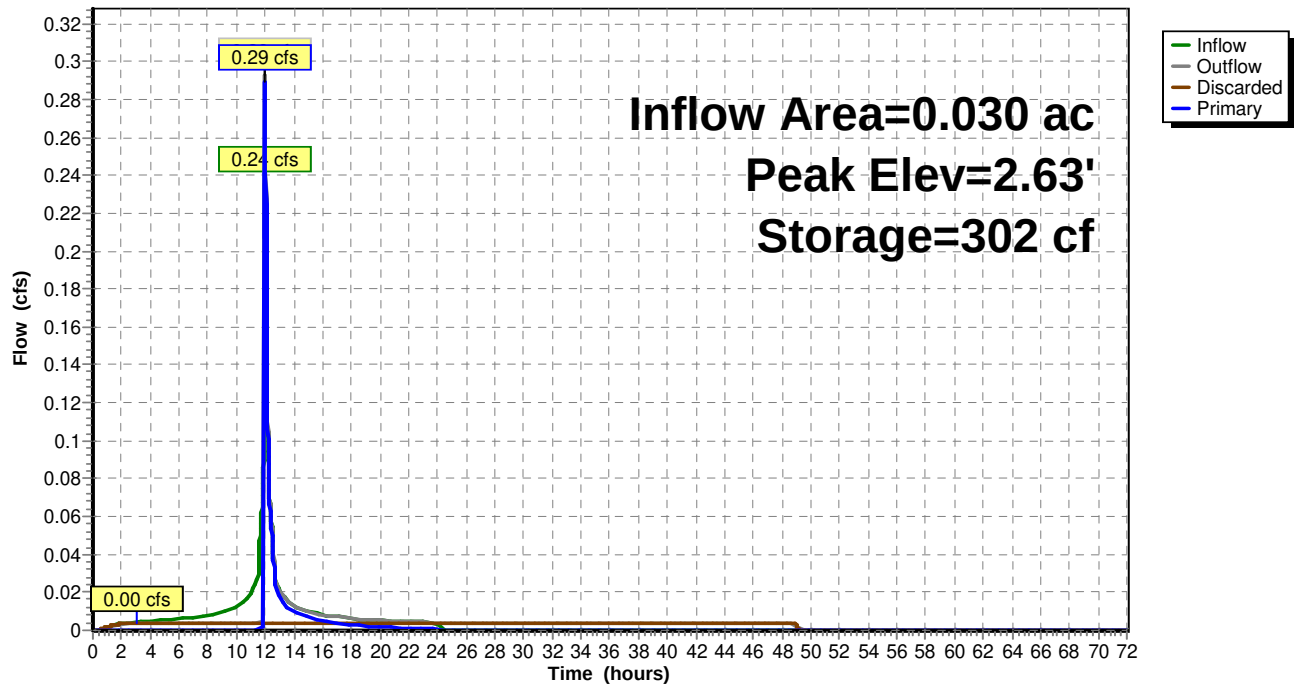
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 3.04 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.26 cfs @ 12.02 hrs HW=2.62' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 0.44 fps)

Pond 1.9PU51: Porous paver patio for unit 51

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 145

Stage-Area-Storage for Pond 1.9PU51: Porous paver patio for unit 51

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU52: Porous paver patio for unit 52

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 8.86" for 100-yr event
 Inflow = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af
 Outflow = 0.29 cfs @ 12.02 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 3.04 hrs, Volume= 0.013 af
 Primary = 0.29 cfs @ 12.02 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.63' @ 12.02 hrs Surf.Area= 288 sf Storage= 302 cf

Plug-Flow detention time= 489.5 min calculated for 0.022 af (100% of inflow)
 Center-of-Mass det. time= 489.6 min (1,229.5 - 739.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

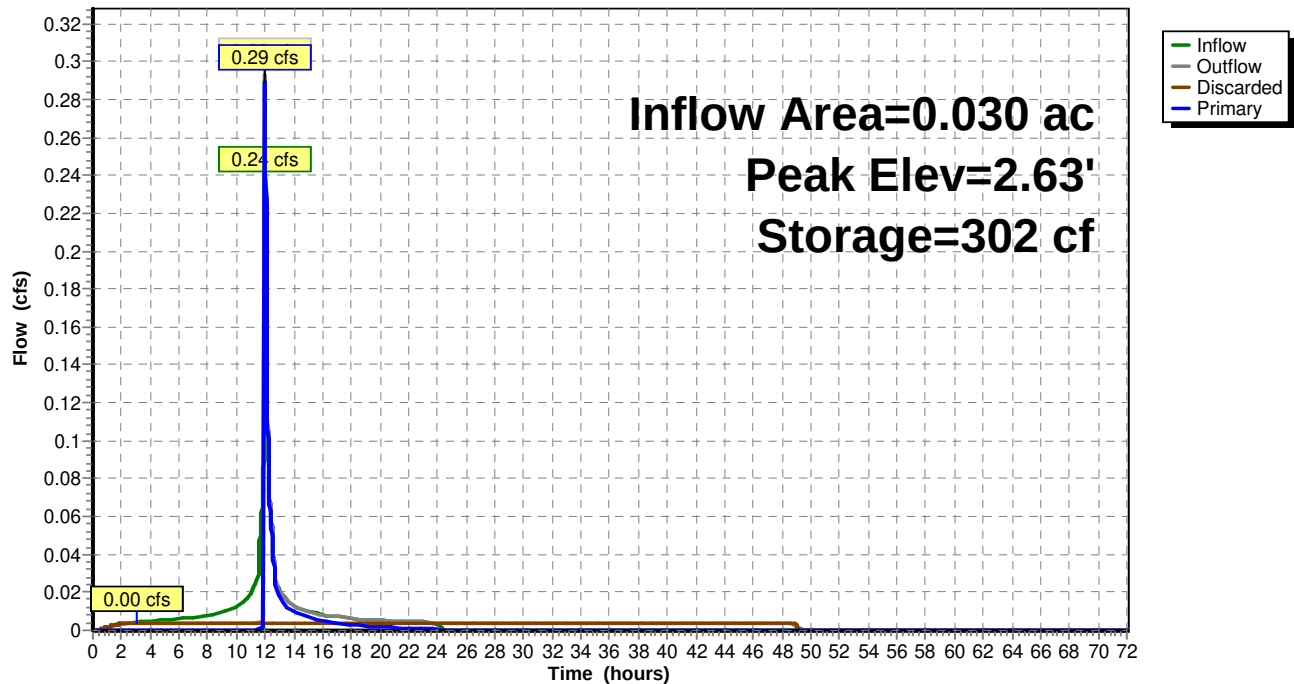
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 3.04 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.26 cfs @ 12.02 hrs HW=2.62' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 0.44 fps)

Pond 1.9PU52: Porous paver patio for unit 52

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 148

Stage-Area-Storage for Pond 1.9PU52: Porous paver patio for unit 52

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU65: Porous paver patio for unit 65

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 8.86" for 100-yr event
 Inflow = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af
 Outflow = 0.29 cfs @ 12.02 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 3.04 hrs, Volume= 0.013 af
 Primary = 0.29 cfs @ 12.02 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.63' @ 12.02 hrs Surf.Area= 288 sf Storage= 302 cf

Plug-Flow detention time= 489.5 min calculated for 0.022 af (100% of inflow)
 Center-of-Mass det. time= 489.6 min (1,229.5 - 739.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

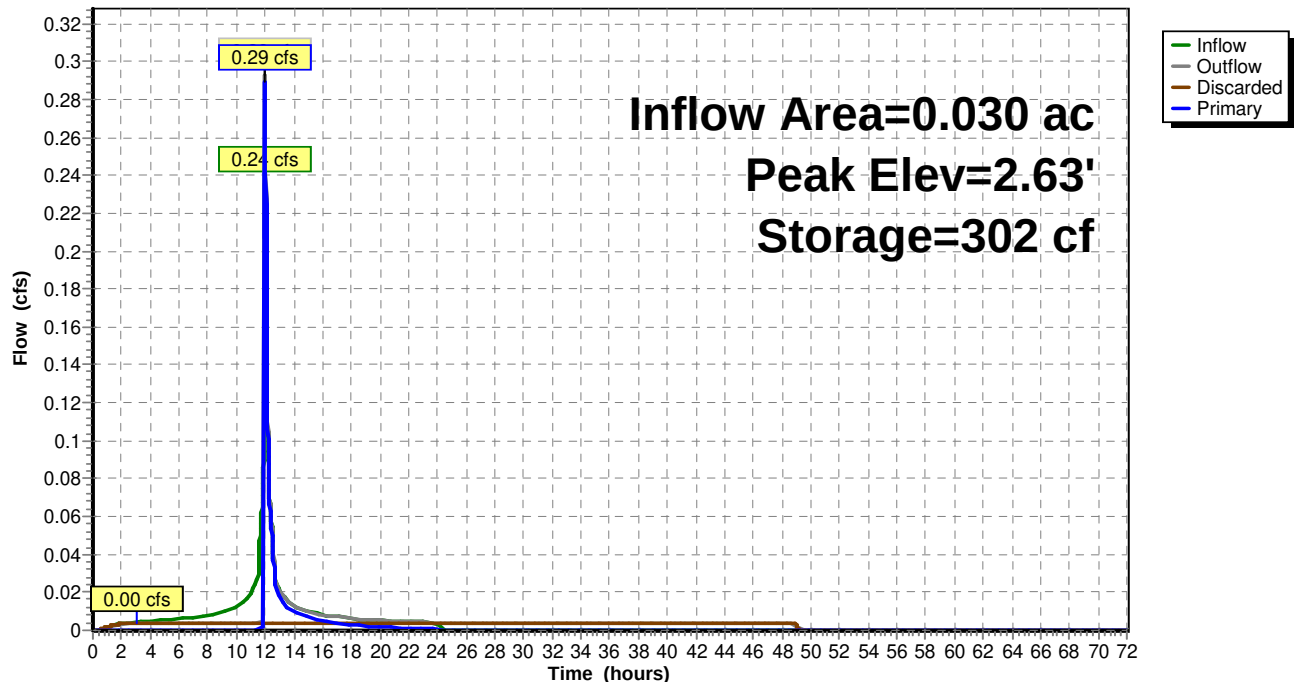
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 3.04 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.26 cfs @ 12.02 hrs HW=2.62' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 0.44 fps)

Pond 1.9PU65: Porous paver patio for unit 65

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 151

Stage-Area-Storage for Pond 1.9PU65: Porous paver patio for unit 65

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU66: Porous paver patio for unit 66

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 8.86" for 100-yr event
 Inflow = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af
 Outflow = 0.29 cfs @ 12.02 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 3.04 hrs, Volume= 0.013 af
 Primary = 0.29 cfs @ 12.02 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.63' @ 12.02 hrs Surf.Area= 288 sf Storage= 302 cf

Plug-Flow detention time= 489.5 min calculated for 0.022 af (100% of inflow)
 Center-of-Mass det. time= 489.6 min (1,229.5 - 739.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

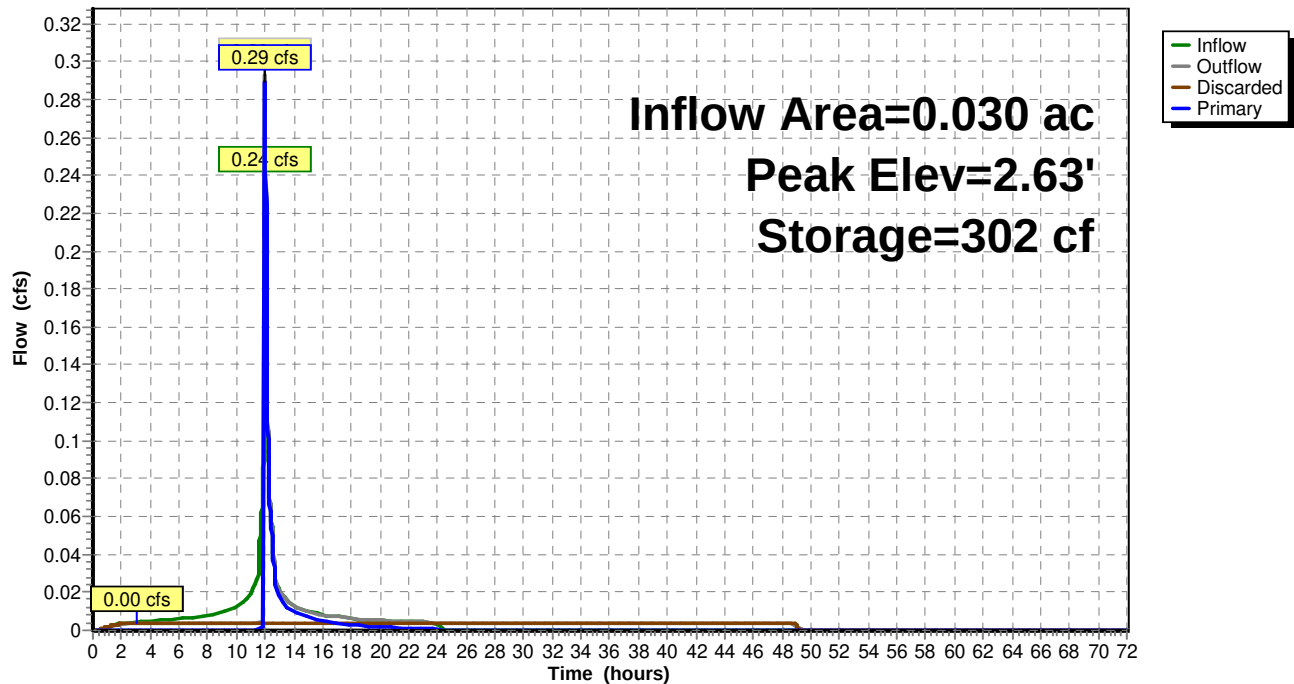
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 3.04 hrs HW=0.03' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.26 cfs @ 12.02 hrs HW=2.62' TW=0.00' (Dynamic Tailwater)
 ↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 0.44 fps)

Pond 1.9PU66: Porous paver patio for unit 66

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 154

Stage-Area-Storage for Pond 1.9PU66: Porous paver patio for unit 66

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU67: Porous paver patio for unit 67

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 8.86" for 100-yr event
 Inflow = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af
 Outflow = 0.29 cfs @ 12.02 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 3.04 hrs, Volume= 0.013 af
 Primary = 0.29 cfs @ 12.02 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 2.63' @ 12.02 hrs Surf.Area= 288 sf Storage= 302 cf

Plug-Flow detention time= 489.5 min calculated for 0.022 af (100% of inflow)

Center-of-Mass det. time= 489.6 min (1,229.5 - 739.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long 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=0.00 cfs @ 3.04 hrs HW=0.03' (Free Discharge)

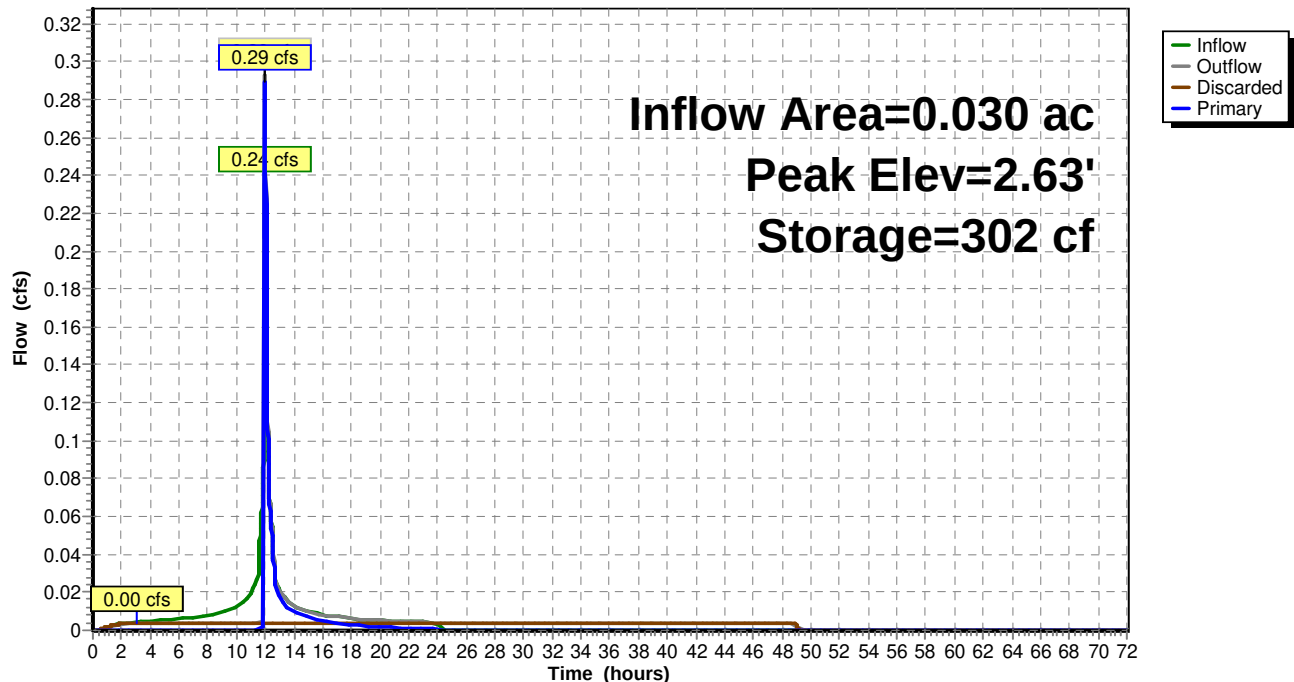
↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.26 cfs @ 12.02 hrs HW=2.62' TW=0.00' (Dynamic Tailwater)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 0.44 fps)

Pond 1.9PU67: Porous paver patio for unit 67

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 157

Stage-Area-Storage for Pond 1.9PU67: Porous paver patio for unit 67

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU68: Porous paver patio for unit 68

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 8.86" for 100-yr event
 Inflow = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af
 Outflow = 0.29 cfs @ 12.02 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 3.04 hrs, Volume= 0.013 af
 Primary = 0.29 cfs @ 12.02 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.63' @ 12.02 hrs Surf.Area= 288 sf Storage= 302 cf

Plug-Flow detention time= 489.5 min calculated for 0.022 af (100% of inflow)
 Center-of-Mass det. time= 489.6 min (1,229.5 - 739.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

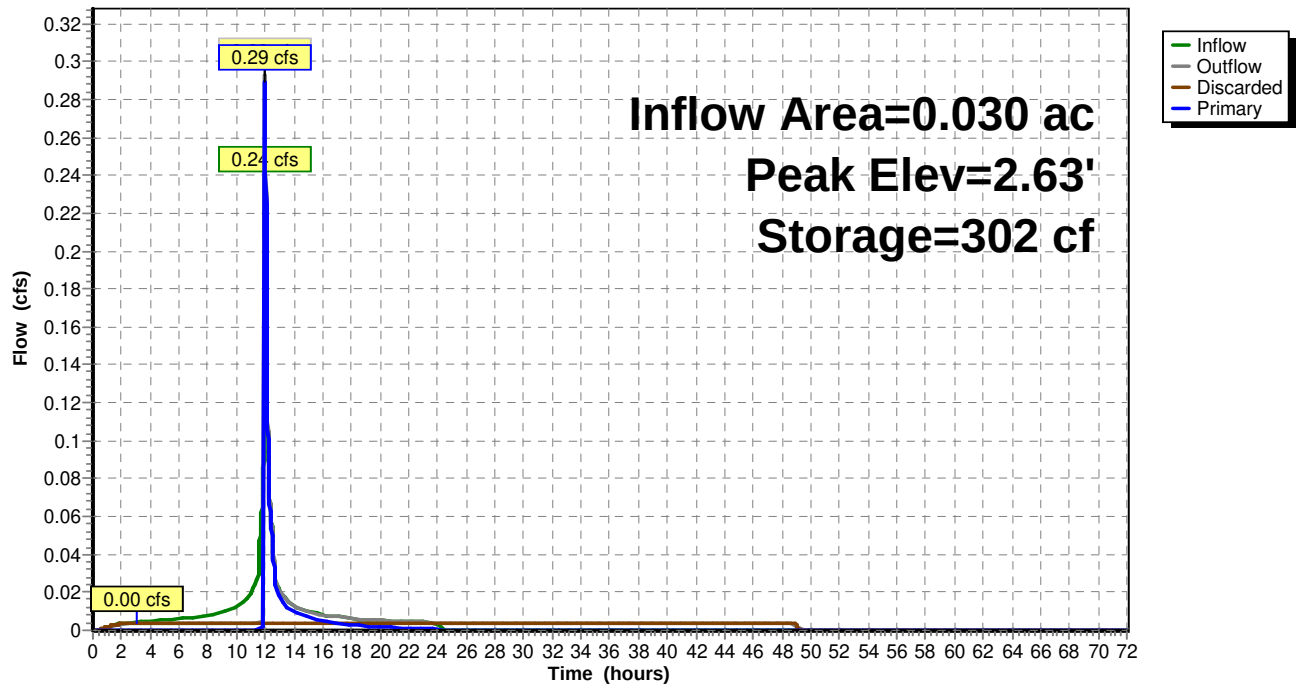
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 3.04 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.26 cfs @ 12.02 hrs HW=2.62' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 0.44 fps)

Pond 1.9PU68: Porous paver patio for unit 68

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 160

Stage-Area-Storage for Pond 1.9PU68: Porous paver patio for unit 68

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU69: Porous paver patio for unit 69

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 8.86" for 100-yr event
 Inflow = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af
 Outflow = 0.29 cfs @ 12.02 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 3.04 hrs, Volume= 0.013 af
 Primary = 0.29 cfs @ 12.02 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.63' @ 12.02 hrs Surf.Area= 288 sf Storage= 302 cf

Plug-Flow detention time= 489.5 min calculated for 0.022 af (100% of inflow)
 Center-of-Mass det. time= 489.6 min (1,229.5 - 739.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

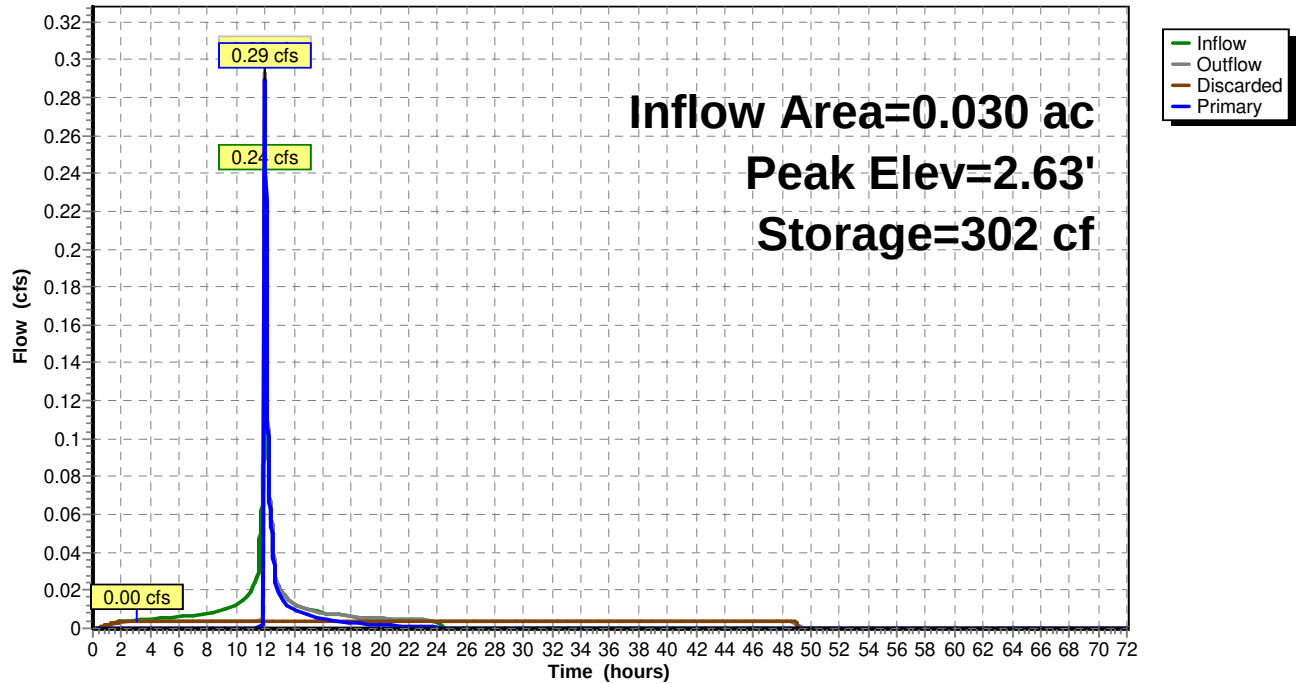
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 3.04 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.26 cfs @ 12.02 hrs HW=2.62' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 0.44 fps)

Pond 1.9PU69: Porous paver patio for unit 69

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 163

Stage-Area-Storage for Pond 1.9PU69: Porous paver patio for unit 69

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU70: Porous paver patio for unit 70

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 8.86" for 100-yr event
 Inflow = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af
 Outflow = 0.29 cfs @ 12.02 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 3.04 hrs, Volume= 0.013 af
 Primary = 0.29 cfs @ 12.02 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.63' @ 12.02 hrs Surf.Area= 288 sf Storage= 302 cf

Plug-Flow detention time= 489.5 min calculated for 0.022 af (100% of inflow)
 Center-of-Mass det. time= 489.6 min (1,229.5 - 739.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

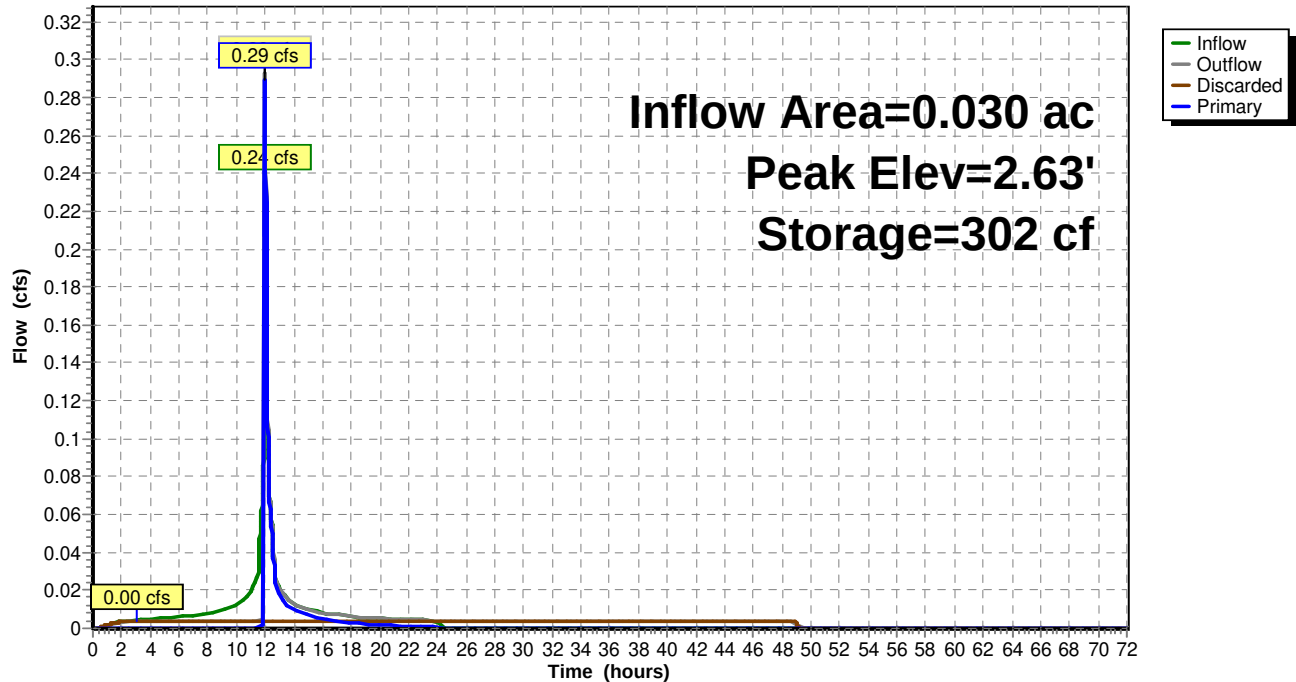
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 3.04 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.26 cfs @ 12.02 hrs HW=2.62' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 0.44 fps)

Pond 1.9PU70: Porous paver patio for unit 70

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 166

Stage-Area-Storage for Pond 1.9PU70: Porous paver patio for unit 70

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU71: Porous paver patio for unit 71

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 8.86" for 100-yr event
 Inflow = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af
 Outflow = 0.29 cfs @ 12.02 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 3.04 hrs, Volume= 0.013 af
 Primary = 0.29 cfs @ 12.02 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.63' @ 12.02 hrs Surf.Area= 288 sf Storage= 302 cf

Plug-Flow detention time= 489.5 min calculated for 0.022 af (100% of inflow)
 Center-of-Mass det. time= 489.6 min (1,229.5 - 739.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

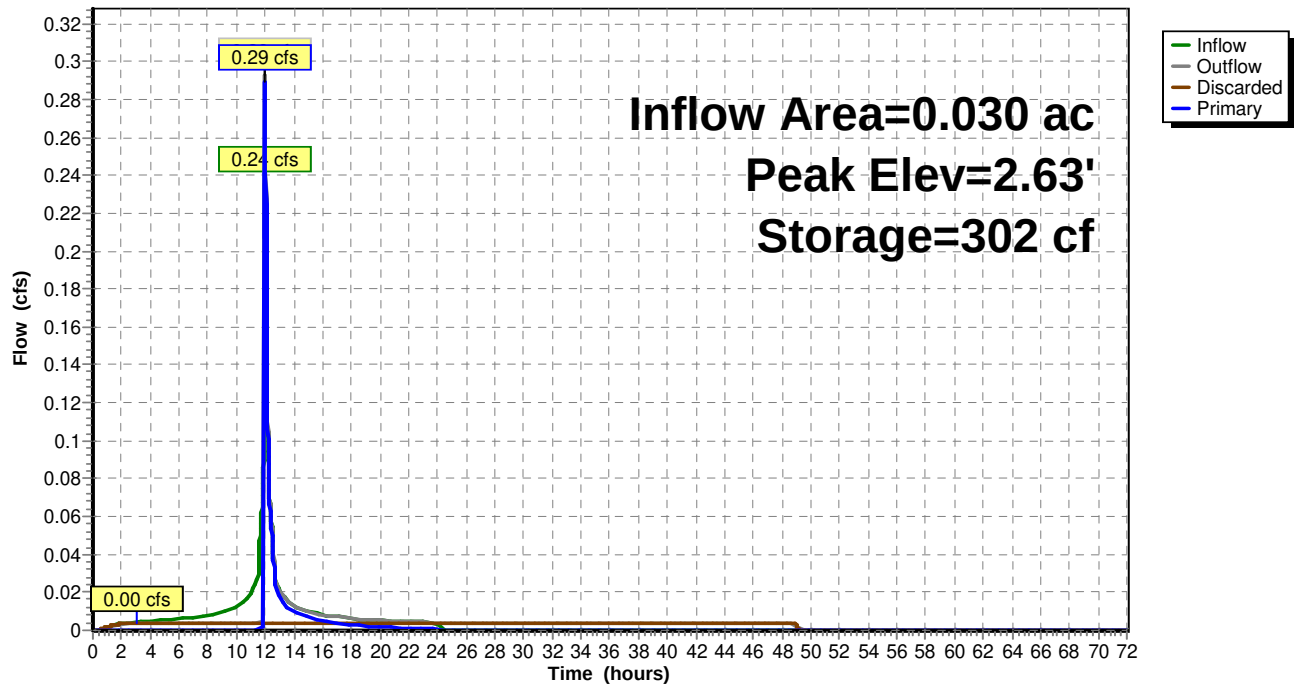
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 3.04 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.26 cfs @ 12.02 hrs HW=2.62' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 0.44 fps)

Pond 1.9PU71: Porous paver patio for unit 71

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 169

Stage-Area-Storage for Pond 1.9PU71: Porous paver patio for unit 71

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU72: Porous paver patio for unit 72

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 8.86" for 100-yr event
 Inflow = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af
 Outflow = 0.29 cfs @ 12.02 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 3.04 hrs, Volume= 0.013 af
 Primary = 0.29 cfs @ 12.02 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.63' @ 12.02 hrs Surf.Area= 288 sf Storage= 302 cf

Plug-Flow detention time= 489.5 min calculated for 0.022 af (100% of inflow)
 Center-of-Mass det. time= 489.6 min (1,229.5 - 739.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

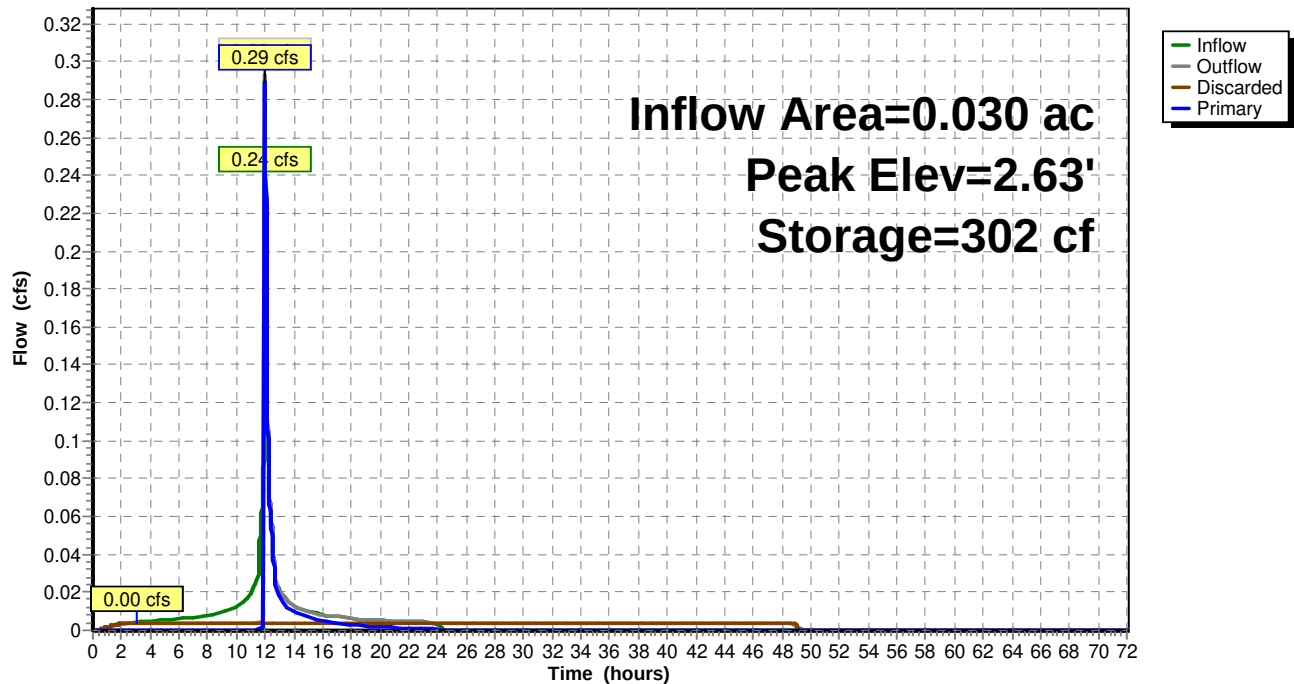
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 3.04 hrs HW=0.03' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.26 cfs @ 12.02 hrs HW=2.62' TW=0.00' (Dynamic Tailwater)
 ↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 0.44 fps)

Pond 1.9PU72: Porous paver patio for unit 72

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 172

Stage-Area-Storage for Pond 1.9PU72: Porous paver patio for unit 72

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU73: Porous paver patio for unit 73

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 8.86" for 100-yr event
 Inflow = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af
 Outflow = 0.29 cfs @ 12.02 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 3.04 hrs, Volume= 0.013 af
 Primary = 0.29 cfs @ 12.02 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.63' @ 12.02 hrs Surf.Area= 288 sf Storage= 302 cf

Plug-Flow detention time= 489.5 min calculated for 0.022 af (100% of inflow)
 Center-of-Mass det. time= 489.6 min (1,229.5 - 739.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

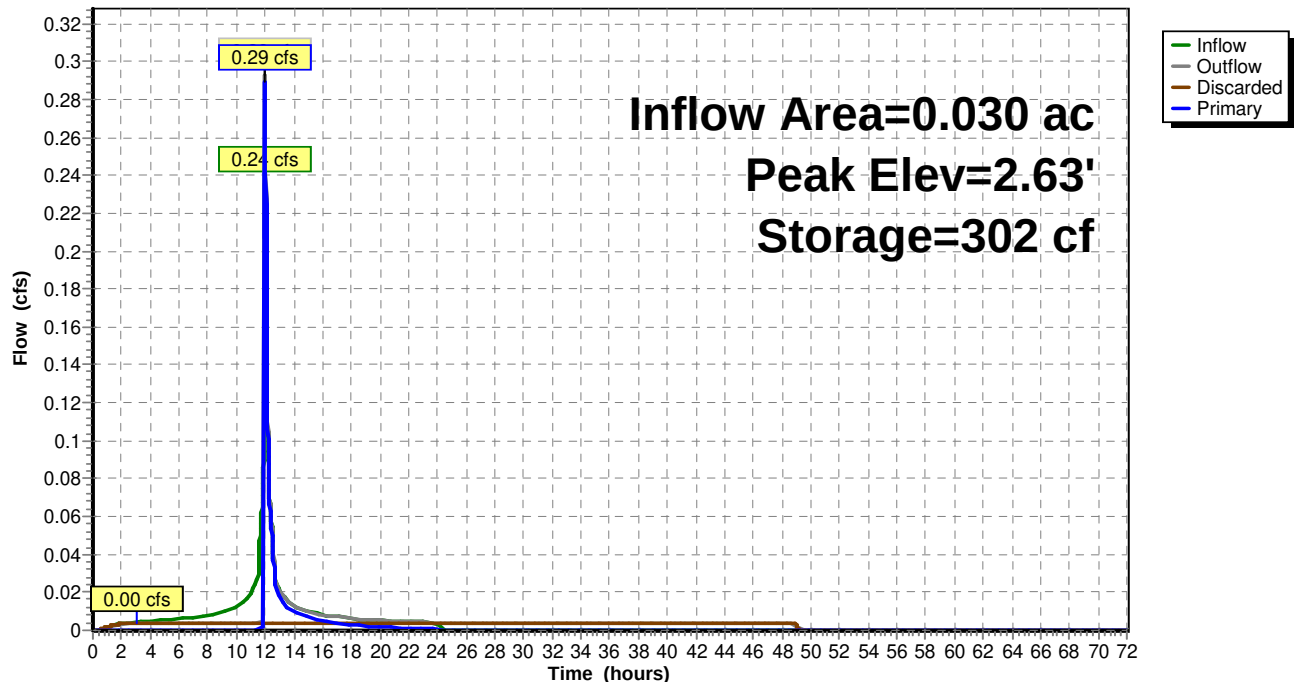
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 3.04 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.26 cfs @ 12.02 hrs HW=2.62' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 0.44 fps)

Pond 1.9PU73: Porous paver patio for unit 73

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 175

Stage-Area-Storage for Pond 1.9PU73: Porous paver patio for unit 73

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU74: Porous paver patio for unit 74

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 8.86" for 100-yr event
 Inflow = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af
 Outflow = 0.29 cfs @ 12.02 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 3.04 hrs, Volume= 0.013 af
 Primary = 0.29 cfs @ 12.02 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.63' @ 12.02 hrs Surf.Area= 288 sf Storage= 302 cf

Plug-Flow detention time= 489.5 min calculated for 0.022 af (100% of inflow)
 Center-of-Mass det. time= 489.6 min (1,229.5 - 739.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

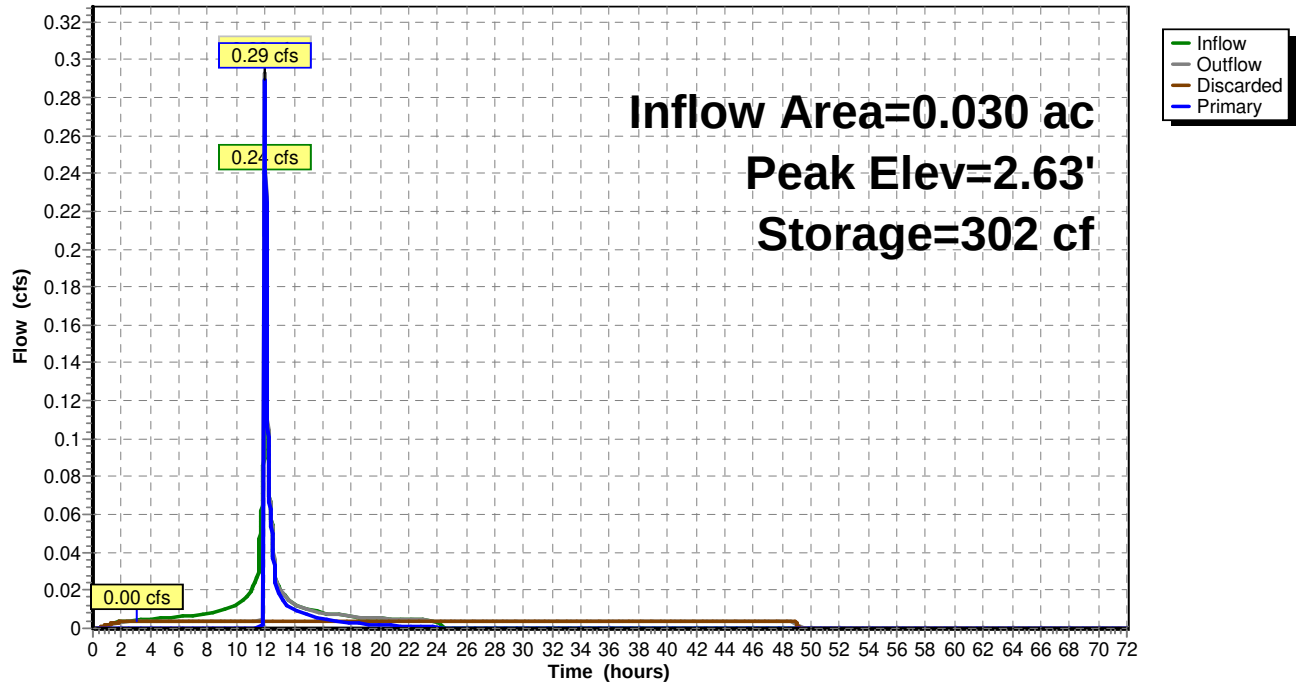
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 3.04 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.26 cfs @ 12.02 hrs HW=2.62' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 0.44 fps)

Pond 1.9PU74: Porous paver patio for unit 74

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 178

Stage-Area-Storage for Pond 1.9PU74: Porous paver patio for unit 74

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU75: Porous paver patio for unit 75

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 8.86" for 100-yr event
 Inflow = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af
 Outflow = 0.29 cfs @ 12.02 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 3.04 hrs, Volume= 0.013 af
 Primary = 0.29 cfs @ 12.02 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.63' @ 12.02 hrs Surf.Area= 288 sf Storage= 302 cf

Plug-Flow detention time= 489.5 min calculated for 0.022 af (100% of inflow)
 Center-of-Mass det. time= 489.6 min (1,229.5 - 739.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

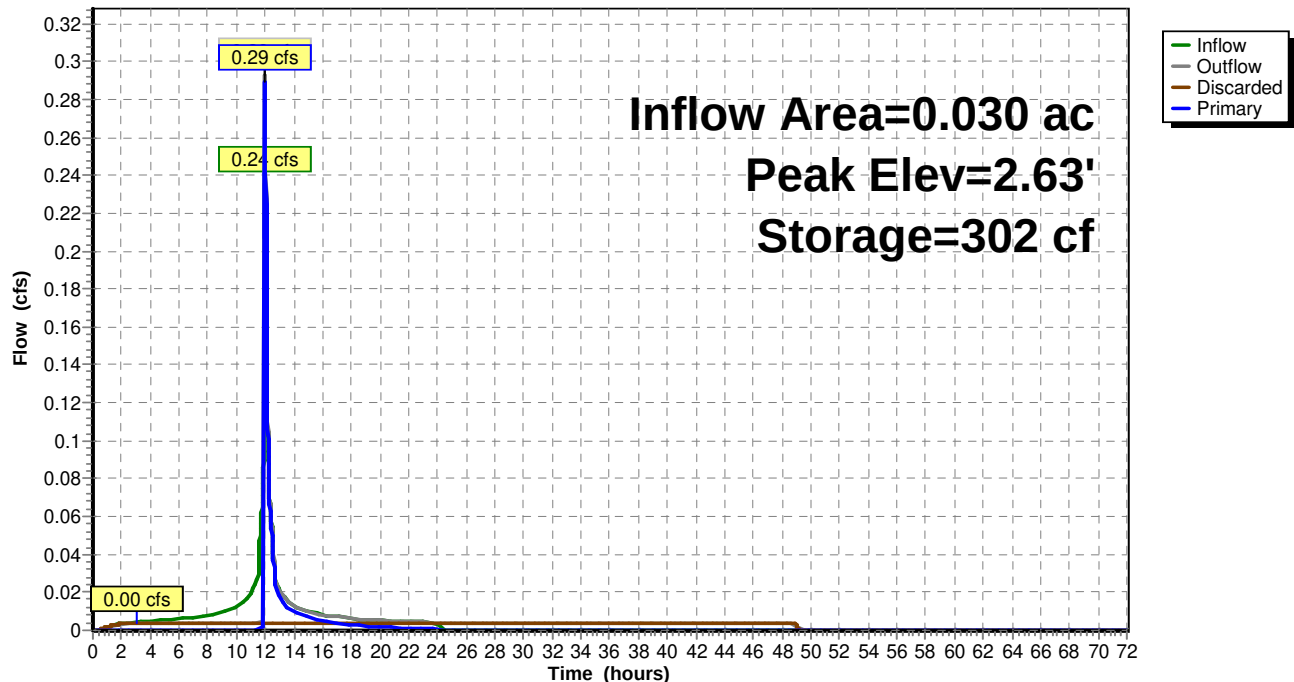
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 3.04 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.26 cfs @ 12.02 hrs HW=2.62' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 0.44 fps)

Pond 1.9PU75: Porous paver patio for unit 75

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 181

Stage-Area-Storage for Pond 1.9PU75: Porous paver patio for unit 75

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

Summary for Pond 1.9PU76: Porous paver patio for unit 76

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 8.86" for 100-yr event
 Inflow = 0.24 cfs @ 12.04 hrs, Volume= 0.022 af
 Outflow = 0.29 cfs @ 12.02 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 3.04 hrs, Volume= 0.013 af
 Primary = 0.29 cfs @ 12.02 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.63' @ 12.02 hrs Surf.Area= 288 sf Storage= 302 cf

Plug-Flow detention time= 489.5 min calculated for 0.022 af (100% of inflow)
 Center-of-Mass det. time= 489.6 min (1,229.5 - 739.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

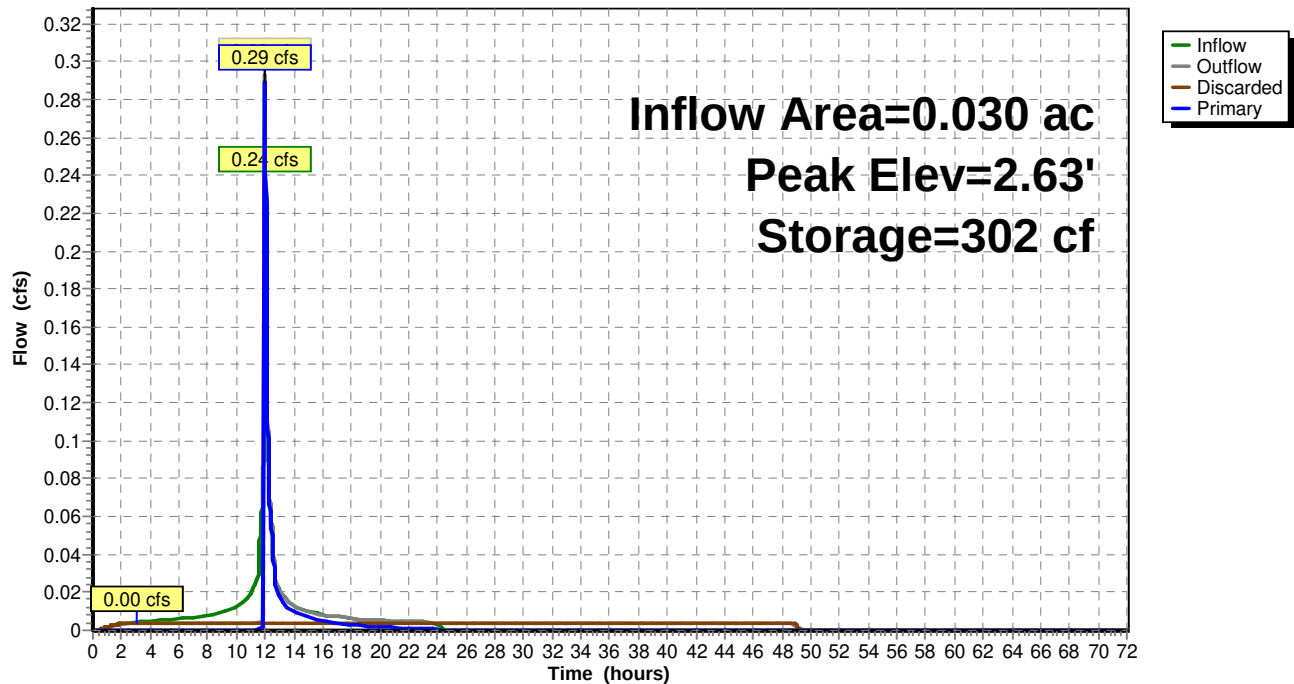
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.00 cfs @ 3.04 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.26 cfs @ 12.02 hrs HW=2.62' TW=0.00' (Dynamic Tailwater)
 ↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 0.44 fps)

Pond 1.9PU76: Porous paver patio for unit 76

Hydrograph



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 100-yr Rainfall=9.10"**

Prepared by {enter your company name here}

Printed 11/20/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 184

Stage-Area-Storage for Pond 1.9PU76: Porous paver patio for unit 76

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

APPENDIX D

NYSDEC SPDES for Construction Activities Construction Site Log Book

**STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM
FOR CONSTRUCTION ACTIVITIES**

CONSTRUCTION SITE LOG BOOK

Table of Contents

- I. Pre-Construction Meeting Documents.
 - a. Preamble to Site Assessment and Inspections
 - b. Operator's Certification
 - c. Qualified Professional's Credentials & Certification
 - d. Contractors Certification
 - e. Pre-Construction Site Assessment Checklist
- II. Construction Duration Inspections
 - a. Directions
 - b. Modification to the SWPPP

Properly completing forms such as those contained in this document meet the inspection requirement of NYSDEC SPDES GP-0-20-001 for Construction Activities, or superceding permit. Completed forms shall be kept on site at all times and made available to authorities upon request.

I. PRE-CONSTRUCTION MEETING DOCUMENTS

Project Name _____

Permit No. _____ **Date of Authorization** _____

Name of Operator _____

Prime Contractor _____

a. Preamble to Site Assessment and Inspections -The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a qualified professional¹ conduct an assessment of the site prior to the commencement of construction² and certify in this 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.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements.

When construction starts, site inspections shall be conducted by the qualified professional at least every 7 calendar days (Construction Duration Inspections). The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified professional perform a final site inspection. The qualified professional shall certify that the site has undergone final stabilization³ using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 "Qualified Professional means a person knowledgeable in the principles and practice of erosion and sediment controls, such as a Certified Professional in Erosion and Sediment Control (CPESC), soil scientist, licensed engineer or someone working under the direction and supervision of a licensed engineer (person must have experience in the principles and practices of erosion and sediment control).

2 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.

3 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

b. Operators Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. Further, I hereby certify that the SWPPP meets all Federal, State, and local erosion and sediment control requirements. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law. "

Name (please print): _____

Title: _____ **Date:** _____

Address: _____

Phone: _____ **Email:** _____

Signature: _____

c. Qualified Professional's Credentials & Certification

“I hereby certify that I meet the criteria set forth in the General Permit to conduct site inspections for this project and that the appropriate erosion and sediment controls described in the SWPPP and as described in the following Pre-construction Site Assessment Checklist have been adequately installed or implemented, ensuring the overall preparedness of this site for the commencement of construction.”

Name (please print): _____

Title _____ **Date:** _____

Address: _____

Phone: _____ **Email:** _____

Signature: _____

d. Contractors Certification Statement

“I hereby certify under penalty of law 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 am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations.”

Signature of Contractor	Date

Print Name	Title

Signature of Trained Contractor	Date

Print Name of Trained Contractor	Title

Name of Contracting Firm _____

Street Address _____

City, State, Zip _____

Telephone No. _____

A copy of this statement shall be retained as part of the Stormwater Pollution Prevention Plan (SWPPP) for a period off at least five (5) years after the subject property is stabilized.

e. Pre-construction Site Assessment Checklist (NOTE: Provide comments below as necessary)

1. Notice of Intent, SWPPP, and Contractors Certification:

Yes No NA

- ☐ ☐ ☐ Has a Notice of Intent been filed with the NYS Department of Conservation?
- ☐ ☐ ☐ Is the SWPPP on-site? Where? _____
- ☐ ☐ ☐ Is the Plan current? What is the latest revision date? _____
- ☐ ☐ ☐ Is a copy of the NOI (with brief description) onsite? Where? _____
- ☐ ☐ ☐ Have all contractors involved with stormwater related activities signed a contractor's certification?

2. Resource Protection

Yes No NA

- ☐ ☐ ☐ Are construction limits clearly flagged or fenced?
- ☐ ☐ ☐ Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.
- ☐ ☐ ☐ Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes No NA

- ☐ ☐ ☐ Clean stormwater runoff has been diverted from areas to be disturbed.
- ☐ ☐ ☐ Bodies of water located either on site or in the vicinity of the site have been identified and protected.
- ☐ ☐ ☐ Appropriate practices to protect on-site or downstream surface water are installed.
- ☐ ☐ ☐ Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Entrance

Yes No NA

- ☐ ☐ ☐ A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
- ☐ ☐ ☐ Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
- ☐ ☐ ☐ Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Perimeter Sediment Controls

Yes No NA

- ☐ ☐ ☐ Silt fence material and installation comply with the standard drawing and specifications.
- ☐ ☐ ☐ Silt fences are installed at appropriate spacing intervals
- ☐ ☐ ☐ Sediment/detention basin was installed as first land disturbing activity.
- ☐ ☐ ☐ Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

- ☐ ☐ ☐ The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.
- ☐ ☐ ☐ The plan is contained in the SWPPP on page _____
- ☐ ☐ ☐ Appropriate materials to control spills are onsite. Where? _____

II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:

Inspection Forms will be filled out during the entire construction phase of the project.

Required Elements:

(1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;

(2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;

(3) Indicate all disturbed site areas that have not undergone active site work during the previous 7-day period;

Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);

(5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and

(6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

SITE PLAN/SKETCH

Inspector (print name)

Date of Inspection

Qualified Professional (print name)

Qualified Professional Signature

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

Maintaining Water Quality

Yes No NA

- ☐ ☐ ☐ Is there an increase in turbidity causing a substantial visible contrast to natural conditions?
- ☐ ☐ ☐ Is there residue from oil and floating substances, visible oil film, or globules or grease?
- ☐ ☐ ☐ All disturbance is within the limits of the approved plans.
- ☐ ☐ ☐ Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions

Yes No NA

- ☐ ☐ ☐ Is construction site litter and debris appropriately managed?
- ☐ ☐ ☐ Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
- ☐ ☐ ☐ Is construction impacting the adjacent property?
- ☐ ☐ ☐ Is dust adequately controlled?

2. Temporary Stream Crossing

Yes No NA

- ☐ ☐ ☐ Maximum diameter pipes necessary to span creek without dredging are installed.
- ☐ ☐ ☐ Installed non-woven geotextile fabric beneath approaches.
- ☐ ☐ ☐ Is fill composed of aggregate (no earth or soil)?
- ☐ ☐ ☐ Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

Runoff Control Practices

1. Excavation Dewatering

Yes No NA

- ☐ ☐ ☐ Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
- ☐ ☐ ☐ Clean water from upstream pool is being pumped to the downstream pool.
- ☐ ☐ ☐ Sediment laden water from work area is being discharged to a silt-trapping device.
- ☐ ☐ ☐ Constructed upstream berm with one-foot minimum freeboard.

2. Level Spreader

Yes No NA

- ☐ ☐ ☐ Installed per plan.
- ☐ ☐ ☐ Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
- ☐ ☐ ☐ Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales

Yes No NA

- ☐ ☐ ☐ Installed per plan with minimum side slopes 2H:1V or flatter.
- ☐ ☐ ☐ Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
- ☐ ☐ ☐ Sediment-laden runoff directed to sediment trapping structure

CONSTRUCTION DURATION INSPECTIONS
Runoff Control Practices (continued)

Page 3 of _____

4. Stone Check Dam

Yes No NA

- ☐ ☐ ☐ Is channel stable? (flow is not eroding soil underneath or around the structure).
☐ ☐ ☐ Check is in good condition (rocks in place and no permanent pools behind the structure).
☐ ☐ ☐ Has accumulated sediment been removed?

5. Rock Outlet Protection

Yes No NA

- ☐ ☐ ☐ Installed per plan.
☐ ☐ ☐ Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes No NA

- ☐ ☐ ☐ Stockpiles are stabilized with vegetation and/or mulch.
☐ ☐ ☐ Sediment control is installed at the toe of the slope.

2. Revegetation

Yes No NA

- ☐ ☐ ☐ Temporary seedings and mulch have been applied to idle areas.
☐ ☐ ☐ 4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control

1. Stabilized Construction Entrance

Yes No NA

- ☐ ☐ ☐ Stone is clean enough to effectively remove mud from vehicles.
☐ ☐ ☐ Installed per standards and specifications?
☐ ☐ ☐ Does all traffic use the stabilized entrance to enter and leave site?
☐ ☐ ☐ Is adequate drainage provided to prevent ponding at entrance?

2. Silt Fence

Yes No NA

- ☐ ☐ ☐ Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
☐ ☐ ☐ Joints constructed by wrapping the two ends together for continuous support.
☐ ☐ ☐ Fabric buried 6 inches minimum.
☐ ☐ ☐ Posts are stable, fabric is tight and without rips or frayed areas.
Sediment accumulation is ____% of design capacity.

Sediment Control (continued)

3. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated practices)

Yes No NA

- ☐ ☐ ☐ Installed concrete blocks lengthwise so open ends face outward, not upward.
 - ☐ ☐ ☐ Placed wire screen between No. 3 crushed stone and concrete blocks.
 - ☐ ☐ ☐ Drainage area is 1 acre or less.
 - ☐ ☐ ☐ Excavated area is 900 cubic feet.
 - ☐ ☐ ☐ Excavated side slopes should be 2:1.
 - ☐ ☐ ☐ 2" x 4" frame is constructed and structurally sound.
 - ☐ ☐ ☐ Posts 3-foot maximum spacing between posts.
 - ☐ ☐ ☐ Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
 - ☐ ☐ ☐ Posts are stable, fabric is tight and without rips or frayed areas.
- Sediment accumulation ____% of design capacity.

4. Temporary Sediment Trap

Yes No NA

- ☐ ☐ ☐ Outlet structure is constructed per the approved plan or drawing.
 - ☐ ☐ ☐ Geotextile fabric has been placed beneath rock fill.
- Sediment accumulation is ____% of design capacity.

5. Temporary Sediment Basin

Yes No NA

- ☐ ☐ ☐ Basin and outlet structure constructed per the approved plan.
 - ☐ ☐ ☐ Basin side slopes are stabilized with seed/mulch.
 - ☐ ☐ ☐ Drainage structure flushed and basin surface restored upon removal of sediment basin facility.
- Sediment accumulation is ____% of design capacity.

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design.

Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

b. Modifications to the SWPPP (To be completed as described below)

1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or

a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP and as required by this permit; or

3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP.

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

APPENDIX E
Project and Owner Information

Site Data:

Reynolds Drive
Town of Somers, New York 10505
Area: 56.8 acres ±

Owner/Operator Information:

Parkview B & G, LLC
57 Route 6
Suite 207
Baldwin Place, NY, 10505
845-306-7705
s Kearney@kearneyrealtygroup.com

Parties Responsible for Implementation of the Short and Long Term Maintenance Plan:

Kerney Realty and Development Group
57 Route 6
Suite 207
Baldwin Place, NY, 10505
845-306-7705
s Kearney@kearneyrealtygroup.com

and or the current owner(s) of the subject property.

Qualified Professional Responsible for Inspection of the Stormwater Pollution Prevention Plan:

Insite Engineering, Surveying & Landscape Architecture, P.C.
3 Garrett Place
Carmel, New York 10512
845-225-9690

APPENDIX F

NYSDEC Stormwater Management Practice Construction and Maintenance Checklists

Open Channel System Construction Inspection Checklist

Project:

Location:

Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Pre-Construction		
Pre-construction meeting		
Runoff diverted		
Facility location staked out		
2. Excavation		
Size and location		
Side slope stable		
Soil permeability		
Groundwater / bedrock		
Lateral slopes completely level		
Longitudinal slopes within design range		
Excavation does not compact subsoils		
3. Check dams		
Dimensions		
Spacing		
Materials		

Comments:

[illegible]

[illegible]

Infiltration Basin Construction Inspection Checklist

Project:
 Location:
 Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Pre-Construction		
Runoff diverted		
Soil permeability tested		
Groundwater / bedrock depth		
2. Excavation		
Size and location		
Side slopes stable		
Excavation does not compact subsoils		
3. Embankment		
Barrel		
Anti-seep collar or Filter diaphragm		
Fill material		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
4. Final Excavation		
Drainage area stabilized		
Sediment removed from facility		
Basin floor tilled		
Facility stabilized		
5. Final Inspection		
Pretreatment facility in place		
Inlets / outlets		
Contributing watershed stabilized before flow is routed to the facility		

Comments:[illegible]

Actions to be Taken:

Infiltration Trench Construction Inspection Checklist

Project:

Location:

Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Pre-Construction		
Pre-construction meeting		
Runoff diverted		
Soil permeability tested		
Groundwater / bedrock sufficient at depth		
2. Excavation		
Size and location		
Side slopes stable		
Excavation does not compact subsoils		
3. Filter Fabric Placement		
Fabric specifications		
Placed on bottom, sides, and top		

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
4. Aggregate Material		
Size as specified		
Clean / washed material		
Placed properly		
5. Observation Well		
Pipe size		
Removable cap / footplate		
Initial depth = _____ feet		
6. Final Inspection		
Pretreatment facility in place		
Contributing watershed stabilized prior to flow diversion		
Outlet		

Comments:This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Actions to be Taken:

Stormwater/Wetland Pond Construction Inspection Checklist

Project:

Location:

Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
Pre-Construction/Materials and Equipment		
Pre-construction meeting		
Pipe and appurtenances on-site prior to construction and dimensions checked		
1. Material (including protective coating, if specified)		
2. Diameter		
3. Dimensions of metal riser or pre-cast concrete outlet structure		
4. Required dimensions between water control structures (orifices, weirs, etc.) are in accordance with approved plans		
5. Barrel stub for prefabricated pipe structures at proper angle for design barrel slope		
6. Number and dimensions of prefabricated anti-seep collars		
7. Watertight connectors and gaskets		
8. Outlet drain valve		
Project benchmark near pond site		
Equipment for temporary de-watering		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
2. Subgrade Preparation		
Area beneath embankment stripped of all vegetation, topsoil, and organic matter		
3. Pipe Spillway Installation		
Method of installation detailed on plans		
A. Bed preparation		
Installation trench excavated with specified side slopes		
Stable, uniform, dry subgrade of relatively impervious material (If subgrade is wet, contractor shall have defined steps before proceeding with installation)		
Invert at proper elevation and grade		
B. Pipe placement		
Metal / plastic pipe		
1. Watertight connectors and gaskets properly installed		
2. Anti-seep collars properly spaced and having watertight connections to pipe		
3. Backfill placed and tamped by hand under “haunches” of pipe		
4. Remaining backfill placed in max. 8 inch lifts using small power tamping equipment until 2 feet cover over pipe is reached		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
3. Pipe Spillway Installation		
Concrete pipe		
1. Pipe set on blocks or concrete slab for pouring of low cradle		
2. Pipe installed with rubber gasket joints with no spalling in gasket interface area		
3. Excavation for lower half of anti-seep collar(s) with reinforcing steel set		
4. Entire area where anti-seep collar(s) will come in contact with pipe coated with mastic or other approved waterproof sealant		
5. Low cradle and bottom half of anti-seep collar installed as monolithic pour and of an approved mix		
6. Upper half of anti-seep collar(s) formed with reinforcing steel set		
7. Concrete for collar of an approved mix and vibrated into place (protected from freezing while curing, if necessary)		
8. Forms stripped and collar inspected for honeycomb prior to backfilling. Parge if necessary.		
C. Backfilling		
Fill placed in maximum 8 inch lifts		
Backfill taken minimum 2 feet above top of anti-seep collar elevation before traversing with heavy equipment		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
4. Riser / Outlet Structure Installation		
Riser located within embankment		
A. Metal riser		
Riser base excavated or formed on stable subgrade to design dimensions		
Set on blocks to design elevations and plumbed		
Reinforcing bars placed at right angles and projecting into sides of riser		
Concrete poured so as to fill inside of riser to invert of barrel		
B. Pre-cast concrete structure		
Dry and stable subgrade		
Riser base set to design elevation		
If more than one section, no spalling in gasket interface area; gasket or approved caulking material placed securely		
Watertight and structurally sound collar or gasket joint where structure connects to pipe spillway		
C. Poured concrete structure		
Footing excavated or formed on stable subgrade, to design dimensions with reinforcing steel set		
Structure formed to design dimensions, with reinforcing steel set as per plan		
Concrete of an approved mix and vibrated into place (protected from freezing while curing, if necessary)		
Forms stripped & inspected for "honeycomb" prior to backfilling; parge if necessary		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
5. Embankment Construction		
Fill material		
Compaction		
Embankment		
1. Fill placed in specified lifts and compacted with appropriate equipment		
2. Constructed to design cross-section, side slopes and top width		
3. Constructed to design elevation plus allowance for settlement		
6. Impounded Area Construction		
Excavated / graded to design contours and side slopes		
Inlet pipes have adequate outfall protection		
Forebay(s)		
Pond benches		
7. Earth Emergency Spillway Construction		
Spillway located in cut or structurally stabilized with riprap, gabions, concrete, etc.		
Excavated to proper cross-section, side slopes and bottom width		
Entrance channel, crest, and exit channel constructed to design grades and elevations		

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
8. Outlet Protection		
A. End section		
Securely in place and properly backfilled		
B. Endwall		
Footing excavated or formed on stable subgrade, to design dimensions and reinforcing steel set, if specified		
Endwall formed to design dimensions with reinforcing steel set as per plan		
Concrete of an approved mix and vibrated into place (protected from freezing, if necessary)		
Forms stripped and structure inspected for "honeycomb" prior to backfilling; parge if necessary		
C. Riprap apron / channel		
Apron / channel excavated to design cross-section with proper transition to existing ground		
Filter fabric in place		
Stone sized as per plan and uniformly placed at the thickness specified		
9. Vegetative Stabilization		
Approved seed mixture or sod		
Proper surface preparation and required soil amendments		
Excelsior mat or other stabilization, as per plan		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
10. Miscellaneous		
Drain for ponds having a permanent pool		
Trash rack / anti-vortex device secured to outlet structure		
Trash protection for low flow pipes, orifices, etc.		
Fencing (when required)		
Access road		
Set aside for clean-out maintenance		
11. Stormwater Wetlands		
Adequate water balance		
Variety of depth zones present		
Approved pondscaping plan in place Reinforcement budget for additional plantings		
Plants and materials ordered 6 months prior to construction		
Construction planned to allow for adequate planting and establishment of plant community (April-June planting window)		
Wetland buffer area preserved to maximum extent possible		

Comments:

Actions to be Taken:

Open Channel Operation, Maintenance, and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Contributing areas clean of debris		
2. Check Dams or Energy Dissipators (Annual, After Major Storms)		
No evidence of flow going around structures		
No evidence of erosion at downstream toe		
Soil permeability		
Groundwater / bedrock		
3. Vegetation (Monthly)		
Mowing done when needed		
Minimum mowing depth not exceeded		
No evidence of erosion		
Fertilized per specification		
4. Dewatering (Monthly)		
Dewaters between storms		

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
5. Sediment deposition (Annual)		
Clean of sediment		
6. Outlet/Overflow Spillway (Annual)		
Good condition, no need for repairs		
No evidence of erosion		

Comments:

Actions to be Taken:

Stormwater Pond/Wetland Operation, Maintenance and Management Inspection Checklist

Project _____
 Location: _____
 Site Status: _____

 Date: _____
 Time: _____

 Inspector: _____

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
1. Embankment and emergency spillway (Annual, After Major Storms)		
1. Vegetation and ground cover adequate		
2. Embankment erosion		
3. Animal burrows		
4. Unauthorized planting		
5. Cracking, bulging, or sliding of dam		
a. Upstream face		
b. Downstream face		
c. At or beyond toe		
downstream		
upstream		
d. Emergency spillway		
6. Pond, toe & chimney drains clear and functioning		
7. Seeps/leaks on downstream face		
8. Slope protection or riprap failure		
9. Vertical/horizontal alignment of top of dam "As-Built"		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
10. Emergency spillway clear of obstructions and debris		
11. Other (specify)		
2. Riser and principal spillway (Annual)		
Type: Reinforced concrete _____ Corrugated pipe _____ Masonry _____		
1. Low flow orifice obstructed		
2. Low flow trash rack. a. Debris removal necessary		
b. Corrosion control		
3. Weir trash rack maintenance a. Debris removal necessary		
b. corrosion control		
4. Excessive sediment accumulation insider riser		
5. Concrete/masonry condition riser and barrels a. cracks or displacement		
b. Minor spalling (<1")		
c. Major spalling (rebars exposed)		
d. Joint failures		
e. Water tightness		
6. Metal pipe condition		
7. Control valve a. Operational/exercised		
b. Chained and locked		
8. Pond drain valve a. Operational/exercised		
b. Chained and locked		
9. Outfall channels functioning		
10. Other (specify)		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
3. Permanent Pool (Wet Ponds) (monthly)		
1. Undesirable vegetative growth		
2. Floating or floatable debris removal required		
3. Visible pollution		
4. Shoreline problem		
5. Other (specify)		
4. Sediment Forebays		
1. Sedimentation noted		
2. Sediment cleanout when depth < 50% design depth		
5. Dry Pond Areas		
1. Vegetation adequate		
2. Undesirable vegetative growth		
3. Undesirable woody vegetation		
4. Low flow channels clear of obstructions		
5. Standing water or wet spots		
6. Sediment and / or trash accumulation		
7. Other (specify)		
6. Condition of Outfalls (Annual , After Major Storms)		
1. Riprap failures		
2. Slope erosion		
3. Storm drain pipes		
4. Endwalls / Headwalls		
5. Other (specify)		
7. Other (Monthly)		
1. Encroachment on pond, wetland or easement area		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
2. Complaints from residents		
3. Aesthetics		
a. Grass growing required		
b. Graffiti removal needed		
c. Other (specify)		
4. Conditions of maintenance access routes.		
5. Signs of hydrocarbon build-up		
6. Any public hazards (specify)		
8. Wetland Vegetation (Annual)		
1. Vegetation healthy and growing Wetland maintaining 50% surface area coverage of wetland plants after the second growing season. (If unsatisfactory, reinforcement plantings needed)		
2. Dominant wetland plants: Survival of desired wetland plant species Distribution according to landscaping plan?		
3. Evidence of invasive species		
4. Maintenance of adequate water depths for desired wetland plant species		
5. Harvesting of emergent plantings needed		
6. Have sediment accumulations reduced pool volume significantly or are plants “choked” with sediment		
7. Eutrophication level of the wetland.		
8. Other (specify)		

Comments:

Actions to be Taken:

Infiltration Trench Operation, Maintenance, and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Trench surface clear of debris		
Inflow pipes clear of debris		
Overflow spillway clear of debris		
Inlet area clear of debris		
2. Sediment Traps or Forebays (Annual)		
Obviously trapping sediment		
Greater than 50% of storage volume remaining		
3. Dewatering (Monthly)		
Trench dewaterers between storms		
4. Sediment Cleanout of Trench (Annual)		
No evidence of sedimentation in trench		
Sediment accumulation doesn't yet require cleanout		
5. Inlets (Annual)		

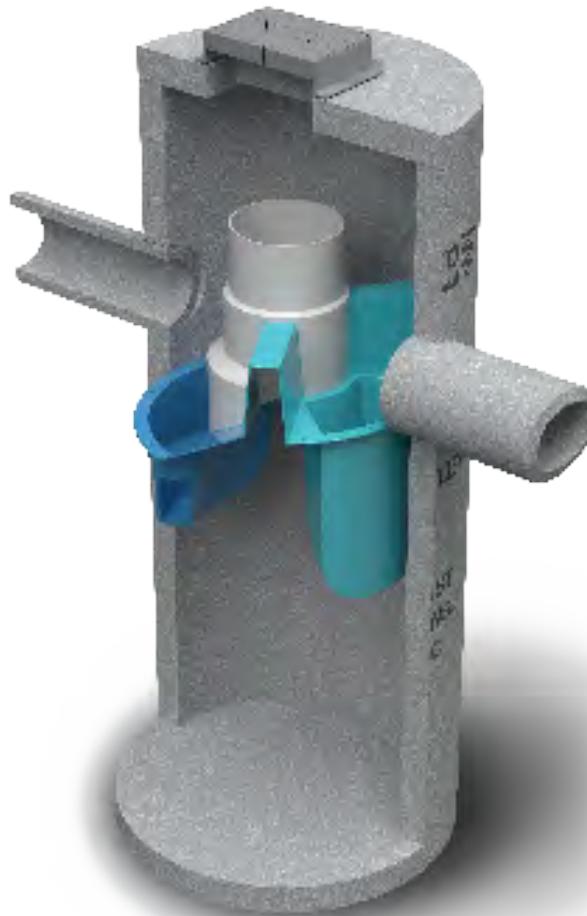
MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
Good condition		
No evidence of erosion		
6. Outlet/Overflow Spillway (Annual)		
Good condition, no need for repair		
No evidence of erosion		
7. Aggregate Repairs (Annual)		
Surface of aggregate clean		
Top layer of stone does not need replacement		
Trench does not need rehabilitation		

Comments:

Actions to be Taken:

APPENDIX G

Hydrodynamic Separator Sizing and Maintenance



Operation and Maintenance Manual

First Defense® High Capacity and First Defense® Optimum

Vortex Separator for Stormwater Treatment

Table of Contents

3	FIRST DEFENSE® BY HYDRO INTERNATIONAL - INTRODUCTION - OPERATION - POLLUTANT CAPTURE AND RETENTION
4	MODEL SIZES & CONFIGURATIONS - FIRST DEFENSE® COMPONENTS
5	MAINTENANCE - OVERVIEW - MAINTENANCE EQUIPMENT CONSIDERATIONS - DETERMINING YOUR MAINTENANCE SCHEDULE
6	MAINTENANCE PROCEDURES - INSPECTION - FLOATABLES AND SEDIMENT CLEAN OUT
8	FIRST DEFENSE® INSTALLATION LOG
9	FIRST DEFENSE® INSPECTION AND MAINTENANCE LOG

COPYRIGHT STATEMENT: The contents of this manual, including the graphics contained herein, are intended for the use of the recipient to whom the document and all associated information are directed. Hydro International plc owns the copyright of this document, which is supplied in confidence. It must not be used for any purpose other than that for which it is supplied and must not be reproduced, in whole or in part stored in a retrieval system or transmitted in any form or by any means without prior permission in writing from Hydro International plc. First Defense® is a trademarked hydrodynamic vortex separation device of Hydro International plc. A patent covering the First Defense® has been granted.

DISCLAIMER: Information and data contained in this manual is exclusively for the purpose of assisting in the operation and maintenance of Hydro International plc's First Defense®. No warranty is given nor can liability be accepted for use of this information for any other purpose. Hydro International plc has a policy of continuous product development and reserves the right to amend specifications without notice.

I. First Defense® by Hydro International

Introduction

The First Defense® is an enhanced vortex separator that combines an effective and economical stormwater treatment chamber with an integral peak flow bypass. It efficiently removes total suspended solids (TSS), trash and hydrocarbons from stormwater runoff without washing out previously captured pollutants. The First Defense® is available in several model configurations to accommodate a wide range of pipe sizes, peak flows and depth constraints.

The two product models described in this guide are the First Defense® High Capacity and the First Defense® Optimum; they are inspected and maintained identically.

Operation

The First Defense® operates on simple fluid hydraulics. It is self-activating, has no moving parts, no external power requirement and is fabricated with durable non-corrosive components. No manual procedures are required to operate the unit and maintenance is limited to monitoring accumulations of stored pollutants and periodic clean-outs. The First Defense® has been designed to allow for easy and safe access for inspection, monitoring and clean-out procedures. Neither entry into the unit nor removal of the internal components is necessary for maintenance, thus safety concerns related to confined-space-entry are avoided.

Pollutant Capture and Retention

The internal components of the First Defense® have been designed to optimize pollutant capture. Sediment is captured and retained in the base of the unit, while oil and floatables are stored on the water surface in the inner volume (Fig.1).

The pollutant storage volumes are isolated from the built-in bypass chamber to prevent washout during high-flow storm events. The sump of the First Defense® retains a standing water level between storm events. This ensures a quiescent flow regime at the onset of a storm, preventing resuspension and washout of pollutants captured during previous events.

Accessories such as oil absorbent pads are available for enhanced oil removal and storage. Due to the separation of the oil and floatable storage volume from the outlet, the potential for washout of stored pollutants between clean-outs is minimized.

Applications

- Stormwater treatment at the point of entry into the drainage line
- Sites constrained by space, topography or drainage profiles with limited slope and depth of cover
- Retrofit installations where stormwater treatment is placed on or tied into an existing storm drain line
- Pretreatment for filters, infiltration and storage

Advantages

- Inlet options include surface grate or multiple inlet pipes
- Integral high capacity bypass conveys large peak flows without the need for "offline" arrangements using separate junction manholes
- Long flow path through the device ensures a long residence time within the treatment chamber, enhancing pollutant settling
- Delivered to site pre-assembled and ready for installation

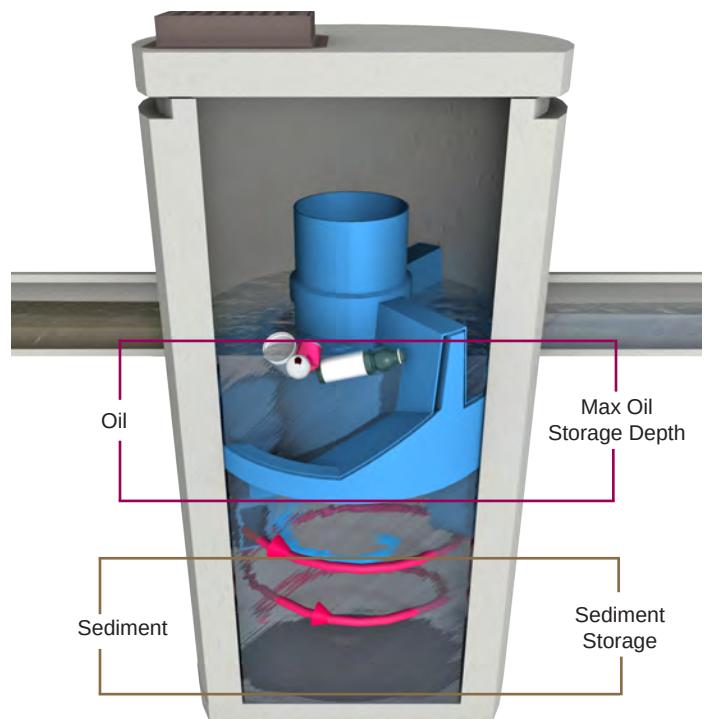


Fig.1 Pollutant storage volumes in the First Defense®.

II. Model Sizes & Configurations

The First Defense® inlet and internal bypass arrangements are available in several model sizes and configurations. The components have modified geometries allowing greater design flexibility to accommodate various site constraints.

All First Defense® models include the internal components that are designed to remove and retain total suspended solids (TSS), gross solids, floatable trash and hydrocarbons (Fig.2). First Defense® model sizes (diameter) are shown in Table 1.

III. Maintenance

First Defense® Components

1. Built-In Bypass

2. Inlet Pipe

3. Inlet Chute
4. Floatables Draw-off Port

5. Outlet Pipe

6. Floatables Storage
7. Sediment Storage

8. Inlet Grate or Cover

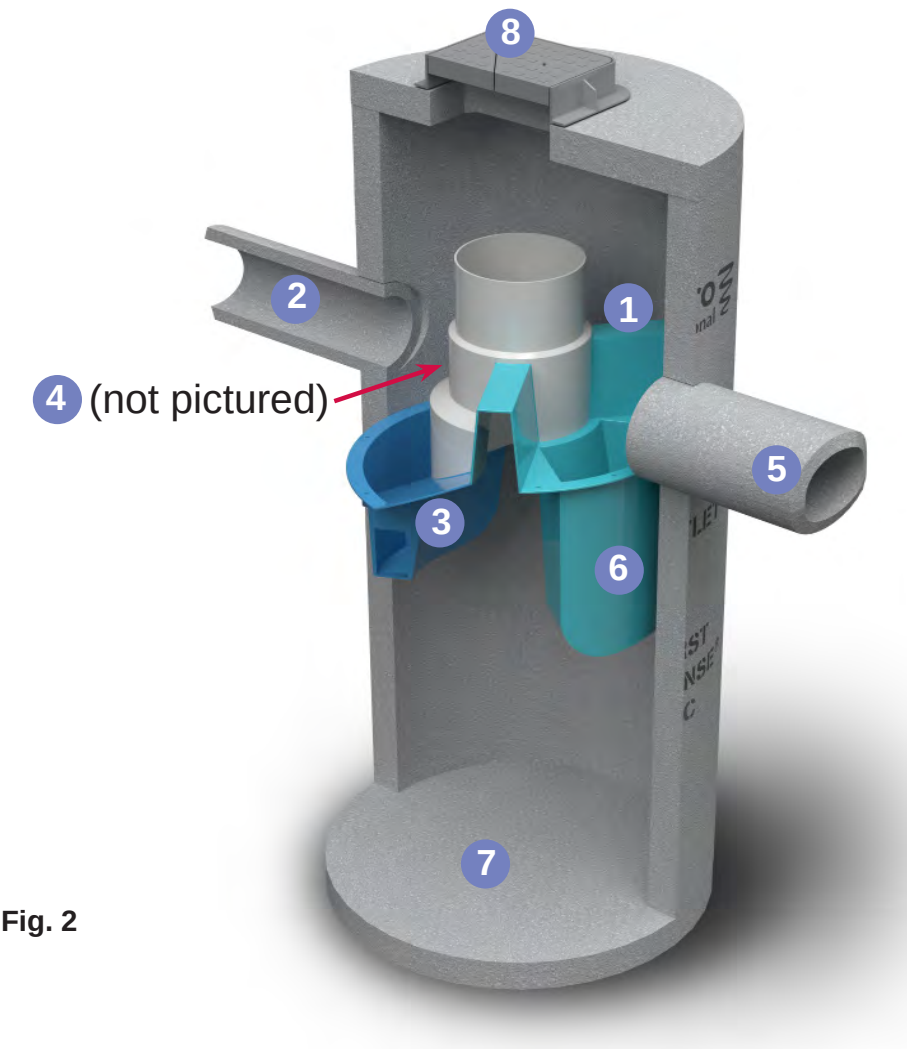


Fig. 2

Table 1

First Defense® Model Sizes	
(ft / m) diameter	
3	0.9
4	1.2
5	1.5
6	1.8
7	2.1
8	2.4
10	3.0

Overview

The First Defense® protects the environment by removing a wide range of pollutants from stormwater runoff. Periodic removal of these captured pollutants is essential to the continuous, long-term functioning of the First Defense®. The First Defense® will capture and retain sediment and oil until the sediment and oil storage volumes are full to capacity. When sediment and oil storage capacities are reached, the First Defense® will no longer be able to store removed sediment and oil.

The First Defense® allows for easy and safe inspection, monitoring and clean-out procedures. A commercially or municipally owned sump-vac is used to remove captured sediment and floatables. Access ports are located in the top of the manhole.

Maintenance events may include Inspection, Oil & Floatables Removal, and Sediment Removal. Maintenance events do not require entry into the First Defense®, nor do they require the internal components of the First Defense® to be removed. In the case of inspection and floatables removal, a vactor truck is not required. However, a vactor truck is required if the maintenance event is to include oil removal and/or sediment removal.

Maintenance Equipment Considerations

The internal components of the First Defense® have a centrally located circular shaft through which the sediment storage sump can be accessed with a sump vac hose. The open diameter of this access shaft is 15 inches in diameter (Fig.3). Therefore, the nozzle fitting of any vactor hose used for maintenance should be less than 15 inches in diameter.

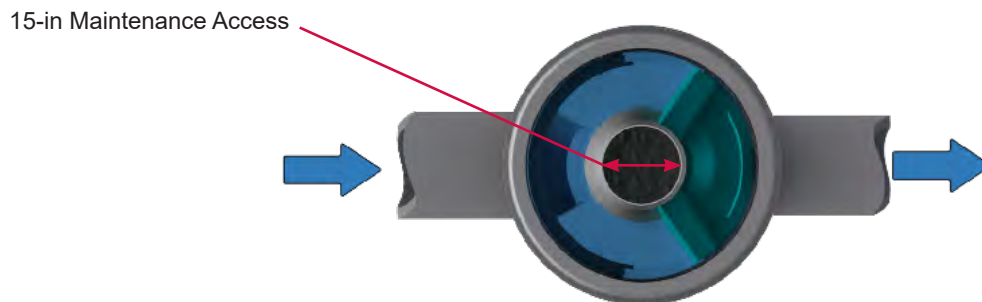


Fig.3 The central opening to the sump of the First Defense® is 15 inches in diameter.

Determining Your Maintenance Schedule

The frequency of clean out is determined in the field after installation. During the first year of operation, the unit should be inspected every six months to determine the rate of sediment and floatables accumulation. A simple probe such as a Sludge-Judge® can be used to determine the level of accumulated solids stored in the sump. This information can be recorded in the maintenance log (see page 9) to establish a routine maintenance schedule.

The vactor procedure, including both sediment and oil / floatables removal, for First Defense® typically takes less than 30 minutes and removes a combined water/oil volume of about 765 gallons.

Inspection Procedures

1. Set up any necessary safety equipment around the access port or grate of the First Defense® as stipulated by local ordinances. Safety equipment should notify passing pedestrian and road traffic that work is being done.
2. Remove the grate or lid to the manhole.
3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities. Fig.4 shows the standing water level that should be observed.
4. Without entering the vessel, use the pole with the skimmer net to remove floatables and loose debris from the components and water surface.
5. Using a sediment probe such as a Sludge Judge®, measure the depth of sediment that has collected in the sump of the vessel.
6. On the Maintenance Log (see page 9), record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components or blockages.
7. Securely replace the grate or lid.
8. Take down safety equipment.
9. Notify Hydro International of any irregularities noted during inspection.

Floatables and Sediment Clean Out

Floatables clean out is typically done in conjunction with sediment removal. A commercially or municipally owned sump-vac is used to remove captured sediment and floatables (Fig.4).

Floatables and loose debris can also be netted with a skimmer and pole. The access port located at the top of the manhole provides unobstructed access for a vactor hose to be lowered to the base of the sump.

Scheduling

- Floatables and sump clean out are typically conducted once a year during any season.
- Floatables and sump clean out should occur as soon as possible following a spill in the contributing drainage area.



Fig.4 Floatables are removed with a vactor hose

Recommended Equipment

- Safety Equipment (traffic cones, etc)
- Crow bar or other tool to remove grate or lid
- Pole with skimmer or net (if only floatables are being removed)
- Sediment probe (such as a Sludge Judge®)
- Vactor truck (flexible hose recommended)
- First Defense® Maintenance Log

Floatables and Sediment Clean Out Procedures

1. Set up any necessary safety equipment around the access port or grate of the First Defense® as stipulated by local ordinances. Safety equipment should notify passing pedestrian and road traffic that work is being done.
2. Remove the grate or lid to the manhole.
3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities.
4. Remove oil and floatables stored on the surface of the water with the vactor hose or with the skimmer or net
5. Using a sediment probe such as a Sludge Judge®, measure the depth of sediment that has collected in the sump of the vessel and record it in the Maintenance Log (page 9).
6. Once all floatables have been removed, drop the vactor hose to the base of the sump. Vactor out the sediment and gross debris off the sump floor
7. Retract the vactor hose from the vessel.
8. On the Maintenance Log provided by Hydro International, record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components, blockages, or irregularly high or low water levels.
9. Securely replace the grate or lid.

Maintenance at a Glance

Inspection	- Regularly during first year of installation - Every 6 months after the first year of installation
Oil and Floatables Removal	- Once per year, with sediment removal - Following a spill in the drainage area
Sediment Removal	- Once per year or as needed - Following a spill in the drainage area

NOTE: For most clean outs the entire volume of liquid does not need to be removed from the manhole. Only remove the first few inches of oils and floatables from the water surface to reduce the total volume of liquid removed during a clean out.



First Defense® Installation Log

HYDRO INTERNATIONAL REFERENCE NUMBER:	
SITE NAME:	
SITE LOCATION:	
OWNER:	CONTRACTOR:
CONTACT NAME:	CONTACT NAME:
COMPANY NAME:	COMPANY NAME:
ADDRESS:	ADDRESS:
TELEPHONE:	TELEPHONE:
FAX:	FAX:

INSTALLATION DATE: / /

MODEL SIZE (CIRCLE ONE): [3-FT] [4-FT] [5-FT] [6-FT] [7-FT] [8-FT] [10-FT]

INLET (CIRCLE ALL THAT APPLY): GRATED INLET (CATCH BASIN) INLET PIPE (FLOW THROUGH)

First Defense® Inspection and Maintenance Log

[illegible]

Stormwater Solutions

94 Hutchins Drive
Portland, ME 04102

Tel: (207) 756-6200

Fax: (207) 756-6212

stormwaterinquiry@hydro-int.com

www.hydro-int.com

NJCAT TECHNOLOGY VERIFICATION

First Defense[®] HC Stormwater Treatment Device

Hydro International

February 2016

(Revised Tables A-1 and A-2 May 2021)

TABLE OF CONTENTS

List of Figures	ii
List of Tables	iii
1. Description of Technology.....	1
2. Laboratory Testing.....	2
2.1 Test Unit.....	2
2.2 Test Setup.....	4
2.3 Test Sediment.....	7
2.4 Removal Efficiency Testing Procedure.....	8
2.5 Scour Testing Procedure.....	9
3. Performance Claims.....	10
4. Supporting Documentation.....	11
4.1 Test Sediment PSD Analysis - Removal Efficiency Testing.....	11
4.2 Removal Efficiency Testing.....	13
4.3 Test Sediment PSD Analysis - Scour Testing.....	29
4.4 Scour Testing for Online Installation.....	31
5. Design Limitations.....	32
6. Maintenance Plans.....	36
7. Statements.....	37
8. References.....	43
Verification Appendix.....	44

List of Figures

	Page
Figure 1 First Defense HC.....	1
Figure 2 4-ft FDHC	3
Figure 3 Schematic Drawing and Photo of Sump Access Port	4
Figure 4 Sump Access Port sits Flush with Interior Manhole Wall.....	4
Figure 5 Laboratory Testing Arrangement.....	5
Figure 6 Effluent Sampling Location Situated above the Filter Box	6
Figure 7 Influent Feed Port for TSS Removal Efficiency Testing.....	6
Figure 8 False Bottom Positions used during FDHC Testing	7
Figure 9 Average Test Sediment PSD vs Protocol Specification	12
Figure 10 Scour Test Sediment PSD vs Protocol Specification.....	30
Figure 11 a) FDHC Online Application; b) FDHC Offline Application	34
Figure 12 FDHC Design Accommodates Various Inlet Pipe Configurations.....	35

List of Tables

	Page
Table 1 Particle Size Distribution Results of Test Sediment Samples	12
Table 2 Summary of 4-ft FDHC 25% MTFR Test	14
Table 3 4-ft FDHC 25% MTFR Test Calibration Results	14
Table 4 4-ft FDHC 25% MTFR Background and Effluent Measurements	15
Table 5 4-ft FDHC 25% MTFR Trial QA/QC Results	16
Table 6 Summary of 4-ft FDHC 50% MTFR Test	17
Table 7 4-ft FDHC 50% MTFR Test Calibration Results	17
Table 8 4-ft FDHC 50% MTFR Background and Effluent Measurements	18
Table 9 4-ft FDHC 50% MTFR Trial QA/QC Results	19
Table 10 Summary of 4-ft FDHC 75% MTFR Test	20
Table 11 4-ft FDHC 75% MTFR Test Calibration Results	20
Table 12 4-ft FDHC 75% MTFR Background and Effluent Measurements	21
Table 13 4-ft FDHC 75% MTFR Trial QA/QC Results	22
Table 14 Summary of 4-ft FDHC 100% MTFR Test	23
Table 15 4-ft FDHC 100% MTFR Test Calibration Results	23
Table 16 4-ft FDHC 100% MTFR Background and Effluent Measurements	24
Table 17 4-ft FDHC 100% MTFR Trial QA/QC Results	25
Table 18 Summary of 4-ft FDHC 125% MTFR Test	26
Table 19 4-ft FDHC 125% MTFR Test Calibration Results	26
Table 20 4-ft FDHC 125% MTFR Background and Effluent Measurements	27
Table 21 4-ft FDHC 125% MTFR Trial QA/QC Results	28
Table 22 Annualized Weighted TSS Removal of the 4-ft FDHC	29
Table 23 Scour Test Sediment Particle Size Distribution Comparison	30
Table 24 Flow and Background Concentrations for 4-ft FDHC Scour Testing	31
Table 25 Effluent Concentration Results for 4-ft FDHC Scour Test at 216% MTFR ...	32

Table 26	Pollutant Storage Capacities of the FDHC	36
Table A-1	MTFRs and Required Sediment Removal Intervals for FDHC Models.....	44
Table A-2	Standard Dimensions for FDHC Models.....	44

1. Description of Technology

The First Defense® HC (FDHC) is a vortex separator designed and supplied by Hydro International. The FDHC is installed as part of typical drainage network systems to capture particulate pollutants that have entered the system from surface runoff. The FDHC has patented flow-modifying internal components that create a swirling flow path within the treatment chamber, which serves to supplement gravitational settling forces with additional vortex forces for enhanced settling performance. The FDHC chamber is a precast concrete manhole. The internal components are rotationally molded high density polyethylene. The internal components include an internal bypass weir to divert peak flows over the treatment chamber to prevent captured particles from being resuspended and washed out (**Figure 1**).

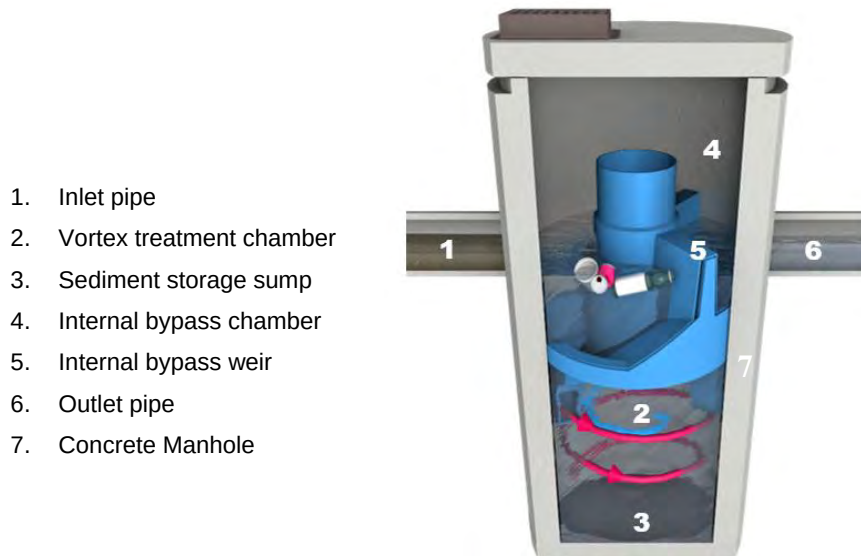


Figure 1 First Defense HC

Stormwater enters the FDHC through an inlet pipe and/or a surface grate. Hydrocarbons and other floatable solids rise to the surface where they are captured on the inlet side of the internal bypass weir. Stormwater is conveyed through a submerged inlet chute designed to initiate a spiraling flow path within the vortex treatment chamber. Suspended solids are captured in the sediment storage sump. Treated water exits the vortex treatment chamber via an outlet chute and exits the FDHC via an outlet pipe.

As many development sites in New Jersey require more than 50% TSS removal, the FDHC can be used as a pretreatment component in a treatment train when higher TSS removals are required and polishing BMPs such as infiltration or bio-infiltration are designed downstream.

2. Laboratory Testing

This testing was conducted to independently verify the FDHC such that it could be certified by the New Jersey Department of Environmental Protection (NJDEP) as a 50% Total Suspended Solids removal device.

The FDHC was tested to the “New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Hydrodynamic Sedimentation Manufactured Treatment Device” (NJDEP 2013). The testing was conducted in Portland, Maine at Hydro International’s hydraulics laboratory under the supervision of FB Environmental Associates, Inc., who served as the independent observer. FB Environmental is a Portland, Maine based environmental engineering consultancy with prior experience serving as the independent observer for several hydrodynamic separators previously tested to this protocol.

The particle size distribution of the removal efficiency test sediment samples were analyzed by the independent analytical laboratory GeoTesting Express in Acton, Massachusetts. The particle size distribution samples for the scour testing test sediment were analyzed at the Hydro International laboratory under the supervision of the independent observer. All water quality samples for both the removal efficiency testing and the washout testing were collected, labeled and sealed under the direct supervision of the independent observer from FB Environmental and analyzed by Maine Environmental Laboratory in Yarmouth, Maine.

2.1 Test Unit

The test unit was a 4-ft FDHC comprised of full scale, commercially available 4-ft FDHC internal components installed in a 4-ft round plastic manhole chamber consistent in all key dimensions with the precast chambers used for commercial sales (**Figure 2**). Both the inlet and outlet pipe diameters of the test model were 24 inches, which is the standard pipe size for a 4-ft FDHC.

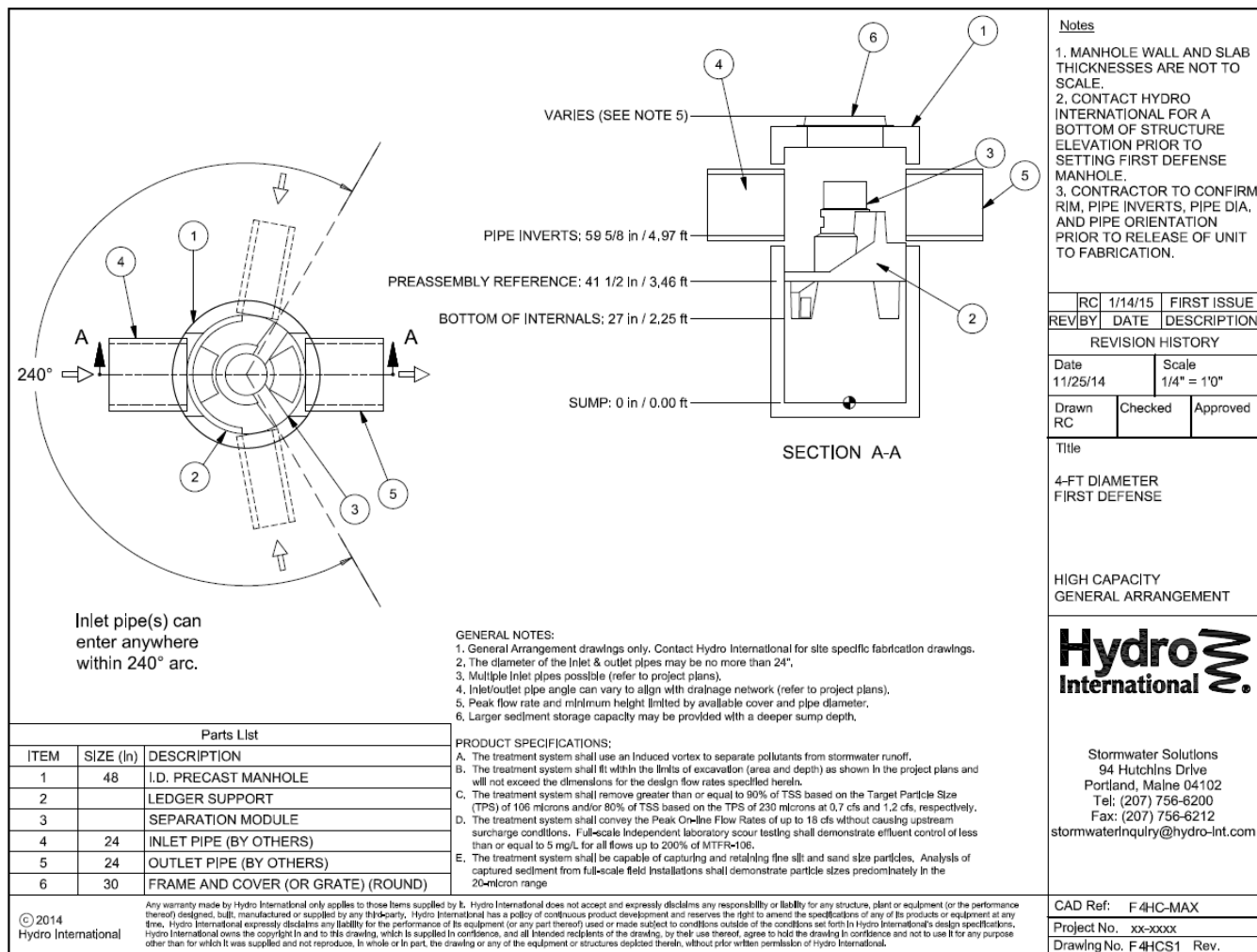


Figure 2 4-ft FDHC

The test vessel, unlike a commercial FDHC, had a rectangular access port located on the sump wall (**Figure 3a-b**). The access port eliminated the need for complete removal of the internal components and confined space entry into the FDHC to clean the unit between test events.

To ensure dimensional consistency with a commercial unit, the inside of the sump access port was fitted with an insert fabricated to be flush with the interior of the cylindrical manhole wall (**Figure 4**). Therefore the access port did not provide any additional sump storage capacity, did not alter the flow path within the vortex treatment chamber and ensured that the test vessel was dimensionally consistent to a standard commercial FDHC.

Prior to the beginning of the testing program, Hydro International laboratory technicians measured and recorded the key dimensions of the test vessel in the presence of the independent observer to ensure that the test unit assembly and test vessel dimensions were consistent with a commercial 4-ft FDHC.

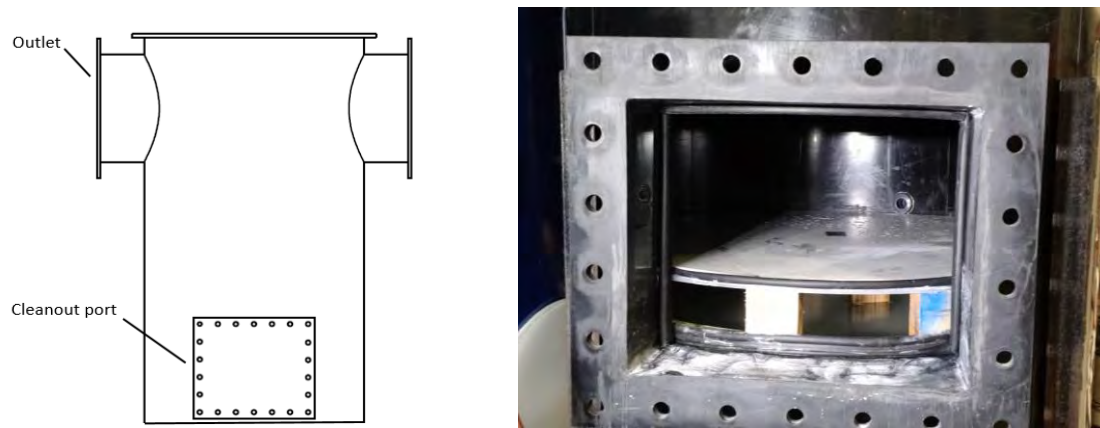


Figure 3 Schematic Drawing and Photo of Sump Access Port



Figure 4 Sump Access Port sits Flush with Interior Manhole Wall

2.2 Test Setup

The laboratory setup consisted of a recirculating closed loop system with an 8-inch submersible Flygt pump that conveyed water from a 23,000 gallon reservoir through a PVC pipe network to the 4-ft FDHC (**Figure 5**). The flow rate of the pump was controlled by a GE Fuji Electric AF-300 P11 Adjustable Frequency Drive and measured by an EMCO Flow Systems 4411e Electromagnetic Flow Transmitter.

The water temperature within the reservoir was regulated by a Hayward 350FD pool heater, which was used to reduce the possibility of volatility in the test data that could potentially be caused by variability in water temperatures between test runs. The night before a test run, the heater was set to 80°F. In the morning, the heater was turned off at least one hour before testing began. The heater then remained off throughout the entire duration of each test run. The Hayward 350FD assembly includes a small recirculation pump that causes a gentle current in the reservoir, which could potentially cause high background concentration readings during testing by carrying sediment discharged during a test run back to the main reservoir feed pump more

quickly. Turning the heater off allowed any water movement in the reservoir to stop before the beginning of testing. The test reservoir temperature was recorded at 30 second intervals by a Lascar thermometer and temperature logger over the duration of each test.

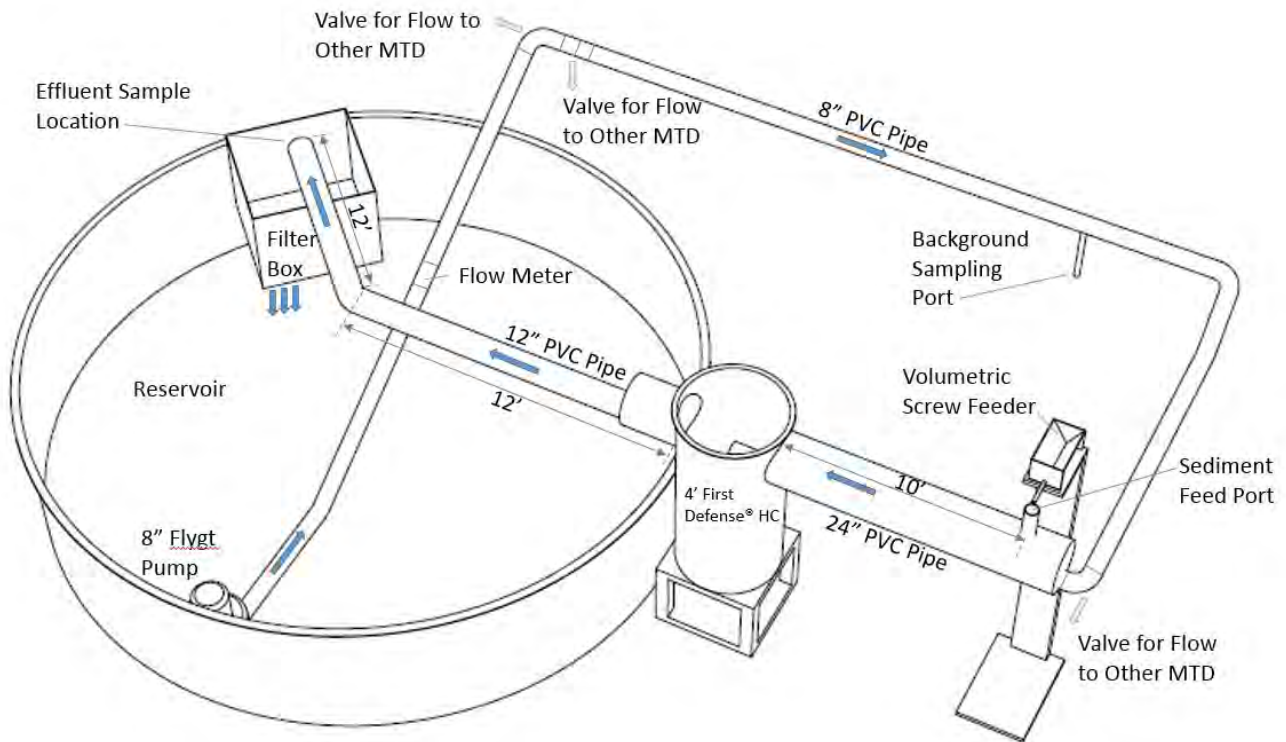


Figure 5 Laboratory Testing Arrangement

Three flow isolation valves were located between the Flygt pump and the FDHC, which would allow flow to bypass the FDHC if fully opened. These valves were installed as part of the piping network to direct flow to three other manufactured stormwater and wastewater treatment systems installed at the test facility along the same piping network, and were fully closed throughout the entire period when the FDHC testing was conducted.

A background sampling port was installed about 27 feet upstream of the FDHC. The FDHC effluent discharged freely from the effluent pipework, where grab samples were taken. The free discharge flowed through a filter box fitted with 1 micron filter socks in order to remove the majority of fine sediment that remained in the flow stream (**Figure 6**). The filter box was located on the opposite side of the reservoir as the submersible pump in order to keep the background concentration from surpassing the maximum allowable limit over the duration of the removal efficiency tests.



Figure 6 Effluent Sampling Location Situated above the Filter Box

Total Suspended Solids Removal Efficiency Laboratory Test Setup

For the removal efficiency test runs, test sediment was introduced into the flow at a consistent, calibrated rate by an Auger Feeder Model VF-2 volumetric screw feeder situated atop a 4-inch port in the 2 foot diameter inlet pipe located 10 feet upstream of the FDHC test unit. The location of the port is shown in **Figure 7**.



Figure 7 Influent Feed Port for TSS Removal Efficiency Testing

The FDHC sump measures 18 inches in height from the bottom of the sump. In line with the

protocol requirements, it was fitted with a false bottom positioned 9 inches from the true sump bottom to simulate a 50% full condition (**Figure 8**). It was secured to the chamber and sealed around the edges to prevent any material from collecting below.

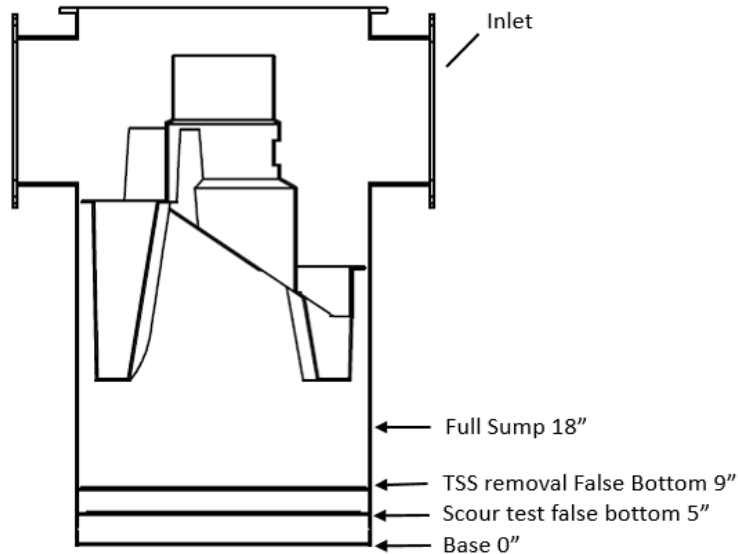


Figure 8 False Bottom Positions used during FDHC Testing

Scour Test Laboratory Setup

To simulate the 50% full condition for the scour test, the false bottom was set 5 inches above the sump floor (**Figure 8**) and 4 inches of the scour test sediment blend was pre-loaded on top of the false bottom, bringing the level of sump contents to 9 inches from the sump bottom.

2.3 Test Sediment

Test Sediment Feed for Suspended Solids Removal Efficiency Testing

The test sediment used for the Suspended Solids Removal Efficiency Testing was an in-house blend of high purity silica (SiO_2 99.8%) supplied by AGSCO Corporation and U.S. Silica, Inc., both commercial silica suppliers. Prior to the start of the removal efficiency testing, a total of five batches of test sediment were blended by Hydro International. Three sediment samples and one spare sample approximately 400 mL in volume were composited from 80 mL subsamples collected from each of the 5 batches under the supervision of the independent observer. The 4 samples were sealed, signed and packaged for independent transport to the outside laboratory under the supervision of the independent observer. After the samples were taken, the 5 batches were sealed and set aside until use. The independent laboratory, GeoTesting Express, analyzed the particle size distribution of each of the 3 samples and the spare sample using ASTM D 422-63. The particle size distributions of each of the 3 samples were averaged and reported as the overall particle size distribution. The particle size distribution of the spare sample was found to meet the protocol specification, however it was not included in the reported average particle size

distribution (PSD) because the protocol specifically states that three samples shall be analyzed and averaged.

Scour Test Sediment

The test sediment used for the Scour Testing was high purity (99.8% SiO₂) silica blended by AGSCO Corporation, an independent commercial silica supplier, to meet the specified particle size distribution of the protocol. The scour test sediment was delivered to Hydro International prepackaged, in sealed 50-lb bags. Under observation of the independent observer, three 250 mL subsamples were taken from randomly selected areas of the sump. The subsamples were then sealed and signed under observation of the independent observer and analyzed at the Hydro International laboratory for PSD analysis under the observation of the independent observer at a later date. The reported PSD is the average of the three subsample particle size distributions.

2.4 Removal Efficiency Testing Procedure

Removal efficiency testing was conducted in accordance with Section 5 of the NJDEP Laboratory Protocol for HDS MTDs. A total of five flow rates were tested: the 25%, 50%, 75%, 100% and 125% Maximum Treatment Flow Rate (MTFR). FB Environmental acted as the independent observer for the duration of all testing and water quality sample collection, sealing and packaging for transportation to the independent laboratory. Captured sediment was removed from the sump between each flow rate trial.

The test sediment mass was fed into the flow stream at a known rate using a screw auger with a calibrated funnel. Sediment was introduced at a rate within 10% of the targeted value of 200 mg/L influent concentration throughout the duration of the testing.

Six calibration samples were taken from the injection point. The calibration samples were timed at evenly spaced intervals over the total duration of the test for each tested flow rate and timed such that no collection interval would exceed 1 minute in duration. Each calibration sample was a minimum of 100 mL collected in a clean 1-liter container over an interval timed to the nearest second. These samples were weighed to the nearest milligram. The average influent TSS concentration was calculated using the total mass of the test sediment added during dosing divided by the volume of water that flowed through the MTD during dosing (**Equation 1**). The mass extracted for calibration samples was subtracted from the total mass introduced to the system when removal efficiency was subsequently calculated. The volume of water that flows through the MTD was calculated by multiplying the average flow rate by the time of sediment injection only.

$$\text{Average Influent Concentration} = \frac{\text{Total mass added}}{\text{Total volume of water flowing through the MTD during addition of test sediment}}$$

Equation 1 Calculation for Average Influent Concentration

During each flow rate test, the flow meter data logger recorded flow rate at a minimum of once per minute. The Effluent Grab Sampling Method was used as per Section 5D of the protocol. Once a constant rate of flow and test sediment feed were established, a minimum of three MTD detention times passed before the first effluent sample was collected. All effluent samples were collected in clean half-liter bottles using a sweeping grab sampling motion through the effluent discharge as described in Section 5D of the protocol. Samples were then time stamped and placed into a box for transportation to the analytical laboratory.

The time interval between sequential samples was evenly spaced during the test sediment feed period to obtain 15 samples for each flow rate. The water temperature was recorded at 30 second intervals to ensure that it did not exceed 80 degrees Fahrenheit at any time.

Background samples were taken at the background sample port located upstream of the FDHC test setup. Influent background samples were taken at the same time as odd numbered effluent grab samples (first, third, fifth, etc.). The collection time for each background and effluent sample was recorded. Each collected sample was time stamped, sealed and signed by the independent observer.

At the conclusion of the test all of the collected effluent and background water quality samples were placed into a delivery box, the box was sealed and the seal was signed by the independent observer. All samples were analyzed by Maine Environmental Laboratory in accordance with ASTM D3977-97 (re-approval 2007) “Standard Test Methods for Determining Sediment Concentrations in Water Samples”.

The background data were plotted on a curve for use in adjusting the effluent samples for background concentration. The FDHC removal efficiency for each tested flow rate was calculated as per **Equation 2**.

$$\text{Removal Efficiency (\%)} = \frac{\left(\text{Average Influent Concentration} - \frac{\text{Adjusted Average Effluent* Concentration}}{\text{Average Influent Concentration}} \right)}{\text{Average Influent Concentration}} \times 100$$

* Adjusted for background concentration

Equation 2 Equation for Calculating Removal Efficiency

2.5 Scour Testing Procedure

To simulate a 50% full sump condition, the FDHC sump false bottom was set to a height of 5 inches and then topped with 4 inches of scour test sediment. The sediment was leveled, then the FDHC was filled with clear water at a slow rate as to not disturb the sediment prior to the beginning of testing. In line with the protocol, scour testing was begun less than 96 hours after the sump was pre-loaded with test sediment. All setup measurements, testing and sample collection procedures were observed by the independent observer.

Scour testing began by slowly introducing flow and, in less than 5 minutes, ramping up the flow rate until it reached >200% of the MTFR. The flow rate was recorded at a minimum of once per minute so that the effluent samples could be compared to corresponding flow rates. The flow rate remained constant at the target maximum flow rate for the remainder of the test duration.

Effluent samples were collected and time stamped every 2 minutes after the target flow rate was reached. A minimum of 15 effluent samples were taken over the duration of the test. The effluent samples were collected in half liter bottles using the grab sampling method as described in Section 5D of the protocol. Temperature readings of the test water were recorded every 30 seconds to ensure it did not exceed 80 degrees Fahrenheit at any point during the test.

Eight background samples were collected at evenly spaced intervals throughout the duration of the target maximum flow rate testing. The background samples were drawn from the background sample port located upstream of the FDHC.

At the conclusion of the test all of the collected effluent and background water quality samples were placed into a delivery box, the box was sealed and the seal was signed by the independent observer. All samples were analyzed by Maine Environmental Laboratory in accordance with ASTM D3977-97 (re-approval 2007) “Standard Test Methods for Determining Sediment Concentrations in Water Samples”.

3. Performance Claims

In line with the NJDEP verification procedure, FDHC performance claims are outlined below.

Total Suspended Solids Removal Rate

The TSS removal rate of the FDHC is dependent upon flow rate, particle density and particle size. For the particle size distribution and weighted calculation method required by the NJDEP HDS MTD protocol, the 4-ft FDHC at a MTFR of 1.50 cfs will demonstrate at least 50% TSS removal efficiency.

Maximum Treatment Flow Rate

The MTFR for the 4-ft FDHC was demonstrated to be 673 gpm (1.50 cfs), which corresponds to a surface loading rate of 53.6 gpm/sf.

Sediment Storage Depth and Volume

The maximum sediment storage depth of the FDHC is 18 inches. Available sediment storage volume varies with each FDHC model, as FDHC model dimensions increase in diameter. The available sump volume for a 4-ft FDHC model is 0.70 cubic yards. The maximum sediment storage depth is 9 inches, which corresponds to a 50% full sump capacity (or 0.35 cubic yards) for the standard model. Refer to **Table A-2** in the Verification Appendix for the 50% sump full capacities for other FDHC model sizes.

Effective Treatment Area and Effective Sedimentation Area

The effective treatment and sedimentation area of the FDHC model varies with model size, as it corresponds to the surface area of the FDHC model diameter. The tested 4-ft FDHC model has a treatment surface area of 12.56 square feet.

Detention Time and Volume

The detention time of the FDHC depends on flow rate and model size. The detention time is calculated by dividing the treatment volume by the flow rate. The treatment volume is defined as the volume between the pipe invert and the top of the sediment storage zone. For the tested 4-ft FDHC model at the MTR of 1.50 cfs, the detention time is 29 seconds.

Online or Offline Installation

Based on the results of the Scour Testing shown in Section 4.4, the FDHC qualifies for online installation.

4. Supporting Documentation

The NJDEP Procedure (NJDEP, 2013a) for obtaining verification of a stormwater manufactured treatment device (MTD) from the New Jersey Corporation for Advanced Technology (NJCAT) requires that “copies of the laboratory test reports, including all collected and measured data; all data from performance evaluation test runs; spreadsheets containing original data from all performance test runs; all pertinent calculations; etc.” be included in this section. This was discussed with NJDEP and it was agreed that as long as such documentation could be made available by NJCAT upon request that it would not be prudent or necessary to include all this information in this verification report.

4.1 Test Sediment PSD Analysis – Removal Efficiency Testing

Hydro International purchased two different grades of high purity silica (SiO_2 99.8%) supplied by two different commercial silica suppliers. These silica blends were mixed together at the proportions required to generate a test sediment that complied with the particle size distribution requirements specified in the NJDEP HDS MTD protocol.

Prior to the start of removal efficiency testing trials conducted in November 2015, 5 batches of test sediment were blended by Hydro International. Three composite sediment samples and one spare sample approximately 400 mL in volume were blended using 80 mL of sediment collected from 6 subsamples drawn from each of the 5 batches under the supervision of the independent observer. The samples were also sealed and packaged for independent transport to the outside laboratory under the supervision of the independent observer. The independent laboratory GeoTesting Express analyzed the particle size distribution of each sample using ASTM D 422-63. The test sediment was found to be slightly finer than the protocol specified sediment blend. The results and the comparison to the protocol specification are shown in **Table 1** and **Figure 9**.

Table 1 - Particle Size Distribution Results of Test Sediment Samples

Particle Size	% Finer					Difference from Protocol %
µm	Protocol	Sample 1	Sample 2	Sample 3	Test Sediment Average	
1000	100	100.0	100.0	100.0	100.0	0.0
500	95	96.0	96.0	96.0	96.0	-1.0
250	90	90.0	90.0	90.0	90.0	0.0
150	75	80.0	80.0	80.0	80.0	-5.0
100	60	61.1	61.9	60.4	61.1	-1.1
75	50	54.0	54.0	54.0	54.0	-4.0
50	45	49.5	49.1	49.4	49.3	-4.3
20	35	39.1	37.8	37.9	38.3	-3.3
8	20	23.2	22.8	22.2	22.7	-2.7
5	10	15.3	15.9	15.1	15.4	-5.4
2	5	5.5	6.5	5.5	5.8	-0.8

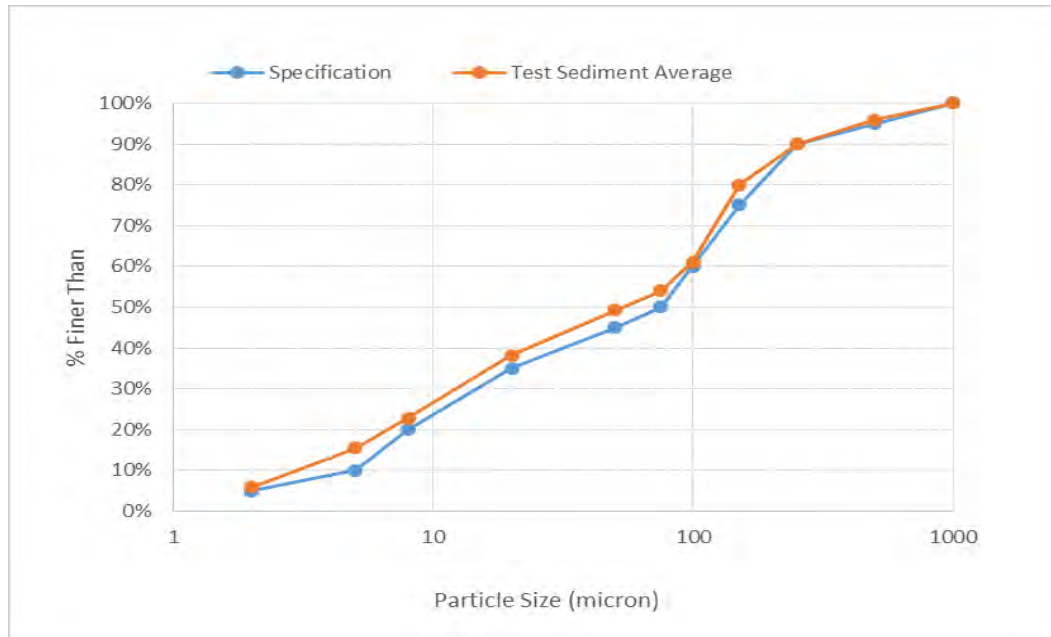


Figure 9 Average Test Sediment PSD vs Protocol Specification

4.2 Removal Efficiency Testing

In accordance with the NJDEP HDS Protocol, removal efficiency testing was executed on the First Defense® HC 4-ft. unit in order to establish the ability of the FDHC to remove the specified test sediment at 25%, 50%, 75%, 100% and 125% of the target MTFR. The target MTFR was 673 gpm (1.50 cfs). This target was chosen based on the ultimate goal of demonstrating greater than 50% annualized weighted solids removal as defined in the Protocol.

All results reported in this section were derived from test runs that fully complied with the terms of the protocol. None of the collection intervals of the calibration samples exceeded one minute in duration for any of the reported tests. The inlet feed concentration coefficient of variance (COV) did not exceed 0.10 for any flow rate trials.

The mean influent concentration was calculated using Equation 1 from *Section 2.4 Removal Efficiency Test Procedure*. The mean effluent concentration was adjusted by subtracting the measured background concentrations. No background TSS concentrations exceeded the 20 mg/L maximum allowed by the protocol. At no point did the water temperature exceed 80 °F.

25% MTFR Results

The 25% MTFR test was conducted in accordance with the NJDEP HDS Protocol at a target flow rate of 0.38 cfs. A summary of test readings, measurements and calculations are shown in **Table 2**. Feed calibration results are shown in **Table 3**. Background and effluent sampling measurements are shown in **Table 4**.

The 4-ft FDHC removed 61.1% of the test sediment at a flow rate of 0.38 cfs. **Table 5** shows that the QA/QC results for flow rate, feed rate and influent and effluent background concentrations were within the allowable parameters specified by the protocol.

Table 2 - Summary of 4-ft FDHC 25% MTFR Test

Trial Date	Target Flow (cfs)/(gpm)	Detention Time (sec)	Target Sediment Concentration (mg/L)	Target Feed Rate (mg/min)	Test Duration (Min)
11/02/2015	0.38 /168.4	116	200	130,995	44:36
Measured Values					
Mean Flow Rate (cfs)/(gpm)	Mean Influent Concentration¹ (mg/L)	Max. Water Temperature °C / °F	Mean Adjusted Effluent Concentration (mg/L)	Average Removal Efficiency	QA/QC Compliance
0.38 /169.0	205.0	25.5 / 77.9	79.7	61.1%	YES

¹ The mean influent concentration reported is calculated by dividing the entire mass of test sediment injected into the flow stream over the duration of the test divided by the total flow during the injection of test sediment.

Table 3 - 4-ft FDHC 25% MTFR Test Calibration Results

Target Concentration	200 mg/L	Target Feed Rate		130,995 mg/min	
Sample ID	Sample Time (min)	Sample Mass (g)	Sample Duration (sec)	Feed Rate (mg/min)	Calculated Influent Concentration (mg/L)
Feed Rate 1	0:00	136.255	60	136,255	213
Feed Rate 2	8:42	128.774	60	128,774	201
Feed Rate 3	17:24	129.323	60	129,323	202
Feed Rate 4	26:06	130.640	60	130,640	204
Feed Rate 5	34:48	129.336	60	129,336	202
Feed Rate 6	43:29	135.498	60	135,498	212
			Mean	131,638	206

Table 4 – 4-ft FDHC 25% MTFR Background and Effluent Measurements

Sample ID	Time (min)	Concentration (mg/L)		
Background 1	7:42	2		
Background 2	8:42	2		
Background 3	16:54	2		
Background 4	25:06	6		
Background 5	26:06	7		
Background 6	34:18	8		
Background 7	42:29	12		
Background 8	43:29	12		
Sample ID	Time (min)	Concentration (mg/L)	Associated Background Concentration (mg/L)	Adjusted Concentration (mg/L)
Effluent 1	7:42	81	2	79
Effluent 2	8:12	81	2	79
Effluent 3	8:42	79	2	77
Effluent 4	16:24	80	2	78
Effluent 5	16:54	77	2	75
Effluent 6	17:24	80	4	76
Effluent 7	25:06	83	6	77
Effluent 8	25:36	83	6.5	77
Effluent 9	26:06	86	7	79
Effluent 10	33:48	90	7.5	83
Effluent 11	34:18	90	8	82
Effluent 12	34:48	89	10	79
Effluent 13	42:29	92	12	80
Effluent 14	42:59	98	12	86
Effluent 15	43:29	102	12	90
	Mean	86.1	6.3	79.7

Table 5 – 4-ft FDHC 25% MTFR Trial QA/QC Results

Flow Rate			
Target (cfs / gpm)	Mean (cfs / gpm)	Coef. Of Variance	Acceptable Parameters Coef. Of Variance
0.38 / 168.4	0.38 / 169.0	0.019	<0.03
Feed Rate			
Target (mg/min)	Mean (mg/min)	Coef. Of Variance	Acceptable Parameters Coef. Of Variance
130,995	131,638	0.025	<0.1
Influent Concentration			
Target (mg/L)	Mean (mg/L)	Coef. Of Variance	Acceptable Parameters Coef. Of Variance
200	205	0.025	<0.1
Background Concentration			
Low (mg/L)	High (mg/L)	Mean (mg/L)	Acceptable Threshold (mg/L)
2	12	6.3	<20

50% MTFR Results

The 4-ft FDHC 50% MTFR test was conducted in accordance with the NJDEP HDS protocol at a target flow rate of 0.75 cfs. The 50% MTFR test results are shown in **Table 6**. Calibration results are shown in **Table 7**. Background and effluent results are shown in **Table 8**.

The 4-ft FDHC removed 53.8% of the test sediment at a flow rate of 0.75 cfs. **Table 9** shows that the QA/QC results for flow rate, feed rate and influent and effluent background concentrations were within the allowable parameters specified by the protocol.

Table 6 – Summary of 4-ft FDHC 50% MTFR Test

Trial Date	Target Flow (cfs) / (gpm)	Detention Time (sec)	Target Sediment Concentration (mg/L)	Target Feed Rate (mg/min)	Test Duration (Min)
11/04/2015	0.75 / 336.8	58	200	261,990	24:56
Measured Values					
Mean Flow Rate (cfs) / (gpm)	Mean Influent Concentration¹ (mg/L)	Max. Water Temperature °C / °F	Mean Adjusted Effluent Concentration (mg/L)	Average Removal Efficiency	QA/QC Compliance
0.75 / 337.5	204.7	25.1 / 77.2	94.6	53.8%	YES

¹ The mean influent concentration reported is calculated by dividing the entire mass of test sediment injected into the flow stream over the duration of the test divided by the total flow during the injection of test sediment.

Table 7 – 4-ft FDHC 50% MTFR Test Calibration Results

Target Concentration	200 mg/L	Target Feed Rate		261,990 mg/min	
Sample ID	Sample Time (min)	Sample Mass (g)	Sample Duration (sec)	Feed Rate (mg/min)	Calculated Influent Concentration (mg/L)
Feed Rate 1	0:00	132.832	30	265,664	208
Feed Rate 2	4:51	135.837	30	271,674	213
Feed Rate 3	9:42	129.512	30	259,024	203
Feed Rate 4	14:33	134.162	30	268,324	210
Feed Rate 5	19:24	129.638	30	259,276	203
Feed Rate 6	24:15	129.169	30	258,338	202
			Mean	263,717	206

Table 8 – 4-ft FDHC 50% MTR Background and Effluent Measurements

Sample ID	Time (min)	Concentration (mg/L)		
Background 1	3:51	2		
Background 2	4:51	2		
Background 3	9:12	2		
Background 4	13:33	2		
Background 5	14:33	2		
Background 6	18:54	5		
Background 7	23:15	12		
Background 8	24:15	16		
Sample ID	Time (min)	Concentration (mg/L)	Associated Background Concentration (mg/L)	Adjusted Concentration (mg/L)
Effluent 1	3:51	90	2	88
Effluent 2	4:21	94	2	92
Effluent 3	4:51	99	2	97
Effluent 4	8:42	98	2	96
Effluent 5	9:12	100	2	98
Effluent 6	9:42	98	2	96
Effluent 7	13:33	95	2	93
Effluent 8	14:03	96	2	94
Effluent 9	14:33	95	2	93
Effluent 10	18:24	98	3.5	95
Effluent 11	18:54	103	5	98
Effluent 12	19:24	102	8.5	94
Effluent 13	23:15	106	12	94
Effluent 14	23:45	113	14	99
Effluent 15	24:15	108	16	92
	Mean	99.7	5.1	94.6

Table 9 – 4-ft FDHC 50% MTFR Trial QA/QC Results

Flow Rate			
Target (cfs / gpm)	Mean (cfs / gpm)	Coef. Of Variance	Acceptable Parameters Coef. Of Variance
0.75 / 336.8	0.75 / 337.5	0.008	<0.03
Feed Rate			
Target (mg/min)	Mean (mg/min)	Coef. Of Variance	Acceptable Parameters Coef. Of Variance
261,990	263,717	0.021	<0.1
Influent Concentration			
Target (mg/L)	Mean (mg/L)	Coef. Of Variance	Acceptable Parameters Coef. Of Variance
200	204.7	0.021	<0.1
Background Concentration			
Low (mg/L)	High (mg/L)	Mean (mg/L)	Acceptable Threshold (mg/L)
2	16	5.4	<20

75% MTFR Results

The 4-ft FDHC 75% MTFR test was conducted in accordance with the NJDEP HDS protocol at a target flow rate of 1.13 cfs (507 gpm). The 75% MTFR test results are shown in **Table 10**. Calibration results are shown in **Table 11**. Background and effluent results are shown in **Table 12**.

The 4-ft FDHC removed 51.3% of the test sediment at a flow rate of 1.13 cfs. **Table 13** shows that the QA/QC results for flow rate, feed rate and influent and effluent background concentrations were within the allowable parameters specified by the protocol.

Table 10 – Summary of 4-ft FDHC 75% MTFR Test

Trial Date	Target Flow (cfs) / (gpm)	Detention Time (sec)	Target Sediment Concentration (mg/L)	Target Feed Rate (mg/min)	Test Duration (Min)
11/06/2015	1.13 / 507.2	39	200	393,600	18:34
Measured Values					
Mean Flow Rate (cfs / gpm)	Mean Influent Concentration¹ (mg/L)	Max. Water Temperature °C / °F	Mean Adjusted Effluent Concentration (mg/L)	Average Removal Efficiency	QA/QC Compliance
1.13 / 507.5	191.7	24.9 / 76.8	93.3	51.3%	YES

¹ The mean influent concentration reported is calculated by dividing the entire mass of test sediment injected into the flow stream over the duration of the test divided by the total flow during the injection of test sediment.

Table 11 – 4-ft FDHC 75% MTFR Test Calibration Results

Target Concentration	200 mg/L	Target Feed Rate		393,600 mg/min	
Sample ID	Sample Time (min)	Sample Mass (g)	Sample Duration (sec)	Feed Rate (mg/min)	Calculated Influent Concentration (mg/L)
Feed Rate 1	0:00	132.141	20	396,423	206
Feed Rate 2	3:34	129.181	20	387,543	202
Feed Rate 3	7:08	127.602	20	382,806	199
Feed Rate 4	10:42	121.658	20	364,974	190
Feed Rate 5	14:16	122.327	20	366,981	191
Feed Rate 6	17:50	122.845	20	368,535	192
			Mean	377,877	197

Table 12 – 4-ft FDHC 75% MTFR Background and Effluent Measurements

Sample ID	Time (min)	Concentration (mg/L)		
Background 1	2:34	2		
Background 2	3:34	2		
Background 3	6:38	2		
Background 4	9:42	2		
Background 5	10:42	2		
Background 6	13:46	14		
Background 7	16:50	14		
Background 8	17:50	15		
Sample ID	Time (min)	Concentration (mg/L)	Associated Background Concentration (mg/L)	Adjusted Concentration (mg/L)
Effluent 1	2:34	87	2	85
Effluent 2	3:04	95	2	93
Effluent 3	3:34	96	2	94
Effluent 4	6:08	96	2	94
Effluent 5	6:38	98	2	96
Effluent 6	7:08	104	2	102
Effluent 7	9:42	99	2	97
Effluent 8	10:12	93	2	91
Effluent 9	10:42	100	2	98
Effluent 10	13:16	103	8	95
Effluent 11	13:46	98	14	84
Effluent 12	14:16	100	14	86
Effluent 13	16:50	102	14	88
Effluent 14	17:20	111	14.5	97
Effluent 15	17:50	115	15	100
	Mean	99.8	6.5	93.3

Table 13 – 4-ft FDHC 75% MTFR Trial QA/QC Results

Flow Rate			
Target (cfs / gpm)	Mean (cfs / gpm)	Coef. Of Variance	Acceptable Parameters Coef. Of Variance
1.13 / 507.2	1.13 / 507.5	0.006	<0.03
Feed Rate			
Target (mg/min)	Mean (mg/min)	Coef. Of Variance	Acceptable Parameters Coef. Of Variance
393,600	377,877	0.034	<0.1
Influent Concentration			
Target (mg/L)	Mean (mg/L)	Coef. Of Variance	Acceptable Parameters Coef. Of Variance
200	191.7	0.034	<0.1
Background Concentration			
Low (mg/L)	High (mg/L)	Mean (mg/L)	Acceptable Threshold (mg/L)
2	15	6.6	<20

100% MTFR Results

The 4-ft FDHC 100% MTFR test was conducted in accordance with the NJDEP HDS protocol at a target flow rate of 1.50 cfs (675 gpm). The 100% MTFR test results are shown in **Table 14**. Calibration results are shown in **Table 15**. Background and effluent results are shown in **Table 16**.

The 4-ft FDHC removed 46.0% of the test sediment at a flow rate of 1.50 cfs. **Table 17** shows that the QA/QC results for flow rate, feed rate and influent and effluent background concentrations were within the allowable parameters specified by the protocol.

Table 14 – Summary of 4-ft FDHC 100% MTFR Test

Trial Date	Target Flow (cfs) / (gpm)	Detention Time (sec)	Target Sediment Concentration (mg/L)	Target Feed Rate (mg/min)	Test Duration (Min)
11/10/2015	1.50 / 675.2	29	200	523,980	15:50
Measured Values					
Mean Flow Rate (cfs / gpm)	Mean Influent Concentration (mg/L)¹	Max. Water Temperature °C / °F	Mean Adjusted Effluent Concentration (mg/L)	Average Removal Efficiency	QA/QC Compliance
1.50 / 674.1	204.3	24.8 / 76.6	110.3	46.0%	YES

¹ The mean influent concentration reported is calculated by dividing the entire mass of test sediment injected into the flow stream over the duration of the test divided by the total flow during the injection of test sediment.

Table 15 – 4-ft FDHC 100% MTFR Test Calibration Results

Target Concentration	200 mg/L	Target Feed Rate		523,980 mg/min	
Sample ID	Sample Time (min)	Sample Mass (g)	Sample Duration (sec)	Feed Rate (mg/min)	Calculated Influent Concentration (mg/L)
Feed Rate 1	0:00	180.656	20	541,968	212
Feed Rate 2	3:00	180.055	20	540,165	212
Feed Rate 3	6:01	178.465	20	535,395	210
Feed Rate 4	9:01	175.592	20	526,776	206
Feed Rate 5	12:02	171.389	20	514,167	201
Feed Rate 6	15:02	167.750	20	503,250	197
			Mean	526,954	206

Table 16 – 4-ft FDHC 100% MTFR Background and Effluent Measurements

Sample ID	Time (min)	Concentration (mg/L)		
Background 1	2:00	4		
Background 2	3:00	2		
Background 3	5:31	2		
Background 4	8:01	2		
Background 5	9:01	2		
Background 6	11:32	6		
Background 7	14:02	12		
Background 8	15:02	15		
Sample ID	Time (min)	Concentration (mg/L)	Associated Background Concentration (mg/L)	Adjusted Concentration (mg/L)
Effluent 1	2:00	99	4	95
Effluent 2	2:30	107	3	104
Effluent 3	3:00	112	2	110
Effluent 4	5:01	111	2	109
Effluent 5	5:31	119	2	117
Effluent 6	6:01	116	2	114
Effluent 7	8:01	109	2	107
Effluent 8	8:31	114	2	112
Effluent 9	9:01	115	2	113
Effluent 10	11:02	119	4	115
Effluent 11	11:32	114	6	108
Effluent 12	12:02	123	9	114
Effluent 13	14:02	122	12	110
Effluent 14	14:32	132	13.5	119
Effluent 15	15:02	123	15	108
	Mean	115.7	5.4	110.3

Table 17 – 4-ft FDHC 100% MTFR Trial QA/QC Results

Flow Rate			
Target (cfs / gpm)	Mean (cfs / gpm)	Coef. Of Variance	Acceptable Parameters Coef. Of Variance
1.50 / 675.2	1.50 / 674.1	0.007	<0.03
Feed Rate			
Target (mg/min)	Mean (mg/min)	Coef. Of Variance	Acceptable Parameters Coef. Of Variance
523,980	526,954	0.03	<0.1
Influent Concentration			
Target (mg/L)	Mean (mg/L)	Coef. Of Variance	Acceptable Parameters Coef. Of Variance
200	204.3	0.03	<0.1
Background Concentration			
Low (mg/L)	High (mg/L)	Mean (mg/L)	Acceptable Threshold (mg/L)
2	15	5.6	<20

125% MTFR Results

The 4-ft FDHC 125% MTFR test was conducted in accordance with the NJDEP HDS protocol at a target flow rate of 1.88 cfs (842 gpm). The 125% MTFR test results are shown in **Table 18**. Calibration results are shown in **Table 19**. Background and effluent results are shown in **Table 20**.

The 4-ft FDHC removed 43.5% of the test sediment at a flow rate of 1.88 cfs. **Table 21** shows that the QA/QC results for flow rate, feed rate and influent and effluent background concentrations were within the allowable parameters specified by the protocol.

Table 18 – Summary of 4-ft FDHC 125% MTFR Test

Trial Date	Target Flow (cfs / gpm)	Detention Time (sec)	Target Sediment Concentration (mg/L)	Target Feed Rate (mg/min)	Test Duration (Min)
11/16/2015	1.88 / 842.0	23	200	634,499	13:59
Measured Values					
Mean Flow Rate (cfs / gpm)	Mean Influent Concentration¹ (mg/L)	Max. Water Temperature °C / °F	Mean Adjusted Effluent Concentration (mg/L)	Average Removal Efficiency	QA/QC Compliance
1.88 / 842.3	201.8	24.8 / 76.7	114.0	43.5%	YES

¹ The mean influent concentration reported is calculated by dividing the entire mass of test sediment injected into the flow stream over the duration of the test divided by the total flow during the injection of test sediment.

Table 19 – 4-ft FDHC 125% MTFR Test Calibration Results

Target Concentration	200 mg/L	Target Feed Rate		634,499 mg/min	
Sample ID	Sample Time (min)	Sample Mass (g)	Sample Duration (sec)	Feed Rate (mg/min)	Calculated Influent Concentration (mg/L)
Feed Rate 1	0:00	230.390	20	691,170	217
Feed Rate 2	2:40	221.852	20	665,556	209
Feed Rate 3	5:21	224.366	20	673,098	211
Feed Rate 4	8:01	218.425	20	655,275	206
Feed Rate 5	10:42	210.833	20	632,499	198
Feed Rate 6	13:22	204.864	20	614,592	193
			Mean	655,365	206

Table 20 – 4-ft FDHC 125% MTFR Background and Effluent Measurements

Sample ID	Time (min)	Concentration (mg/L)		
Background 1	1:40	2		
Background 2	2:40	2		
Background 3	4:51	2		
Background 4	7:01	2		
Background 5	8:01	2		
Background 6	10:12	5		
Background 7	12:22	11		
Background 8	13:22	11		
Sample ID	Time (min)	Concentration (mg/L)	Associated Background Concentration (mg/L)	Adjusted Concentration (mg/L)
Effluent 1	1:40	110	2	108
Effluent 2	2:10	121	2	119
Effluent 3	2:40	108	2	106
Effluent 4	4:21	128	2	126
Effluent 5	4:51	119	2	117
Effluent 6	5:21	119	2	117
Effluent 7	7:01	114	2	112
Effluent 8	7:31	115	2	113
Effluent 9	8:01	115	2	113
Effluent 10	9:42	119	3.5	116
Effluent 11	10:12	119	5	114
Effluent 12	10:42	114	8	106
Effluent 13	12:22	122	11	111
Effluent 14	12:52	124	11	113
Effluent 15	13:22	130	11	119
	Mean	118.5	4.5	114.0

Table 21 – 4-ft FDHC 125% MTR Trial QA/QC Results

Flow Rate			
Target (cfs / gpm)	Mean (cfs / gpm)	Coef. Of Variance	Acceptable Parameters Coef. Of Variance
1.88 / 842.0	1.88 / 842.3	0.005	<0.03
Feed Rate			
Target (mg/min)	Mean (mg/min)	Coef. Of Variance	Acceptable Parameters Coef. Of Variance
634,499	655,365	0.04	<0.1
Influent Concentration			
Target (mg/L)	Mean (mg/L)	Coef. Of Variance	Acceptable Parameters Coef. Of Variance
200	201.8	0.04	<0.1
Background Concentration			
Low (mg/L)	High (mg/L)	Mean (mg/L)	Acceptable Threshold (mg/L)
2	11	4.6	<20

Excluded Data/Results

Section 5.D, *Verification Report Requirements: Supporting Documentation* of the NJDEP Process document requires that all data from performance evaluation test runs excluded from the computation of the removal rate or verification analysis be disclosed. No test runs were aborted during the testing process, and no data from tests that did not meet protocol requirements have been excluded from the results presented in the previous section of this report.

One duplicate sample was collected for each effluent water quality sample. These samples were sent to an independent analytical laboratory for particle size distribution analysis. As effluent particle size analysis is not required by the NJDEP protocol, the data are not presented in this report.

The protocol requires that three samples of removal efficiency test sediment be collected and analyzed for particle size distribution, and that the average particle size of the three samples be reported. During the collection of the three sediment samples, a fourth sample was taken in case of spoilage or loss of one of the samples. This fourth sample was analyzed for particle size distribution and met the PSD specified by the protocol. The fourth sample was not included in the reported average particle size distribution, as the protocol specifically states that three samples shall be analyzed for particle size distribution.

Annualized Weighted TSS Removal Efficiency

The NJDEP-specified annual weighted TSS removal efficiency calculation is shown in **Table 22** using the results from the removal efficiency testing.

Testing in accordance with the provisions detailed in the NJDEP HDS Protocol demonstrate that the 4-ft FDHC achieved a 52.93% annualized weighted TSS removal at an MTFR of 1.50 cfs (53.6 gpm/sf). This testing demonstrates that the 4-ft FDHC exceeds the NJDEP requirement that HDS devices demonstrate at least 50% weighted annualized TSS removal efficiency at the MTFR.

Table 22 – Annualized Weighted TSS Removal of the 4-ft FDHC

% MTFR	Mean Flow Rate Tested (cfs)	Actual % MTFR	Measured Removal Efficiency	Annual Weighting Factor	Weighted Removal Efficiency
25	0.38	25.3	61.1%	0.25	15.28%
50	0.75	50.0	53.8%	0.3	16.14%
75	1.13	75.3	51.3%	0.2	10.26%
100	1.50	100.0	46.0%	0.15	6.90%
125	1.88	125.3	43.5%	0.1	4.35%
Weighted Annualized TSS Removal Efficiency					52.93%

4.3 Test Sediment PSD Analysis - Scour Testing

The scour test sediment, as described in Section 2.3 *Test Sediment*, was high purity (99.8% SiO₂) silica blended by an independent commercial silica supplier to meet the particle size distribution specified by the NJDEP HDS protocol. Three 250 mL subsamples were taken from the sump and analyzed for particle size analysis at the Hydro International lab under the supervision of the independent observer.

The results showed that the average test sediment was found to meet the particle size distribution specified by the protocol (**Table 23**), with no measured value being greater than two percentage points greater than the target percent finer value. A comparison of the PSD specified by the protocol and average PSD of the test sediment is shown in **Figure 10**.

Table 23 – Scour Test Sediment Particle Size Distribution Comparison

Particle Size (µm)	% Finer					% Difference from Spec
	NJDEP Spec	Sample 1	Sample 2	Sample 3	Average	
1000	100	100.0	100.0	100.0	100.0	0.0
500	90	95.1	95.0	95.2	95.1	-5.1
250	55	64.0	64.6	62.8	63.8	-8.8
150	40	49.8	50.0	47.8	49.2	-9.2
100	25	23.4	23.6	22.0	23.0	2.0
75	10	10.6	11.0	10.0	10.5	-0.5
50	0	1.3	1.6	1.3	1.4	-1.4

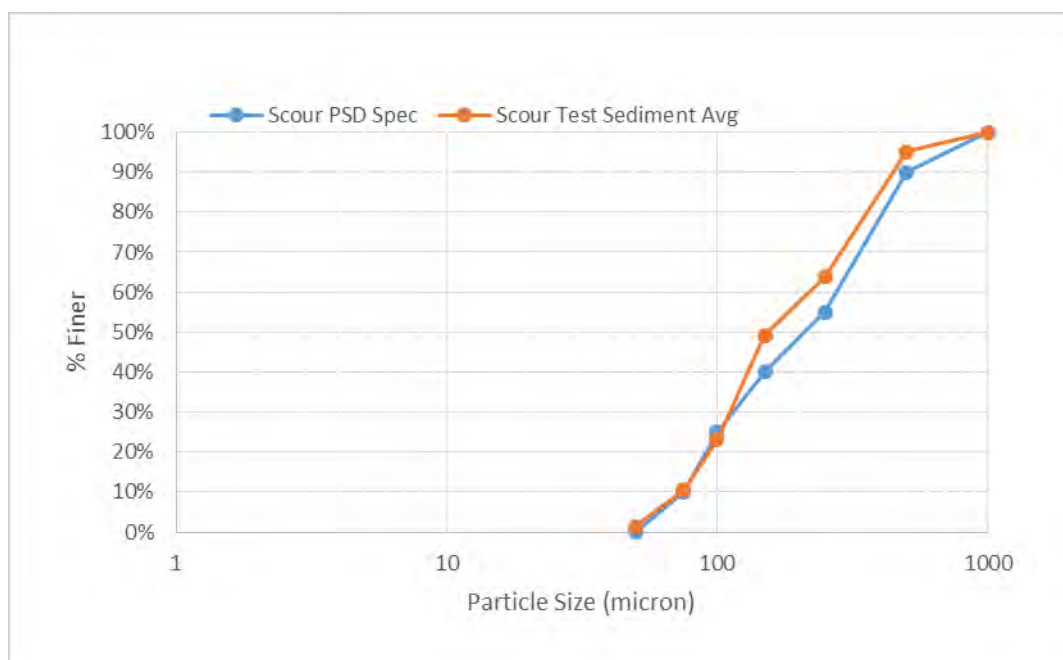


Figure 10 Scour Test Sediment PSD vs Protocol Specification

4.4 Scour Testing for Online Installation

The FDHC underwent scour testing in line with Section 4 of the NJDEP HDS protocol at a flow rate greater than 200% of its MTFR in order to verify its suitability for online use. For the 4-ft FDHC with an MTFR of 1.50 cfs (673 gpm) the average scour test flow rate had to be at least 3.0 cfs (1,344 gpm). The average flow rate for the scour test was 3.24 cfs, which represents 216% of the MTFR. The maximum water temperature during testing was 76.8°F. The flow rate COV was 0.007. Background concentrations measured 2 mg/L for all samples, which complies with the 20 mg/L maximum background concentration specified by the test protocol. Flow and background concentration measurements are shown in **Table 24**.

Table 24 – Flow and Background Concentration Results for 4-ft FDHC Scour Testing

Trial Date		11/18/2015	Average Flow Rate =	3.24cfs
Mean Temperature		24.5°C / 76.1°F	Flow Rate COV	0.007
Sample ID	Time (min)	Concentration (mg/L)		
Background 1	2:00	2		
Background 2	6:00	2		
Background 3	10:00	2		
Background 4	14:00	2		
Background 5	18:00	2		
Background 6	22:00	2		
Background 7	26:00	2		
Background 8	30:00	2		

Unadjusted effluent concentrations ranged from 2 mg/L to 4 mg/L with a mean of 2.1 mg/L. When adjusted for background concentrations, the effluent concentrations range from 0 to 2 mg/L. The mean adjusted effluent concentration was 0.1 mg/L (**Table 25**).

Table 25 – Effluent Concentration Results for 4-ft FDHC Scour Test at 216% MTR

Sample ID	Time (min)	Effluent Concentration with Background Concentrations (mg/L)	Background Concentration (mg/L)	Adjusted Effluent Concentration (mg/L)
Effluent 1	2:00	2	2	0
Effluent 2	4:00	2	2	0
Effluent 3	6:00	2	2	0
Effluent 4	8:00	2	2	0
Effluent 5	10:00	2	2	0
Effluent 6	12:00	2	2	0
Effluent 7	14:00	2	2	0
Effluent 8	16:00	2	2	0
Effluent 9	18:00	2	2	0
Effluent 10	20:00	2	2	0
Effluent 11	22:00	2	2	0
Effluent 12	24:00	2	2	0
Effluent 13	26:00	2	2	0
Effluent 14	28:00	4	2	2
Effluent 15	30:00	2	2	0
	Mean	2.1	2	0.1

Excluded Data/Results

The protocol requires the disclosure and discussion of any data collected as a part of the testing process that is excluded from the reported results. No test runs were aborted during the scour testing process, and no data from tests that did not meet protocol requirements have been excluded from the results presented in the scour testing section of this report.

5. Design Limitations

The FDHC is an engineered system for which Hydro International's engineers work with site designers to generate a detailed engineering submittal package for each installation. As such, design limitations are typically identified and managed during the design process. Design parameters and limitations are discussed in general terms below.

Required Soil Characteristics

The FDHC is a flow-through system contained within a water tight manhole. Therefore the FDHC can be installed and function as intended in all soil types.

Slope of Drainage Pipe

Hydro International recommends contacting our design engineers when the FDHC is going to be installed on a drainage line with a slope greater than 10%. With steeply sloping pipe, site specific parameters such as pipe size, online vs. offline arrangement of the FDHC and the frequency of peak flow are taken into consideration by the Hydro International design team.

Maximum Flow Rate

The maximum treatment flow rate (MTFR) of the FDHC is dependent upon model size. The recommended maximum peak flow rate is dependent on FDHC model size and other design and performance specifications. Hydro International recommends contacting their engineering staff with questions about managing high peak flow rates.

Maintenance Requirements

The FDHC should be inspected and maintained in line with the recommendations and guidelines set forth in the Operation and Maintenance Manual at: <https://www.hydro-int.com/en/resources/first-defense-operations-maintenance-manual>

The sediment accumulation rate in the FDHC is dependent on site-specific characteristics such as site usage and topography. A more detailed discussion of inspection and maintenance requirements is discussed later in Section 6.

Driving head

Testing conducted according to ASTM Standard Test Methods C1745 / C1745M – 11: Standard Test Method for Measurement of Hydraulic Characteristics of Hydrodynamic Stormwater Separators and Underground Settling Devices showed that the headloss across the FDHC is a function of flow rate and pipe velocities. Generally, the FDHC headloss is estimated using Equation 3.

Equation 3 – Flow dependent headloss of the FDHC

Given H_L = FDHC headloss

H_u = measured pressure head or water elevation in the inlet or upstream pipe

H_d = measured pressure head or water elevation in the outlet or downstream pipe

G = gravitational constant, 32.2 ft/sec²

V_u , V_d = calculated average flow velocities in the upstream and downstream pipes, respectively

$$H_L = (h_u + \frac{V_u^2}{2g}) - (h_d + \frac{V_d^2}{2g})$$

Installation limitations

Pick weights and installation procedures vary slightly with model size. Hydro International provides contractors with project-specific unit pick weights and installation instructions prior to delivery.

Configurations

The FDHC was designed for online applications in which the inlet and outlet are tied directly into the main drainage line, however the device can also be installed offline using external junction manholes (**Figure 11a-b**). However, the performance of these offline configurations have not been verified.

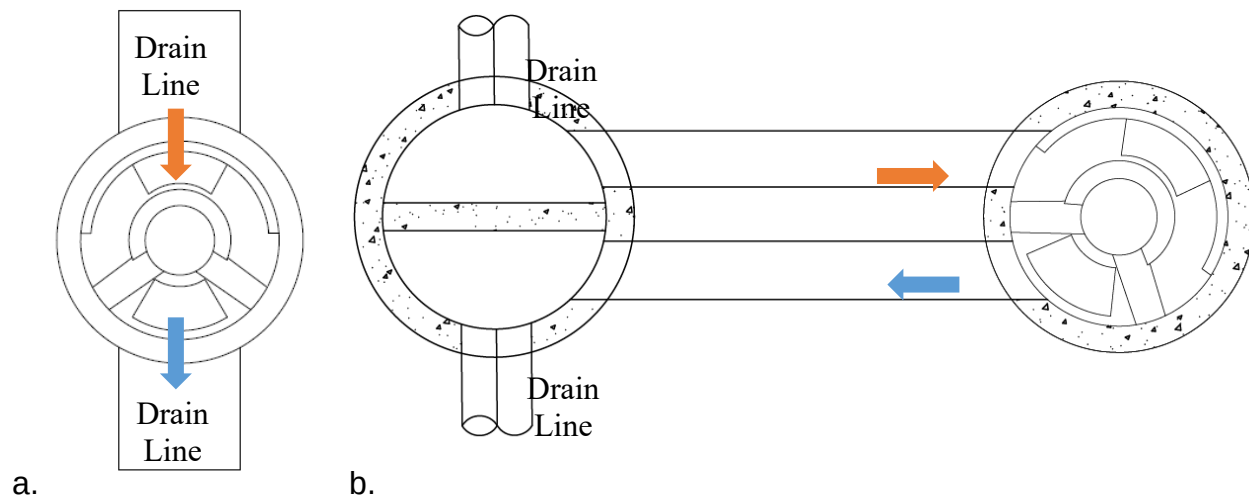


Figure 11 a) FDHC Online Application; b) FDHC Offline Application

In some cases, multiple inlet pipes can be accommodated depending on pipe size and pipe angles as long as at least six inches of concrete remains between inlet pipe knockouts and pipe angles are within 240° of the outlet centerline (**Figure 12**). Various inlet pipe configurations have not been verified. Contact Hydro International for design assistance with multiple inlet pipes.

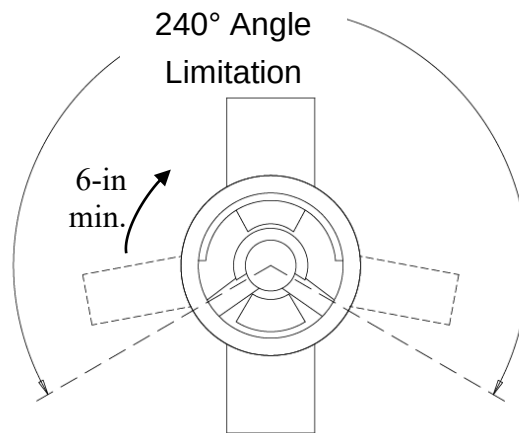


Figure 12 FDHC Design Accommodates Various Inlet Pipe Configurations

Load Limitations

Standard FDHC units are designed for HS-20 loading. Contact Hydro International engineering staff when heavier load ratings are required.

Pretreatment Requirements

The FDHC has no pre-treatment requirements.

Limitations on Tail water

As the FDHC includes an internal bypass, Hydro International recommends working with their engineering team if tail water is present to increase the available driving head to ensure that the full water quality treatment flow rate is treated prior to internal bypass.

Depth to seasonal high water table

Although the functionality of the FDHC is not impacted by high groundwater, Hydro International recommends consulting their engineering staff to determine whether the addition of anti-flotation collars to the base of the FDHC chamber are necessary to counterbalance buoyant forces.

Pipe Size

Each FDHC model has a maximum recommended inlet and outlet pipe size. When the diameter of the main storm drain line exceeds the maximum FDHC pipe size, Hydro International recommends contacting their engineering team. In some circumstances larger pipe sizes can be safely accommodated; otherwise, Hydro International recommends the FDHC be designed in an offline configuration. The maximum recommended inlet and outlet pipe diameter for each FDHC

model are shown in **Table A-2** of the Verification Appendix.

6. Maintenance Plans

The FDHC treats stormwater by removing pollutants from stormwater runoff and capturing them in the pollutant storage sump. Periodic removal of these captured pollutants is essential to the continuous, long-term functioning of the FDHC. When sediment and oil storage capacities are reached, the FDHC's ability to capture and store removed sediment and oil will be compromised.

Inspection and maintenance of the FDHC are simple procedures conducted from the surface. Neither inspection nor maintenance require purchasing spare parts or tools from Hydro International. The FDHC has one centrally located 30-in manhole lid to provide inspection and maintenance access to both the internal bypass chamber and treatment chamber.

Inspection

The required frequency of cleanout depends on site use and other site specific characteristics and should therefore be determined by inspecting the unit after installation. During the first year of operation, the unit should be inspected at least every six months to determine the rate of sediment and floatables accumulation. More frequent inspections are recommended at sites that would generate heavy solids loads, like parking lots with winter sanding or unpaved maintenance lots. A dipstick can be used to measure accumulated oil; a sediment probe can be used to determine the level of accumulated solids stored in the sump.

Hydro International recommends that the units are cleaned when sediment volumes reach 50% sump capacity. The standard sediment storage depth in the FDHC is 18 inches. Because FDHC model sizes vary in diameter, pollutant storage volumes vary with model size as shown in **Table 26**.

Table 26 – Pollutant Storage Capacities of the FDHC

Model	Oil Storage Volume (gal)	Sediment Volume at 50% Sump Capacity (yd³)	Sediment Depth at 50% Sump Capacity (in)	Sump Volume (yd³)	Sump Depth (in)
3-ft FDHC	125	0.20	9	0.4	18
4-ft FDHC	191	0.35	9	0.7	18
5-ft FDHC	300	0.55	9	1.1	18
6-ft FDHC	496	0.80	9	1.6	18
7-ft FDHC	720	1.05	9	2.1	18
8-ft FDHC	1,002	1.40	9	2.8	18
10-ft FDHC	1,742	2.20	9	4.4	18

When sediment and oil depths are measured during inspection, they should be recorded on the

Operation & Maintenance manual log and compared to the as-built drawings of the FDHC to assess whether accumulated sediment has reach 9 inches in depth. The O&M Manual is at: <https://www.hydro-int.com/en/resources/first-defense-operations-maintenance-manual>

Maintenance

The interval of required clean-out should be determined by post-installation inspection of pollutant accumulation rates. If post-installation inspection cannot be conducted for some reason, Hydro International recommends the FDHC be cleaned out at least once per year. There is no need for man entry into the FDHC during maintenance. However, if man entry does occur then proper confined space entry procedures must be followed.

Floatable trash and debris can be removed by lifting the floatable access lid and using a netted skimming pole or a vactor truck to skim trash from the surface of the standing water. Accumulated oil must be vactored from the surface using a vactor truck or sump vac. Accumulated sediment can be removed by lifting the central access lid and dropping a vactor hose down the center shaft to the sump. The entire sump liquid volume does not necessarily need to be removed from the FDHC during maintenance.

When all pollutants have been removed from the FDHC, the manhole lids should be put securely back in place. Removed pollutants should be disposed of in accordance with local regulations and ordinances.

7. Statements

The following signed statements from the manufacturer, third-party observer and NJCAT are required to complete the NJCAT verification process.

In addition, it should be noted that this report has been subjected to public review (e.g., stormwater industry) and all comments and concerns have been satisfactorily addressed.

December 21, 2015

Dr. Richard Magee, Sc.D., P.E., BCEE
Technical Director
New Jersey Corporation for Advanced Technology
c/o Center for Environmental Systems
Stevens Institute of Technology
One Castle Point on Hudson
Hoboken, NJ 07030

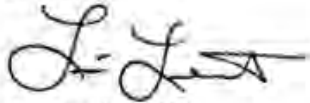
Re: Verification of First Defense® HC to NJDEP HDS Laboratory Testing Protocol

Dear Dr. Magee:

Hydro International's First Defense® HC (FDHC) vortex separator for stormwater treatment recently underwent verification testing according to the NJDEP HDS Laboratory Testing Protocol. As required by the "Procedure for Obtaining Verification of a Stormwater Manufactured Treatment Device from New Jersey Corporation for Advanced Technology", this letter serves as Hydro International's statement that all procedures and requirements identified in the aforementioned protocol and process document were met or exceeded. The 4-ft FDHC removal efficiency and scour tests conducted at Hydro International's laboratory facility in Portland, Maine were done so under the direct supervision of FB Environmental Associates. All water quality samples were analyzed by the independent analytical lab, Maine Environmental Laboratory. The removal efficiency particle size distribution was analyzed by the independent analytical laboratory, GeoTesting Express. The scour test particle size distribution was analyzed at Hydro International's facility under the supervision of FB Environmental Associates. Additionally, the preparation of the verification report and the documentation contained therein fulfill the submission requirements of the process document and protocol.

If you have any questions or comments regarding the verification of the FDHC, please do not hesitate to contact us.

Sincerely,



Lisa Lemont, CPSWQ
Business Development Manager



Statement of Third Party Observer



STATEMENT OF THIRD PARTY OBSERVER

To: Lisa Lemont, Hydro International, Portland, Maine
From: Forrest Bell, FB Environmental Associates
Subject: Third Party Review under *Procedure for Obtaining Verification of a Stormwater Manufactured Treatment Device from New Jersey Corporation for Advanced Technology* (NJDEP, January 25 2013)¹
Date: December 31, 2015
cc: Andrew Anastasio, Hydro International; Jeremy Fink, Hydro International
Margaret Burns, FB Environmental Associates

Statement of Third Party Observer

FB Environmental has served as the third-party observer for tests performed by Hydro International in October through December 2015. The tests assessed the First Defense HC Stormwater Treatment Device as a 50% Total Suspended Solids (TSS) removal device under the New Jersey Department of Environmental Protection certification. Tests were performed by Hydro International staff at their laboratory located at 94 Hutchinson Drive in Portland, Maine, to meet the standards described in *Procedure for Obtaining Verification of a Stormwater Manufactured Treatment Device from New Jersey Corporation for Advanced Technology* (NJDEP, January 25 2013)¹. On May 10, 2014, we also submitted a statement of qualifications, as required by NJCAT MTD process.

A member of our staff verified compliance with the laboratory test protocol above, and our staff member was physically present to observe the full duration of all laboratory testing. We have also reviewed the data, calculations, and conclusions associated with the removal efficiency testing in the *Verification Testing Report for the First Defense® HC Stormwater Treatment Device* by Hydro International, dated December 29, 2015, and state that they conform to what we saw during our supervision as third-party observer.

A handwritten signature in cursive script that reads 'Forrest Bell'.

December 31, 2015

Signed:

Date:

¹ Available at <http://www.nj.gov/dep/stormwater/treatment.html>

Statement of Disclosure



STATEMENT OF DISCLOSURE – THIRD PARTY OBSERVER

To: Lisa Lemont, Hydro International, Portland, Maine
From: Forrest Bell, FB Environmental Associates
Subject: Third Party Observer Statement of Disclosure under *Procedure for Obtaining Verification of a Stormwater Manufactured Treatment Device from New Jersey Corporation for Advanced Technology* (NJDEP, January 25 2013)¹
Date: December 31, 2015
cc: Andrew Anastasio, Hydro International
Margaret Burns, FB Environmental Associates

Statement of Disclosure – Third Party Observer

FB Environmental has no financial conflict of interest regarding the test results of the stormwater device testing outlined in the *Verification Testing Report for the First Defense® HC Stormwater Treatment Device* by Hydro International, dated December 29, 2015.

Disclosure Record

FB Environmental has provided the service of third party observer for tests performed by Hydro International in October through December of 2015. The tests assessed the First Defense HC Stormwater Treatment Device as a 50% Total Suspended Solids (TSS) removal device under the New Jersey Department of Environmental Protection certification as outlined in the *Verification Testing Report for the First Defense® HC Stormwater Treatment Device* by Hydro International, dated December 29, 2015. Beyond this, FB Environmental and Hydro International have no relationships that would constitute a conflict of interest, as outlined in *Procedure for Obtaining Verification of a Stormwater Manufactured Treatment Device from New Jersey Corporation for Advanced Technology* (NJDEP 2013). For example, we have no ownership stake, do not receive commissions, do not have licensing agreements, and do not receive funds or grants beyond those associated with the testing program.

A handwritten signature in black ink that reads 'Forrest Bell'.

December 31, 2015

Signed:

Date:

¹ Available at <http://www.nj.gov/dep/stormwater/treatment.html>



**Center for Environmental Systems
Stevens Institute of Technology
One Castle Point
Hoboken, NJ 07030-0000**

January 9, 2016

Titus Magnanao
NJDEP
Division of Water Quality
Bureau of Non-Point Pollution Control
401-02B
PO Box 420
Trenton, NJ 08625-0420

Dear Mr. Magnanao,

Based on my review, evaluation and assessment of the testing conducted on the First Defense[®] HC (FDHC) Stormwater Treatment Device by Hydro International and observed by FB Environmental Associates, the test protocol requirements contained in the “New Jersey Laboratory Testing Protocol to Assess Total Suspended Solids Removal by a Hydrodynamic Sedimentation Manufactured Treatment Device” (NJDEP HDS Protocol) were met or exceeded. Specifically:

Test Sediment Feed

The mean PSD of Hydro International's test sediments comply with the PSD criteria established by the NJDEP HDS protocol. The Hydro International removal efficiency test sediment PSD analysis was plotted against the NJDEP removal efficiency test PSD specification. The test sediment was shown to be slightly finer than the sediment blend specified by the protocol. The Hydro International scour test sediment PSD analysis was plotted against the NJDEP removal efficiency test PSD specification and shown to be much finer than specified by the protocol.

Removal Efficiency Testing

In accordance with the NJDEP HDS Protocol, removal efficiency testing was executed on the 4-ft. laboratory unit in order to establish the ability of the FDHC to remove the specified test sediment at 25%, 50%, 75%, 100% and 125% of the target MTFR. Prior to the start of testing Hydro International reviewed existing data and decided to utilize a target MTFR of 675 gpm (1.50 cfs). This target was chosen based on the ultimate goal of demonstrating greater than 50% annualized weighted solids removal as defined in the NJDEP HDS Protocol. The flow rates, feed rates and influent concentration all met the NJDEP HDS test protocol's coefficient of variance requirements and the background concentration for all five test runs never exceeded 20 mg/L.

Scour Testing

In order to demonstrate the ability of the FDHC to be used as an online treatment device scour testing was conducted at greater than 200% of MTFR in accordance with the NJDEP HDS Protocol. The average flow rate during the online scour test was 3.24 cfs, which represents 216% of the MTFR (MTFR = 1.50 cfs). Background concentrations were 2 mg/L throughout the scour testing, which complies with the 20 mg/L maximum background concentration specified by the test protocol. Unadjusted effluent concentrations ranged from 2 mg/L to 4 mg/L with a mean of 2.1 mg/L. When adjusted for background concentrations, the effluent concentrations range from 0 to 2 mg/L with a mean of 0.1 mg/L. These results confirm that the 4-ft. FDHC did not scour at 216% MTFR and meets the criteria for online use.

Maintenance Frequency

The predicted maintenance frequency for all models is 44 months.

Sincerely,



Richard S. Magee, Sc.D., P.E., BCEE

8. References

ASTM D422-63. *Standard Test Method for Particle-size Analysis of Soils*.

ASTM D3977-97. *Standard Test Methods for Determining Concentrations in Water Samples*.

Hydro International 2014. *Quality Assurance Project Plan for FDHC® NJDEP Testing*. Prepared by H.I.L. Technology, Inc. dba Hydro International. October, 2015.

NJDEP 2013a. *New Jersey Department of Environmental Protection Procedure for Obtaining Verification of a Stormwater Manufactured Treatment Device from New Jersey Corporation for Advanced Technology*. Trenton, NJ. January 25, 2013.

NJDEP 2013b. *New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Hydrodynamic Sedimentation Manufactured Treatment Device*. Trenton, NJ. January 25, 2013.

VERIFICATION APPENDIX

Introduction

- Manufacturer – Hydro International, 94 Hutchins Drive, Portland, ME 04102. *General Phone: (207)756-6200. Website: www.hydro-int.com/us.*
- MTD – First Defense® HC Stormwater Treatment Device. Verified First Defense® HC Models are shown in **Table A-1**.
- TSS Removal Rate – 50%
- Online and offline installation

Detailed Specification

- NJDEP sizing tables attached as **Table A-1** and **Table A-2**.
- New Jersey requires that the peak flow rate of the NJWQ Design Storm event of 1.25 inch in 2 hours shall be used to determine the appropriate size for the MTD.
- Pick weights and installation procedures vary slightly with model size. Hydro International provides contractors with project-specific unit pick weights and installation instructions prior to delivery.
- Maximum recommended sediment depth prior to cleanout is 9 inches for all model sizes.
- For a reference maintenance plan, download the First Defense® HC Operation and Maintenance Manual at:
<https://www.hydro-int.com/en/resources/first-defense-operations-maintenance-manual>
- Under N.J.A.C. 7:8-5.5, NJDEP stormwater design requirements do not allow a hydrodynamic separator such as the First Defense® HC to be used in series with another hydrodynamic separator to achieve an enhanced total suspended solids (TSS) removal rate.

Table A-1 MTFRs and Required Sediment Removal Intervals for FDHC Models
(Revised May 2021)

First Defense® HC Model	Manhole Diameter (ft)	NJDEP 50% TSS Maximum Treatment Flow Rate (cfs)	Treatment Area (ft²)	Hydraulic Loading Rate (gpm/ft²)	50% Max Sediment Storage Volume (ft³)	Required Sediment Removal Interval ¹ (months)
3-ft	3	0.85	7.1	53.58	5.30	44
4-ft	4	1.50	12.6	53.58	9.42	44
5-ft	5	2.35	19.6	53.58	14.7	44
6-ft	6	3.38	28.3	53.58	21.2	44
7-ft	7	4.60	38.5	53.58	28.9	44
8-ft	8	6.00	50.2	53.58	37.7	44
10-ft	10	9.38	78.5	53.58	58.9	44
¹ Required sediment removal interval was calculated using the equation specified in Appendix B Part B of the NJDEP Laboratory Protocol for HDS MTDs: Sediment Removal Interval (months) = $\frac{50\% \text{ HDS MTD Max Sediment Storage Volume} * 3.57}{\text{MTFR} * \text{TSS Removal Efficiency}}$						

Table A-2 Standard Dimensions for FDHC Models
(Revised May 2021)

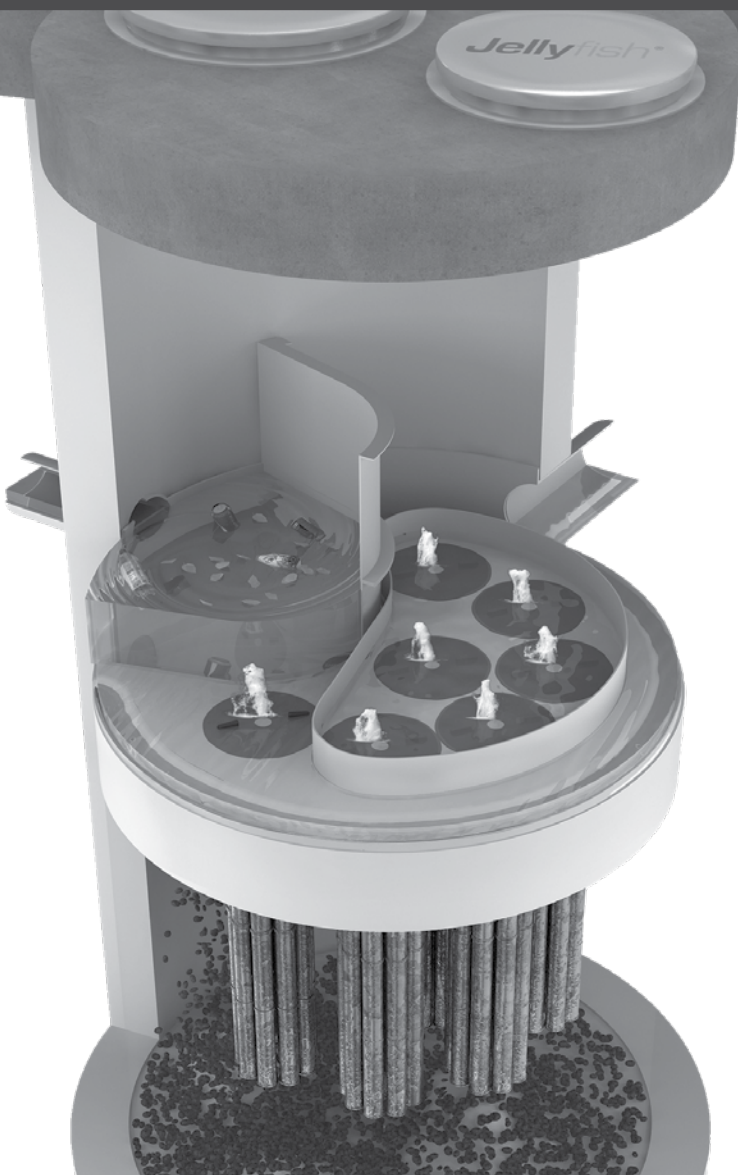
FD Optimum Model and Diameter	Maximum Treatment Flow Rate (cfs)	50% Max Sediment Storage Volume (ft³)	Chamber Depth (ft)	Treated Chamber Depth ¹ (ft)	Sediment Sump Depth (ft)	Aspect Ratio Treatment Depth: Diameter	Maximum Pipe Diameter (inch)
3-ft	0.85	5.33	3.75	3.00	1.5	1.00	18
4-ft	1.50	9.42	5.00	4.25	1.5	1.06	24
5-ft	2.35	14.7	5.25	4.50	1.5	0.90	24
6-ft	3.38	21.2	6.25	5.50	1.5	0.92	32
7-ft	4.60	28.9	7.25	6.50	1.5	0.93	42
8-ft	6.00	37.7	8.00	7.25	1.5	0.91	48
10-ft	9.38	58.9	10.25	9.50	1.5	0.95	60

¹Treated Chamber Depth is the chamber depth minus ½ the sediment sump depth. Larger models (>250% MTFR of the tested unit) must be geometrically proportionate to the tested unit (4-ft model). A variance of 15% is allowable. For units <250% MTFR the depth must be equal or greater than the depth of the unit treated.

APPENDIX H

Jellyfish Filter Sizing, Maintenance and Specifications

Jellyfish[®] Filter Maintenance Guide





JELLYFISH® FILTER INSPECTION & MAINTENANCE GUIDE

Jellyfish units are often just one of many structures in a more comprehensive stormwater drainage and treatment system.

In order for maintenance of the Jellyfish filter to be successful, it is imperative that all other components be properly maintained. The maintenance and repair of upstream facilities should be carried out prior to Jellyfish maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil loading, and discharges of inappropriate materials.

TABLE OF CONTENTS

Inspection and Maintenance Overview	3
Inspection Procedure.....	3
Maintenance Procedure.....	4
Cartridge Assembly & Cleaning.....	5
Inspection Process	7

1.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.

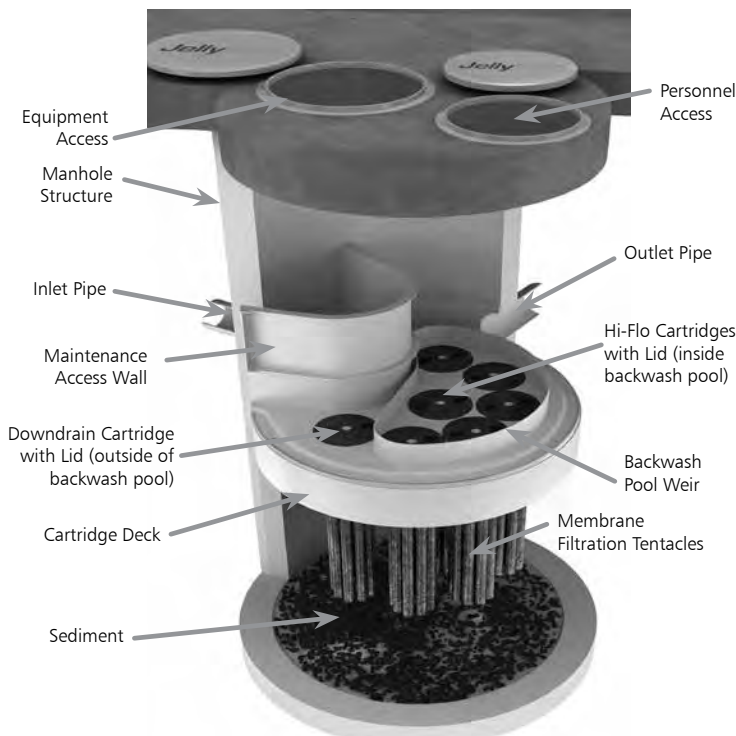
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.

Inspection activities are typically conducted from surface observations and include:

- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

Maintenance activities include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed



Note: Separator Skirt not shown

2.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent.*

1. A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
2. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
3. Inspection is recommended after each major storm event.
4. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

3.0 Inspection Procedure

The following procedure is recommended when performing inspections:

1. Provide traffic control measures as necessary.
2. Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
3. Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
5. Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

3.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.



Inspection Utilizing Sediment Probe

- Standing water outside the backwash pool is not anticipated and may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment ($\geq 1/16"$) accumulated on the deck surface should be removed.

3.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW or inlet bay.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges need to be rinsed.

4.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
2. Floatable trash, debris, and oil removal.
3. Deck cleaned and free from sediment.
4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
7. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

5.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures.
Caution: Dropping objects onto the cartridge deck may cause damage.

3. Perform Inspection Procedure prior to maintenance activity.
4. To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
5. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

5.1 Filter Cartridge Removal

1. Remove a cartridge lid.
2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. **Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs.**
3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

5.2 Filter Cartridge Rinsing

1. Remove all 11 tentacles from the cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.



Cartridge Removal & Lifting Device

2. Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.
3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. **Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane.**

4. Collected rinse water is typically removed by vacuum hose.
5. Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

5.3 Sediment and Floatables Extraction

1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
2. Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.



Vacuuming Sump Through MAW

3. Pressure wash cartridge deck and receptacles to remove all sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.
4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW or inlet bay.
5. Remove the sediment from the bottom of the unit through the MAW or inlet bay opening.



Vacuuming Sump Through MAW

6. For larger diameter Jellyfish Filter manholes (≥ 8 -ft) and some vaults complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

5.4 Filter Cartridge Reinstallation and Replacement

1. Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
2. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. **Caution: Do not force the cartridge downward; damage may occur.**
3. Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
4. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

5.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

5.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

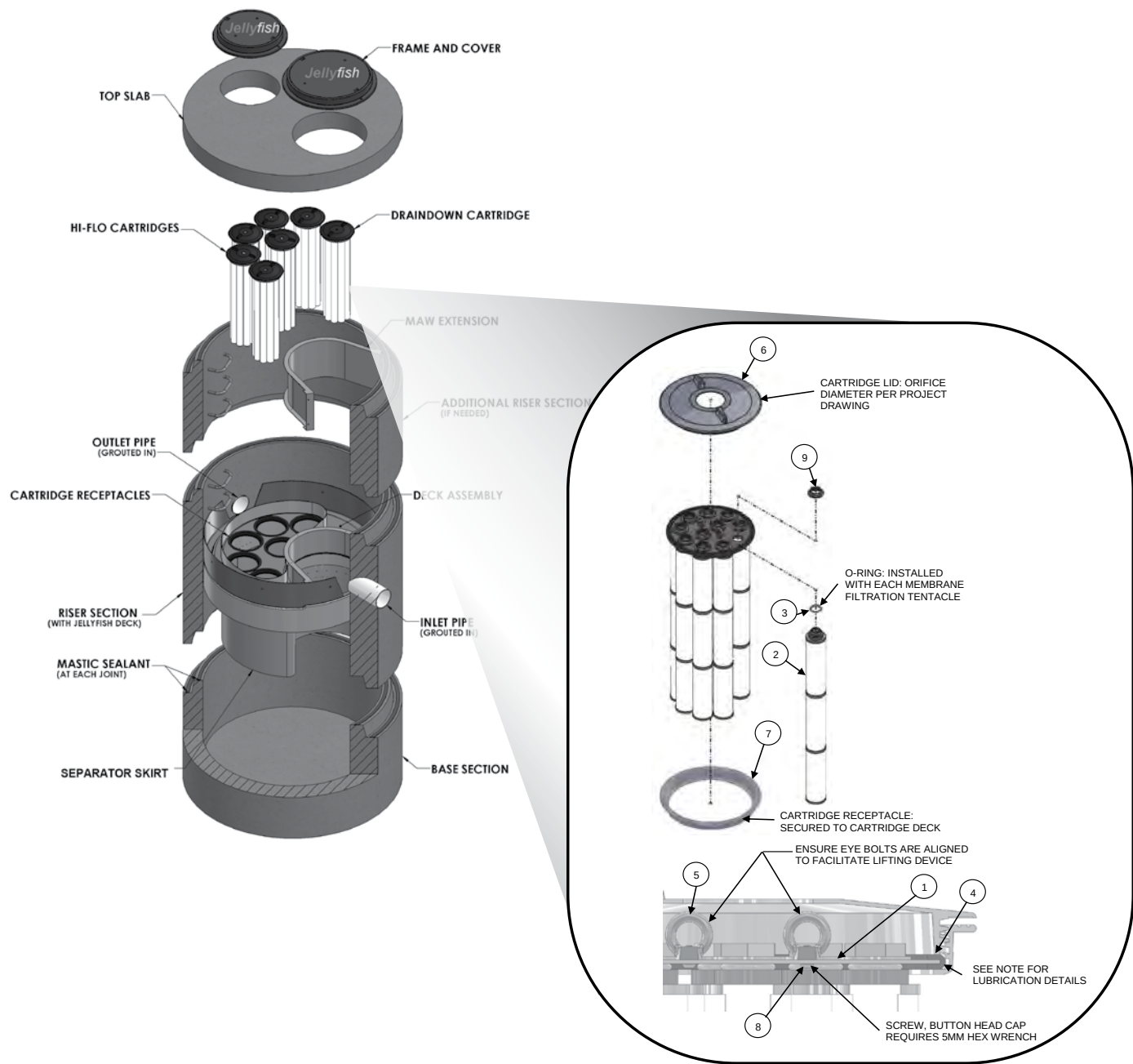


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 14IN COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP SCREW M6X14MM SS
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
78713	LA-CO	LUBRI-JOINT
40501	HERCULES	DUCK BUTTER
30600	OATEY	PIPE LUBRICANT
PSLUBXL1Q	PROSELECT	PIPE JOINT LUBRICANT

NOTES:

Head Plate Gasket Installation:

Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lide (Item 6). Follow Lubricant manufacturer's instructions.

Lid Assembly:

Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clock-wise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

Jellyfish Filter Inspection and Maintenance Log

Owner:		Jellyfish Model No:	
Location:		GPS Coordinates:	
Land Use:	Commercial:	Industrial:	Service Station:
	Roadway/Highway:	Airport:	Residential:

Date/Time:						
Inspector:						
Maintenance Contractor:						
Visible Oil Present: (Y/N)						
Oil Quantity Removed:						
Floatable Debris Present: (Y/N)						
Floatable Debris Removed: (Y/N)						
Water Depth in Backwash Pool						
Draindown Cartridges externally rinsed and recommissioned: (Y/N)						
New tentacles put on Draindown Cartridges: (Y/N)						
Hi-Flo Cartridges externally rinsed and recommissioned: (Y/N)						
New tentacles put on Hi-Flo Cartridges: (Y/N)						
Sediment Depth Measured: (Y/N)						
Sediment Depth (inches or mm):						
Sediment Removed: (Y/N)						
Cartridge Lids intact: (Y/N)						
Observed Damage:						
Comments:						



Support

- Drawings and specifications are available at www.conteches.com/jellyfish.
- Site-specific design support is available from Contech Engineered Solutions.
- Find a Certified Maintenance Provider at www.conteches.com/ccmp

Jellyfish®

CONTECH®
ENGINEERED SOLUTIONS

800.338.1122
www.ContechES.com

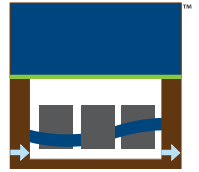
© 2021 Contech Engineered Solutions LLC, a QUIKRETE Company

Contech Engineered Solutions LLC provides site solutions for the civil engineering industry. Contech's portfolio includes bridges, drainage, sanitary sewer, stormwater, wastewater treatment and earth stabilization products. For information on other Contech segment offerings, visit ContechES.com or call 800.338.1122

NOTHING IN THIS CATALOG SHOULD BE CONSTRUED AS A WARRANTY. APPLICATIONS SUGGESTED HEREIN ARE DESCRIBED ONLY TO HELP READERS MAKE THEIR OWN EVALUATIONS AND DECISIONS, AND ARE NEITHER GUARANTEES NOR WARRANTIES OF SUITABILITY FOR ANY APPLICATION. CONTECH MAKES NO WARRANTY WHATSOEVER, EXPRESS OR IMPLIED, RELATED TO THE APPLICATIONS, MATERIALS, COATINGS, OR PRODUCTS DISCUSSED HEREIN. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND ALL IMPLIED WARRANTIES OF FITNESS FOR ANY PARTICULAR PURPOSE ARE DISCLAIMED BY CONTECH. SEE CONTECH'S CONDITIONS OF SALE (AVAILABLE AT WWW.CONTECHES.COM/COS) FOR MORE INFORMATION.

Jellyfish® Filter Manhole

Pretreatment & Filtration in One Compact Structure



Features & Benefits

- Pretreatment and filtration in one compact structure
- Captures high levels of trash, oil, TSS, nutrients and metals
- TARP field tested / verified performance
- Treats flows up to 5.26 cfs (149 Lps)
- On-line or off-line configurations available
- Lightweight filter cartridges
- Easy inspection and maintenance
- Low life-cycle cost



Applications

- Stormwater quality retrofits, redevelopment and new development
- Industrial and commercial parking lots
- Airports, ports, and military installations
- Pretreatment for detention and infiltration systems
- Treatment for rainwater harvesting and reuse
- Post detention stormwater quality treatment

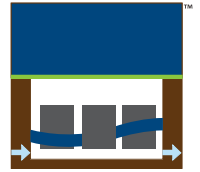


Contact

For additional information, please contact your local Stormwater Consultant or call 800-338-1122.

Jellyfish® Filter Manhole

Pretreatment & Filtration in One Compact Structure



JELLYFISH FILTER - MANHOLE SIZING TABLE				
Manhole Diameter (ft / m)	Model No.	Hi-Flo Cartridges	Draindown Cartridges	Design Treatment Flow Rate ¹ (gpm/ cfs / Lps)
4 / 1.2	JF4-2-1	2	1	200 / 0.45 / 12.6
6 / 1.8	JF6-3-1	3	1	280 / 0.62 / 17.7
	JF6-4-1	4	1	360 / 0.80 / 22.7
	JF6-5-1	5	1	440 / 0.98 / 27.8
	JF6-6-1	6	1	520 / 1.16 / 32.8
8 / 2.4	JF8-6-2	6	2	560 / 1.25 / 35.3
	JF8-7-2	7	2	640 / 1.43 / 40.4
	JF8-8-2	8	2	720 / 1.60 / 45
	JF8-9-2	9	2	800 / 1.78 / 50.5
	JF8-10-2	10	2	880 / 1.96 / 55.5
10 / 3.0	JF10-11-3	11	3	1000 / 2.23 / 63.1
	JF10-12-3	12	3	1080 / 2.41 / 68.1
	JF10-12-4	12	4	1120 / 2.5 / 70.7
	JF10-13-4	13	4	1200 / 2.67 / 75.7
	JF10-14-4	14	4	1280 / 2.85 / 80.8
	JF10-15-4	15	4	1360 / 3.03 / 85.8
	JF10-16-4	16	4	1440 / 3.21 / 90.8
	JF10-17-4	17	4	1520 / 3.39 / 95.9
	JF10-18-4	18	4	1600 / 3.56 / 100.9
	JF10-19-4	19	4	1680 / 3.74 / 106
12 / 3.6	JF12-20-5	20	5	1800 / 4.01 / 113.6
	JF12-21-5	21	5	1880 / 4.19 / 118.6
	JF12-22-5	22	5	1960 / 4.37 / 123.7
	JF12-23-5	23	5	2040 / 4.54 / 128.7
	JF12-24-5	24	5	2120 / 4.72 / 133.8
	JF12-25-5	25	5	2200 / 4.90 / 138.8
	JF12-26-5	26	5	2280 / 5.08 / 143.8
	JF12-27-5	27	5	2360 / 5.26 / 148.9

¹ Design treatment flow rate with 54 in / 1372 mm cartridges. Shorter cartridge lengths are available.

Jellyfish® Filter Patent Information: U.S. Patent No. 8,123,935, 8,221,618 and 8,287,726; Other International Patents Pending.

SECTION (____)
JELLYFISH® MEMBRANE FILTRATION SYSTEM
STORMWATER QUALITY – MEMBRANE FILTRATION SYSTEM STANDARD SPECIFICATION

1. GENERAL

1.1. The Contractor shall furnish and install the Jellyfish, complete and operable as shown and as specified herein, in accordance with the requirements of the plans and contract documents. The water quality treatment flow shall be as determined and approved by the Engineer of Record. The Jellyfish system removes pollutants from stormwater runoff through the unit operations of sedimentation, floatation, and membrane filtration.

1.2. The Jellyfish shall be of a type that has been installed and in use for a minimum of five (5) consecutive years preceding the date of installation of the system. The manufacturer shall have been, during the same consecutive five (5) year period, engaged in the engineering design and production of systems deployed for the treatment of storm water runoff and which have a history of successful production, acceptable to the Engineer of Record and/or the approving Jurisdiction. The manufacturer of the Jellyfish shall be, without exception:

Contech Engineered Solutions
9100 Centre Pointe Drive
West Chester, OH, 45069
Tel: 1 800 338 1122

1.3. Submittals: Shop drawings for the structure and performance are to be submitted with each order to the contractor. Contractor shall forward shop drawing submittal to the consulting engineer for approval. Shop drawings are to detail the structure precast concrete and call out or note the internals/components.

1.4. Product Substitutions: Any proposed product substitution to this specifications must be submitted for review and approved 10 days prior to project bid date by the Engineer of Record. Review package should include third party reviewed performance data for both flow rate and pollutant removal. Contractor to coordinate with the Engineer of Record any applicable modifications to the project estimates of cost, bonding amount determinations, plan check fees for changes to approved documents, and/or any other regulatory requirements resulting from the product substitution.

1.5. American Society for Testing and Materials (ASTM) Reference Specifications:

1.5.1. ASTM C891: Standard Specification for Installation of Underground Precast Concrete Utility Structures

1.5.2. ASTM C478: Standard Specification for Precast Reinforced Concrete Manhole Sections

1.5.3. ASTM C858: Standard Specification of Underground Precast Concrete Utility Structures

1.5.4.ASTM C857: Standard Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures

1.5.5.ASTM C990: Standard Specification for Joints for Concrete Manholes Using Preformed Flexible Joint Sealants

1.5.6.ASTM D4101: Standard Specification for Copolymer steps construction

1.5.7.ASTM D4097: Standard Specification for Contact-Molded Glass-Fiber-Reinforced Thermoset Resin Corrosion-Resistant

2. MATERIALS

2.1. Precast Concrete Structure: The device shall be an all concrete structure (including risers), constructed from precast concrete riser and slab components or monolithic precast structure(s). Precast concrete vault shall be provided according to ASTM C857 and C858 and manholes shall be provided according to ASTM C478. Both structure types shall be installed to conform to ASTM C891 and to any required state highway, municipal or local specifications; whichever is more stringent. All precast concrete components shall be manufactured to a minimum live load of HS-20 truck loading or greater based on local regulatory specifications, unless otherwise modified or specified by the design engineer.

2.2. Gaskets: Gaskets and/or sealants shall be used to seal between concrete joints. Joints shall be sealed with preformed joint sealing compound conforming to ASTM C990.

2.3. Internal Components:

2.3.1. Cartridge Deck: The deck insert shall be bolted and sealed inside the precast concrete chamber. The insert shall serve as: (a) a horizontal divider between the lower treatment zone and the upper treated effluent zone; (b) a deck for attachment of filter cartridges such that the membrane filter elements of each cartridge extend into the lower treatment zone; (c) a platform for maintenance workers to service the filter cartridges; (c) a conduit for conveyance of treated water to the effluent pipe.

2.3.1.1. Fiberglass: In cylindrical configurations, the fiberglass portions of the filter device shall be constructed in accordance with the following standard: ASTM D4097: Contact Molded Glass Fiber Reinforced Chemical Resistant Tanks.

2.3.1.2. Aluminum: In rectangular configurations, the aluminum cartridge deck shall be ¼" thick, 5052-H32 Aluminum with all welds to be 100% continuous waterproof weld using 5356 filler.

2.3.2. Membrane Filter Cartridges: Filter cartridges shall be comprised of reusable cylindrical membrane filter elements connected to a perforated head plate. The number of membrane filter elements per cartridge shall be a minimum of eleven 2.75-inch (70-mm) or greater diameter elements. The length of each filter element

shall be a minimum 15 inches (381 mm). Each cartridge shall be fitted into the cartridge deck by insertion into a cartridge receptacle that is permanently mounted into the cartridge deck. Each cartridge shall be secured by a cartridge lid that is threaded onto the receptacle, or similar mechanism to secure the cartridge into the deck. The maximum treatment flow rate of a filter cartridge shall be controlled by an orifice in the cartridge lid, or on the individual cartridge itself, and based on a design flux rate (surface loading rate) determined by the maximum treatment flow rate per unit of filtration membrane surface area. The maximum design flux rate shall be 0.21 gpm/ft² (0.142 lps/m²).

- 2.3.3. Each membrane filter cartridge shall allow for manual installation and removal. Each filter cartridge shall contain no less than 7 ft² of surface area per inch of length and have filtration membrane surface area and dry installation weight as follows (if length of filter cartridge is between those listed below, the surface area and weight shall be proportionate to the next length shorter and next length longer as shown below):

Filter Cartridge Length (in)	Minimum Filtration Membrane Surface Area (ft ² / m ²)	Maximum Filter Cartridge Dry Weight (lbs / kg)
15 / 381	106 / 9.8	10.0 / 4.5
27 / 686	190 / 17.7	14.5 / 6.6
40 / 1016	282 / 26.2	19.5 / 8.9
54 / 1372	381 / 35.4	25.0 / 11.4

- 2.3.4. Backwashing Cartridges: The filter device shall have a weir extending above the cartridge deck, or other mechanism, that encloses the high flow rate filter cartridges when placed in their respective cartridge receptacles within the cartridge deck. The weir, or other mechanism, shall collect a pool of filtered water during inflow events that backwashes the high flow rate cartridges when the inflow event subsides. All filter cartridges and membranes shall be reusable and allow for the use of filtration membrane rinsing procedures to restore flow capacity and sediment capacity; extending cartridge service life.

- 2.3.5. Maintenance Access to Captured Pollutants: The filter device shall contain an opening(s) that provides maintenance access for removal of accumulated floatable pollutants and sediment, removal of and replacement of filter cartridges, cleaning of the sump, and rinsing of the deck. Access shall have a minimum clear height over all of the filter cartridges (length of cartridge + 6 inches), or be accessible by a hatch or other mechanism that provides vertical clear space over all of the filter cartridges such that the cartridges can be lifted straight vertically out of the receptacles and deck for the entire length of the cartridge.

- 2.3.6. Baffle: The filter device shall provide a baffle that extends from the underside of the cartridge deck to a minimum length equal to the length of the membrane filter elements. The baffle shall serve to protect the membrane filter elements from

contamination by floatables and coarse sediment. The baffle shall be flexible and continuous in cylindrical configurations, and shall be a straight concrete or aluminum wall in rectangular configurations.

2.3.7.Sump: The device shall include a minimum 24 inches (610 mm) of sump below the bottom of the cartridges for sediment accumulation, unless otherwise specified by the design engineer. Depths less than 24 inches may have an impact on the total performance and/or longevity between cartridge maintenance/replacement of the device.

2.3.8.Steps: Steps shall be constructed according to ASTM D4101 of copolymer polypropylene, and be driven into preformed or pre-drilled holes after the concrete has cured, installed to conform to applicable sections of state, provincial and municipal building codes, highway, municipal or local specifications for the construction of such devices.

2.3.9.Double-Wall Containment of Hydrocarbons: The cylindrical precast concrete device shall provide double-wall containment for hydrocarbon spill capture by a combined means of an inner wall of fiberglass, to a minimum depth of 12 inches (305 mm) below the cartridge deck, and the precast vessel wall.

2.4.Bend Structure: The device shall be able to be used as a bend structure with minimum angles between inlet and outlet pipes of 90-degrees or less in the stormwater conveyance system.

2.5.Frame and Cover: Frame and covers must be manufactured from cast-iron or other composite material tested to withstand H-20 or greater design loads, and as approved by the local regulatory body. Frames and covers must be embossed with the Contech or the Jellyfish brand name.

2.6.Doors and Hatches: If provided shall meet designated loading requirements or at a minimum for incidental vehicular traffic.

3. PERFORMANCE

3.1.Function: The Jellyfish filter shall function to remove pollutants by the following unit treatment processes; sedimentation, floatation, and membrane filtration.

3.2.Pollutants: The Jellyfish filter shall remove oil, debris, trash, coarse and fine particulates, particulate-bound pollutants, metals and nutrients from stormwater during runoff events.

3.3.Bypass: The Jellyfish filter shall typically utilize an external bypass to divert excessive flows. Where an internal bypass is utilized, systems shall be equipped with a floatables baffle, and bypass water shall not pass through the treatment sump or cartridge filtration zone.

3.4.Treatment Flux Rate (Surface Loading Rate): The Jellyfish filter shall treat 100% of the required water quality treatment flow based on a maximum design flux rate (surface

loading rate) across the membrane filter cartridges not to exceed 0.21 gpm/ft² (0.142 lps/m²).

3.5. Field Testing: At a minimum, the Jellyfish filter shall have been field tested and verified with a minimum 25 qualifying storm events and field monitoring conducted according to the TARP Tier II or TAPE field test protocol, and have received NJCAT verification.

3.6. Suspended Solids Removal: The Jellyfish filter shall have demonstrated a minimum median TSS removal efficiency of 85% and a minimum median SSC removal efficiency of 95%.

3.7. Fine Particle Removal: The Jellyfish filter shall have demonstrated the ability to capture fine particles as indicated by a minimum median removal efficiency of 75% for the particle fraction less than 25 microns, an effluent d₅₀ of 15 microns or lower for all monitored storm events, and an effluent turbidity of 15 NTUs or lower.

3.8. Nutrient (Total Phosphorus & Total Nitrogen) Removal: The Jellyfish filter shall have demonstrated a minimum median Total Phosphorus removal of 55%, and a minimum median Total Nitrogen removal of 50%.

3.9. Metals (Total Zinc & Total Copper) Removal: The Jellyfish filter shall have demonstrated a minimum median Total Zinc removal of 50%, and a minimum median Total Copper removal of 75%.

4. EXECUTION

4.1. Handling and Storage: Prevent damage to materials during storage and handling.

4.2. Precast Concrete Structure: The installation of the precast concrete device should conform to ASTM C891 and to any state highway, municipal or local specification for the installation of underground precast concrete structures, whichever is more stringent. Selected sections of a general specification that are applicable are summarized below.

4.2.1. The precast concrete device is installed in sections in the following sequence:

- aggregate base
- base slab
- treatment chamber and cartridge deck riser section(s)
- bypass section
- connect inlet and outlet pipes
- concrete riser section(s) and/or transition slab (if required)
- maintenance riser section(s) (if required)
- frame and access cover

4.2.2. The precast base should be placed level at the specified grade. The entire base should be in contact with the underlying compacted granular material. Subsequent sections, complete with joint seals, should be installed in accordance with Contech's recommendations.

- 4.2.3. Adjustment of the Jellyfish filter can be performed by lifting the upper sections free of the excavated area, re-leveling the base, and re-installing the sections. Damaged sections and gaskets should be repaired or replaced as necessary to restore original condition and seals. Once the Jellyfish filter has been constructed, any/all lift holes must be plugged with mortar or non-shrink grout.
- 4.3. Inlet and Outlet Pipes: Inlet and outlet pipes should be securely set into the device using approved pipe seals (flexible boot connections, where applicable), and such that any pipe intrusion into the device does not impact the device functionality.
- 4.4. Frame and Cover Installation: Adjustment units (e.g. grade rings) should be installed to set the frame and cover at the required elevation. The adjustment units should be laid in a full bed of mortar with successive units being joined using sealant recommended by Contech. Frames for the cover should be set in a full bed of mortar at the elevation specified.
- 4.5. In some instances the Maintenance Access Wall, if provided, shall require an extension attachment and sealing to the precast wall and cartridge deck at the job site, rather than at the precast facility. In this instance, installation of these components shall be performed according to instructions provided by Contech.

5. ACTIVATION, INSPECTION AND MAINTENANCE

- 5.1. Filter cartridges shall be installed in the cartridge deck in accordance with the manufacturer's guidelines and recommendations. Contractor to contact the manufacturer to schedule cartridge delivery and review procedures/requirements to be completed to the device prior to installation of the cartridges and activation of the system.
- 5.2. Manufacturer shall coordinate delivery of filter cartridges and other internal components with contractor. Filter cartridges shall be installed after site is stabilized and/or unit is isolated from construction influent and ready to accept cartridges. Unit is ready to accept cartridges after it has been cleaned out and any standing water, debris, and other materials have been removed. Contractor shall take appropriate action to protect the filter cartridge receptacles and filter cartridges from damage during construction, and in accordance with the manufacturer's recommendations and guidance. For systems with cartridges installed prior to full site stabilization, the contractor shall plug inlet and outlet pipes to prevent stormwater and other influent from entering the device. Plugs are to be removed once the site is stabilized and unit is ready to receive stormwater runoff.
- 5.3. Durability of membranes are subject to good handling practices during inspection and maintenance (removal, rinsing, and reinsertion) events, and site specific conditions that may have heavier or lighter loading onto the cartridges, and pollutant variability that may impact the membrane structural integrity. Membrane maintenance and replacement shall be in accordance with Contech's recommendations.

- 5.4. Inspection; which includes trash and floatables collection, sediment depth determination, and visible determination of backwash pool depth; shall be easily conducted from grade (outside the structure).
- 5.5. Manual rinsing of the reusable filter cartridges shall promote restoration of the flow capacity and sediment capacity of the filter cartridges, extending cartridge service life.
- 5.6. The filter device shall have a minimum 12 inches (610 mm) of sediment storage depth, and a minimum of 12 inches between the top of the sediment storage and bottom of the filter cartridge tentacles, unless otherwise specified by the design engineer. Variances may have an impact on the total performance and/or longevity between cartridge maintenance/replacement of the device.
- 5.7. Sediment removal from the filter treatment device shall be able to be conducted using a standard maintenance truck and vacuum apparatus, and a minimum one point of entry to the sump that is unobstructed by filter cartridges.
- 5.8. Maintenance access shall have a minimum clear height over all of the filter cartridges (length of cartridge + 6 inches), or be accessible by a hatch or other mechanism that provides vertical clear space over all of the filter cartridges such that the cartridges can be lifted straight vertically out of the receptacles and deck for the entire length of the cartridge.
- 5.9. After construction and installation, and during operation, the device shall be inspected and cleaned as necessary based on Contech's recommended inspection and maintenance guidelines and the local regulatory agency/body.
- 5.10. When replacement membrane filter elements and/or other parts are required, only membrane filter elements and parts approved by Contech for use with the Jellyfish filter shall be installed.
- 5.11. Filter cartridges shall be able to be maintained without the use of additional lifting equipment.
- 5.12. Contech shall provide an Owner's Manual upon request.

END OF SECTION

APPENDIX I

Temporary Sediment Trap Sizing Calculations

3,600 CF minimum of storage required for each acre of contributing area

Sediment Trap #	Contributing Area (Acres)	Minimum Volume Required (cf)	Volume Provided (cf)
A	4.9	17,640	27,375
B	4.9	17,640	>17,640
C	4.9	17,640	>17,640
D	2.8	10,080	>10,080
E	3.0	10,800	>10,800
F	3.9	14,040	30,550

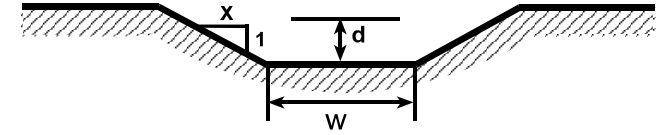
APPENDIX J

Swale Sizing Calculations



Appendix G SWALE SIZING CALCULATIONS

Design Storm: 100-YEAR
Project: Trailside Estates at Somers
Job #: 21241.100
Date: 4/25/2025
By: EPL
Sheet: 1 of 1



Swale	Swale Type	Impervious Area			Pervious Area			CA Total	TC	I	Q (cfs)	w (ft)	d (ft)	x	n	S (%)	A (ft ²)	W _p (ft)	R _h (ft)	V (ft/s)	Q (cfs)
		Contributing Area	Runoff Coefficient	Impervious	Contributing Area	Runoff Coefficient	Pervious														
SW 1 Max	Grass	0.00	0.90	0.00	2.31	0.30	0.69	0.69	6.0	9.2	6.4	4.00	0.32	4.00	0.035	5.0	1.68	6.63	0.25	3.8	6.40
SW 1 Min	Grass	0.00	0.90	0.00	2.31	0.30	0.69	0.69	6.0	9.2	6.4	4.00	0.49	4.00	0.035	1.0	2.94	8.06	0.36	2.2	6.40
SW 2 Max	Grass	0.00	0.90	0.00	0.62	0.30	0.19	0.19	6.0	9.2	1.7	1.00	0.28	4.00	0.035	4.5	0.59	3.31	0.18	2.9	1.70
SW 2 Min	Grass	0.00	0.90	0.00	0.62	0.30	0.19	0.19	6.0	9.2	1.7	1.00	0.40	4.00	0.035	1.0	1.03	4.28	0.24	1.6	1.70
SW 3 Max	Grass	0.00	0.90	0.00	0.41	0.30	0.21	0.21	6.0	9.2	1.9	1.00	0.29	4.00	0.035	5.0	0.62	3.37	0.18	3.1	1.90
SW 3 Min	Grass	0.00	0.90	0.00	0.41	0.30	0.21	0.21	6.0	9.2	1.9	1.00	0.43	4.00	0.035	0.9	1.16	4.54	0.26	1.6	1.90
SW 4 Max	Grass	0.00	0.90	0.00	1.23	0.30	0.37	0.37	6.0	9.2	3.4	2.50	0.33	2.00	0.035	3.4	1.05	3.99	0.26	3.2	3.40
SW 4 Min	Grass	0.00	0.90	0.00	1.23	0.30	0.37	0.37	6.0	9.2	3.4	2.50	0.36	2.00	0.035	2.5	1.17	4.12	0.28	2.9	3.40
SW 5 Max	Grass	0.00	0.90	0.00	1.58	0.30	0.48	0.48	6.0	9.2	4.4	3.00	0.30	4.00	0.035	4.5	1.29	5.51	0.23	3.4	4.40
SW 5 Min	Grass	0.00	0.90	0.00	1.58	0.30	0.48	0.48	6.0	9.2	4.4	3.00	0.48	4.00	0.035	0.8	2.37	6.97	0.34	1.9	4.40
SW 6 Max	Grass	0.00	0.90	0.00	0.29	0.30	0.09	0.09	6.0	9.2	0.8	1.00	0.27	4.00	0.035	1.1	0.57	3.25	0.18	1.4	0.80
SW 6 Min	Grass	0.00	0.90	0.00	0.29	0.30	0.09	0.09	6.0	9.2	0.8	1.00	0.29	4.00	0.035	0.9	0.61	3.36	0.18	1.3	0.80
SW 7 Max	Grass	0.00	0.90	0.00	0.23	0.30	0.07	0.07	6.0	9.2	0.6	1.00	0.23	2.00	0.035	2.0	0.33	2.02	0.16	1.8	0.60
SW 7 Min	Grass	0.00	0.90	0.00	0.23	0.30	0.07	0.07	6.0	9.2	0.6	1.00	0.27	2.00	0.035	1.0	0.43	2.23	0.19	1.4	0.60
SW 8 Max	Grass	0.00	0.90	0.00	0.31	0.30	0.09	0.09	6.0	9.2	0.9	1.00	0.28	2.00	0.035	2.0	0.44	2.27	0.20	2.0	0.90
SW 8 Min	Grass	0.00	0.90	0.00	0.31	0.30	0.09	0.09	6.0	9.2	0.9	1.00	0.34	2.00	0.035	1.0	0.57	2.52	0.23	1.6	0.90
SW 9 Max	Grass	0.02	0.90	0.02	0.29	0.30	0.09	0.11	6.0	9.2	1.0	1.00	0.30	2.00	0.035	2.0	0.48	2.34	0.20	2.1	1.00
SW 9 Min	Grass	0.02	0.90	0.02	0.29	0.30	0.09	0.11	6.0	9.2	1.0	1.00	0.36	2.00	0.035	1.0	0.61	2.60	0.24	1.6	1.00

Swale #	Swale Location Description
SW 1	Swale 1 starts along the southern west side of the site, flows south and then enters SDI 36.
SW 2	Swale 2 starts along the west side of the site, flows south through ES 32 to ES 31 then outlets to a level spreader.
SW 3	Swale 3 starts along the west side of the site north of swale 2, flows north and then enters ES 21A.
SW 4	Swale 4 starts along the northern west side of the site, flows south and enters SDI 22.
SW 5	Swale 5 starts along the northern side of the site by the community center, flows northeast.

APPENDIX K
Pipe Sizing Calculations



DRAINAGE SYSTEM CALCULATIONS Design Storm: 100-Year

PROJECT: Trailside At Somers
JOB NUMBER: 21241.100
BY: JJS **DATE:** 4-23-2025
CHK: RDW **DATE:** 4-23-2025

STRUCTURE		IMPERVIOUS AREA			PERVIOUS AREA			CA	TIME OF CONC. (min.)			I	Q (cfs)		PIPE DESIGN				
FROM	TO	A (ac.)	C	CA	A (ac.)	C	CA		INLET	PIPE	TOTAL		DESIGN	CAP.	V(ft/s)	n	s (%)	L (ft)	DIA (in)
OS 1.7PT B	DMH 3	PIPE SIZED IN HYDROCAD																	
DMH 3	DMH 2	PIPE SIZED IN HYDROCAD																	
DMH 2	ES 1	PIPE SIZED IN HYDROCAD																	
OS 2.1PT B	DMH 3	PIPE SIZED IN HYDROCAD																	
OS 1.7P	ES 1.7P	PIPE SIZED IN HYDROCAD																	
OS 2.1P	ES 2.1P	PIPE SIZED IN HYDROCAD																	
OS 1.7PT A	ES 1.7PT	PIPE SIZED IN HYDROCAD																	
OS 2.1PT A	ES 2.1PT	PIPE SIZED IN HYDROCAD																	
OS 2.2P	ES 2.2P	PIPE SIZED IN HYDROCAD																	
OS 1.8P	ES 1.8P	PIPE SIZED IN HYDROCAD																	
OS 1.2P	ES 1.2P	PIPE SIZED IN HYDROCAD																	
OS 1.1P	ES 1.1P	PIPE SIZED IN HYDROCAD																	
SMP 1.2DS	JF 1.2F	PIPE SIZED IN HYDROCAD																	
JF 1.2F	ES 1.2DS	PIPE SIZED IN HYDROCAD																	
SMP 1.2DS	DI 34	PIPE SIZED IN HYDROCAD																	
SMP 1.5P	ES 1.5P	PIPE SIZED IN HYDROCAD																	
CB 18	CB 17	0.18	0.9	0.16	0.01	0.3	0.00	0.16	6	-	6	9.2	1.5	5.4	5.9	0.012	2.0	51	12
CB 17	CB 16	0.33	0.9	0.30	0.03	0.3	0.01	0.47	6	-	6	9.2	4.3	6.0	8.3	0.012	2.4	189	12
CB 16	CB 15	0.07	0.9	0.06	0.06	0.3	0.02	0.78	6	-	6	9.2	7.2	9.8	8.8	0.012	2.0	101	15
CB 15	CB 14	0.50	0.9	0.45	0.15	0.3	0.05	1.28	6	-	6	9.2	11.8	16.1	10.0	0.012	2.0	20	18
CB 14	CB 13	0.05	0.9	0.05	0.00	0.3	0.00	1.33	6	-	6	9.2	12.2	18.4	11.1	0.012	2.6	100	18
CB 13	CB 12	0.10	0.9	0.09	0.00	0.3	0.00	1.42	6	-	6	9.2	13.1	13.5	8.7	0.012	1.4	210	18
CB 12	CB 11	0.38	0.9	0.34	0.04	0.3	0.01	1.68	6	-	6	9.2	15.5	24.5	8.3	0.012	1.0	20	24



DRAINAGE SYSTEM CALCULATIONS
Design Storm: 100-Year

PROJECT: Trailside At Somers
JOB NUMBER: 21241.100
BY: JJS **DATE:** 4-23-2025
CHK: RDW **DATE:** 4-23-2025

STRUCTURE		IMPERVIOUS AREA			PERVIOUS AREA			CA	TIME OF CONC. (min.)			I	Q (cfs)		PIPE DESIGN				
FROM	TO	A (ac.)	C	CA	A (ac.)	C	CA		INLET	PIPE	TOTAL		DESIGN	CAP.	V(ft/s)	n	s (%)	L (ft)	DIA (in)
CB 11	ES 10	0.09	0.9	0.08	0.00	0.3	0.00	1.50	6	-	6	9.2	13.8	25.7	8.3	0.012	1.1	26	24
CB 16A	CB 16	0.25	0.9	0.23	0.01	0.3	0.00	0.23	6	-	6	9.2	2.1	5.5	6.5	0.012	2.0	25	12
CB 9	CB 8	0.04	0.9	0.04	0.04	0.3	0.01	0.05	6	-	6	9.2	0.5	3.9	3.3	0.012	1.0	36	12
CB 8	CB 7	0.25	0.9	0.23	0.04	0.3	0.01	0.34	6	-	6	9.2	3.1	3.9	5.5	0.012	1.0	144	12
CB 7	ES 6	0.06	0.9	0.05	0.00	0.3	0.00	0.39	6	-	6	9.2	3.6	4.0	5.8	0.012	1.1	91	12
CB 5	ES 4	0.15	0.9	0.14	0.09	0.3	0.03	0.17	6	-	6	9.2	1.6	2.7	3.6	0.012	0.5	60	12
CB 8A	CB 8	0.05	0.9	0.05	0.00	0.3	0.00	0.05	6	-	6	9.2	0.5	3.9	3.3	0.012	1.0	30	12
SDI 22	DI 21	0.03	0.9	0.03	1.14	0.3	0.34	0.37	6	-	6	9.2	3.4	7.0	5.7	0.012	1.0	160	15
DI 21	DMH 20	0.00	0.9	0.00	0.04	0.3	0.01	0.52	6	-	6	9.2	4.8	7.0	6.1	0.012	1.0	128	15
DMH 20	ES 19	0.00	0.9	0.00	0.00	0.3	0.00	0.52	6	-	6	9.2	4.8	7.0	6.1	0.012	1.0	72	15
ES 21A	DI 21	0.03	0.9	0.03	0.38	0.3	0.11	0.14	6	-	6	9.2	1.3	16.4	8.0	0.012	5.5	91	15
CB 30	CB 29	0.04	0.9	0.04	0.00	0.3	0.00	0.04	6	-	6	9.2	0.4	7.4	4.9	0.012	3.6	148	12
CB 29	CB 28	0.24	0.9	0.22	0.01	0.3	0.00	0.70	6	-	6	9.2	6.4	12.1	10.0	0.012	3.0	159	15
CB 28	CB 27	0.25	0.9	0.23	0.02	0.3	0.01	0.94	6	-	6	9.2	8.6	12.1	10.7	0.012	3.0	115	15
CB 27	CB 26	0.05	0.9	0.05	0.02	0.3	0.01	1.00	6	-	6	9.2	9.2	19.8	15.9	0.012	8.0	58	15
CB 26	CB 25	0.04	0.9	0.04	0.01	0.3	0.00	1.34	6	-	6	9.2	12.3	13.9	8.9	0.012	1.5	78	18
CB 25	FS 1.6P	0.04	0.9	0.04	0.01	0.3	0.00	1.38	6	-	6	9.2	12.7	13.9	9.0	0.012	1.5	20	18
FS 1.6P	HDS 1.6P	PIPE SIZED IN HYDROCAD																	
HDS 1.6P	INF 1.6P	PIPE SIZED IN HYDROCAD																	
FS 1.6P	DMH 24	PIPE SIZED IN HYDROCAD																	
INF 1.6P	DMH 24	PIPE SIZED IN HYDROCAD																	
DMH 24	ES 23	PIPE SIZED IN HYDROCAD																	
ES 32	ES 31	0.02	0.9	0.02	0.35	0.3	0.11	0.13	6	-	6	9.2	1.2	7.3	6.9	0.012	3.6	56	12
CB 29B	CB 29A	0.07	0.9	0.06	0.05	0.3	0.02	0.08	6	-	6	9.2	0.7	6.3	5.4	0.012	2.7	56	12
CB 29A	CB 29	0.48	0.9	0.43	0.03	0.3	0.01	0.44	6	-	6	9.2	4.0	6.0	8.2	0.012	2.4	21	12



DRAINAGE SYSTEM CALCULATIONS

Design Storm: 100-Year

PROJECT: Trailside At Somers

JOB NUMBER: 21241.100

BY: JJS

DATE: 4-23-2025

CHK: RDW

DATE: 4-23-2025

STRUCTURE		IMPERVIOUS AREA			PERVIOUS AREA			CA	TIME OF CONC. (min.)			I	Q (cfs)		PIPE DESIGN				
FROM	TO	A (ac.)	C	CA	A (ac.)	C	CA		INLET	PIPE	TOTAL		DESIGN	CAP.	V(ft/s)	n	s (%)	L (ft)	DIA (in)
CB 28A	CB 28	0.04	0.9	0.04	0.00	0.3	0.00	0.04	6	-	6	9.2	0.4	5.7	4.1	0.012	2.2	23	12
CB 26B	CB 26A	0.16	0.9	0.14	0.02	0.3	0.01	0.15	6	-	6	9.2	1.4	9.8	8.9	0.012	6.5	20	12
CB 26A	CB 26	0.16	0.9	0.14	0.02	0.3	0.01	0.30	6	-	6	9.2	2.8	3.9	5.4	0.012	1.0	111	12
CB 46	CB 45	0.24	0.9	0.22	0.09	0.3	0.03	0.25	6	-	6	9.2	2.3	3.9	5.1	0.012	1.0	20	12
CB 45	DMH 44	0.24	0.9	0.22	0.04	0.3	0.01	0.48	6	-	6	9.2	4.4	4.8	7.0	0.012	1.6	89	12
DMH 44	CB 43	0.00	0.9	0.00	0.00	0.3	0.00	0.48	6	-	6	9.2	4.4	4.9	7.1	0.012	1.6	154	12
CB 43	CB 42	0.06	0.9	0.05	0.00	0.3	0.00	0.53	6	-	6	9.2	4.9	7.8	10.5	0.012	4.1	138	12
CB 42	CB 41	0.06	0.9	0.05	0.00	0.3	0.00	1.03	6	-	6	9.2	9.5	13.5	11.9	0.012	3.7	54	15
CB 41	DI 40	0.03	0.9	0.03	0.00	0.3	0.00	1.06	6	-	6	9.2	9.8	13.9	8.5	0.012	1.5	112	18
DI 40	FS 1.3P	0.05	0.9	0.05	0.00	0.3	0.00	1.11	6	-	6	9.2	10.2	21.3	11.9	0.012	3.5	51	18
FS 1.3P	DMH 39	PIPE SIZED IN HYDROCAD																	
DMH 39	DMH 38	PIPE SIZED IN HYDROCAD																	
DMH 38	INF 1.3P	PIPE SIZED IN HYDROCAD																	
INF 1.3P	DMH 37	FLOW TAKEN FROM HYDROCAD											0.4	2.2	8.5	0.012	13.1	50	6
DMH 37	SDI 36	0.00	0.9	0.00	0.00	0.3	0.00	0.39	6	-	6	9.2	4.0	6.4	8.6	0.012	2.8	109	12
SDI 36	DI 35	0.02	0.9	0.02	1.07	0.3	0.32	0.73	6	-	6	9.2	7.1	8.5	7.7	0.012	1.5	103	15
DI 35	DI 34	0.00	0.9	0.00	0.22	0.3	0.07	0.80	6	-	6	9.2	7.8	10.1	9.1	0.012	2.1	76	15
DI 34	ES 33	0.00	0.9	0.00	0.03	0.3	0.01	0.81	6	-	6	9.2	7.9	11.4	7.0	0.012	1.0	182	18
SDI 37A	DMH 37	0.02	0.9	0.02	1.24	0.3	0.37	0.39	6	-	6	9.2	3.6	5.1	7.1	0.012	1.8	227	12
CB 41B	CB 41A	0.22	0.9	0.20	0.14	0.3	0.04	0.24	6	-	6	9.2	2.2	3.9	5.1	0.012	1.0	20	12
CB 41A	CB 41	0.22	0.9	0.20	0.02	0.3	0.01	0.45	6	-	6	9.2	4.1	7.0	6.0	0.012	1.0	146	15
FS 1.3P	DMH 39A	PIPE SIZED IN HYDROCAD																	
DMH 39A	ES 1.3P	PIPE SIZED IN HYDROCAD																	
CB 43A	CB 43	0.12	0.9	0.11	0.08	0.3	0.02	0.13	6	-	6	9.2	1.2	8.6	7.7	0.012	5.0	20	12
CB 51	CB 50	0.29	0.9	0.26	0.03	0.3	0.01	0.27	6	-	6	9.2	2.5	5.5	6.8	0.012	2.0	20	12
CB 50	DMH 49	0.24	0.9	0.22	0.04	0.3	0.01	0.50	6	-	6	9.2	4.6	7.9	6.7	0.012	1.3	126	15
DMH 49	CB 48	0.00	0.9	0.00	0.00	0.3	0.00	0.50	6	-	6	9.2	4.6	11.8	6.3	0.012	1.1	103	18
CB 48	CB 47	0.06	0.9	0.05	0.05	0.3	0.02	0.57	6	-	6	9.2	5.2	8.8	5.2	0.012	0.6	103	18



DRAINAGE SYSTEM CALCULATIONS
Design Storm: 100-Year

PROJECT: Trailside At Somers
JOB NUMBER: 21241.100
BY: JJS **DATE:** 4-23-2025
CHK: RDW **DATE:** 4-23-2025

STRUCTURE		IMPERVIOUS AREA			PERVIOUS AREA			CA	TIME OF CONC. (min.)			I	Q (cfs)		PIPE DESIGN				
FROM	TO	A (ac.)	C	CA	A (ac.)	C	CA		INLET	PIPE	TOTAL		DESIGN	CAP.	V(ft/s)	n	s (%)	L (ft)	DIA (in)
CB 47	SMP 1.2DS	0.16	0.9	0.14	0.38	0.3	0.11	1.85	6	-	6	9.2	17.0	19.0	6.8	0.012	0.6	24	24
DI 49A	DMH 49	0.00	0.9	0.00	0.11	0.3	0.03	0.03	6	-	6	9.2	0.3	11.3	6.1	0.012	8.6	41	12
DI 47A	CB 47	0.06	0.9	0.05	0.00	0.3	0.00	0.05	6	-	6	9.2	0.5	4.7	3.8	0.012	1.5	20	12
CB 47E	CB 47D	0.09	0.9	0.08	0.00	0.3	0.00	0.08	6	-	6	9.2	0.7	6.6	5.6	0.012	2.9	34	12
CB 47D	CB 47C	0.23	0.9	0.21	0.03	0.3	0.01	0.30	6	-	6	9.2	2.8	11.1	7.5	0.012	2.5	190	15
CB 47C	CB 47B	0.62	0.9	0.56	0.31	0.3	0.09	0.95	6	-	6	9.2	8.7	11.0	10.0	0.012	2.5	41	15
CB 47B	CB 47	0.03	0.9	0.03	0.00	0.3	0.00	0.98	6	-	6	9.2	9.0	13.5	11.8	0.012	3.7	46	15
CB 54	CB 53	0.24	0.9	0.22	0.01	0.3	0.00	0.22	6	-	6	9.2	2.0	3.9	5.0	0.012	1.0	20	12
CB 53	ES 52	0.20	0.9	0.18	0.10	0.3	0.03	0.43	6	-	6	9.2	4.0	4.6	6.6	0.012	1.4	21	12
CB 59	CB 58	0.44	0.9	0.40	0.03	0.3	0.01	0.41	6	-	6	9.2	3.8	4.3	6.2	0.012	1.3	143	12
CB 58	FS 1.5P	0.04	0.9	0.04	0.01	0.3	0.00	0.45	6	-	6	9.2	4.1	4.8	6.9	0.012	1.6	127	12
FS 1.5P	DMH 57	PIPE SIZED IN HYDROCAD																	
DMH 57	DMH 56	PIPE SIZED IN HYDROCAD																	
DMH 56	ES 55	PIPE SIZED IN HYDROCAD																	
CB 57A	FS 1.5P	0.24	0.9	0.22	0.06	0.3	0.02	0.24	6	-	6	9.2	2.2	6.1	7.1	0.012	2.5	20	12
FS 1.5P	HDS 1.5P	PIPE SIZED IN HYDROCAD																	
HDS 1.5P	SMP 1.5P	PIPE SIZED IN HYDROCAD																	
CB 61	JF 2.2F	0.48	0.9	0.43	0.05	0.3	0.02	0.45	6	-	6	9.2	4.1	4.7	6.8	0.012	1.5	52	12
JF 2.2F	ES 60	0.00	0.9	0.00	0.00	0.3	0.00	0.45	6	-	6	9.2	4.1	5.1	7.2	0.012	1.7	17	12
CB 63	JF 1.8F	0.29	0.9	0.26	0.01	0.3	0.00	0.26	6	-	6	9.2	2.4	6.8	7.9	0.012	3.1	16	12
JF 1.8F	ES 62	0.00	0.9	0.00	0.00	0.3	0.00	0.26	6	-	6	9.2	2.4	4.1	5.5	0.012	1.2	87	12

APPENDIX L

Draft Stormwater Maintenance Agreement

**DECLARATION OF COVENANTS, CONDITIONS, AND RESTRICTIONS FOR
TRAILSIDE ESTATES AT SOMERS**

DECLARATION made as of the ____ day of _____, 2023, by Parkview B & G, LLC, with an address at 57 Route 6, Suite 207, Baldwin Place, New York 10505 (hereinafter referred to as the “Declarant”).

W I T N E S S E T H:

WHEREAS, Declarant is the owner of all that certain lot, piece or parcel of land situate, lying and being in the Town of Somers, County of Westchester and State of New York, being designated as 4.20-1-12 & 15.08-1-4 as described in a deed recorded in the Putnam County Clerk’s office as document control number _____ (the “Property”); and

WHEREAS, Declarant plans to undertake or is undertaking plans for the development or sale of land that will result in over 40,000 square feet of new impervious surface and over 2 acres of land disturbance as described in the ***Rules and Regulations for the Protection from Contamination, Degradation and Pollution of the New York City Water Supply and Its Sources***, Title 10 New York Codes, Rules and Regulations Part 128-3.9(b)(4)(iii) & (iv); Title 15 Rules of the City of New York Chapter 18-39(b)(4)(iii) & (iv); (“Watershed Regulations”); and

WHEREAS, the Watershed Regulations require Declarant to prepare a Stormwater Pollution Prevention Plan (“SWPPP”) and submit the SWPPP to the New York City Department of Environmental Protection (“DEP”) for its review and approval so that stormwater generated by precipitation during and after soil disturbing activities and runoff from newly created impervious surfaces is captured and treated, thus reducing or eliminating a pollution discharge; and

WHEREAS, Declarant has submitted a SWPPP application to DEP for the Property described above, and received an approval from DEP for such SWPPP, dated _____, such SWPPP approval and the maintenance obligations being attached hereto as Exhibit 1; and

WHEREAS, Declarant desires to declare the following covenants, conditions and restrictions to govern the future development, use and maintenance of any lots that are part of the Property that may be conveyed to future owners, including the Declarant’s respective heirs, successors, and assigns, and to subject any deed of conveyance of any such lots to this Declaration, by reference thereto, to the covenants, conditions and restrictions described herein,

NOW, THEREFORE, Declarant hereby declares that the Property shall be held, sold, conveyed, transferred and occupied subject to the following covenants, conditions, and restrictions which are for the benefit of the City of New York as well as for the owners of the Property and which shall be perpetual so long as the provisions of the SWPPP continue to be required by the Watershed Regulations, shall run with the Property and be binding on the Declarant, its heirs, successors and assigns and be binding upon each successive owner of any Property parcel or lot described in the subdivision plan and the heirs, successors and assigns of each subsequent party having or acquiring any right, title or interest in the Property or any part thereof.

1. Declarant hereby acknowledges, covenants, warrants, and represents that it shall install and maintain any and all erosion and sediment controls and stormwater management practices on the Property in accordance with the SWPPP approved by DEP, dated _____, and any and all amendments to the SWPPP that may be required and that DEP may approve.
2. Declarant's installation and maintenance of the erosion and sediment controls and stormwater management practices shall be for the benefit of the City of New York as well as for the owners of the Property.
3. Declarant's obligation to install and maintain any and all erosion and sediment controls and stormwater management practices on the Property in accordance with the DEP-approved SWPPP and any and all amendments to the SWPPP that DEP may approve shall be perpetual so long as the provisions of the SWPPP continue to be required by the Watershed Regulations.
4. Declarant hereby acknowledges, covenants and warrants that this Property shall be subject to the maintenance obligations set forth and described in the SWPPP, with respect to any stormwater management practices or treatment of runoff located on areas commonly owned by multiple property owners or a homeowners' association in the subdivision.
5. Declarant hereby covenants, warrants, and represents that any lease, mortgage, subdivision, or other transfer of the Property, or any interest therein, shall be subject to the restrictive covenants contained herein pertaining to the installation and maintenance of erosion and sediment control and stormwater management practices, and any deed, mortgage, or other instrument of conveyance shall be subject to and, specifically refer to, the attached SWPPP approval and shall specifically state that the interest thereby conveyed is subject to the covenants and restrictions contained herein and therein.
6. These covenants, conditions and restrictions shall be recorded at the Office of the County Clerk, shall run with the land and shall apply to, inure to the benefit of, and bind the Declarant and all subsequent heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, Declarant has executed this document on the date first above written.

Signature

STATE OF NEW YORK)

)

COUNTY OF _____)

On _____, 20__, before me, the undersigned, a Notary Public in and for said State, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his/her capacity, and that by his/her capacity, and that by his/her signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

Notary Public

Exhibit 1
Maintenance Requirements

APPENDIX M

Porous Paver Patios Sizing and 10-Year Routing Calculations

Contained in this Appendix are the 10-year stormwater routings for the porous paver patio areas as well as sizing for the adjacent impervious surfaces being treated.

Porous Paver Patio Sizing:

Porous paver patios will be provided for Units 50 through 52 and 65 through 76. For Units 50 through 52 and 65 through 76, RRV credit will be applied for the porous paver patio. Each patio will provide 288 s.f. of area, or 297 c.f. of storage for a total combined storage of 4,455 c.f.

The contributing area to each porous paver patio is approximately the same, or 1,313 s.f. Therefore, the calculations below have been summed for all 15 porous paver patios so the cumulative RRV can be easily verified.

ID	RR _v Required (From Appendix A) (c.f.)	Porous Paver Patio Area Provided (s.f.)	Porous Paver Patio Volume Provided (Area x 40% porosity x 2.6 feet thick)
Porous Paver Patio and Rear of Single Unit for Units 50 through 52 & 65 through 76 (1.9S in HydroCAD)	0.090 ac-ft (3,921 c.f.)	4,320 s.f. (288 s.f. per patio min.)	4,455 c.f. (297 c.f. per patio) (based upon a thickness of 2.6 feet)
Total	0.090 ac-ft (3,921 c.f.)	-----	4,500 c.f.

The basic equation for sizing the required porous surface area per the Stormwater Design Manual is as follows:

$$A_p = V_w / (n \times d_t)$$

Where:

A_p = the required porous surface area (sq.ft)

V_w = the design volume (cubic feet)

n = porosity of gravel bed/reservoir (assume 0.4)

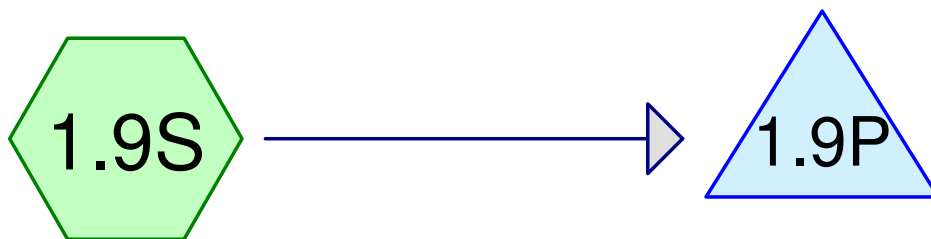
d_t = depth of gravel bed/reservoir (max of 4-ft, and separated by min. 3-ft from high groundwater)

Therefore, for each building with a porous paver patio the following would apply;

$$A_p = 297 \text{ cf} / (0.4 \times 2.6\text{-ft})$$

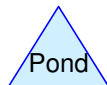
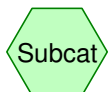
$$A_p = 285 \text{ s.f. required}$$

As shown in the calculation and table above, the area provided of 288 s.f. for each porous paver patio is greater than the minimum required of 285 s.f. Therefore, meeting the general requirements for surface area of a porous paver system per the Stormwater Design manual.



Node models
subcatchment to single
porous paver patio
typical for units 50
through 52 & 65
through 76

Typical porous paver
patio used for units 50
through 52 & 65
through 76



Trailside Somers - Porous Pavers

NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Prepared by {enter your company name here}

Printed 10/22/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

Page 2

Subcatchment 1.9S: Node models subcatchment to single porous paver patio typical for units 50 through 52

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af, Depth= 4.80"

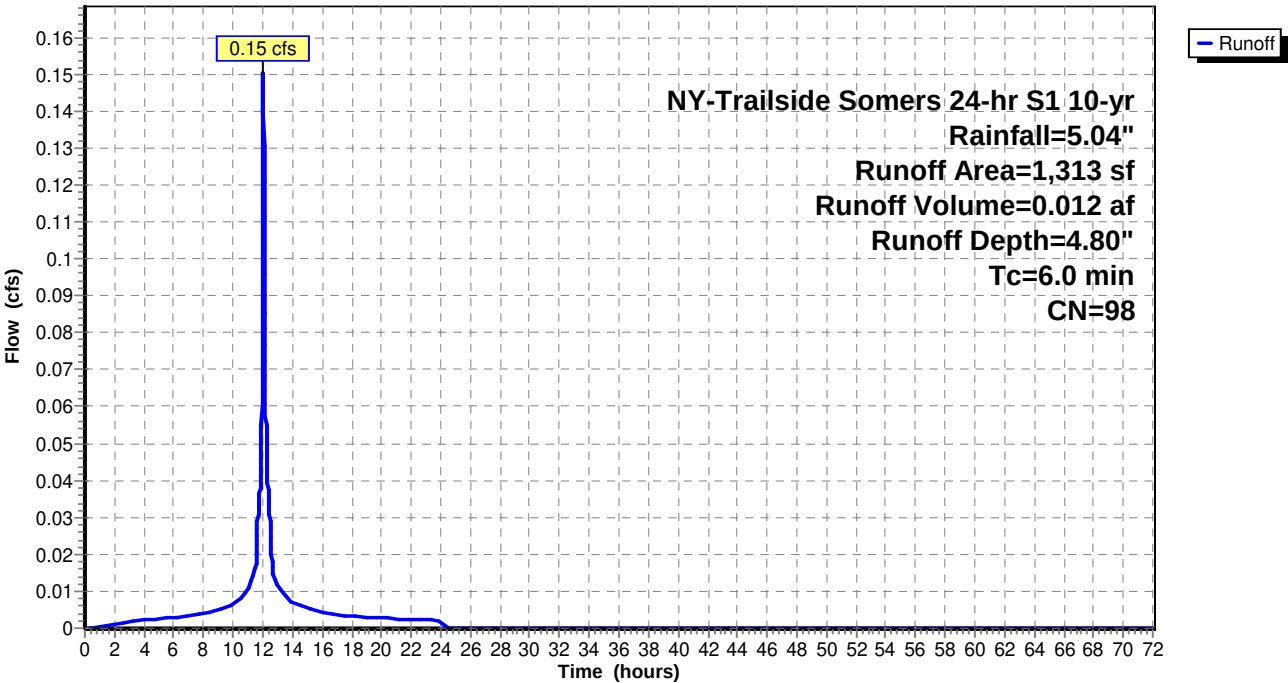
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
1,313		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Roof and Surface Runoff Less Than or Equal To 6 Mi

Subcatchment 1.9S: Node models subcatchment to single porous paver patio typical for units 50 through 52 & 65

Hydrograph



Summary for Pond 1.9P: Typical porous paver patio used for units 50 through 52 & 65 through 76

Inflow Area = 0.030 ac, 100.00% Impervious, Inflow Depth = 4.80" for 10-yr event
 Inflow = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af
 Outflow = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af, Atten= 98%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 8.18 hrs, Volume= 0.012 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.53' @ 18.01 hrs Surf.Area= 288 sf Storage= 292 cf

Plug-Flow detention time= 756.5 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 756.5 min (1,505.5 - 749.0)

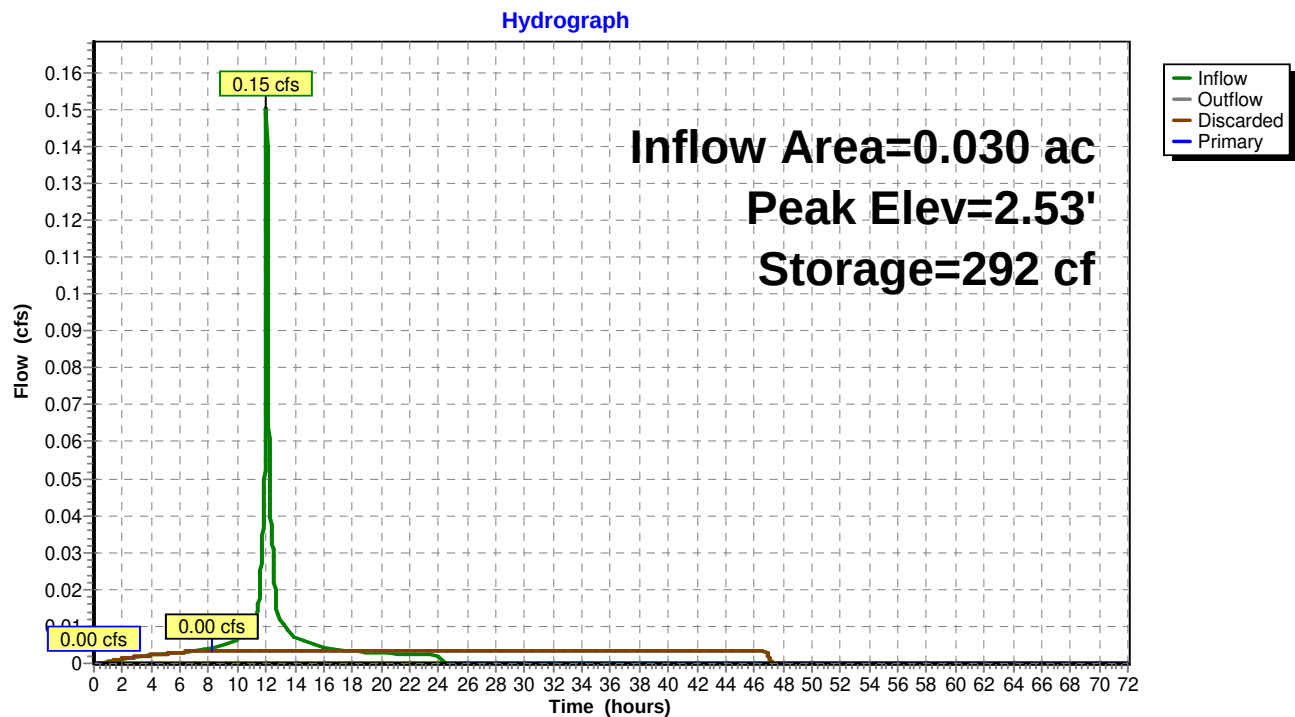
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	326 cf	24.00'W x 12.00'L x 2.83'H Prismatic 815 cf Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	0.500 in/hr Exfiltration over Surface area Phase-In= 0.01'
#2	Primary	2.60'	24.0' long 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=0.00 cfs @ 8.18 hrs HW=0.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

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

Pond 1.9P: Typical porous paver patio used for units 50 through 52 & 65 through 76



Trailside Somers - Porous Pavers**NY-Trailside Somers 24-hr S1 10-yr Rainfall=5.04"**

Prepared by {enter your company name here}

Printed 10/22/2025

HydroCAD® 10.00-15 s/n 00891 © 2015 HydroCAD Software Solutions LLC

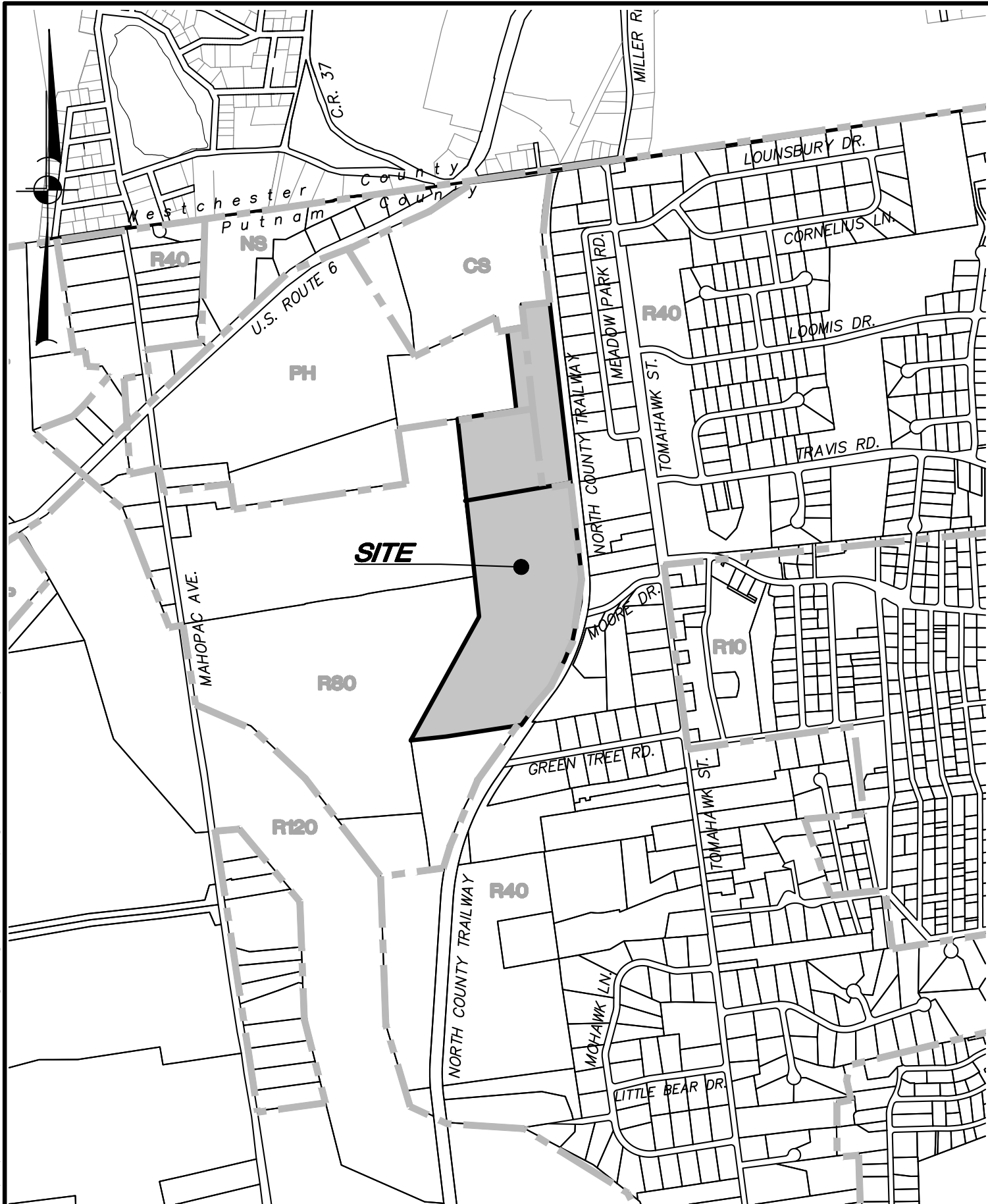
Page 5

Stage-Area-Storage for Pond 1.9P: Typical porous paver patio used for units 50 through 52 & 65 through 76

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
0.00	288	0	2.60	288	300
0.05	288	6	2.65	288	305
0.10	288	12	2.70	288	311
0.15	288	17	2.75	288	317
0.20	288	23	2.80	288	323
0.25	288	29			
0.30	288	35			
0.35	288	40			
0.40	288	46			
0.45	288	52			
0.50	288	58			
0.55	288	63			
0.60	288	69			
0.65	288	75			
0.70	288	81			
0.75	288	86			
0.80	288	92			
0.85	288	98			
0.90	288	104			
0.95	288	109			
1.00	288	115			
1.05	288	121			
1.10	288	127			
1.15	288	132			
1.20	288	138			
1.25	288	144			
1.30	288	150			
1.35	288	156			
1.40	288	161			
1.45	288	167			
1.50	288	173			
1.55	288	179			
1.60	288	184			
1.65	288	190			
1.70	288	196			
1.75	288	202			
1.80	288	207			
1.85	288	213			
1.90	288	219			
1.95	288	225			
2.00	288	230			
2.05	288	236			
2.10	288	242			
2.15	288	248			
2.20	288	253			
2.25	288	259			
2.30	288	265			
2.35	288	271			
2.40	288	276			
2.45	288	282			
2.50	288	288			
2.55	288	294			

FIGURES

Z:\E\21241100 Kearney, Reynolds Dr, Somers\Stormwater\Figures\Figure 1- Location Map.dwg, 11/21/2023 10:10:34 AM, jmkulewicz, 1:1



PROJECT:
TRAILSIDE ESTATES AT SOMERS
REYNOLDS DRIVE, TOWN OF SOMERS, WESTCHESTER COUNTY, NEW YORK
DRAWING:

LOCATION MAP

PREPARED BY:



INSITE
ENGINEERING, SURVEYING &
LANDSCAPE ARCHITECTURE, P.C.

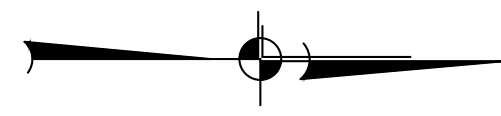
3 Garrett Place • Carmel, New York 10512
Phone (845) 225-9690 • Fax (845) 225-9717
www.insite-eng.com

DATE: 11-20-23

SCALE: 1"=1000'

PROJECT NO.: 21241.100

FIGURE:
FIG-1



LEGEND

PRE 1 SUBCATCHMENT

SF TIME OF CONCENTRATION SHEET FLOW

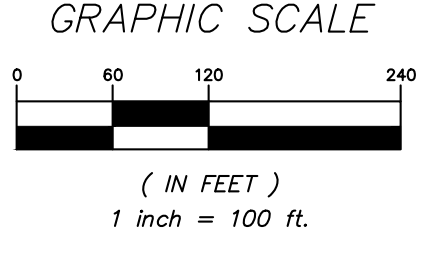
SCF TIME OF CONCENTRATION SHALLOW CONCENTRATED FLOW

CF TIME OF CONCENTRATION CHANNEL FLOW

DESIGN POINT

SUBCATCHMENT CONTRIBUTING AREA

SOILS LEGEND		
SOILS	DESCRIPTION	HYDROLOGICAL GROUP
ChB	Charlton fine sandy loam, 2% to 8% slopes	B
ChC	Charlton fine sandy loam, 8% to 15% slopes	B
ChD	Charlton fine sandy loam, 15% to 25% slopes	B
CIB	Charlton fine sandy loam, 2% to 8% slopes, very stony	B
CIC	Charlton fine sandy loam, 8% to 15% slopes, very stony	B
CID	Charlton loam, 15% to 25% slopes, very stony	B
LcA	Leicester loam, 0% to 3% slopes, stony	D
LeB	Leicester loam, 2% to 8% slopes, very stony	D
PnB	Paxton fine sandy loam, 2% to 8% slopes	C
PnC	Paxton fine sandy loam, 8% to 15% slopes	C
RgB	Ridgebury loam, 2% to 8% slopes, very stony	C
Ub	Udorthents, smoothed	D
Uf	Urban land	D
WdA	Woodbridge loam, 0% to 3% slopes	C
W	Water	-
NRCS Soil Boundary Line		



1	5-10-24	REVISED FOR TOWN SUBMISSION	EJP
NO.	DATE	REVISION	BY

INSITE
ENGINEERING, SURVEYING &
LANDSCAPE ARCHITECTURE, P.C.

3 Garrett Place
Carmel, NY 10512
(845) 225-9690
(845) 225-9717 fax
www.insite-eng.com

PROJECT:
TRAILSIDE ESTATES AT SOMERS

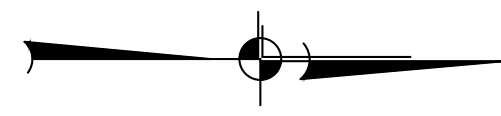
REYNOLDS DRIVE, TOWN OF SOMERS, WESTCHESTER COUNTY, NEW YORK

DRAWING:
**PRE-DEVELOPMENT
DRAINAGE MAP**

PROJECT NUMBER	21241.100	PROJECT MANAGER	R.D.W.	DRAWING NO.
DATE	11-20-23	DRAWN BY	J.W.M.	FIG-2
SCALE	1" = 100'	CHECKED BY	R.D.W.	

Z:\21241.100\Drawings\Drawings\FIG-2 PRE-DEVELOPMENT Drainage Map.dwg, 11/20/23 10:05:57 AM, updated, 11

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 2209 OF ARTICLE 145 OF THE EDUCATION LAW.



LEGEND

1.0S SUBCATCHMENT

1.1P STORMWATER MANAGEMENT PRACTICE

SF TIME OF CONCENTRATION SHEET FLOW

SCF TIME OF CONCENTRATION SHALLOW CONCENTRATED FLOW

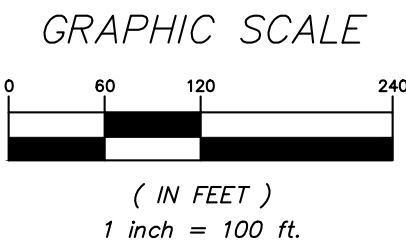
CF TIME OF CONCENTRATION CHANNEL FLOW

DESIGN POINT

SUBCATCHMENT CONTRIBUTING AREA

STORMWATER MANAGEMENT PRACTICE AREA

SOILS LEGEND		
SOILS	DESCRIPTION	HYDROLOGICAL GROUP
ChB	Charlton fine sandy loam, 2% to 8% slopes	B
ChC	Charlton fine sandy loam, 8% to 15% slopes	B
ChD	Charlton fine sandy loam, 15% to 25% slopes	B
CIB	Charlton fine sandy loam, 2% to 8% slopes, very stony	B
CIC	Charlton fine sandy loam, 8% to 15% slopes, very stony	B
CID	Charlton loam, 15% to 25% slopes, very stony	B
LcA	Leicester loam, 0% to 3% slopes, stony	D
LeB	Leicester loam, 2% to 8% slopes, very stony	D
PnB	Paxton fine sandy loam, 2% to 8% slopes	C
PnC	Paxton fine sandy loam, 8% to 15% slopes	C
RgB	Ridgebury loam, 2% to 8% slopes, very stony	C
Ub	Udorthents, smoothed	D
Uf	Urban land	D
WdA	Woodbridge loam, 0% to 3% slopes	C
W	Water	-
--- NRCS Soil Boundary Line		



NO.	DATE	REVISION	BY
INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.			
PROJECT: TRAILSIDE ESTATES AT SOMERS			
REYNOLDS DRIVE, TOWN OF SOMERS, WESTCHESTER COUNTY, NEW YORK			
DRAWING: POST-DEVELOPMENT DRAINAGE MAP			
PROJECT NUMBER 21241.100	PROJECT MANAGER R.D.W.	DRAWING NO. FIG-3	
DATE 11-20-23	DRAWN BY J.W.M.		
SCALE 1" = 100'	CHECKED BY R.D.W.		



DEEP HOLE TEST RESULTS

DEEP TESTS OBSERVED ON APRIL 9, 2024 BY JOSEPH MKULEWICZ
(INSTE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.)

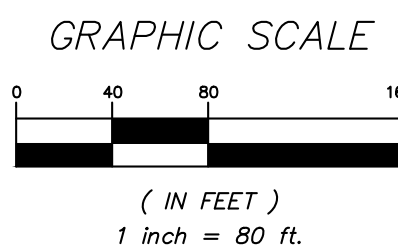
NOTE: NO GROUNDWATER, MOTTING, OR ROCK ENCOUNTERED
UNLESS OTHERWISE NOTED.

D1: 0'-8": TOPSOIL 8'-30": SILTY LOAM 30'-64": SANDY LOAM WITH SILT, GRAVEL AND COBBLES GROUNDWATER @ 60"	D6: 0'-8": TOPSOIL 8'-40": SILTY LOAM 40'-94": SANDY LOAM WITH SOME SILT, GRAVEL AND COBBLES GROUNDWATER @ 94"
D2: 0'-8": TOPSOIL 8'-32": SILTY LOAM 32'-62": SANDY LOAM WITH SOME BOULDERS GROUNDWATER @ 62"	D7: 0'-8": TOPSOIL 8'-33": SILTY LOAM 33'-105": SANDY LOAM WITH SOME SILT, GRAVEL AND COBBLES GROUNDWATER @ 95"
D3: 0'-8": TOPSOIL 8'-48": SILTY LOAM WITH SOME SAND GROUNDWATER @ 30"	D8: 0'-8": TOPSOIL 8'-23": SILTY LOAM 23'-90": SANDY LOAM WITH SOME GRAVEL AND COBBLES GROUNDWATER @ 90"
D4: 0'-8": TOPSOIL 8'-26": SILTY LOAM 26'-90": SANDY LOAM SOME SILT, GRAVEL AND COBBLES GROUNDWATER @ 90"	D9: 0'-8": TOPSOIL 8'-20": SILTY LOAM 20'-59": SANDY LOAM WITH SOME GRAVEL GROUNDWATER @ 59"
D5: 0'-8": TOPSOIL 8'-24": SILTY LOAM 24'-47": SANDY LOAM WITH SOME SILT 47'-96": SANDY LOAM SOME SILT, GRAVEL AND COBBLES	

INFILTRATION TEST RESULTS

DEEP TESTS PERFORMED ON MAY 6 & 7, 2024 BY CONNOR STEPPOSKI
(INSTE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.)

I1: 3 INCH/HOUR	I2: 14 INCH/HOUR
I3: 4 INCH/HOUR	I5: 10 INCH/HOUR
	I6: 6 INCH/HOUR



NO.	DATE	REVISION	BY
 ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.			
PROJECT: TRILSIDE ESTATES AT SOMERS			
REYNOLDS DRIVE, TOWN OF SOMERS, WESTCHESTER COUNTY, NEW YORK			
DRAWING: TESTING PLAN			
PROJECT NUMBER	21241.100	PROJECT MANAGER	R.D.W.
DATE	5-10-24	DRAWN BY	N.F.B.
SCALE	1" = 80'	CHECKED BY	R.D.W.
			DRAWING NO. FIG-4