

Stormwater Pollution Prevention Plan

Garthe Residence

13 Tavano Road
Town of Ossining

May 26, 2023



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1 Executive Summary

This Stormwater Pollution Prevention Plan (SWPPP) and accompanying project plans have been prepared for the construction activities associated with 13 Tavano Road located in the Town of Ossining, New York. The stormwater management, pollution prevention, and erosion and sediment control measures identified and detailed in this SWPPP and on the accompanying project plans have been designed in accordance with the requirements of the Town of Ossining and the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) Phase II technical standards.

The proposed project:

1. Maintains the existing drainage patterns, as much as possible.
2. Controls increases in the rate of stormwater runoff resulting from the proposed development without adversely affecting adjacent or downstream properties or receiving watercourses or bodies.
3. Reducing potential stormwater quality impacts and soil erosion resulting from stormwater runoff generated both during and after construction.

The pre- and post-development stormwater runoff conditions have been reviewed and evaluated. The proposed stormwater management facilities have been designed to provide 50-year storm quantity controls. Stormwater runoff will be detained, treated, and released at a rate equal to or less than that which existed prior to development of the project site.

2 Project Site Description

The Garthe/Vargas family owns 13 Tavano Road. The subject lot is 4.459 acres and located on the north side of the street. The property is located in the R-40 Zoning District. There is a main house, two accessory buildings, pool and pool house existing on the lot. There are 2 ponds located on the western side of the property. This proposed project will focus on the pool house area.

2.1 Pre-Development Conditions

The site is currently developed as a typical single-family residential lot, with a driveway, main house, two accessory buildings, pool and pool house. The topography of the site falls east to west, draining to the on-site ponds.

2.2 Post-Development Conditions

The proposal includes the expansion of the existing pool house to create an outdoor living space. The majority of the new development will be on an elevated deck with roof cover. The proposed stormwater management system will collect the roof area and mitigate the flows in an underground infiltration system. Percolation testing performed in the treatment area yielded favorable results.



3 Construction Sequencing

The total disturbance of the proposed project is 0.2 acres. The proposed project will be completed in a single phase. The construction sequencing is outlined on the accompanying plans and is provided below. The construction sequencing is as follows:

1. The Contractor shall flag the limits of disturbance prior to the commencement of construction. Bright orange construction fencing shall be used to demarcate the limits of disturbance to ensure over clearing does not occur.
2. All temporary erosion and sediment control measures (e.g., stabilized construction entrances, silt fencing, storm drain inlet protection, etc.) shall be installed as shown on the project plans. Temporary erosion and sediment control measures shall be constructed, stabilized, and functional before site disturbance begins within their tributary areas.
3. Stake out the locations of the limits of disturbance, proposed stormwater management facilities, and improvements (e.g., walls, etc.).
4. Remove trees, stumps, and vegetation within the disturbance limits in accordance with the project plans. All stumps shall be stockpiled for either grinding in-place or removal from site. Stump burial is prohibited.
5. Rough grade the site. Place surplus material in the temporary soil stockpile locations shown on the project plans.
6. Construct the new outdoor living area.
7. Install the stormwater mitigation system at the appropriate elevations. Connect the roof drainage system.
8. Finish grading and stabilize all disturbed areas. All erosion and sediment control measures must be left in place to prevent sediment from entering the infiltration practices. The Contractor shall clean all catch basins, manholes, and drainage lines of any accumulated silt and sediment prior to finalizing the infiltrations area.
9. Remove all temporary erosion and sediment control measures. Immediately stabilize the areas disturbed during their removal. Establish permanent vegetative cover and install all landscaping.

4 Erosion and Sediment Control Plan

This SWPPP and accompanying project plans identify both temporary and permanent erosion and sediment control measures, which have been designed in accordance with the *New York State Standards and Specifications for Erosion and Sediment Control*, latest revision. Temporary erosion and sediment control measures will be implemented during construction to minimize soil erosion and control sediment transport off-site. Permanent erosion and sediment control measures will be implemented after construction to control the quality and quantity of stormwater runoff from the developed site.



4.1 Erosion and Sediment Control Measures

Temporary erosion and sediment control measures to be utilized during construction generally include the following:

1. **Stabilized Construction Entrance** - Prior to construction, stabilized construction entrances shall be installed to reduce the tracking of sediment onto public roadways. Construction traffic must enter and exit the site at the stabilized construction entrance. The entrance shall be maintained in good condition, which will control tracking of sediment onto public rights-of-way or streets. When necessary, the placement of additional aggregate atop the filter fabric shall be done to assure the minimum thickness is maintained. All sediments and soils spilled, dropped, or washed onto the public rights-of-way must be removed immediately. Periodic inspection and needed maintenance shall be provided after each substantial rainfall event.
2. **Dust Control** - Water trucks shall be used, as needed, during construction to reduce dust generated on the site. Dust control must be provided by the general contractor to a degree that is acceptable to the owner/operator, and in compliance with the applicable local and state dust control requirements.
3. **Temporary Soil Stockpile** - Materials, such as topsoil, shall be temporarily stockpiled (if necessary) on the site during the construction process. Stockpiles shall be located in an area away from storm drainage, water bodies and/or courses, and shall be properly protected from erosion by a surrounding silt fence barrier or hay bales when located on paved areas.
4. **Silt Fencing** - Prior to the initiation of and during construction activities, silt fencing shall be established along the perimeter of all areas to be disturbed as a result of the construction which lie up gradient of water courses or adjacent properties. These barriers may extend into non-impact areas to ensure adequate protection of adjacent lands. Clearing and grubbing shall be performed only as necessary for the installation of the sediment control barrier. To ensure effectiveness of the silt fencing, daily inspections and inspections immediately after significant storm events shall be performed by site personnel. Maintenance of the fence shall be performed as needed.
5. **Temporary Seeding** - Within seven days after construction activity ceases on any particular area of the site, all disturbed areas where there shall not be construction for longer than 14 days shall be temporarily seeded and mulched to minimize erosion and sediment loss.
6. **Dewatering** - Dewatering, if required, shall not be discharged directly into wetlands, water courses, water bodies, and storm sewer systems. Proper methods and devices shall be utilized to the extent permitted by law, such as pumping water into temporary sediment basins, providing surge protection at the inlet and outlet of pumps, floating the intake of the pump, or other methods to minimize and retain the suspended solids.

Permanent erosion and sediment control measures to be utilized after construction generally include the following:

1. **Establishment of Permanent Vegetation** - Disturbed areas that are not covered by impervious surfaces shall be seeded in accordance with the accompanying plans. The type of



seed, mulch, and maintenance measures shall be followed. All areas at final grade shall be seeded and mulched within seven (7) days after completion of the major construction activity. All seeded areas shall be protected with mulch and/or hay. Final site stabilization is achieved when all soil-disturbing activities at the site has been completed and a uniform, perennial vegetative cover with a density of 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.

2. **Final Seeding and Planting** - Final seeding and planting shall be installed as shown on the accompanying plans. Final seeding and planting will help minimize erosion and sediment loss.

Specific erosion and sediment control measures, inspection frequency, and remediation procedures are provided in the subsequent sections and on the accompanying project plans.

4.2 Pollution Prevention Controls

Good housekeeping practices are designed to maintain a clean and orderly work environment. Good housekeeping measures shall be maintained throughout the construction process by those parties involved with the direct care and development of the site. The following measures should be implemented to control the possible exposure of harmful substances and materials to stormwater runoff:

1. Material resulting from the clearing and grubbing operation shall be stockpiled away from storm drainage, water bodies and/or watercourses and surrounded with adequate erosion and sediment control measures. Soil stockpile locations shall be exposed no longer than 14 days before seeding.
2. Equipment maintenance areas shall be protected from stormwater flows and shall be supplied with appropriate waste receptacles for spent chemicals, solvents, oils, greases, gasoline, and any pollutants that might contaminate the surrounding habitat and/or water supply. Equipment wash-down zones shall be located within areas draining to sediment control devices.
3. The use of detergents for large-scale (i.e., vehicles, buildings, pavement surfaces, etc.) washing is prohibited.
4. Material storage locations and facilities (i.e., covered storage areas, storage sheds, etc.) shall be located onsite and shall be stored according to the manufacturer's standards in a dedicated staging area. Chemicals, paints, solvents, fertilizers, and other toxic material must be stored in waterproof containers. Runoff containing such materials must be collected, removed from the site, treated and disposed at an approved solid waste or chemical disposal facility.
5. Hazardous spills shall be immediately contained to prevent pollutants from entering the surrounding habitat and/or water supply. Spill Kits shall be provided onsite and shall be displayed in a prominent location for ease of access and use. Spills greater than five (5) gallons shall be reported to the NYSDEC Response Unit at 1-800-457-7362. In addition, a record of the incident(s) and/or notifications shall be documented and attached to the SWPPP.



6. Portable sanitary waste facilities shall be provided onsite for workers and shall be properly maintained.
7. Dumpsters and/or debris containers shall be located onsite and shall be of adequate size to manage respective materials. Regular collection and disposal of wastes shall occur as required.
8. Temporary concrete washout facilities should be located a minimum of 50 feet from storm drain inlets, open drainage facilities, and watercourses. Each facility should be located away from construction traffic or access areas to prevent disturbance or tracking. A sign should be installed adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities. When temporary concrete washout facilities are no longer required for the work, the hardened concrete shall be removed and disposed of. Materials used to construct the temporary concrete washout facilities shall be removed and disposed of. Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities shall be backfilled and/or repaired, seeded, and mulched for final stabilization.
9. Non-stormwater components of site discharge must be clean water. Water used for construction, which discharges from the site, must originate from a public water supply or private well approved by the Health Department. Water used for construction that does not originate from an approved public supply must not discharge from the site. It can be retained in the ponds until it infiltrates and evaporates.

4.3 Soil Restoration

The soils within in the limits of disturbance are Type C soils. In accordance with Table 5.3 of the *New York State Stormwater Management Design Manual*, the soils shall be restored as outlined in Table 1 below:

Table 1: Soil Restoration

Type of Soil Disturbance	Soil Restoration Requirement	Comment
No soil disturbance (preservation of natural features)	Restoration not permitted	Protect from any ongoing construction activity
Minimal soil disturbance	Restoration not permitted	Clearing and grubbing activities
Areas where topsoil is stripped only (no change in grade)	Apply 6" of topsoil	Protect from any ongoing construction activity
Areas of cut or fill	Aerate and apply 6" of topsoil	Aeration includes the use of machines such as tractor-drawn implements with coulters making a narrow slit in the soils, a roller with many spikes making indentations in the soil, or prongs with function like a mini-subsoiler.



Type of Soil Disturbance	Soil Restoration Requirement	Comment
Heavy traffic areas on site (especially in a zone 5-25' around buildings but not within a 5' perimeter around foundation walls)	Apply full soil restoration (de-compaction and compost enhancement)	Deep rip the affected thickness of the exposed subsoil material, aggressively fracturing it before the protected topsoil is reapplied on site. De-compact simultaneously through the restored topsoil layer and the upper half of the affected subsoil.
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.	Protect from any ongoing construction activity

During periods of relatively low to moderate subsoil moisture, the disturbed soils are returned to rough grade and the following soil restoration steps are applied:

1. Apply 3-inches of compost over subsoil.
2. Till compost into subsoil to a depth of at least 12" using a cat-mounted ripper, tractor-mounted disc, or tiller, mixing and circulating air and compost into subsoils.
3. Rock-pick until uplifted stone/rock materials of 4-inches and larger size are cleaned off the site.
4. Apply topsoil to a depth of 6-inches.
5. Vegetate as required by the project plans.

5 Stormwater Management Plan

The goals of this Stormwater Management Plan are to:

1. Analyze the peak rate of runoff under pre- and post-development conditions.
2. Maintain the pre-development rate of runoff in order to minimize impacts to adjacent or downstream properties.
3. Minimize the impact of the quality of runoff exiting the site.

Stormwater runoff from the proposed project will be collected and conveyed to the proposed stormwater management facilities. Stormwater runoff will be detained, treated, and released at a rate equal to or less than that which existed prior to development of the project site.

5.1 Hydrologic Analysis

The study area was made up of one subcatchment for pre-development conditions and post-development conditions. This was dictated by watershed conditions, methods of collection, conveyance, and points of discharge. Watershed delineations were defined by the proposed development area.



HydroCAD, a Computer-Aided-Design (CAD) program, was used to analyze the hydrologic characteristics of the pre-development watershed conditions, post-development watershed conditions, and proposed stormwater management systems. HydroCAD has the capability of computing hydrographs (which represents discharge rates characteristic of specified watershed conditions, precipitation, and geologic factors), combining hydrographs, and routing flows through pipes, streams, channels, and ponds.

5.1.1 Rainfall Data

Rainfall data utilized in the modeling and analysis was obtained from National Weather Service (NWS) Technical Paper 40 (TP-40), Rainfall Frequency Atlas of the U.S. Weather Bureau, published by the U.S. Department of Commerce. A Type III rainfall distribution was used to evaluate the pre- and post-development stormwater runoff conditions for the 50-year 24-hour storm events for the project location. Rainfall data specific to the portion of Westchester County under consideration is provided in [Table 2](#) below.

Table 2: Rainfall Data

Storm Event	24-Hour Rainfall
50-year	6.87 inches

5.1.2 Unified Stormwater Sizing Criteria

5.1.2.1 *Water Quantity Control*

5.1.3 Comparison of Peak Discharge Rates

A comparison of the pre- and post-development peak discharge rates is provided in [Table 3](#) below.

Table 3: Comparison of Pre- & Post-Development Peak Discharge Rates

Storm Event	Pre (cfs)	Post (cfs)	Difference
50-year	0.14	0.7	-50%

Comparison of the peak discharge rates for pre- and post-development watershed conditions demonstrates that the peak rate of runoff from the proposed development will remain the nearly the same or not be increased. Therefore, the proposed development will not adversely impact the downstream or adjacent properties, receiving water bodies or courses, or wetlands. The results of the computer modeling used to analyze the pre- and post-development watershed conditions are presented in [Appendix A](#).



6 Post Construction Requirements

6.1 Inspection and Maintenance

Post-construction inspections and maintenance shall be performed by the homeowner. Inspections and maintenance for the various site components and stormwater management facilities shall be performed in accordance with the accompanying project plans and this SWPPP.

A summary of the general site inspection and maintenance parameters is provided in Table 4 below.

Table 4: General Site Post-Construction Inspection and Maintenance

Maintenance Item	Frequency	Description of Inspection Parameters	Description of Remedy Procedures
Site Structures	Annual & After Major Storms	-Accumulated sediment in catch basin sumps -Accumulated debris and litter -Damage or fatigue of storm structures or associated components -Accumulation of pollutants, including oils or grease, in catch basin sumps	-Remove -Remove -Replace and/or repair, as necessary -Remove pollutants from catch basins. Replace and/or repair pollutant source.
Pavement	Biannual/Annual	-Accumulated sediment in paved areas -Accumulated debris and litter	-Remove (sweep min. 2 times/year) -Remove
Embankments	Annual	-Differential settlement of embankments -Embankment erosion -Animal burrows -Cracking, bulging, or sliding of embankment	-Stabilize and restore to original specs -Stabilize and restore to original specs -Remove -Stabilize and restore to original specs
Grass and Landscaped areas	Annual	-Vegetation: 80% coverage + less than 15% invasive plant species -Unauthorized plantings -Undesirable vegetative growth	-Restore original specs -Remove -Mow a min. of 3 times/year. May increase for aesthetic reasons. -Remove
Winter Maintenance	Monthly	-Accumulated debris and litter -Accumulation of snow and ice on catch basins, inlet and outlet structures, and end sections -Stock piled snow near inlets and outlets -Remaining deicing materials	-Remove -Remove -Remove -Remove in early spring by sweeping
Swales	Monthly	-Erosion of side slopes -Formation of rills or gullies -Excess grass growth -Undesirable vegetative growth -Accumulated debris, litter, or sediment -Residual deicing materials (sand)	-Stabilize and restore to original specs -Repair and restore to original specs -Mow -Remove -Remove -Remove & replace any damaged vegetation



7 Conclusion

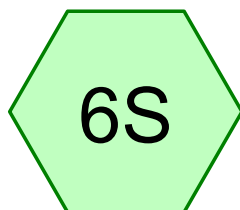
This Stormwater Pollution Prevention Plan for the for 13 Tavano Road incorporates an Erosion and Sediment Control Plan and Stormwater Management Plan. The SWPPP identifies the measures to be implemented during construction to minimize soil erosion and control sediment transport off-site, and after construction to control the water quality and quantity of stormwater runoff from the developed site to minimize adverse effects to downstream conditions.

This Stormwater Pollution Prevention Plan has been developed in accordance with the requirements of the Village of Larchmont and the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) Phase II technical standards. It is our opinion that the proposed project will not adversely impact adjacent or downstream properties, or receiving surface waters or wetlands, if the erosion and sediment control measures and stormwater management facilities are properly constructed, and maintained in accordance with the requirements outlined herein.

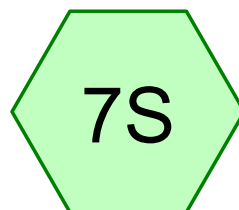


Appendix A

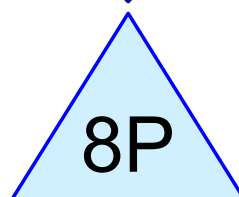
Pre & Post-Development HydroCAD Analysis



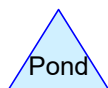
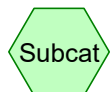
Existing



Proposed



2 Cultec Chambers



Routing Diagram for 13 Tavano Road

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13 Tavano Road

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Type III 24-hr 50-yr Rainfall=6.87"

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Summary for Subcatchment 6S: Existing

Runoff = 0.14 cfs @ 12.09 hrs, Volume= 0.010 af, Depth= 3.93"

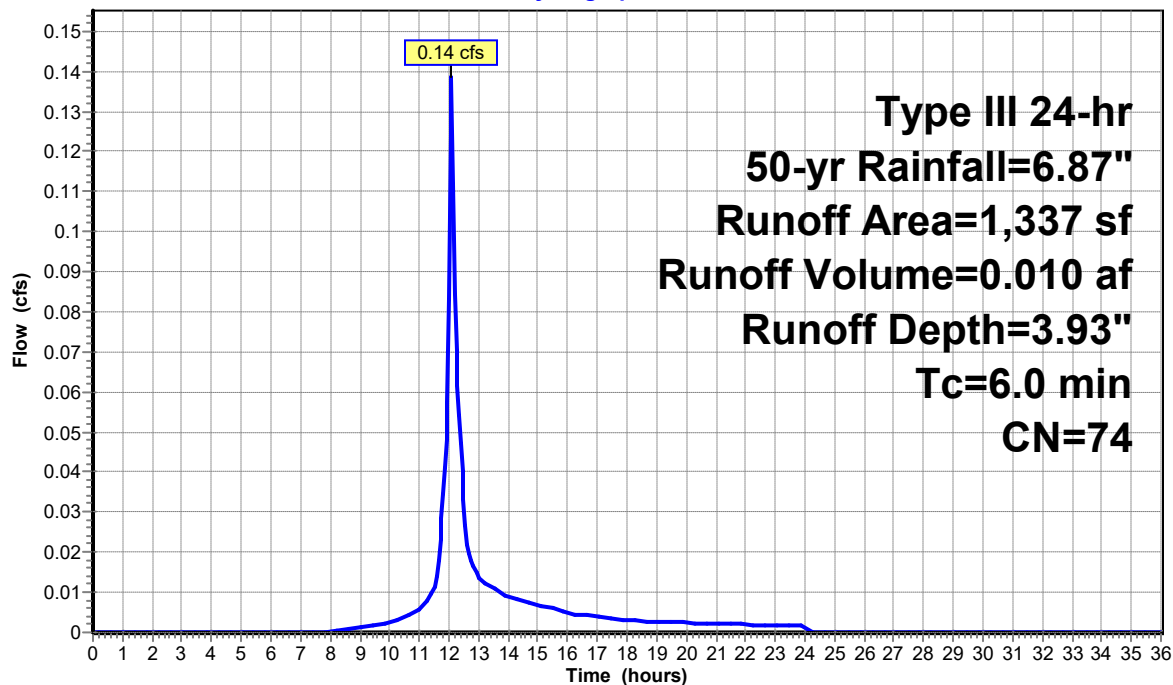
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=6.87"

Area (sf)	CN	Description
1,337	74	>75% Grass cover, Good, HSG C
1,337		100.00% Pervious Area

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

Subcatchment 6S: Existing

Hydrograph



13 Tavano Road

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Type III 24-hr 50-yr Rainfall=6.87"

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Summary for Subcatchment 7S: Proposed

Runoff = 0.21 cfs @ 12.07 hrs, Volume= 0.017 af, Depth= 6.63"
Routed to Pond 8P : 2 Cultec Chambers

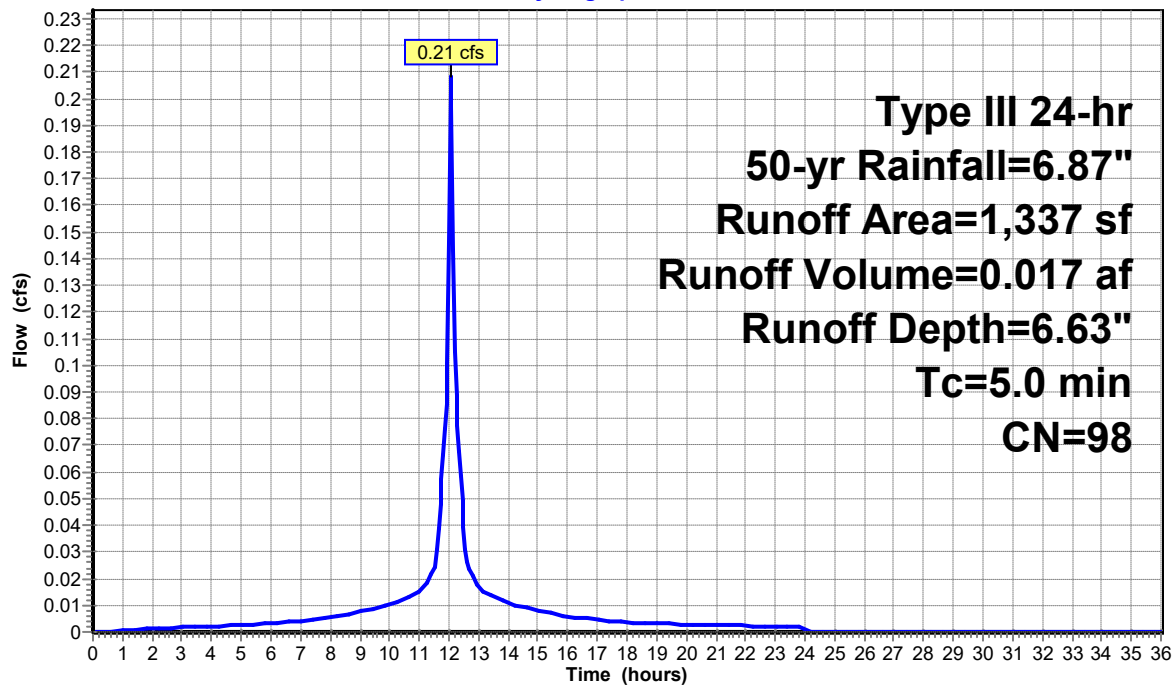
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-yr Rainfall=6.87"

	Area (sf)	CN	Description
*	1,337	98	Roof Area, HSG C
	1,337		100.00% Impervious Area

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

Subcatchment 7S: Proposed

Hydrograph



13 Tavano Road

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Type III 24-hr 50-yr Rainfall=6.87"

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Summary for Pond 8P: 2 Cultec Chambers

Inflow Area = 0.031 ac, 100.00% Impervious, Inflow Depth = 6.63" for 50-yr event
Inflow = 0.21 cfs @ 12.07 hrs, Volume= 0.017 af
Outflow = 0.07 cfs @ 12.27 hrs, Volume= 0.016 af, Atten= 68%, Lag= 11.8 min
Discarded = 0.01 cfs @ 10.70 hrs, Volume= 0.015 af
Primary = 0.05 cfs @ 12.27 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 97.52' @ 12.25 hrs Surf.Area= 0.003 ac Storage= 0.005 af

Plug-Flow detention time= 158.0 min calculated for 0.016 af (94% of inflow)
Center-of-Mass det. time= 125.7 min (868.0 - 742.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	91.00'	0.003 af	6.33'W x 17.50'L x 3.54'H Field A 0.009 af Overall - 0.003 af Embedded = 0.006 af x 40.0% Voids
#2A	91.50'	0.003 af	Cultec R-330XLHD x 2 Inside #1 Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap Row Length Adjustment= +1.50' x 7.45 sf x 1 rows
		0.005 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	91.00'	5.000 in/hr Exfiltration over Surface area
#2	Primary	97.50'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 10.70 hrs HW=91.07' (Free Discharge)
↑ **1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.03 cfs @ 12.27 hrs HW=97.52' (Free Discharge)
↑ **2=Orifice/Grate** (Weir Controls 0.03 cfs @ 0.44 fps)

13 Tavano Road

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Type III 24-hr 50-yr Rainfall=6.87"

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Pond 8P: 2 Cultec Chambers - Chamber Wizard Field A

Chamber Model = Cultec R-330XLHD (Cultec Recharger® 330XLHD)

Effective Size= 47.8"W x 30.0"H => 7.45 sf x 7.00'L = 52.2 cf

Overall Size= 52.0"W x 30.5"H x 8.50'L with 1.50' Overlap

Row Length Adjustment= +1.50' x 7.45 sf x 1 rows

2 Chambers/Row x 7.00' Long +1.50' Row Adjustment = 15.50' Row Length +12.0" End Stone x 2 = 17.50' Base Length

1 Rows x 52.0" Wide + 12.0" Side Stone x 2 = 6.33' Base Width

6.0" Stone Base + 30.5" Chamber Height + 6.0" Stone Cover = 3.54' Field Height

2 Chambers x 52.2 cf +1.50' Row Adjustment x 7.45 sf x 1 Rows = 115.5 cf Chamber Storage

392.5 cf Field - 115.5 cf Chambers = 277.0 cf Stone x 40.0% Voids = 110.8 cf Stone Storage

Chamber Storage + Stone Storage = 226.3 cf = 0.005 af

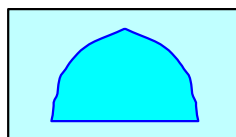
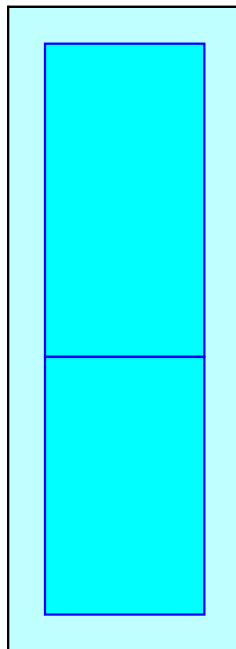
Overall Storage Efficiency = 57.7%

Overall System Size = 17.50' x 6.33' x 3.54'

2 Chambers

14.5 cy Field

10.3 cy Stone



13 Tavano Road

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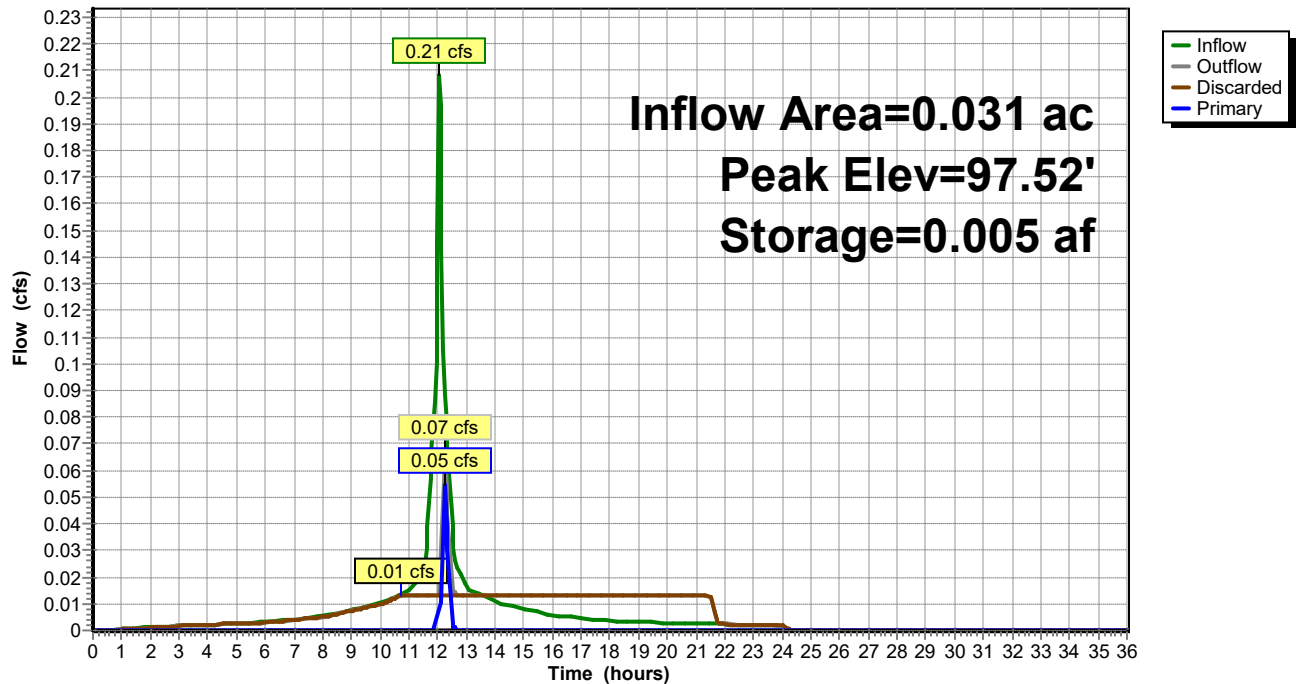
Type III 24-hr 50-yr Rainfall=6.87"

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Pond 8P: 2 Cultec Chambers

Hydrograph



Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point									
Smoothing	Yes								
State	New York								
Location	New York, United States								
Latitude	41.175 degrees North								
Longitude	73.826 degrees West								
Elevation	150 feet								
Date/Time	Sat May 27 2023 09:54:57 GMT-0400 (Eastern Daylight Time)								

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.34	0.51	0.64	0.84	1.05	1.30	1yr	0.90	1.24	1.50	1.84	2.26	2.78	3.16	1yr	2.46	3.04	3.54	4.24	4.88	1yr
2yr	0.40	0.62	0.77	1.02	1.28	1.60	2yr	1.11	1.49	1.84	2.27	2.79	3.41	3.84	2yr	3.02	3.69	4.25	5.02	5.70	2yr
5yr	0.47	0.73	0.92	1.23	1.57	1.98	5yr	1.35	1.83	2.29	2.84	3.51	4.31	4.88	5yr	3.81	4.69	5.44	6.29	7.06	5yr
10yr	0.52	0.82	1.04	1.41	1.83	2.33	10yr	1.58	2.15	2.71	3.38	4.18	5.14	5.86	10yr	4.55	5.63	6.56	7.45	8.31	10yr
25yr	0.60	0.96	1.22	1.69	2.25	2.91	25yr	1.94	2.65	3.39	4.26	5.28	6.49	7.46	25yr	5.75	7.18	8.41	9.34	10.31	25yr
50yr	0.68	1.09	1.40	1.96	2.63	3.43	50yr	2.27	3.11	4.02	5.06	6.30	7.76	8.97	50yr	6.87	8.63	10.14	11.07	12.14	50yr
100yr	0.76	1.24	1.60	2.26	3.09	4.06	100yr	2.66	3.65	4.78	6.04	7.53	9.29	10.79	100yr	8.22	10.38	12.25	13.14	14.30	100yr
200yr	0.86	1.41	1.83	2.62	3.63	4.81	200yr	3.13	4.29	5.68	7.21	9.00	11.12	12.99	200yr	9.84	12.49	14.79	15.60	16.86	200yr
500yr	1.04	1.71	2.22	3.22	4.50	6.01	500yr	3.88	5.31	7.12	9.08	11.40	14.14	16.61	500yr	12.51	15.97	19.00	19.57	20.96	500yr

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.52	0.70	0.86	1.15	1yr	0.74	1.13	1.37	1.71	2.16	2.40	2.89	1yr	2.13	2.78	3.29	3.80	4.35	1yr
2yr	0.39	0.60	0.74	1.00	1.23	1.48	2yr	1.06	1.44	1.69	2.16	2.70	3.29	3.71	2yr	2.91	3.56	4.10	4.82	5.51	2yr
5yr	0.43	0.67	0.83	1.14	1.45	1.73	5yr	1.25	1.69	1.98	2.51	3.15	4.05	4.48	5yr	3.58	4.30	4.96	5.79	6.47	5yr
10yr	0.47	0.73	0.90	1.26	1.63	1.93	10yr	1.41	1.89	2.23	2.79	3.53	4.52	5.16	10yr	4.00	4.96	5.73	6.46	7.04	10yr
25yr	0.53	0.81	1.01	1.44	1.89	2.23	25yr	1.64	2.18	2.60	3.20	4.13	5.45	6.26	25yr	4.82	6.02	7.23	7.63	7.97	25yr
50yr	0.58	0.89	1.11	1.59	2.14	2.50	50yr	1.85	2.44	2.93	3.55	4.65	6.28	7.23	50yr	5.56	6.95	8.45	8.65	8.71	50yr
100yr	0.64	0.97	1.22	1.76	2.42	2.81	100yr	2.09	2.74	3.31	3.92	5.24	7.27	8.38	100yr	6.44	8.06	9.87	9.79	9.49	100yr
200yr	0.71	1.07	1.35	1.96	2.73	3.14	200yr	2.35	3.07	3.75	4.35	5.91	8.45	9.74	200yr	7.48	9.36	11.55	11.07	10.31	200yr
500yr	0.81	1.21	1.56	2.26	3.21	3.65	500yr	2.77	3.57	4.45	4.99	6.98	10.33	11.89	500yr	9.14	11.44	14.24	13.04	11.41	500yr

Upper Confidence Limits



Appendix B

WQ_v Calculation

Date: _____
Calculated by: _____

NYSDEC Water Quality Volume (WQv) Calculation

PROJECT: 13 Tavano Road
BMP Location: Infiltration collecting Outdoor Living

Total Watershed Area: 0.030 Acres

Impervious Area: 0.030 Acres

% Impervious is: 100.00

Value of P: 1.5 Inches

$$R_v = 0.05 + (0.009 \times I)$$

RV = 0.950

$$WQ_v = P \times R_v \times A / 12$$

WQv = 0.004 Acre-Feet

155 Cubic Feet

Infiltration provides 0.005 af of Storage



Stormwater Report
13 Tavano Road

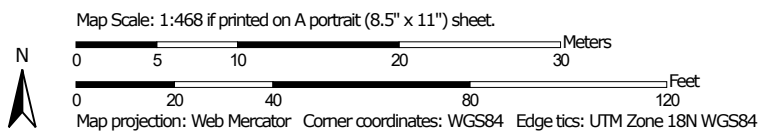
Appendix C

Soil Map & Report

Soil Map—Westchester County, New York (13 Tavano Rd)



Soil Map may not be valid at this scale.



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

5/27/2023
Page 1 of 3

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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

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

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

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

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

Soil Survey Area: Westchester County, New York
Survey Area Data: Version 18, Sep 10, 2022

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

Date(s) aerial images were photographed: Oct 21, 2022—Oct 27, 2022

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CrC	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	0.4	100.0%
Totals for Area of Interest		0.4	100.0%