Stormwater Pollution Prevention Plan

Global Business Park Subdivision – Road Extension

Airport Drive, Town of Wappinger, New York

September 10, 2021

POVALL ENGINEERING, PLLC
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Preparer of the SWPPP

"I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings."

Name: William H. Povall III, PE

Date:

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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 the Global Business Park Subdivision located in the Town of Wappinger, 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 Wappinger 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 both water quality and 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 Description

The Applicant, Global Satellite, LLC., is proposing to subdivide a 115.0-acre vacant parcel into two lots and extend Airport Drive. Lot 1 will be 20.09± acres and Lot 2 will be 93.99± acres. Approximately 0.96 acres will be dedicated to the Town of Wappinger, which encompasses the proposed Airport Drive road extension. The parcel is located on Airport Drive in the Town of Wappinger, New York (see Figure 1).

2.1 Pre-Development Conditions

The parcel is bounded by NYSDEC Federal wetlands to the west, the Rail Trail to the east, and commercial properties to the north and residential properties to the south. The site is currently undeveloped. The pre-development ground cover consists of woods and meadow. There is no existing impervious coverage. There is a stream and wetlands present on the property. The stream is located in the western portion of the property, and the wetlands are located in the western and southwestern portion of the property.

The site for the road extension varies in elevation from 196 feet, at the lowest elevation at the western property line, to 246 feet, at the highest elevation of the proposed disturbance for the road extension. Slopes vary across the site and range from one to greater than 25 percent

Stormwater runoff generally flows overland to the existing stream and NYSDEC Regulated Freshwater Wetlands along the western and southwestern property line.

2.2 Post-Development Conditions

The post-development ground cover will consist of impervious surfaces (e.g., paved roadway), woods, grass, and brush. Approximately 1.433 acres of impervious coverage will be added to the site. Therefore, the total impervious coverage is approximately 1.433 acres, or 0.015 percent of the property.

The topography outside of the road extension will remain unchanged. The lowest and highest elevations will remain unchanged. Slopes range from 1 to greater than 25 percent in undisturbed areas. The majority of the proposed slopes range from 1.5 to 10 percent in paved areas and 1.0 to greater than 25 percent in grass areas.

Stormwater runoff outside the developed portion of the commercial subdivision and road extension will continue to flow overland in the same direction as in the pre-development conditions and will generally convey stormwater runoff to an existing stream and NYSDEC Regulated Freshwater Wetland. The proposed topography of the developed portion of the commercial subdivision with road extension will generally convey stormwater runoff via sheet flow to grass swales to or directly into stormwater management systems for treatment. The proposed stormwater management system consists of pre-treatment sediment forebay and an infiltration basin. The treated stormwater will be released in a controlled manner prior to leaving the site.

2.3 Soil Survey Data

The United States Department of Agriculture (USDA) Soil Conservation Service Soil Survey for Dutchess County was reviewed. The surficial soil conditions for the study area are shown in Figure 2. The soil data for each of the soil types is summarized in Table 1 below.

Table 1: USDA Soil Data

Map Symbol	Description	Depth to Groundwater (ft)	Depth to Bedrock (in)	Hydrologic Soil Group
BeC	Bernardston silt loam, 8 to 15 percent slopes	1.5-2.0 (Feb-Apr)	>60	C
Wy	Wayland silt loam	+0.5-1.0 (Nov-June)	>60	C/D*

*For modeling purposes, soils classified as Wy are treated as HSG D in the HydroCad calculations.

The Soil Conservation Service defines the hydrologic soil groups as follows:

- **Type A Soils**: Soils having a high infiltration rate and low runoff potential when thoroughly wet. These soils consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

- **Type B Soils**: Soils having a moderate infiltration rate when thoroughly wet and consists mainly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately course textures. These soils have a moderate rate of water transmission.

- **Type C Soils**: Soils having a low infiltration rate when thoroughly wet and consists chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine-to-fine texture. These soils have a low rate of water transmission.

- **Type D Soils**: Soils having a very low infiltration rate and high runoff potential when thoroughly wet. These soils consist chiefly of clays that have high shrink-swell potential, soils that have a permanent high water table, soils that have a clay pan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very low rate of water transmission.

2.4 Groundwater, Surface Waters, and Wetlands

2.4.1 Groundwater

As shown in Table 1, the depth to groundwater varies across the parcel. The depth to groundwater ranges up to two (2) feet below grade up to one (1) foot of surface water present during a portion of the year.

Aquifer mapping was reviewed to determine if the project site is located over a sole source, primary, or principal aquifer. The EPA Soil Source Aquifers Map shows that there are no sole source aquifers within Dutchess County. The NYSDEC "Primary Aquifers in New York State" Map shows that the only primary aquifer within Dutchess County is located in Fishkill. The NYSDEC "Primary and Principal Aquifers in New York State" Map shows that there are several primary or principal aquifers within Dutchess County. Since the only primary aquifer within Dutchess County is located in Fishkill, the remaining aquifers shown are principal aquifers. The United States Aquifer Map website shows the edge of the carbonate-rock aquifer, which is a principal aquifer, is located west of the project site and that no part of the site is located over this aquifer. Therefore, the project site is not located over a sole source, primary, or principal aquifer.

The proposed stormwater management facilities will treat the stormwater runoff generated from the proposed development prior to discharging and leaving the site in a controlled manner. Therefore, no adverse impacts to groundwater are anticipated as a result of the development.

2.4.2 Surface Waters

As discussed in Section 2.1, there are streams present in the southern and western portion of the property. The streams consist of a tributary to the Branch 2B Wappinger Creek and several smaller streams. The onsite portions of the streams total approximately 7,923 linear feet in length and travel in a southerly and southwesterly direction to the western and southern property lines, where they leave the site flowing in a southerly direction and ultimately into the Branch 2B Wappinger Creek. According to the NYSDEC Environmental Resource Mapper, the tributary stream is classified as Class B and is regulated by the NYSDEC. The several smaller streams are not shown on the NYSDEC Environmental Resource Mapper; therefore, their classification is unknown.

The proposed box culvert will span the stream; therefore, no stream disturbance is proposed. Temporary erosion and sediment control measures will be implemented during construction to minimize soil erosion and control sediment transport off-site. Therefore, no adverse impacts to any onsite watercourses or offsite downstream watercourses and/or water bodies are anticipated as a result of the proposed road extension.

2.4.3 Wetlands

There are NYSDEC regulated and ACOE jurisdictional wetlands present on the property. The NYSDEC regulated wetland is located in the western portion of the property and is identified as PV-67. The Federally regulated wetland limits are the same boundary as the NYSDEC regulated wetland. The NYSDEC regulated wetland PV-67 was flagged by Michael Nowicki of Ecological Solutions, LLC, validated by NYSDEC representative Sarah Pawliczak on May 14, 2021, and field surveyed by Robert V, Oswald, NYS LLS. The wetland validation remains valid for five (5) years. The area of the onsite portion of Wetland PV-67 is approximately 33.10 acres.

NYSDEC Chapter X Part 664 "Freshwater Wetlands Maps and Classification" requires that a 100-foot adjacent area measured horizontally from the edge of NYSDEC regulated wetland boundaries be provided, which is also regulated by the NYSDEC. The ACOE does not require buffers around jurisdictional wetlands. The Town of Wappinger Town Code Chapter 137 "Freshwater Wetland, Waterbody and Watercourse Protection" requires that a 100-foot buffer be provided for all wetlands, water bodies, and watercourses.

2.5 Floodplains

The property is located within Zone A (No Base Flood Elevations determined), Zone X (other flood areas) and Zone X (other areas) according to the Flood Insurance Rate Map (FIRM) Town of Wappinger Panel 388 of 602, Community Panel Number 361387 and Map Number 36027C0388E effective date May 2, 2012. Zone X (other flood areas) is defined as "areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood". Zone X (other areas) is defined as "areas determined to be outside 500-year floodplain".

The proposed road extension is located partially within Zone A and the remainder is located within Zone X. A floodplain development permit will be sought from the Town of Wappinger to construct the road extension and for the proposed culvert to cross the stream.

2.6 Historic Places

A Phase 1 Cultural Resource Investigation was performed by Joseph E. Diamond, Ph.D. The Phase 1A literature search at NYSOPRHP identified five pre-contact sites within a one mile radius of the project areas. Of these, four have no information on archaeological phase/culture and one is a Paleo-Indian site. None are located within the project area. The file search located one historic archaeological site and three historic structures within a one mile radius of the project area. The closest prehistoric site is 1,000 feet away and the Paleo-Indian site is c. 5,500 feet away (just on the edge of the one mile radius). Because of the presence of five pre-contact sites within a one mile radius, and the fact that there is a small drainage area along the western edge of the project area, the project area should be considered high to moderately sensitive to the presence of prehistoric archaeological sites. Based on an examination of four historic maps of the project area, as well as a walkover, the possibility of encountering historic archaeological resources in the project area is considered low. There are no 19th century map documented structures (MDS) within the project area and none were encountered during an extensive walkover. Because of the project area's potentially sensitive location, a Phase 1B Archeological Field Investigation was recommended. It was recommended that hand-excavated, hand-screened shovel tests should be conducted within the Area of Proposed Effect (APE).

A Phase 1B Archaeological Field Investigation was performed by Joseph E. Diamond, Ph.D. The Phase 1B field reconnaissance was begun in early June 2008 and completed early September 2008. As suggested in the Phase 1A, shovel testing was undertaken across the project area within the APE in locations where soils will be impacted by the Proposed Action. Areas in excess of 12 percent slopes were not tested. A total of 703 shovel tests were excavated throughout the project area. Two pre-contact sites were located. Pre-Contact Locus 1 was determined to be an isolated find and no further work is recommended for this location. Pre-Contact Locus 2 produced a total of eight artifacts. Two forms of avoidance are suggested for this site given its close proximity to the proposed wetland mitigation area. The first is the placement of snow fencing around the site prior to construction of the access road used for the wetland mitigation work. The second is the incorporation of the site into the wetland boundary as a protective measure at the conclusion of the wetland mitigation procedure.

A Phase 1B Addendum was performed by Joseph E. Diamond, Ph.D. This addendum was conducted to evaluate several small portions of the project area. The Phase 1B Addendum field reconnaissance was begun in mid October 2010 and completed during the same month. Shovel testing was undertaken in three locations – two of these were on either side of the eastern side of the proposed stream crossing and the third was the expanded wetland mitigation area. A total of 43 shovel tests were excavated in the area around the stream crossing and small wetland mitigation areas. No historic or prehistoric artifacts were found and no further work was recommended for these locations.

A Phase 2 Site Evaluation of Rail Trail Pre-Contact Locus 2 was performed by Joseph E. Diamond, Ph.D. This site evaluation was undertaken to determine if the Pre-Contact Site A02719.000221 meets eligibility requirements to be included in the State and National Register of Historic Places and to determine the horizontal size and extent of the site. The Phase 2 was initiated in October 2009 and completed in November 2009. A total of 97 50 cm shovel tests and two 1 meter squares were placed in what was believed to be the highest density areas. In the 26.25 square meters of excavated area, there was no indication of subsurface features such as pits or hearths. The results suggest that the Pre-Contact Site 2 is a small site that yields artifacts in the rage of about 1 – c. 80 artifacts/meter. The Phase 2 evaluation determined that the site does meet State and National Eligibility requirements. The site itself is well defined and the high density portion of the site is well away from the proposed access road and wetland mitigation and will be protected within the wetland buffer.

2.7 NYSDEC SPDES General Permit GP-0-20-001

The proposed project involves soil disturbance of one or more acres of land; including disturbances of less than one acre that are part of a larger common plan of development that will disturb one or more acres of land; and excludes routine maintenance activities. Therefore, coverage under the NYSDEC SPDES General Permit GP-0-20-001 is required (see Appendix A). In addition, the proposed project is located within a Municipal Separate Storm Sewer System (MS4); therefore, the Town of Wappinger must review and accept the SWPPP.

This SWPPP and accompanying project plans have been developed in accordance with the NYSDEC's technical standards. The completed NOI and signed "MS4 SWPPP Acceptance" form will be submitted to the NYSDEC prior to the commencement of construction in order to obtain coverage under the SPDES General Permit. Once coverage has been obtained, a copy shall be provided to the Town of Wappinger for their records. The NOI and "MS4 SWPPP Acceptance" form have been provided in Appendix B.

2.8 Additional Permits and Approvals

In addition to seeking coverage under the NYSDEC SPDES General Permit GP-0-20-001, the additional required NYSDEC, US Army Corp of Engineers (ACOE), and/or Town permits and approvals related to stormwater, wetlands, water courses, and water bodies for this project include:

- NYSDEC, Article 24 Freshwater Wetlands Permit.
- NYSDEC, Section 401 "Water Quality Certification" of the Federal Clean Water Act.
- ACOE, Section 404 "Waters of the United States" of the Federal Clean Water Act (NW39).
- Town of Wappinger, "Wetland Permit".

Once the permits have been obtained, a copy shall be provided to the Town of Wappinger for their records.

3 Construction Sequencing Schedule & Phasing

The purpose of the construction sequencing schedule and phasing plan is to reduce the overall disturbances and ensure that previously disturbed areas are re-established prior to construction of the individual lots. The duration of the construction activities, including planned winter shutdowns, will be from May 1, 2022 to December 1, 2022.

The total disturbance of the proposed project is 2.37 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. 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.

2. Stake out the locations of the limits of disturbance, proposed stormwater management facilities, and improvements (e.g., roadways, etc.).

3. 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. The stump pile shall be protected in accordance with the stockpile detail on the project plans as appropriate. Stump burial is prohibited.

4. Clear and grub the infiltration areas. The infiltration areas shall be excavated to the top of the gravel layer in order to be utilized as a temporary sediment basin during construction.

5. Construct stormwater infiltration areas. Install inlet and outlet protection measures (i.e., rip-rap overflow weir(s), culvert inlet/outlet protection, etc.) and stabilize the areas disturbed during the construction of the temporary sediment basin.

6. Rough grade the site. Place surplus material in the temporary soil stockpile locations shown on the project plans.

7. Install temporary diversion measures and stabilization measures (i.e., vegetative cover, rip-rap, etc.) to ensure that stormwater runoff is conveyed to the temporary sediment basins. Temporary diversion measures shall be located in a manner that will ensure that the tributary area to each diversion measure hall not exceed five (5) acres.

8. Construct all site utilities and utility service connections as shown on the project plans. Install inlet protection measures at all inlets and at the ends of all exposed stormwater pipes and rip-rap at the locations shown on the project plans.

9. 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 basins. The Contractor shall clean all catch basins, manholes, and drainage lines of any accumulated silt and sediment prior to finalizing the infiltration area.

10. Finalize construction of the infiltration basin. Remove any accumulated silt and sediment from the infiltration area which was used as a temporary sediment basin during construction.

11. Finalize road pavement sub-grade preparations.

12. Place road pavement base course.

13. Stabilize exposed slopes.

14. Remove all temporary erosion and sediment control measures. Immediately stabilize the areas disturbed during their removal. Establish permanent vegetative cover and install all landscaping and infiltration area plantings.

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, a stabilized construction entrance 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. **Stone Inlet Protection Barrier** – Concrete blocks surrounded by wire mesh and crushed stone shall be placed around both existing catch basins and proposed catch basins, once installed, to keep sediment from entering the storm sewer system. During construction, crushed stone shall be replaced as necessary to ensure proper function of the structure.

7. **Temporary Sediment Basin** – Temporary sediment basins shall be constructed to intercept sediment laden runoff, reduce the amount of sediment leaving the disturbed areas, and protect drainage ways, properties, and rights-of-way. Projects that have proposed stormwater ponds can be used as temporary sediment basins during construction. Temporary sediment basins shall be inspected at least every seven calendar days. All damages caused by soil erosion and construction equipment shall be repaired upon discovery. Accumulated sediment shall be removed from the sediment basin/trap when it reaches 50 percent of the design capacity and shall not exceed 50 percent. Sediment shall not be placed downstream from the embankment, adjacent to a stream, or floodplain.

8. **Stone Check Dams** – Stone check dams shall be installed within drainage ditches to reduce the velocity of stormwater runoff, to promote settling of sediment, and to reduce sediment transport offsite. The stone check dams shall be inspected at least every seven calendar days. Damage shall be repaired upon discovery. If significant erosion has occurred between structures, a liner of stone or other suitable material shall be installed in that portion of the channel. Sediment accumulated behind the stone check dam shall be removed as needed to allow the channel to drain through the stone check dam and prevent large flows from carrying sediment over or around the dam. Stones shall be replaced as needed to maintain the design cross section of the structures.

9. **Erosion Control Blanket** – Erosion control blankets shall be installed on all slopes exceeding 3:1. Erosion control blankets provide temporary erosion protection, rapid vegetative establishment, and long-term erosion resistance to shear stresses associated with high runoff flow velocities associated with steep slopes.

10. **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.

3. **Rock Outlet Protection** – Rock outlet protection shall be installed at the locations as shown on the accompanying plans. The installation of rock outlet protection will reduce the depth, velocity, and energy of water, such that the flow will not erode the receiving water course or water body.

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 Site Logbook

The owner/operator shall maintain a record of all inspection reports in a site logbook. Copies of the NYSDEC Acknowledgement of Receipt of the NOI; signed "MS4 SWPPP Acceptance" form (if applicable); and signed copies of the certification statements shall also be placed in the site logbook. The site logbook shall be maintained on site and be made available to the permitting authority upon request.

4.4 Pre-Construction Meeting, Inspection, and Certification

A pre-construction meeting shall be scheduled with the Town representative, the Qualified Professional, the owner or operator, the contractor, and the subcontractors to discuss responsibilities as they relate to the implementation of this SWPPP. The owner/operator shall set-up the pre-construction meeting. Pre-construction meeting documents have been provided in Appendix C.

Prior to the commencement of construction, the owner/operator or contractor shall contact the Qualified Professional once the erosion and sediment control measures have been installed. The Qualified Professional shall conduct an initial assessment of the site and certify that the appropriate erosion and sediment control measures and structures have been adequately installed and implemented in accordance with the SWPPP and plans. A copy of the completed pre-construction site assessment shall be placed in the site logbook. A sample pre-construction site assessment form has been provided in Appendix D.

4.5 Construction Inspections and Maintenance

The contractor and his/her subcontractor(s) shall identify the trained individual(s) that will be responsible for the implementation and maintenance of the all erosion and sediment controls as required to achieve the proper erosion and sediment controls during construction. The trained individual(s) is required to have received four hours of NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity. After receiving the initial training, the trained individual(s) shall receive four (4) hours of training every three (3) years.

To ensure the stability and effectiveness of all protective measures and practices during construction, all erosion and sediment control measures employed shall be inspected by the Qualified Professional at least every seven (7) calendar days. The contractor's and/or subcontractor's trained individual(s) shall perform daily inspections of all erosion and sediment control measures at the beginning and end of the day. The trained individual(s) shall immediately correct any deficiencies noted during their inspection or during the Qualified Professional's inspections.

For construction sites where soil disturbance activities have been temporarily suspended (e.g., winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the frequency of the inspections can be reduced. However, NYSDEC and Town must be notified prior to reducing the frequency of the inspections. If approved, the Qualified Professional shall conduct a site inspection at least once every 30 calendar days.

All inspections shall be performed in accordance with this SWPPP, accompanying project plans, latest revision of *New York State Standards and Specifications for Erosion and Sediment Control,* and procedures outlined in Appendix G of the latest revision of the *New York State Stormwater Management Design Manual*. Inspection reports shall be prepared in accordance with this SWPPP, accompanying project plans, and NYSDEC SPDES General Permit GP-0-20-001. Inspection reports shall identify and document the maintenance of the erosion and sediment control measures. A sample inspection report has been provided in Appendix D.

Specific maintenance components, schedule frequency, inspection parameters and remediation procedures are provided on the accompanying project plans. Any adjustments or modifications to the maintenance plan shall be noted in the inspection reports and submitted to the Town for approval.

4.6 Final Site Inspection, Assessment, and Certification

Once construction is complete, the owner/operator shall have the Qualified Professional perform a final site inspection. The Qualified Professional shall certify that the site has undergone final stabilization. Final stabilization is defined as all soil disturbing activities at the site have been completed, and that 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. A final site assessment form has been provided in Appendix D.

Cancellation of coverage under the NYSDEC SPDES General Permit GP-0-20-001 is accomplished by submitting a Notice of Termination (NOT). Failure to submit a NOT may result in the continued obligation to pay a yearly Regulatory Fee and/or may be cause for suspension of permit coverage. A blank NOT form has been provided in Appendix E.

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 to minimize impacts to adjacent or downstream properties.
3. Minimize the impact of the quality of runoff exiting the site.

These objectives will be met by applying Green Infrastructure Practices and Best Management Practices (BMPs). 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 Quantitative Method of Analysis

Rainfall data utilized in the modeling and analysis was obtained from National Oceanic and Atmospheric (NOAA) ATLAS 14 Point Precipitation Frequency Estimate (address Airport Drive, Wappingers Falls, New York. https://hdsc.nws.noaa.gov/hdsc/pfds/

A Type III rainfall distribution was used to evaluate the pre- and post-development stormwater runoff conditions for the 1-, 10-, and 100-year 24-hour storm events for Dutchess County. Rainfall data specific to the portion of Dutchess County under consideration is provided in Table 3 below.

Table 2: Rainfall Data

Storm Event	24-Hour Rainfall
WQv	1.10 inches
1-year	2.53 inches
10-year	4.97 inches
100-year	7.87 inches

The study area was divided into subcatchments for pre- and post-development conditions. The separation of the watershed into subcatchments was dictated by watershed conditions, methods of collection, conveyance, and points of discharge. Watershed delineations were defined using the United States Geological Service (USGS) 7.5-minute topographic maps, aerial photographs, a topographical survey, soil surveys, and site investigations.

HydroCAD, a Computer-Aided-Design (CAD) program, was used to analyze the hydrologic and hydraulic 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 though pipes, streams, channels, and ponds.

5.1.1 Study Area and Design Points

The study area consists of an overall watershed that encompasses approximately 6.323 acres and contains the entire project site. The overall watershed was broken down into smaller watersheds, or subcatchments, to allow for analysis of runoff conditions at several locations throughout the study area. Each of these locations was defined as a Design Point (DP) in order to compare the effects of the proposed development. Descriptions of each of the selected design points are provided below:

- Design Point 1: NYSDEC Regulated Stream (north of the proposed culvert).
- Design Point 2: Property line (southwest corner).

5.1.2 Pre- and Post-Development Watersheds

The pre-development watershed boundaries are shown in Figure 3 and the post-development watershed boundaries are shown in Figure 4. Analysis of the pre- and post-development conditions considered existing drainage patterns, soil types, ground cover, and topography. The time of concentrations for each of the subcatchments were calculated. If any of the calculated time of concentrations for any of the subcatchments were less than the required TR-55 minimum time of concentration of six minutes, then the TR-55 minimum time of concentration was used.

The results of the computer modeling for the pre- and post-development analysis were used to analyze the overall watershed prior to and after development of the project site. The pre- and post-development analysis is provided in Appendix G and Appendix H, respectively. A summary of the peak discharge rates for pre- and post-development is provided in Table 5.

5.2 Green Infrastructure Practices

5.2.1 Planning Practices

The following planning practices were incorporated into the planning, design and layout of the proposed development:

Preservation of Naturally Vegetated Buffers – A 100-foot buffer has been established around the NYSDEC, ACOE Federal, and Town regulated wetlands in accordance with the NYSDEC and Town regulations. The majority of the buffer area will remain undisturbed which will improve water quality, lower the velocity of discharged stormwater, promote soil stabilization, provide filtration and infiltration of stormwater runoff into the underlying soils, and provide thermal reductions.

Reduction in the Amount of Clearing and Grading – Clearing and grading activities will be kept to the minimum amount needed for construction of the development. Undisturbed vegetated areas will aid in reducing stormwater runoff and pollutant load and promote soil stabilization.

Soil Restoration – Soil restoration shall be performed in the disturbed areas. The soils shall be aerated and covered with 6 inches of topsoil. 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.

5.2.2 Runoff Reduction Techniques

Green infrastructure techniques allow for reductions in the calculated runoff from contributing areas and the required water quality volume by using the natural features of the site and practices that promote runoff reduction. Runoff reduction is best achieved through the reduction of the effective impervious surface area of the subcatchment and minimizing the amount of disturbed area.

The following runoff reduction techniques were incorporated into the planning, design and layout of the proposed development:

Standard Stormwater Management Practices with Runoff Reduction Capacity – Infiltration basin(s) will be used to treat the stormwater runoff. Infiltration basins provide opportunities for runoff infiltration, storage, and for water uptake by vegetation.

Pretreatment for this practice will be accomplished through a sediment forebays, sized to meet the applicable standards in the *New York State Stormwater Management Design Manual*. See Appendix F for pretreatment forebay sizing calculations.

5.3 Stormwater Management Facilities

The proposed infiltration basins are located within BeC soils. These soils are comprised of well drained dense upland till. The infiltration rate has not yet been observed. For the purposes of this report and stormwater calculations the infiltration rate was presumed to be one half inch per hour.

The infiltration basin will feature a sedimentation forebay with a pretreatment volume greater than the required 25% of the WQ_v based upon the presumed infiltration rates.

5.4 Unified Stormwater Sizing Criteria

5.4.1 Water Quality Control

Stormwater runoff from developed land is recognized as a significant contributor of pollution that can adversely affect the quality of the receiving waters. Treatment of stormwater runoff is important, since most runoff related water quality contaminants are transported during the initial stages of storm events. The proposed water quality controls have been sized based on the 90% rule methodology as described in the *NYS Stormwater Management Design Manual*, latest revision. The water quality volume (WQ_v) is defined as:

$$WQ_v = \frac{[(P)(R_V)(A)]}{12}$$

Where:

P	=	90% Rainfall Event Number
R_v	=	0.05 + 0.009 (I), minimum R_v = 0.2
I	=	Impervious Cover (Percent)
A	=	Site Area (Acres)

The water quality volumes for each of the post-development subcatchments are summarized in Table 3 below.

Table 3: Summary of Water Quality Volumes

Subcatchment	Site Area (ac)	Impervious Cover (ac)	WQ_v (cf)
101	0.827	0.519	2,030

1. Subcatchments 102, and 103 have been excluded from the Total Water Quality Volume calculations, since these subcatchments do not contribute to the stormwater management systems..

As shown in the above table, the total required water quality volume is **2,030 cf**. Detailed design calculations have been provided in Appendix F.

5.4.2 Runoff Reduction Volume

Runoff reduction is achieved by infiltration, groundwater recharge, reuse, recycle, evaporation/evapotranspiration of 100 percent of the post-development water quality volumes to replicate pre-development hydrology by maintaining pre-construction infiltration, peak runoff flow, discharge volume, as well as minimizing concentrated flow by using runoff control techniques to provide treatment in a distributed manner before runoff reaches the collection system. The runoff reduction volume (RRv) can be calculated based on three methods:

- Reduction of the practice contributing area in the WQ_v calculation.
- Reduction of runoff volume by storage capacity of the practice.
- Reduction using standard stormwater management practices with runoff reduction capacity.

If 100 percent of the water quality volume cannot be reduced by applying a combination of the green infrastructure techniques and standard stormwater management practices with RRv capacity, then 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 stormwater management practices with RRv capacity. In this instance, the runoff reduction volume (RRv) is calculated as follows:

$$RRv = \frac{[(P)(R_v*)(Ai)]}{12}$$

Where:

P	=	90% Rainfall Event Number
R_v*	=	0.05 + 0.009 (I), where I = 100% impervious coverage
Ai	=	impervious cover targeted for runoff reduction (Acres), where Ai = (S)(Aic)
Aic	=	Total area of new impervious cover (Acres)
S	=	Hydrologic Soil Group Specific Reduction Factor

The runoff reduction volume techniques/practices that were used to reduce the total required water quality volume is in Table 4 below.

Table 4: Utilized Runoff Reduction Volume Techniques/Practices

Techniques/ Practices	RRv Reduction Method	Reduction Amount
Infiltration Basin w/ 25% pretreatment	Standard SMP with RRv Capacity	90% of Total Storage Volume or WQ_v (whichever is smaller)

After applying the above runoff reduction volume techniques/practices, the total provided runoff reduction volume is **2,030 cf**. Therefore, 100 percent of the total required water quality volume has been reduced. Detailed design calculations have been provided in Appendix F.

5.4.3 Water Quantity Control

The proposed water quantity controls have been designed and sized to provide channel protection, overbank flood control, and extreme flood protection, where:

- Channel Protection Volume requirements are designed to protect stream channels from erosion. This is accomplished by providing 24-hour extended detention of the 1-year 24-hour storm event.

- Overbank Flood Control Volume requirements are designed to prevent flow events that exceed the bankfull capacity of a channel, and therefore must spill over into the floodplain. This requires storage to assure that the post-development 10-year 24-hour peak discharge rates do not exceed pre-development rates.

- Extreme Flood Protection Volume requirements are designed to:

    1. Prevent the increased risk of flood damage from large storm events.

    2. Maintain the boundaries of pre-development 100 year floodplain.

    3. Protect the physical integrity of the stormwater management practices. This requires storage to assure that the post-development 100-year 24-hour peak discharge rates do not exceed pre-development rates.

A comparison of the required and provided water quantity controls is provided in Table 5 below.

Table 5: Comparison of Required & Provided Water Quantity Controls

Water Quantity Parameter	Required (cf)	Provided (cf)
Channel Protection Volume	3,498	4,010
Overbank Flood Protection Volume	Not required, post is less than pre	
Extreme Flood Protection Volume	Not required, post is less than pre	

5.5 Comparison of Peak Discharge Rates

The pre- and post-development peak discharge rates are summarized in Table 6 below. To compare pre- and post-development peak discharge rates, Design Points 1 and 2 were combined in post-development modeling.

Table 6: Summary of Pre- & Post-Development Peak Discharge Rates

DP	Pre (cfs)	Post (cfs)	Diff (cfs)
1-yr event			
1*	3.83	3.30	-0.53
10-yr event			
1*	13.06	11.58	-1.48
100-yr event			
1*	25.13	24.78	-0.35

*Post-Development Design Points 1 and 2 were combined For peak discharge modeling.

Comparison of the peak discharge rates for pre- and post-development watershed conditions reveals there is a slight increase in the peak rate of runoff during the post-development conditions; however, this slight increase is negligible. Therefore, the proposed road extension 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 G and Appendix H, respectively.

6 Post Construction Requirements

6.1 Records and Archiving

Following construction, the owner/operator shall retain copies of the SWPPP, project plans, the complete construction site logbook, and records of all data used to complete the NOI to be covered by this permit, for a period of at least three years from the date that the site is finally stabilized. This period may be extended by the NYSDEC, in its sole discretion, at any time upon written notification.

The owner/operator shall provide as-built plans for any stormwater management facilities and practices located on site after final construction is completed. The plan must show the final design specifications for all stormwater management facilities and must be certified by a New York State licensed land surveyor and a New York State licensed professional engineer.

6.2 Inspection and Maintenance

Post-construction inspections and maintenance shall be performed by the owner. 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 7 below. A summary of the stormwater management system inspection and maintenance parameters is provided in Table 8 below. Detailed post-construction inspections and maintenance procedures are provided in Appendix I.

Table 7: 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 -Accumulated debris and litter	-Restore original specs -Remove -Mow a min. of 3 times/year. May increase for aesthetic reasons. -Remove
Winter Maintenance	Monthly	-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 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

Table 8: Open Channel System Post-Construction Inspection and Maintenance Table

Maintenance Item	Frequency	Description of Inspection Parameters	Description of Remedy Procedures
Open Channels	Monthly	-Erosion of side slopes -Formation of rills or gullies -Accumulated debris, litter, and sediment -Residual deicing materials (sand)	-Stabilize and restore to original specifications -Repair and restore to original specifications -Remove - Remove and replace any damaged vegetation
Sediment Forebay	Monthly	-Accumulated sediment -Accumulated debris and litter	-Remove every 5 to 6 years or when 50% of total forebay capacity is lost -Remove
Check Dams	Annual & After Major Storm Events	-Accumulated sediment -Stone failure	-Remove -Replace stone as necessary.
Wetland Plantings	Monthly up to 6 months and Bi-Annually up to 5 years	-Survival of desired wetland plants -Plants: 80% coverage + less than 15% invasive species after 2nd growing season -Distribution of plants as per plans -Any evidencd of undesirable invasive species -Chocking of plants due to excessive sediment depths.	-Replant wetland species as necessary -Restore as necessary -Redistribute as necessary -Remove -Remove sediment as necessary

7 Conclusion

This Stormwater Pollution Prevention Plan for the for Global Business Park Subdivision, for the Airport Drive road extension 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 Town of Wappinger 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.

Figures

REVISIONS	
DATE:	DESCRIPTION:

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WAPPINGERS FALLS, NY 12590

TEL.: (845) 897-8205
FAX: (845) 897-0042

GLOBAL BUSINESS PARK SUBDIVISION

SITE LOCATION MAP

TOWN OF WAPPINGER *DUTCHESS COUNTY, NEW YORK*

JOB #:	*2021*
DATE:	*09-10-21*
SCALE:	*1"=500'*

FIGURE 1

REVISIONS	
DATE:	DESCRIPTION:

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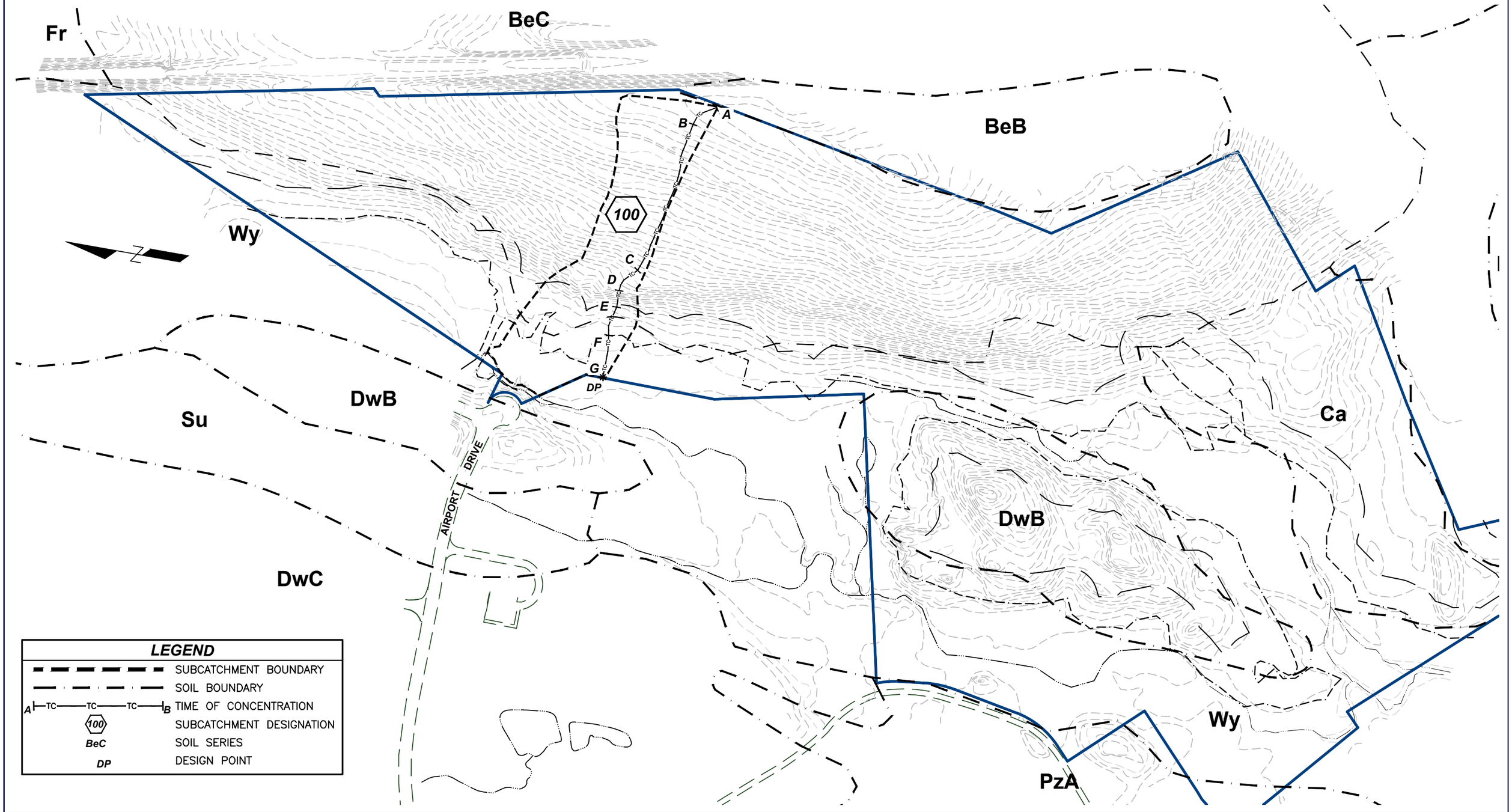
GLOBAL BUSINESS PARK SUBDIVISION

SOILS MAP

TOWN OF WAPPINGER *DUTCHESS COUNTY, NEW YORK*

JOB #: 2021
DATE: 09-10-21
SCALE: 1"=600'
FIGURE 2



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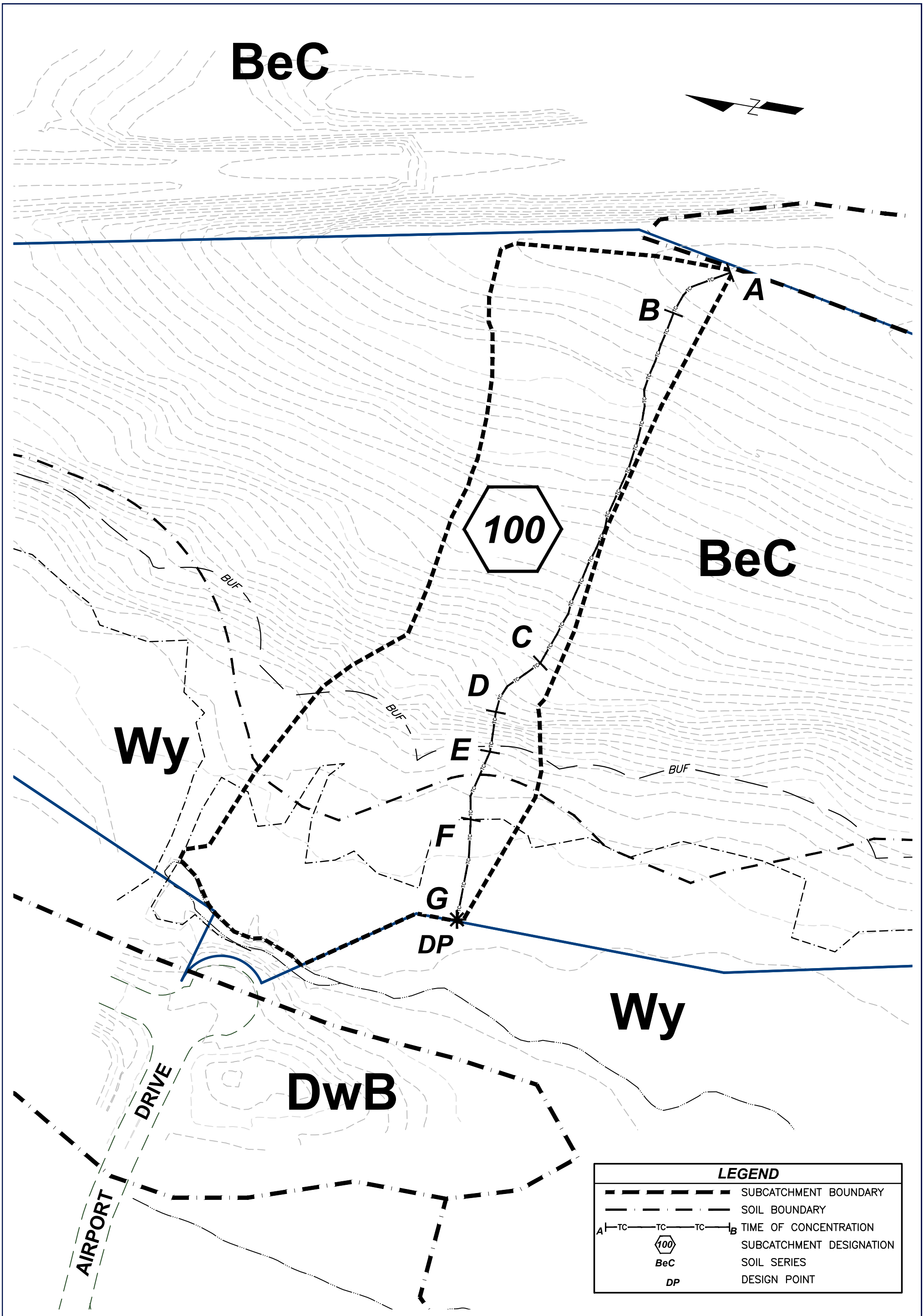
PRE-DEVELOPMENT WATERSHED DELINEATION MAP

TOWN OF WAPPINGER — *DUTCHESS COUNTY, NEW YORK*

JOB #: 2021
DATE: 09-10-21
SCALE: 1"=300'
FIGURE 3A



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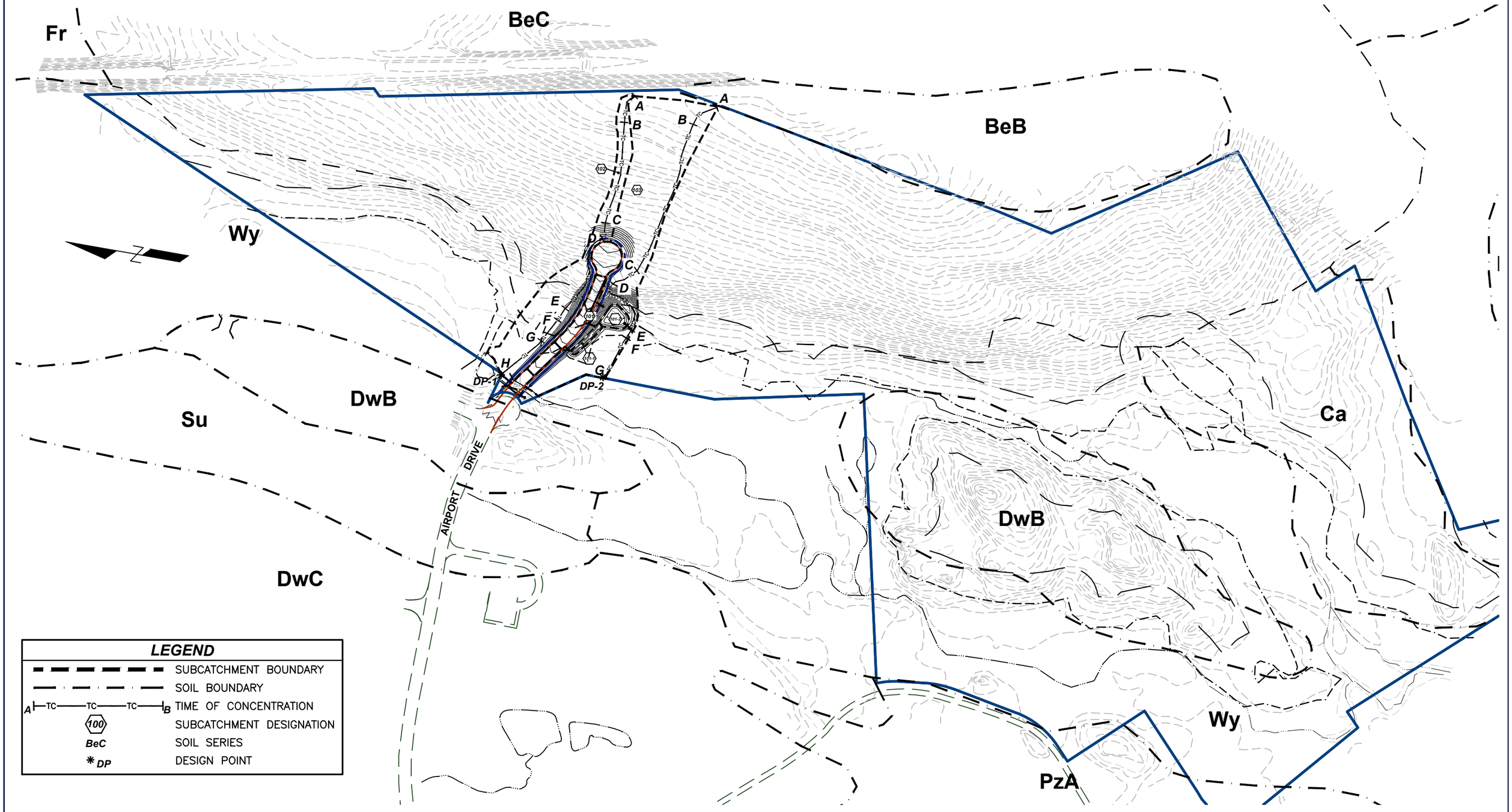
GLOBAL BUSINESS PARK SUBDIVISION

PRE-DEVELOPMENT WATERSHED DELINEATION MAP

TOWN OF WAPPINGER — DUTCHESS COUNTY, NEW YORK

JOB #: 2021
DATE: 09-10-21
SCALE: 1"=120'

FIGURE 3B



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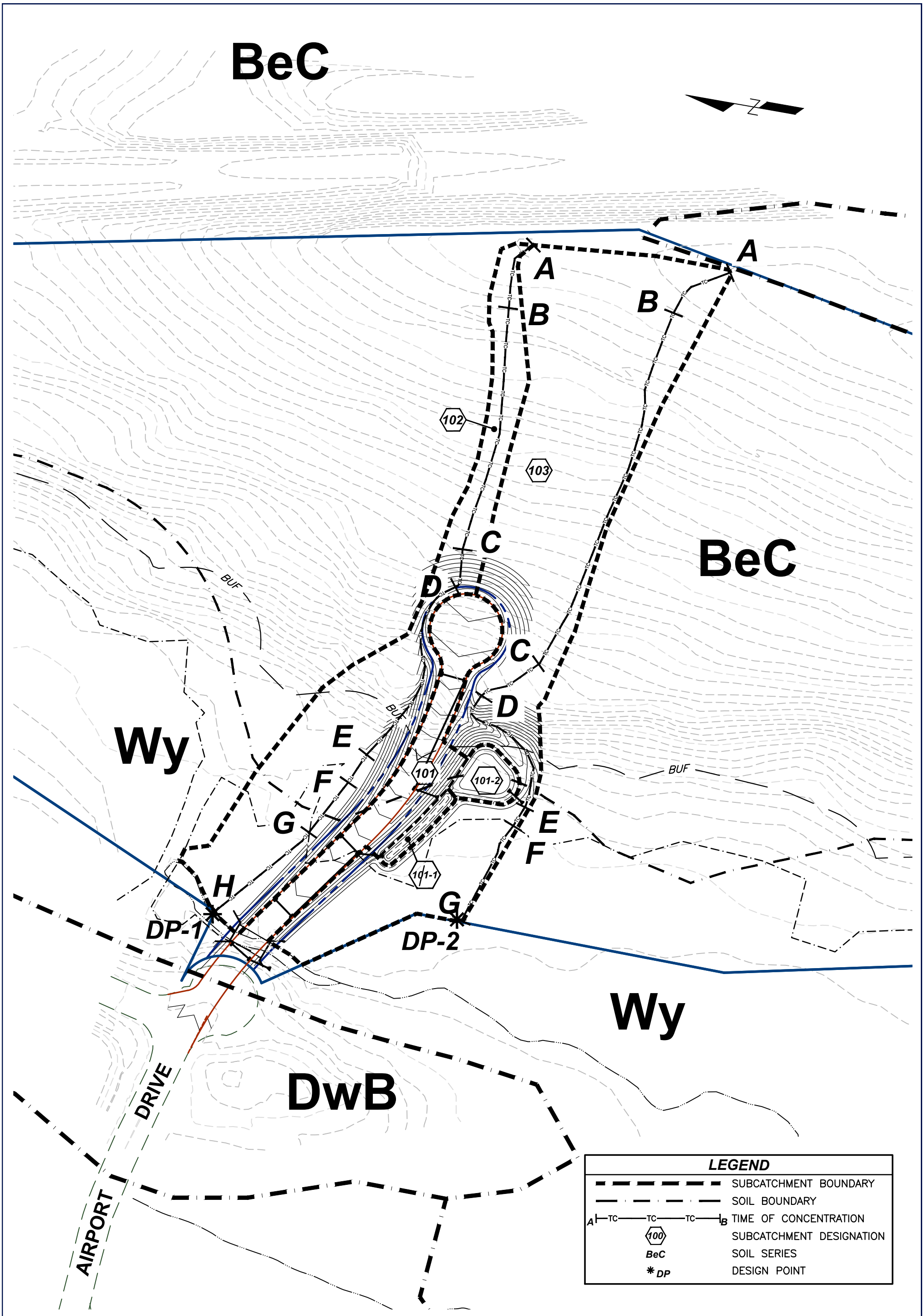
GLOBAL BUSINESS PARK SUBDIVISION

POST-DEVELOPMENT WATERSHED DELINEATION MAP

TOWN OF WAPPINGER — *DUTCHESS COUNTY, NEW YORK*

JOB #: 2021
DATE: 09-10-21
SCALE: 1"=300'
FIGURE 4A



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GLOBAL BUSINESS PARK SUBDIVISION

POST-DEVELOPMENT WATERSHED DELINEATION MAP

TOWN OF WAPPINGER — DUTCHESS COUNTY, NEW YORK

JOB #: 2021
DATE: 09-10-21
SCALE: 1"=120'

FIGURE 4B

Appendix A

NYSDEC SPDES General Permit

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator

1-23-20

Authorized Signature

Date

Address: NYS DEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

PREFACE

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System ("NPDES")* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of "*construction activity*", as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

Table of Contents

Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

This permit authorizes stormwater *discharges* to *surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;

2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State.*

3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

B. Effluent Limitations Applicable to Discharges from Construction Activities

*Discharge*s authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the *Stormwater Pollution Prevention Plan* (“SWPPP”) the reason(s) for the

deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

   (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s;

   (ii) Control stormwater *discharge*s, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;

   (iii) *Minimize* the amount of soil exposed during *construction activity*;

   (iv) *Minimize* the disturbance of *steep slopes*;

   (v) *Minimize* sediment *discharge*s from the site;

   (vi) Provide and maintain *natural buffer*s around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;

   (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;

   (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and

   (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

c. **Dewatering**. *Discharge*s from *dewatering* activities, including *discharge*s from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:

(i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

(ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and

(iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Prohibited *Discharge*s.** The following *discharge*s are prohibited:

(i) Wastewater from washout of concrete;

(ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices ("SMPs") are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. Sizing Criteria for New Development

(i) Runoff Reduction Volume ("RRv"): Reduce the total Water Quality Volume ("WQv") by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

For each impervious area that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered infeasible.

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume ("Cpv"): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site discharges directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria ("Qp"): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria ("Qf"): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

b. *Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watershed

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be

calculated in accordance with the criteria in Section 10.3 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site *discharge*s directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

c. Sizing Criteria for Redevelopment Activity

(i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.

(1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or

(2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or

(3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or

(4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

(ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

d. Sizing Criteria for Combination of Redevelopment Activity and New Development

Construction projects that include both New Development and Redevelopment Activity shall provide post-construction stormwater management controls that meet the sizing criteria calculated as an aggregate of the Sizing Criteria in Part I.C.2.a. or b. of this permit for the New Development portion of the project and Part I.C.2.c of this permit for Redevelopment Activity portion of the project.

D. Maintaining Water Quality

The Department expects that compliance with the conditions of this permit will control *discharge*s necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharge*s authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharge*s authorized by this permit are causing or contributing to a violation of *water quality standards*, or if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharge*s will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

E. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharge*s; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.

3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: "Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned"; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharge*s from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.

4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

F. Activities Which Are Ineligible for Coverage Under This General Permit

All of the following are **not** authorized by this permit:

1. *Discharge*s after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharge*s that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;

3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;

4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

operator has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.D.2 of this permit;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;

6. *Construction activities* for residential, commercial and institutional projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

7. *Construction activities* for linear transportation projects and linear utility projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase "D" (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:

   a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.

      - 1-5 acres of disturbance - 20 feet
      - 5-20 acres of disturbance - 50 feet
      - 20+ acres of disturbance - 100 feet, or

   b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
      (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
      (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
      (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
      (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or

   c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

(i) No Affect
(ii) No Adverse Affect
(iii) Executed Memorandum of Agreement, or

d. Documentation that:

(i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

9. *Discharge*s from *construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the “MS4 SWPPP Acceptance” form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.

3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

B. Notice of Intent (NOI) Submittal

1. Prior to December 21, 2020, an owner or operator shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (http://www.dec.ny.gov/). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address:

   NOTICE OF INTENT
   NYS DEC, Bureau of Water Permits
   625 Broadway, 4th Floor
   Albany, New York 12233-3505

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.

3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.

4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.

2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:

   a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (http://www.dec.ny.gov/) for more information,

   b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits

must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

c. the final SWPPP has been prepared, and

d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.

3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

   a. For *construction activities* that are <u>not</u> subject to the requirements of a *regulated, traditional land use control MS4*:

      (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or

      (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has <u>not</u> been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;

      (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:

(i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed "*MS4* SWPPP Acceptance" form, or

(ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed "MS4 SWPPP Acceptance" form.

4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

D. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor's or subcontractor's certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land*

use control MS4, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.

c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.

e. The *owner or operator* shall include the requirements above in their SWPPP.

4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..

5. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

regulated, traditional land use control MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

E. Permit Coverage for Discharges Authorized Under GP-0-15-002

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of *a construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

   An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

F. Change of Owner or Operator

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4,* the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.

2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

operator was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.

3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.

4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:

    a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;

c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* the Department or other regulatory authority; and

d. to document the final construction conditions.

5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

   The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

   "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 *discharge*s 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"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:

    a. Background information about the scope of the project, including the location, type and size of project

b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge*(s);

c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);

d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;

e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;

f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;

g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection

schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;

k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and

l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

   Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

   The post-construction stormwater management practice component of the SWPPP shall include the following:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;

c. A Stormwater Modeling and Analysis Report that includes:
   (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;

   (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;

   (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;

   (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;

   (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and

   (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;

d. Soil testing results and locations (test pits, borings);

e. Infiltration test results, when required; and

f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria,* Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

C. Required SWPPP Components by Project Type

Unless otherwise notified by the Department, *owners or operators* of *construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators* of the *construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall

begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

C. Qualified Inspector Inspection Requirements

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- New York State Erosion and Sediment Control Certificate Program holder
- Registered Landscape Architect, or
- someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:

   a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located

in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:

a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization,* and all temporary, structural erosion and sediment control measures have been removed*;* and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.

e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization,* all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site*, and all points of *discharge* from the *construction site*.

4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;

f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;

g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

k. Identification and status of all corrective actions that were required by previous inspection; and

l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the *qualified inspector.* Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.

2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:

   a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.

d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.

4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) required in Part V.A.3. of this permit.

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),

c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,

d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

Part VI. REPORTING AND RETENTION RECORDS

A. Record Retention

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

B. Addresses

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

B. Continuation of the Expired General Permit

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

C. Enforcement

Failure of the *owner or operator,* its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

E. Duty to Mitigate

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. Duty to Provide Information

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

G. Other Information

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit , or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. Signatory Requirements

1. All NOIs and NOTs shall be signed as follows:

    a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) the chief executive officer of the agency, or

(ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field,

superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.

3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.

4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4,* or by a duly authorized representative of that person.

   It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Requirement to Obtain Coverage Under an Alternative Permit

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge*(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. Proper Operation and Maintenance

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. Inspection and Entry

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner’s or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.

4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

N. Permit Actions

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions

Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.

2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

R. Other Permits

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

APPENDIX A – Acronyms and Definitions

Acronyms

APO – Agency Preservation Officer
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
Cpv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DOW – Division of Water
EAF – Environmental Assessment Form
ECL - Environmental Conservation Law
EPA – U. S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review
SEQRA - State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

Definitions

All definitions in this section are solely for the purposes of this permit.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property –means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both "sewage" and "stormwater".

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for "*Construction Activity(ies)*" also.

Construction Activity(ies) - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Construction Site – means the land area where *construction activity(ies)* will occur. See definition for "*Commence (Commencement of) Construction Activities"* and "*Larger Common Plan of Development or Sale" also.*

Dewatering – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system

and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or *point source*.

Embankment –means an earthen or rock slope that supports a road/highway.

Endangered or Threatened Species – see 6 NYCRR Part 182 of the Department's rules and regulations for definition of terms and requirements.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Equivalent (Equivalence) – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

Groundwater(s) - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Historic Property – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term "plan" in "larger common plan of development or sale" is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same "common plan" is not concurrently being disturbed.

Minimize – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State*;*
(ii) Designed or used for collecting or conveying stormwater;
(iii) Which is not a *combined sewer*; and
(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

Natural Buffer –means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

Nonpoint Source - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

Performance Criteria – means the design criteria listed under the "Required Elements" sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf) in Part I.C.2. of the permit.

Point Source - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Routine Maintenance Activity - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

Site limitations – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

Steep Slope – means land area designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Streambank – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint source*s. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint source*s, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed

training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

APPENDIX B – Required SWPPP Components by Project Type

Table 1
Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:

- Single family home not located in one of the watersheds listed in Appendix C or not *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions with 25% or less impervious cover at total site build-out and not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.

The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:

All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover
- Cross-country ski trails and walking/hiking trails
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path.
- Slope stabilization projects
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics

Table 1 (Continued) CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete

Table 2

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the “Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State” that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW’s, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover,* and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

- Entire New York City Watershed located east of the Hudson River **-** Figure 1
- Onondaga Lake Watershed **-** Figure 2
- Greenwood Lake Watershed **-**Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Figure 1 - New York City Watershed East of the Hudson

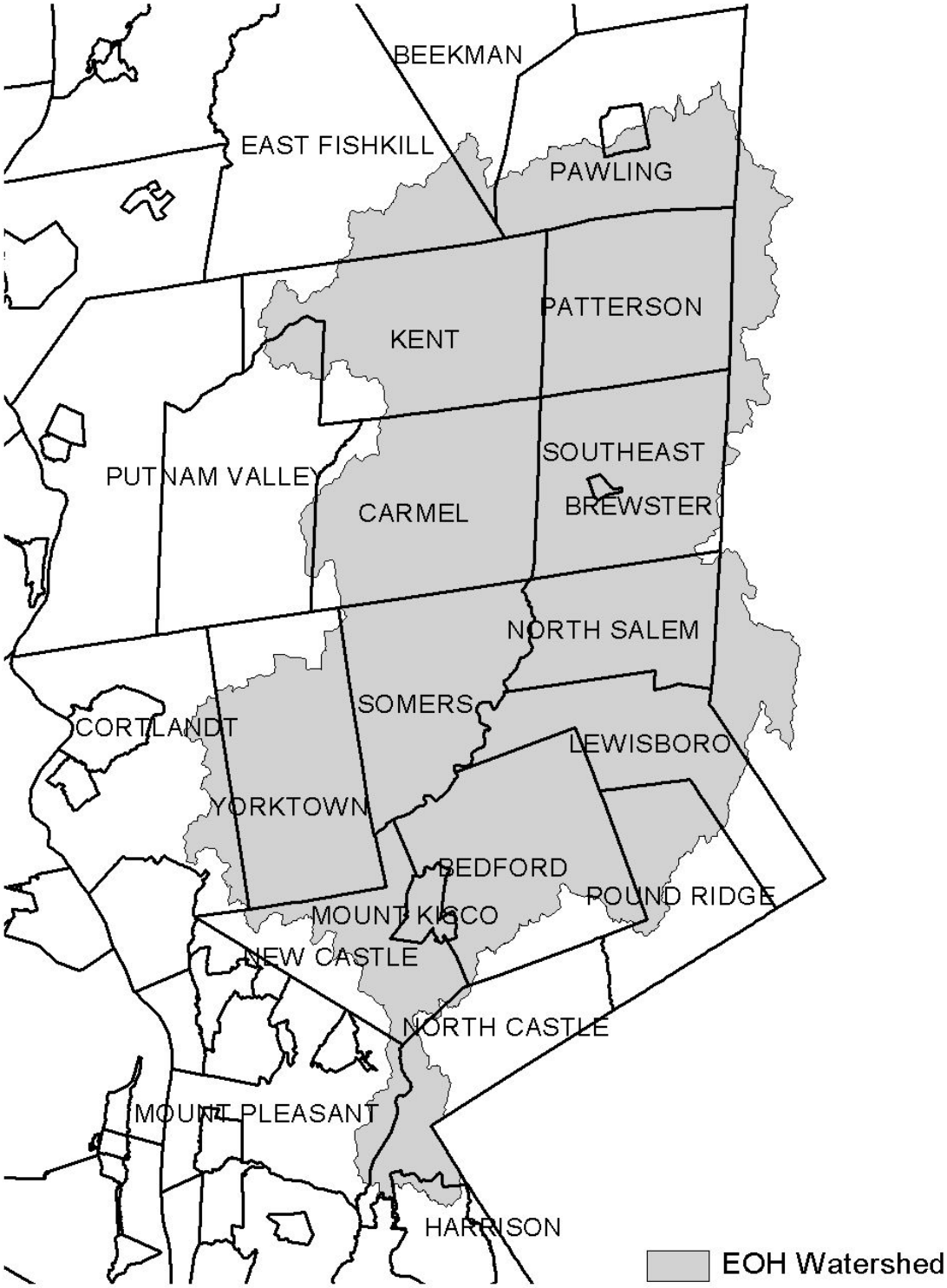


Figure 2 - Onondaga Lake Watershed

Figure 3 - Greenwood Lake Watershed

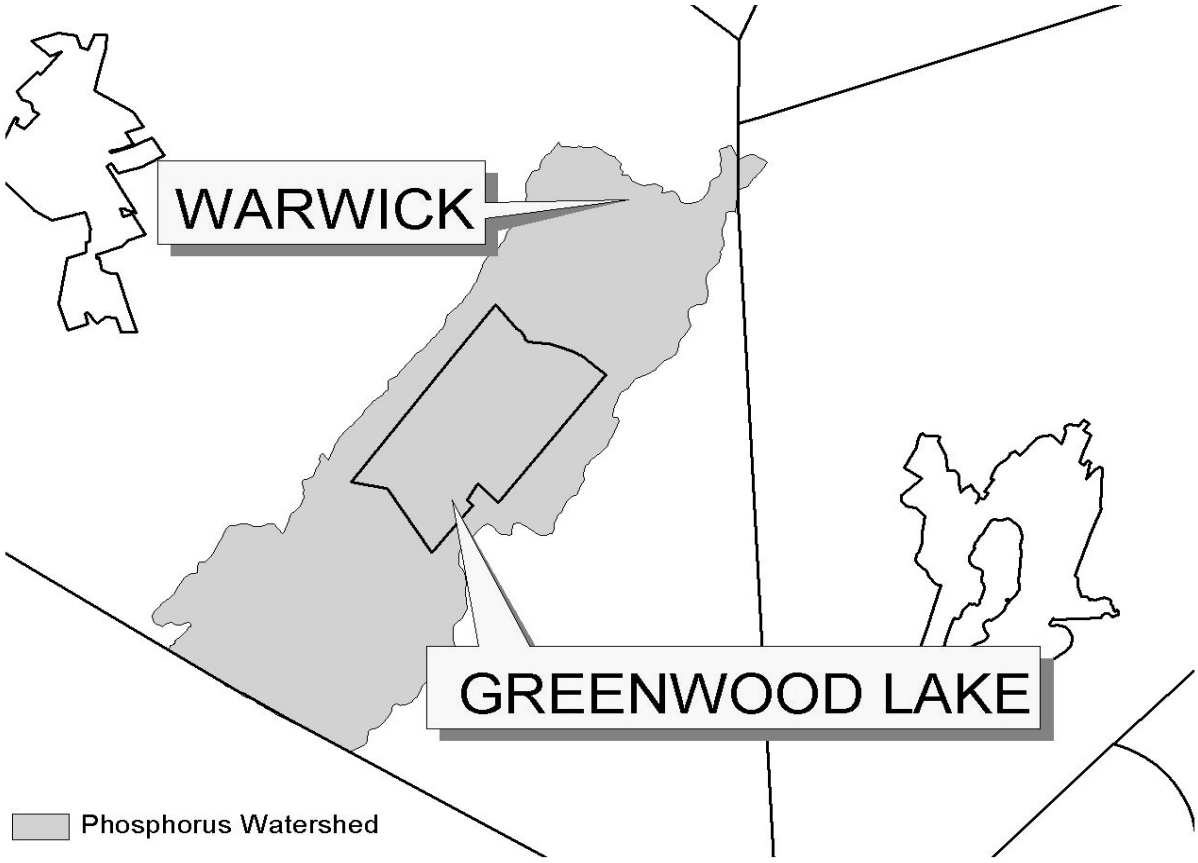


Figure 4 - Oscawana Lake Watershed

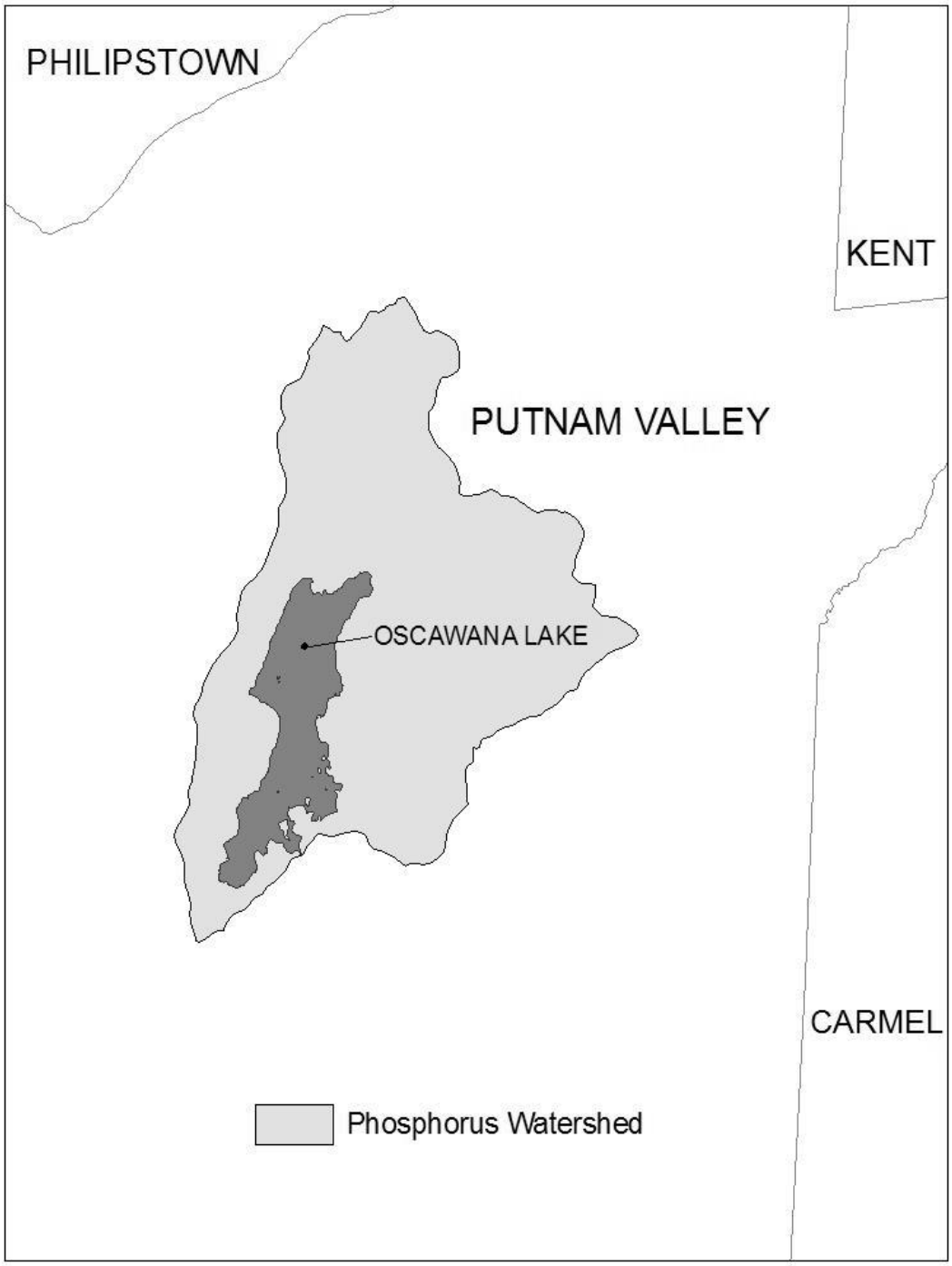
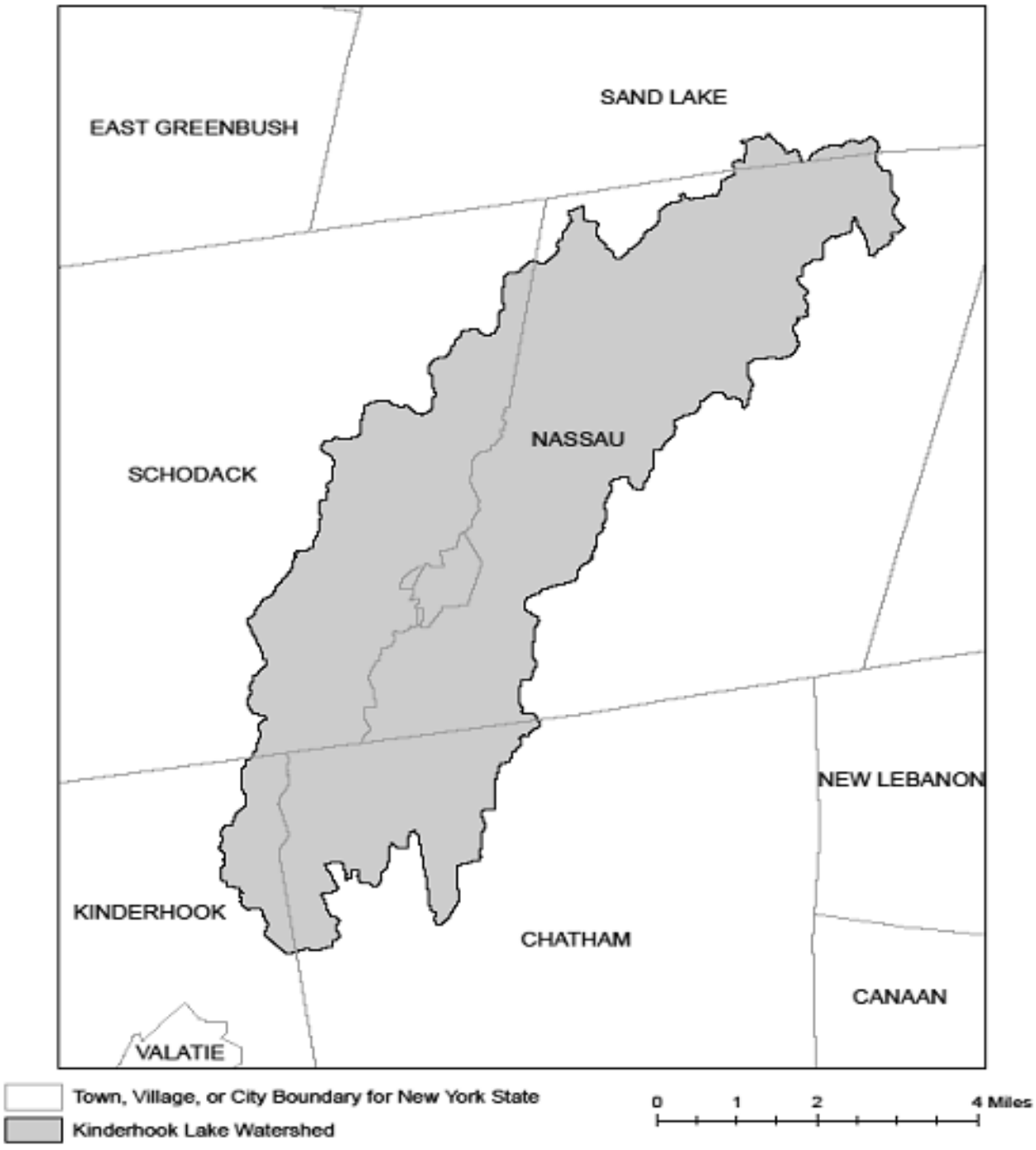


Figure 5 - Kinderhook Lake Watershed



APPENDIX D – Watersheds with Lower Disturbance Threshold

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River **-** See Figure 1 in Appendix C

APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

303(d) Segments Impaired by Construction Related Pollutant(s)

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake Lincolndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients

APPENDIX F – List of NYS DEC Regional Offices

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
1	Nassau and Suffolk	50 Circle Road Stony Brook, NY 11790 Tel. (631) 444-0365	50 Circle Road Stony Brook, NY 11790-3409 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	100 Hillside Avenue, Suite 1w White Plains, NY 10603 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	1115 State Route 86, Po Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Golf Course Road Warrensburg, NY 12885-1172 Tel. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070

Appendix B

MS4 SWPPP Acceptance Form
NYSDEC Notice of Intent (NOI)

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TO BE INCLUDED WITH FINAL SWPPP SUBMITTAL

Appendix C

Pre-Construction Meeting Documents

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TO BE INCLUDED WITH FINAL SWPPP SUBMITTAL

Appendix D

Sample Forms

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TO BE INCLUDED WITH FINAL SWPPP SUBMITTAL

Appendix E

NYSDEC Notice of Termination (NOT)

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TO BE INCLUDED WITH FINAL SWPPP SUBMITTAL

Appendix F

Design Calculations

POVALL ENGINEERING, PLLC
3 Nancy Court, Suite 4
Wappingers Falls, NY 12533
P: (845) 897-8205
F: (845) 897-0042

Job:	GLOBAL BUSINESS PARK SUBDV	**Prepared By:**	EDS	**Revised By:**	
Location:	AIRPORT DRIVE	**Date:**	8/17/21	**Date:**	
Municipality:	TOWN OF WAPPINGER	**Reviewed By:**	WHP	**Reviewed By:**	

Total Water Quality Volume Calculations

Is the project subject to Chapter 10 of the *NYS Stormwater Management Design Manual*? No

$$WQ_v = \frac{(P)(R_v)(A)}{12}$$

P = 1.10 inches

Subcatchment[1,2]	Total Area (ac)	Impervious Area (ac)	I (%)	R_v	WQ_v (ac-ft)	WQ_v (cf)
101	0.827	0.519	62.8	0.62	0.05	2,030
Total	**0.827**	**0.519**	**62.8**	**0.615**	**0.047**	**2030**

Notes:
Subcatchments 102 and 103 are not directed to the stormwater management system and are therefore excluded from these

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Location:	AIRPORT DRIVE	**Date:**	8/17/21	**Date:**	
Municipality:	TOWN OF WAPPINGER	**Reviewed By:**	WHP	**Reviewed By:**	

Pre-Treatment Sizing Calculations

Pretreatment volumes per NYS SWDM Section 6.3.3

$$WQ_v = \frac{(P)(R_v)(A)}{12}$$

P = 1.10 inches

Design Infiltration Rate: 0.5 inches per hour

Required Minimum Pretreament Volume: 25%

Pretreatment Pond: POND A FOREBAY

Subcatchment(*)	Total Area (ac)	Impervious Area (ac)	I (%)	WQ_v (cf)	Required Pretreatment Vol (cf)
101	0.827	0.519	62.8	2030	508

Notes:

*Infiltration Design Rates are presumed based on soil type.

*Per 6.13 of the NYS SWDM (Jan 2015), forebay storage volume counts towards the total WQv requirement

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Location:	AIRPORT DRIVE	**Date:**	8/17/21	**Date:**	
Municipality:	TOWN OF WAPPINGER	**Reviewed By:**	WHP	**Reviewed By:**	

Infiltration Basin Calculations

Infiltration POND B

1. Drainage Area to be Treated by Practice

Subcatchment	Total Area (ac)	Impervious Area (ac)	I (%)	R_v	WQ_v (cf)	Precipitation (in)
101	0.827	0.519	62.8	0.615	2,030	1.10
Impervious Area Reduced by Disconnection of Rooftops		0.000	62.8	0.615	2,030	WQv after adjustment
Portion of the WQv that is not reduced for all practices routed to this practice					0	cf

2. Soil Information

Soil Group: C

3. Design Parameters

Treated Volume, WQ_v: 2,030 cf

Depth of Basin, D_B: 1.5 ft

Req. Area of Basin, A_B: 1,353 sf

Pr. Area of Basin, A_F: 2,560 sf — is ≥ to required? yes

Pr. Volume in Basin, V_P: 4,536 cf — (per HydroCAD)

Total Volume Provided: 4,536 cf — is ≥ to required? yes

4. Determine Runoff Reduction

Percent Reduction: 90%

Runoff Reduction: 2,030 cf (% of storage volume provided or WQv, whichever is less)

Volume Treated: 2,506 cf (portion of the WQ_V not reduced within the practice)

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Location:	AIRPORT DRIVE	**Date:**	8/17/21	**Date:**	
Municipality:	TOWN OF WAPPINGER	**Reviewed By:**	WHP	**Reviewed By:**	

Runoff Reduction Volume and Treated Volumes

Technique		Total Contributing Area (ac)	Contributing Impervious Area (ac)	WQv Reduced (RRv) (cf)	WQv Treated (cf)
Area Reduction	Conservation of Natural Areas				
	Riparian Buffers				
	Filter Strips				
	Tree Planting				
	Disconnection of Rooftop Runoff				
Volume Reduction	Vegetated Swale				
	Rain Garden				
	Stormwater Planter				
	Rain Barrel/Cistern				
	Porous Pavement				
	Green Roof (Intensive)				
	Green Roof (Extensive)				
Standard SMPs w/ RRv Capacity	Infiltration Trench				
	Infiltration Basin	0.83	0.519	2030	2506
	Dry Well				
	Underground Infiltration System				
	Bioretention				
	Dry Swale				
Standard SMPs	Micropool Extended Detention Pond				
	Wet Pond				
	Wet Extended Detention Pond				
	Multiple Pond System				
	Pocket Pond				
	Surface Sand Filter				
	Underground Sand Filter				
	Perimeter Sand Filter				
	Organic Sand Filter				
	Shallow Wetland				
	Extended Detention Wetland				
	Pond/Wetland System				
	Pocket Wetland				
	Wet Swale				
Total by Area Reduction		0.000	0.000	0	
Total by Volume Reduction		0.000	0.000	0	
Standard SMP w/ RRv		0.827	0.519	2,030	2,506
Standard SMP		0.000	0.000		0
Total		**0.827**	**0.519**	**2,030**	**2,506**

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Location:	AIRPORT DRIVE	**Date:**	8/17/21	**Date:**	
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Minimum Runoff Reduction Volume Calculations

1. Comparision of the Total Required Water Quality Volume & Total Provided Runoff Reduction Volume

Total Required WQ_v = 0.047 ac-ft = 2,030 cf

Total RR_v Provided = 0.047 ac-ft = 2,030 cf

Has 100% of the water quality volume been reduced by the runoff reduction techniques? yes

Therefore, calculate the minimim required RR_v to ensure at a minimum, a percentage of the total required water quality volume has been reduced (see below).

In addition, evaluate each non-applied green infrastructure techniques/practices (see SWPPP for evaluation).

2. Minimum Required Runoff Reduction Volume

Soil Group	Acres	S
A	0.00	0.55
B	0.00	0.40
C	0.00	0.30
D	0.83	0.20
Total	**0.83**	

AIC = 0.519 ac

P = 1.10 in

I = 100 %

R_v* = 0.950

S = 0.20

Minimum Required RR_v = 0.009 ac-ft = 394 cf

Is the total provided $RR_v \geq$ the minimum required RR_v? yes

Total WQv Provided = 2,506 cf

Is the sum of RRv Provided and WQv Provided ≥WQv Required? yes

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Location:	AIRPORT DRIVE	**Date:**	8/17/21	**Date:**	
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Water Quantity Volume Calculations

1. Channel Protection Volume

A = 2.13 ac = 0.003 sq. mile (Limts of Disturbance)
CN = 80
Ia = 0.500
$P_{1\ yr\ storm}$ = 2.80 in
$Ia/P_{1\ yr\ storm}$ = 0.179

T_c = 6 min = 0.10 hours

q_u = 420 csm/in (from Exhibit 4-III of TR-55)
q_0/q_i = 0.04 (from Figure 8.5 of NYS Stormwater Mgt Design Manual)

$V_s/V_r = 0.683 - 1.43(q_o/q_i) + 1.64(q_o/q_i)^2 - 0.804(q_o/q_i)^3$
V_s/V_r = 0.628

$Q_{1\ yr\ storm}$ = 0.72 in (from HydroCAD 1 year storm runoff)

$V_s = C_{pv}$ = 0.08 ac-ft = 3,498 cf
Avg Release Rate = 0.04 cfs (rate to be release over 24 hour period)

2. Overbank Flood Protection Volume

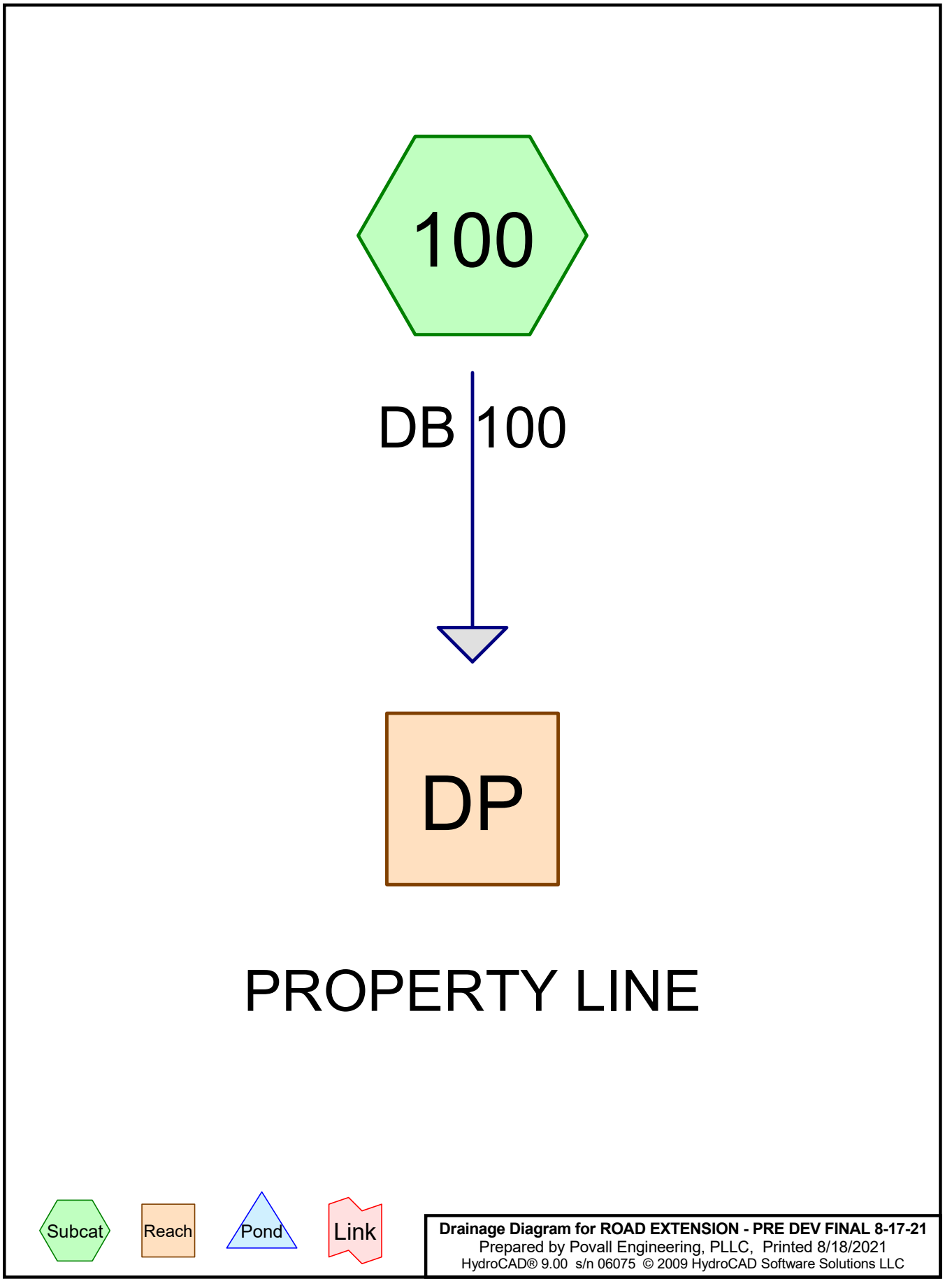
q_0 = 13.06 cfs (pre-development)
q_i = 11.58 cfs (post-development)
q_0/q_i = 1.128 **Not required since post is less than pre.**

3. Extreme Flood Protection Volume

q_0 = 25.13 cfs (pre-development)
q_i = 24.78 cfs (post-development)
q_0/q_i = 1.014 **Not required since post is less than pre.**

Appendix G

Pre-Development HydroCAD Analysis



Drainage Diagram for ROAD EXTENSION - PRE DEV FINAL 8-17-21
Prepared by Povall Engineering, PLLC, Printed 8/18/2021

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.396	73	Woods, Fair, HSG C-BeC (100)
1.708	79	Woods, Fair, HSG D - Wy (100)
1.219	98	Wetlands, HSG D (100)
6.323		**TOTAL AREA**

Summary for Subcatchment 100: DB 100

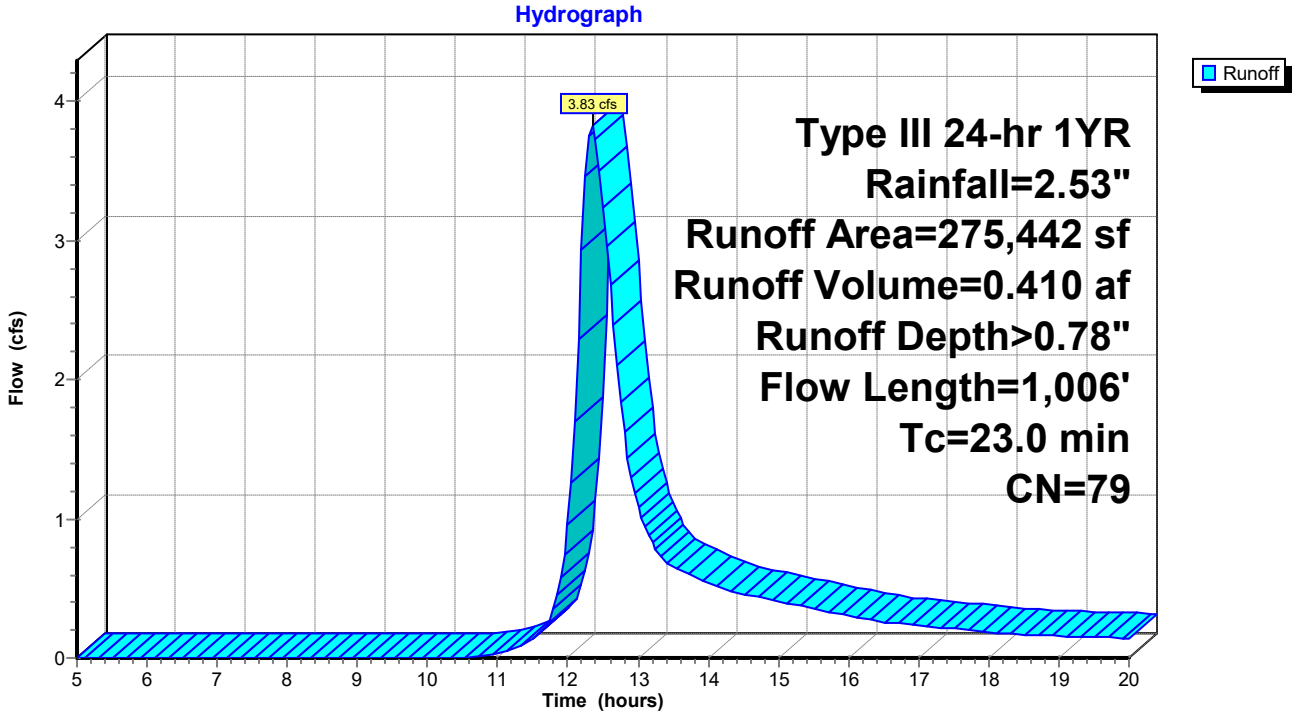
Runoff = 3.83 cfs @ 12.35 hrs, Volume= 0.410 af, Depth> 0.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1YR Rainfall=2.53"

	Area (sf)	CN	Description
*	53,119	98	Wetlands, HSG D
*	147,923	73	Woods, Fair, HSG C-BeC
*	74,400	79	Woods, Fair, HSG D - Wy
	275,442	79	Weighted Average
	222,323		80.71% Pervious Area
	53,119		19.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	100	0.0582	0.12		**Sheet Flow, A-B (SHEET)** Woods: Light underbrush n= 0.400 P2= 3.14"
5.5	518	0.0971	1.56		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.0	94	0.0941	1.53		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
0.3	55	0.3273	2.86		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
1.4	98	0.0561	1.18		**Shallow Concentrated Flow, E-F** Woodland Kv= 5.0 fps
0.7	141	0.0247	3.19		**Shallow Concentrated Flow, F-G WETLAND** Paved Kv= 20.3 fps
23.0	1,006	Total			

Subcatchment 100: DB 100



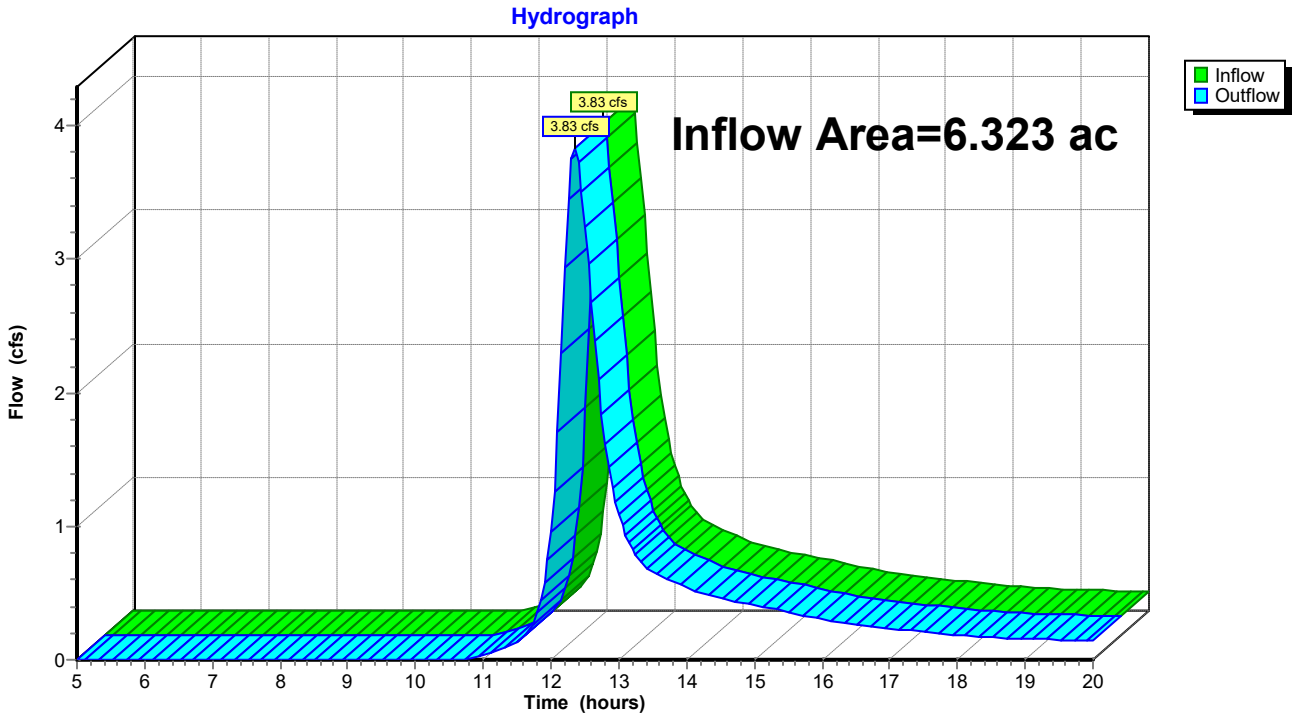
Summary for Reach DP: PROPERTY LINE

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 6.323 ac, 19.29% Impervious, Inflow Depth > 0.78" for 1YR event
Inflow = 3.83 cfs @ 12.35 hrs, Volume= 0.410 af
Outflow = 3.83 cfs @ 12.35 hrs, Volume= 0.410 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP: PROPERTY LINE



Summary for Subcatchment 100: DB 100

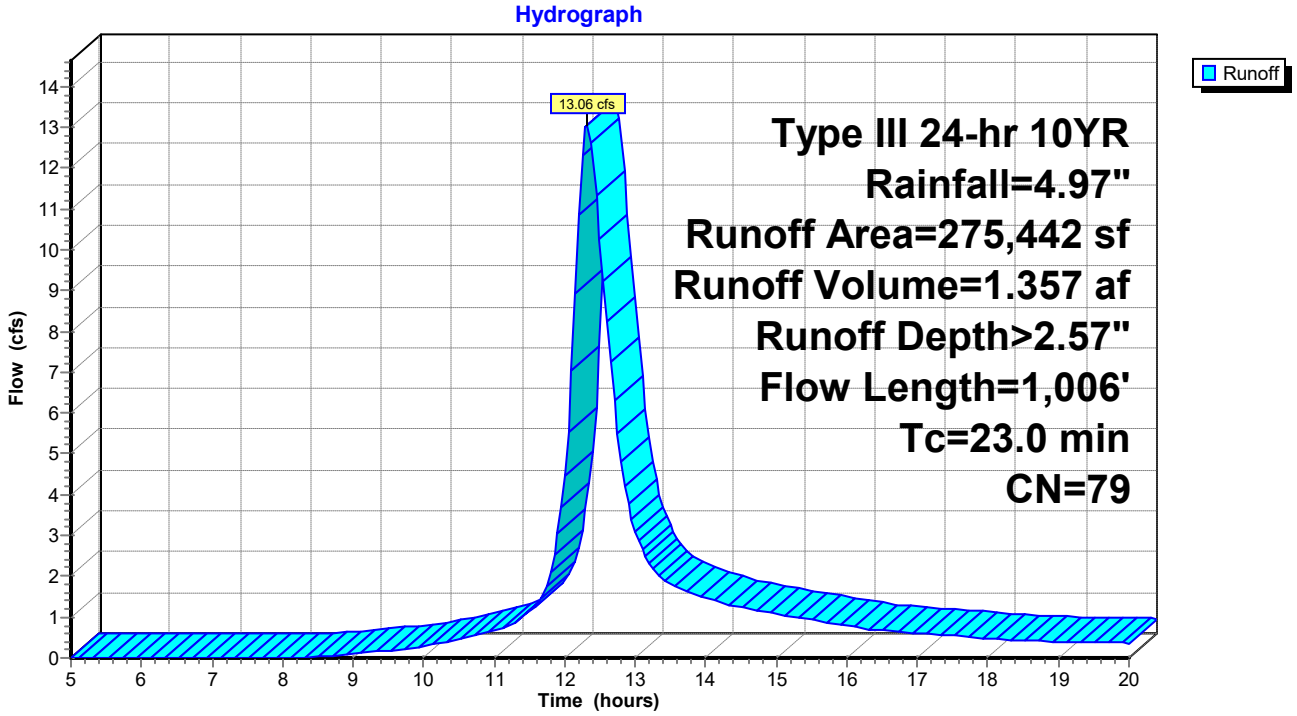
Runoff = 13.06 cfs @ 12.32 hrs, Volume= 1.357 af, Depth> 2.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.97"

	Area (sf)	CN	Description
*	53,119	98	Wetlands, HSG D
*	147,923	73	Woods, Fair, HSG C-BeC
*	74,400	79	Woods, Fair, HSG D - Wy
	275,442	79	Weighted Average
	222,323		80.71% Pervious Area
	53,119		19.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	100	0.0582	0.12		**Sheet Flow, A-B (SHEET)** Woods: Light underbrush n= 0.400 P2= 3.14"
5.5	518	0.0971	1.56		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.0	94	0.0941	1.53		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
0.3	55	0.3273	2.86		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
1.4	98	0.0561	1.18		**Shallow Concentrated Flow, E-F** Woodland Kv= 5.0 fps
0.7	141	0.0247	3.19		**Shallow Concentrated Flow, F-G WETLAND** Paved Kv= 20.3 fps
23.0	1,006	Total			

Subcatchment 100: DB 100



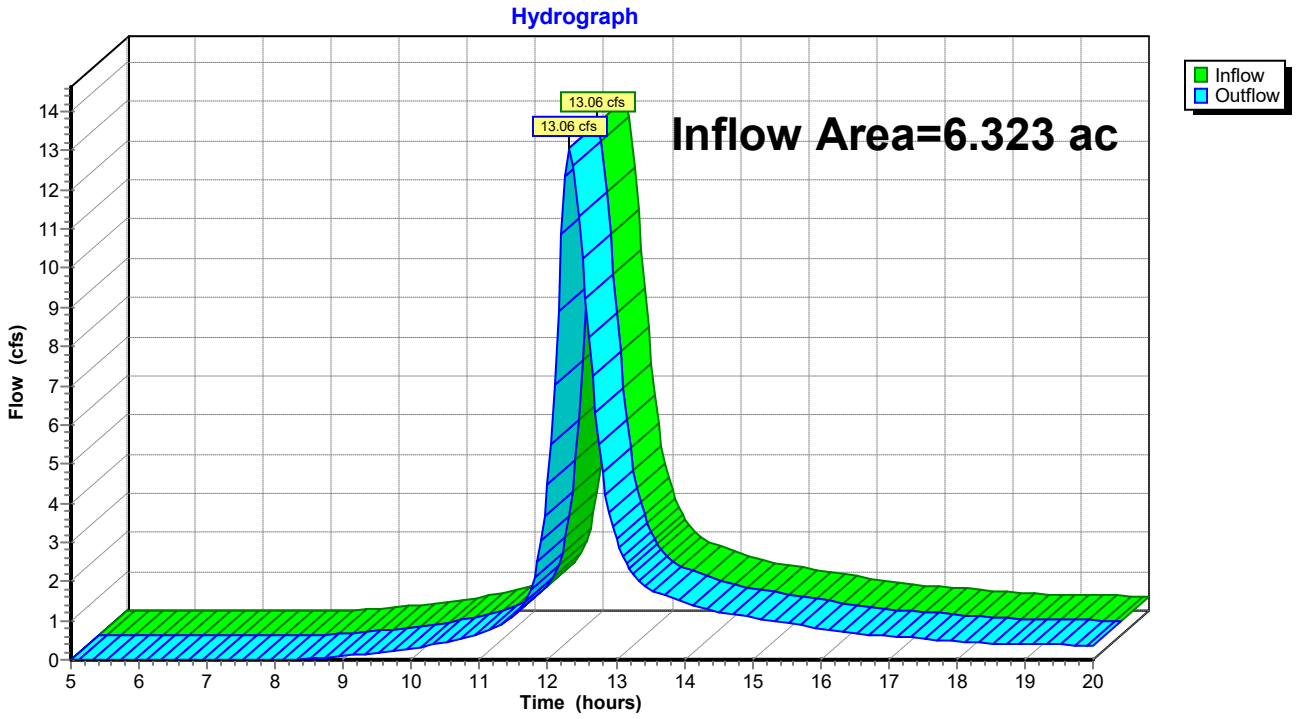
Summary for Reach DP: PROPERTY LINE

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 6.323 ac, 19.29% Impervious, Inflow Depth > 2.57" for 10YR event
Inflow = 13.06 cfs @ 12.32 hrs, Volume= 1.357 af
Outflow = 13.06 cfs @ 12.32 hrs, Volume= 1.357 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP: PROPERTY LINE



Summary for Subcatchment 100: DB 100

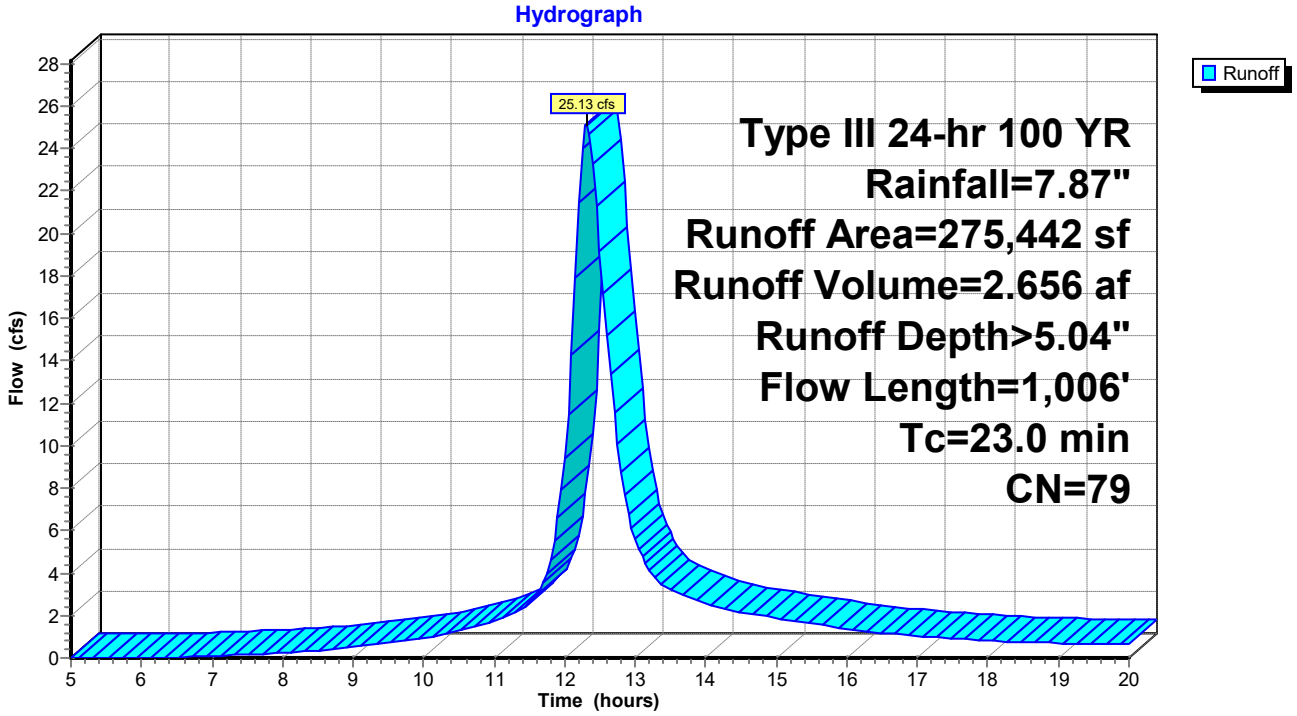
Runoff = 25.13 cfs @ 12.31 hrs, Volume= 2.656 af, Depth> 5.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 YR Rainfall=7.87"

	Area (sf)	CN	Description
*	53,119	98	Wetlands, HSG D
*	147,923	73	Woods, Fair, HSG C-BeC
*	74,400	79	Woods, Fair, HSG D - Wy
	275,442	79	Weighted Average
	222,323		80.71% Pervious Area
	53,119		19.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	100	0.0582	0.12		**Sheet Flow, A-B (SHEET)** Woods: Light underbrush n= 0.400 P2= 3.14"
5.5	518	0.0971	1.56		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.0	94	0.0941	1.53		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
0.3	55	0.3273	2.86		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
1.4	98	0.0561	1.18		**Shallow Concentrated Flow, E-F** Woodland Kv= 5.0 fps
0.7	141	0.0247	3.19		**Shallow Concentrated Flow, F-G WETLAND** Paved Kv= 20.3 fps
23.0	1,006	Total			

Subcatchment 100: DB 100



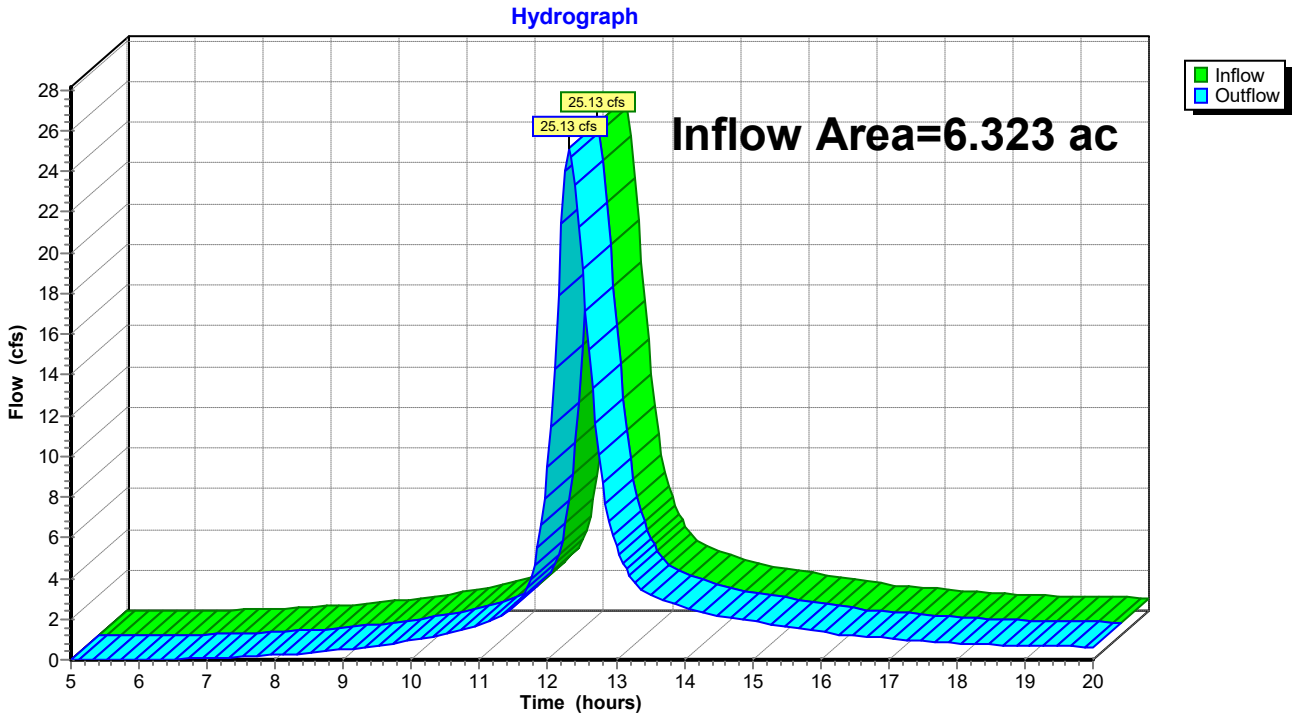
Summary for Reach DP: PROPERTY LINE

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 6.323 ac, 19.29% Impervious, Inflow Depth > 5.04" for 100 YR event
Inflow = 25.13 cfs @ 12.31 hrs, Volume= 2.656 af
Outflow = 25.13 cfs @ 12.31 hrs, Volume= 2.656 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP: PROPERTY LINE



Summary for Subcatchment 100: DB 100

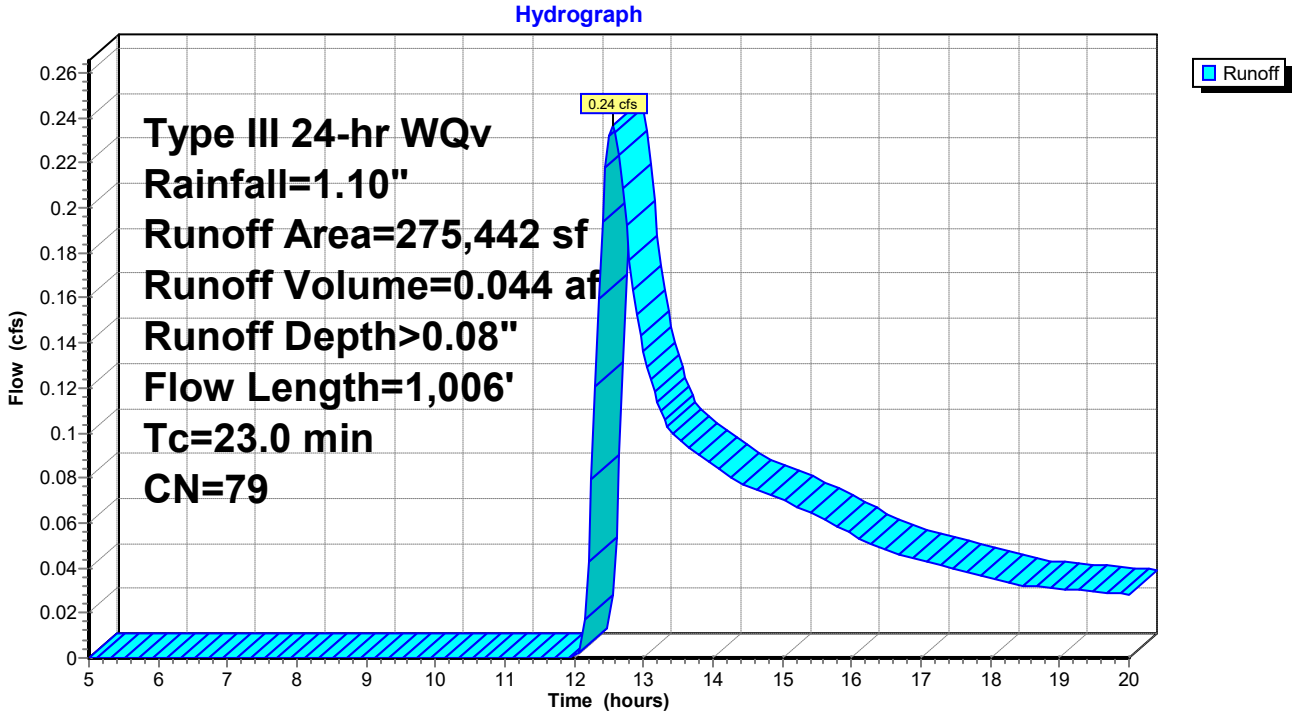
Runoff = 0.24 cfs @ 12.55 hrs, Volume= 0.044 af, Depth> 0.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQv Rainfall=1.10"

	Area (sf)	CN	Description
*	53,119	98	Wetlands, HSG D
*	147,923	73	Woods, Fair, HSG C-BeC
*	74,400	79	Woods, Fair, HSG D - Wy
	275,442	79	Weighted Average
	222,323		80.71% Pervious Area
	53,119		19.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	100	0.0582	0.12		**Sheet Flow, A-B (SHEET)** Woods: Light underbrush n= 0.400 P2= 3.14"
5.5	518	0.0971	1.56		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.0	94	0.0941	1.53		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
0.3	55	0.3273	2.86		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
1.4	98	0.0561	1.18		**Shallow Concentrated Flow, E-F** Woodland Kv= 5.0 fps
0.7	141	0.0247	3.19		**Shallow Concentrated Flow, F-G WETLAND** Paved Kv= 20.3 fps
23.0	1,006	Total			

Subcatchment 100: DB 100



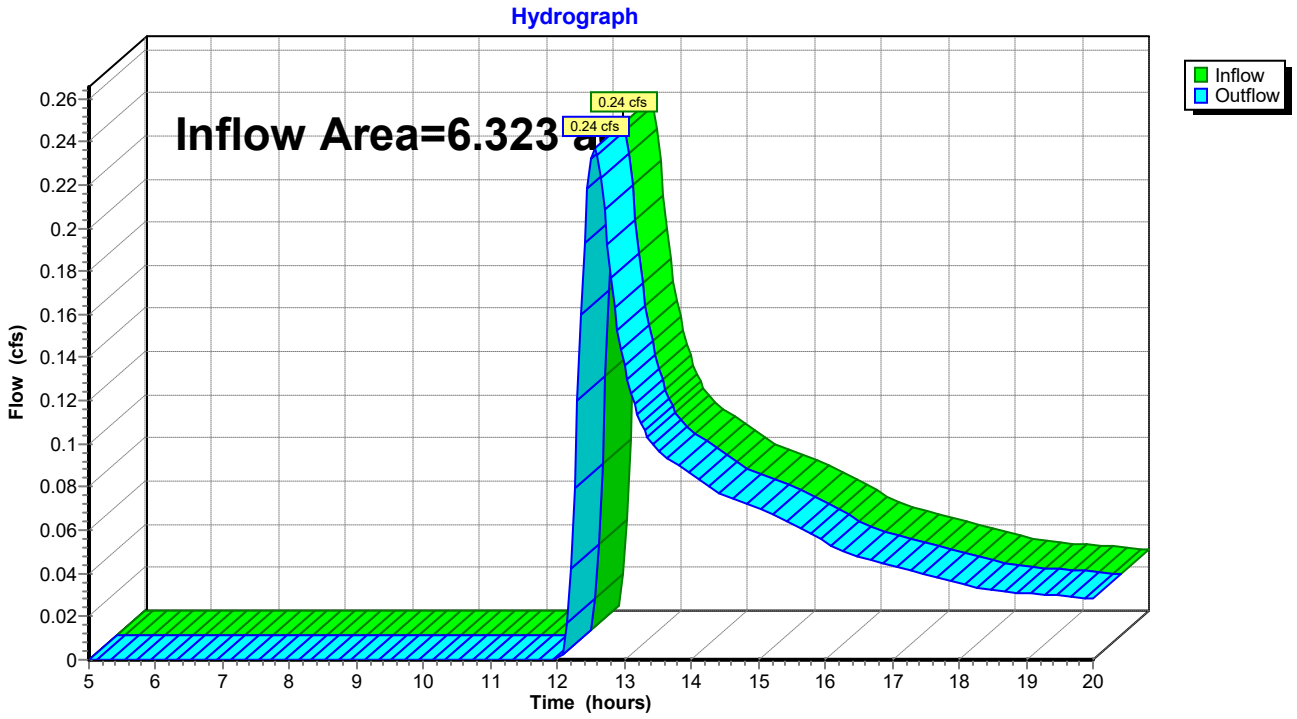
Summary for Reach DP: PROPERTY LINE

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 6.323 ac, 19.29% Impervious, Inflow Depth > 0.08" for WQv event
Inflow = 0.24 cfs @ 12.55 hrs, Volume= 0.044 af
Outflow = 0.24 cfs @ 12.55 hrs, Volume= 0.044 af, Atten= 0%, Lag= 0.0 min

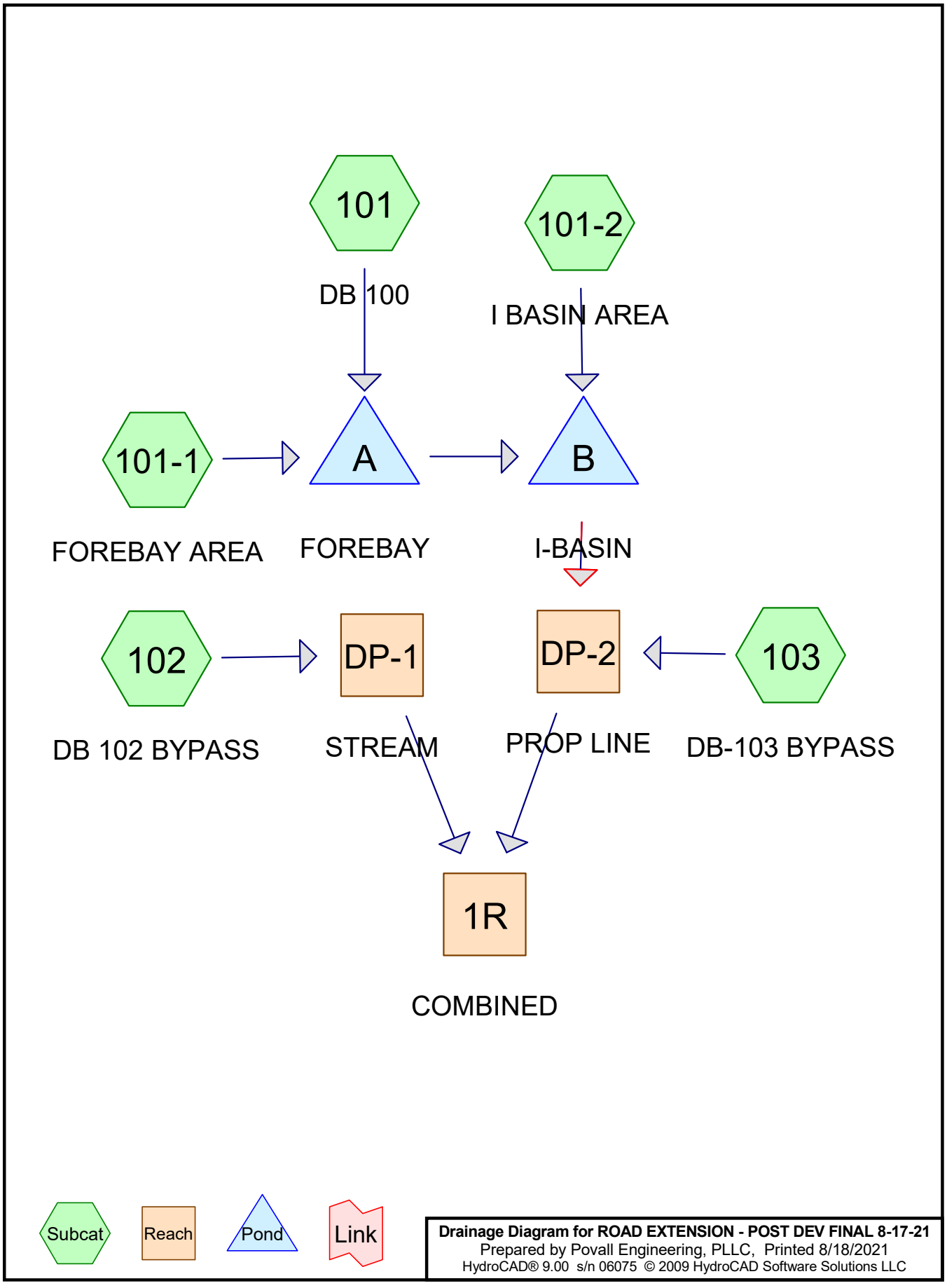
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP: PROPERTY LINE



Appendix H

Post-Development HydroCAD Analysis



Drainage Diagram for ROAD EXTENSION - POST DEV FINAL 8-17-21
Prepared by Povall Engineering, PLLC, Printed 8/18/2021

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.088	73	Woods, Fair, HSG C (102, 103)
0.405	74	>75% Grass cover, Good, HSG C (101-1, 101-2, 102)
0.689	79	Woods, Fair, HSG D (102, 103)
0.708	80	>75% Grass cover, Good, HSG D (101-1, 102, 103)
0.519	98	Paved roads w/curbs & sewers, HSG D (101)
0.914	98	Wetlands, HSG D (102, 103)
6.323		**TOTAL AREA**

Summary for Subcatchment 101: DB 100

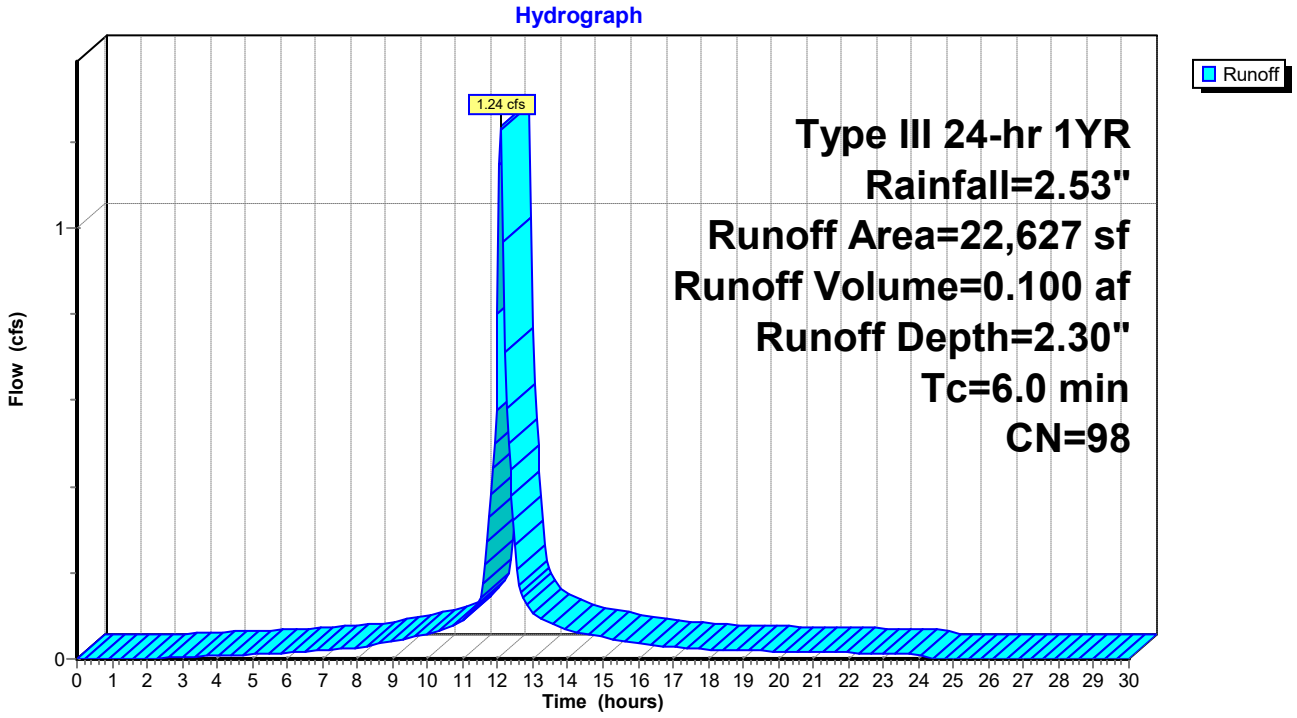
Runoff = 1.24 cfs @ 12.09 hrs, Volume= 0.100 af, Depth= 2.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1YR Rainfall=2.53"

Area (sf)	CN	Description
22,627	98	Paved roads w/curbs & sewers, HSG D
22,627		100.00% Impervious Area

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

Subcatchment 101: DB 100



Summary for Subcatchment 101-1: FOREBAY AREA

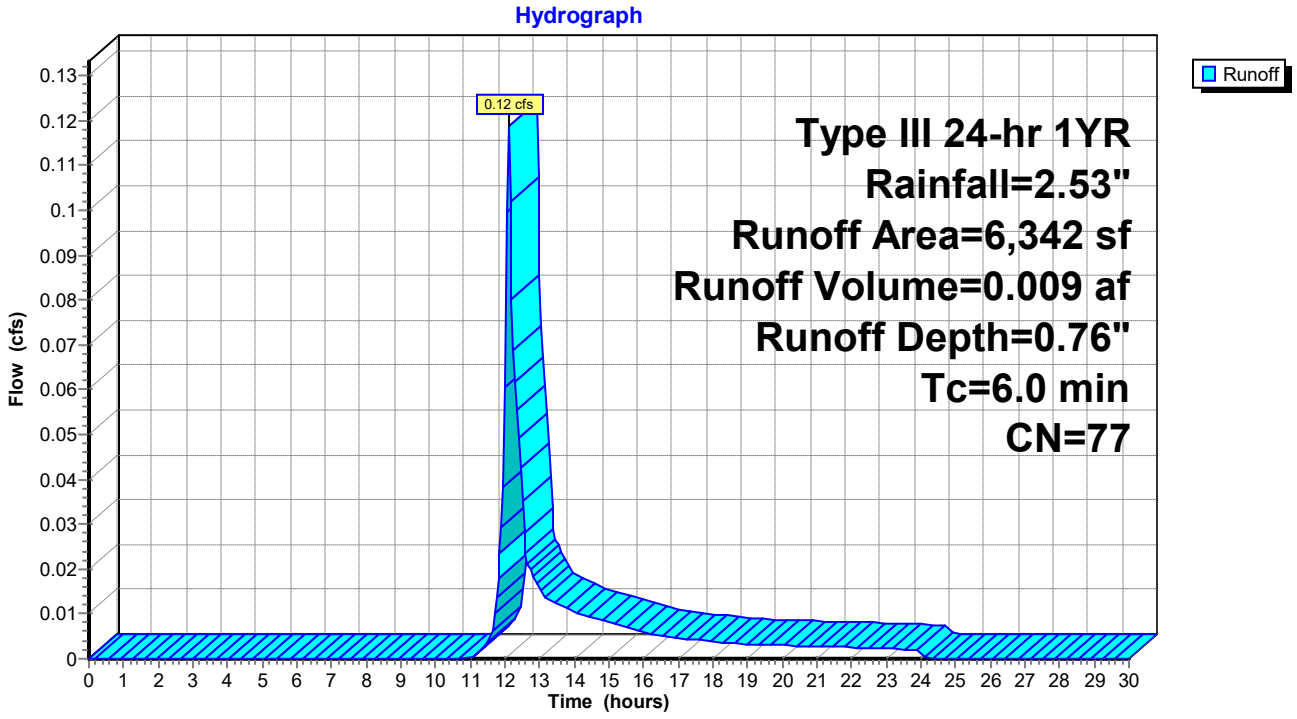
Runoff = 0.12 cfs @ 12.10 hrs, Volume= 0.009 af, Depth= 0.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1YR Rainfall=2.53"

Area (sf)	CN	Description
3,275	80	>75% Grass cover, Good, HSG D
3,067	74	>75% Grass cover, Good, HSG C
6,342	77	Weighted Average
6,342		100.00% Pervious Area

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

Subcatchment 101-1: FOREBAY AREA



Summary for Subcatchment 101-2: I BASIN AREA

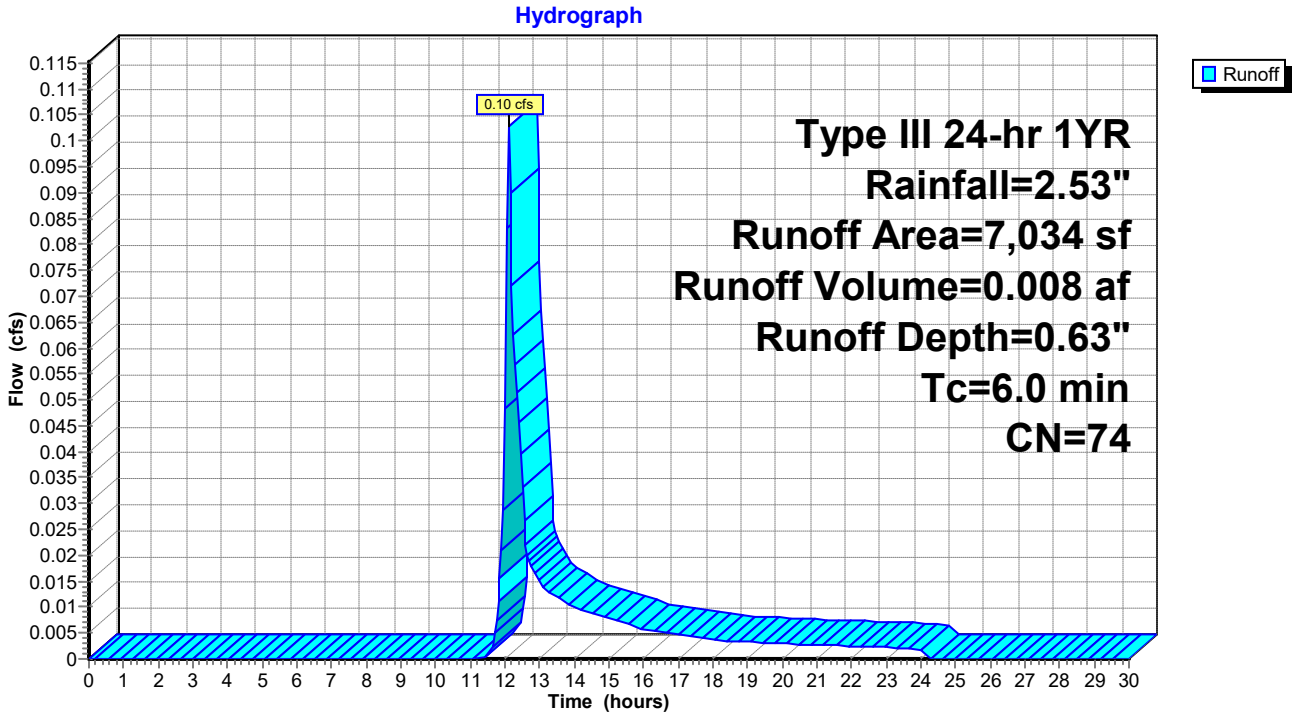
Runoff = 0.10 cfs @ 12.11 hrs, Volume= 0.008 af, Depth= 0.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1YR Rainfall=2.53"

Area (sf)	CN	Description
7,034	74	>75% Grass cover, Good, HSG C
7,034		100.00% Pervious Area

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

Subcatchment 101-2: I BASIN AREA



Summary for Subcatchment 102: DB 102 BYPASS

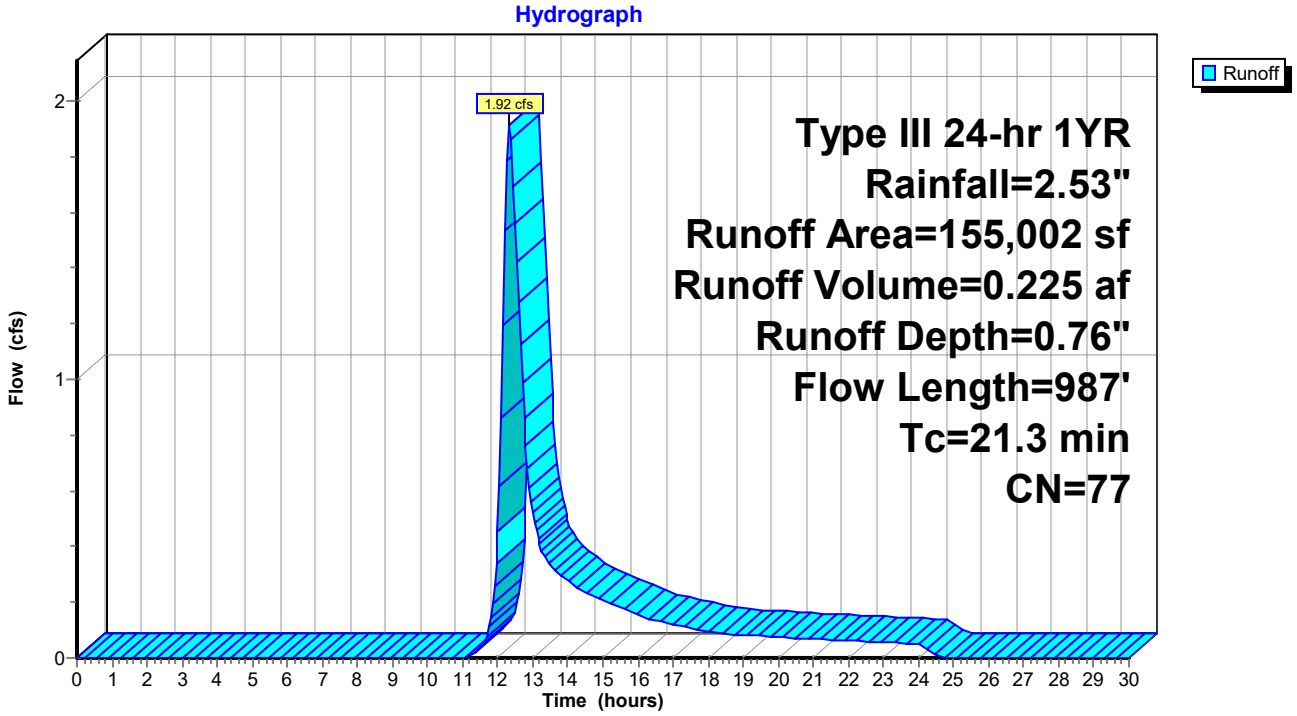
Runoff = 1.92 cfs @ 12.33 hrs, Volume= 0.225 af, Depth= 0.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1YR Rainfall=2.53"

	Area (sf)	CN	Description
	7,391	80	>75% Grass cover, Good, HSG D
	7,542	74	>75% Grass cover, Good, HSG C
*	9,934	79	Woods, Fair, HSG D
	107,196	73	Woods, Fair, HSG C
*	22,939	98	Wetlands, HSG D
	155,002	77	Weighted Average
	132,063		85.20% Pervious Area
	22,939		14.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0790	0.13		**Sheet Flow, SHEET A-B** Woods: Light underbrush n= 0.400 P2= 3.14"
1.6	117	0.0625	1.25		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
2.3	219	0.0975	1.56		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
0.3	57	0.2807	3.71		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
2.5	194	0.1237	1.31	10.51	**Parabolic Channel, F-G SWALE** W=12.00' D=1.00' Area=8.0 sf Perim=12.2' n= 0.300
2.1	300	0.0133	2.34		**Shallow Concentrated Flow, G-H WETLAND** Paved Kv= 20.3 fps
21.3	987	Total			

Subcatchment 102: DB 102 BYPASS



Summary for Subcatchment 103: DB-103 BYPASS

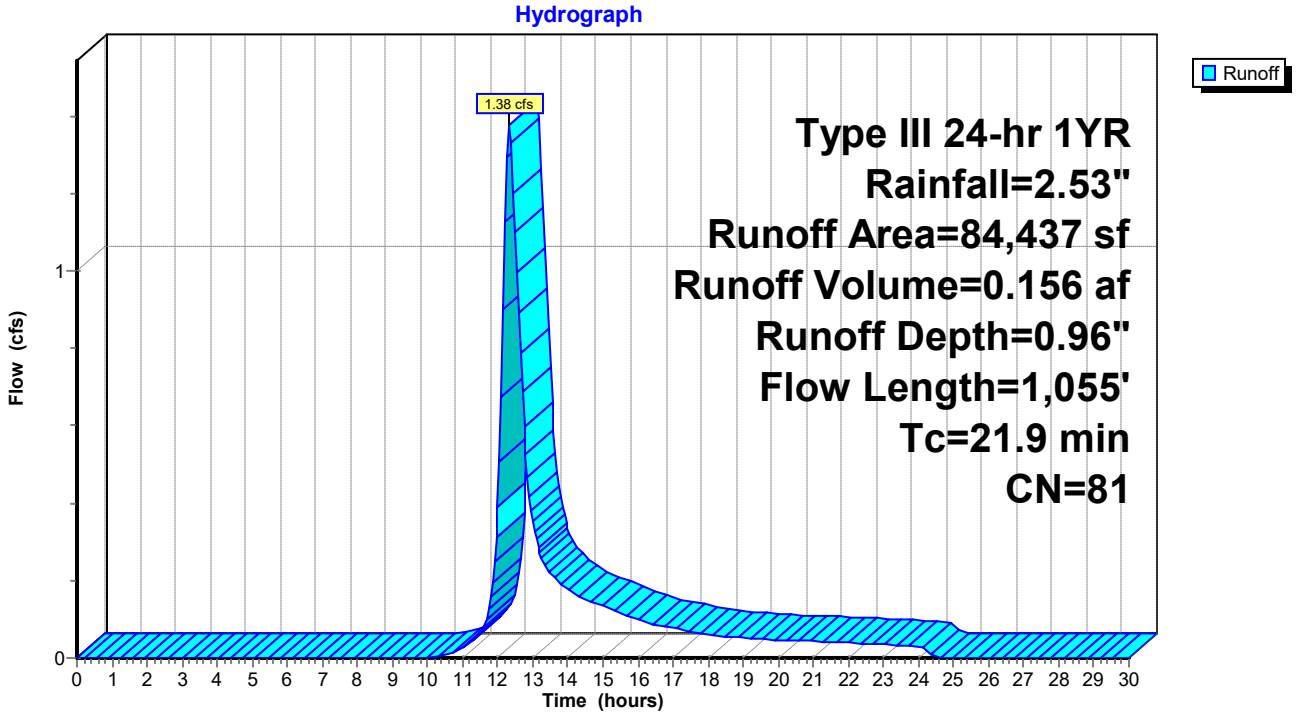
Runoff = 1.38 cfs @ 12.32 hrs, Volume= 0.156 af, Depth= 0.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 1YR Rainfall=2.53"

	Area (sf)	CN	Description
	20,171	80	>75% Grass cover, Good, HSG D
*	20,063	79	Woods, Fair, HSG D
	27,339	73	Woods, Fair, HSG C
*	16,864	98	Wetlands, HSG D
	84,437	81	Weighted Average
	67,573		80.03% Pervious Area
	16,864		19.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	100	0.0582	0.12		**Sheet Flow, SHEET A-B** Woods: Light underbrush n= 0.400 P2= 3.14"
5.6	520	0.0964	1.55		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.6	53	0.0755	1.37		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
0.2	201	0.2000	17.10	119.67	**Trap/Vee/Rect Channel Flow, D-E** Bot.W=4.00' D=1.00' Z= 3.0 '/' Top.W=10.00' n= 0.030 Earth, grassed
0.6	32	0.0357	0.94		**Shallow Concentrated Flow, E-F** Woodland Kv= 5.0 fps
0.8	149	0.0253	3.23		**Shallow Concentrated Flow, F-G WETLAND** Paved Kv= 20.3 fps
21.9	1,055	Total			

Subcatchment 103: DB-103 BYPASS



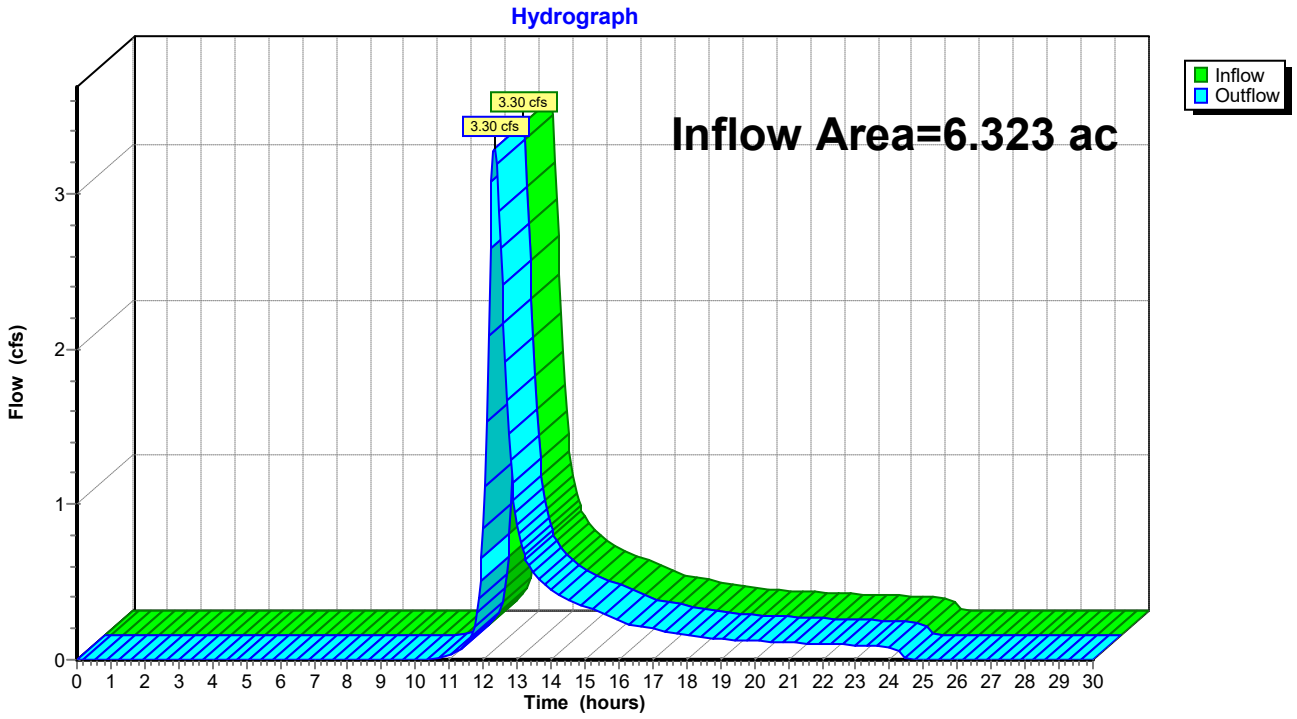
Summary for Reach 1R: COMBINED

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 6.323 ac, 22.67% Impervious, Inflow Depth = 0.72" for 1YR event
Inflow = 3.30 cfs @ 12.32 hrs, Volume= 0.381 af
Outflow = 3.30 cfs @ 12.32 hrs, Volume= 0.381 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 1R: COMBINED



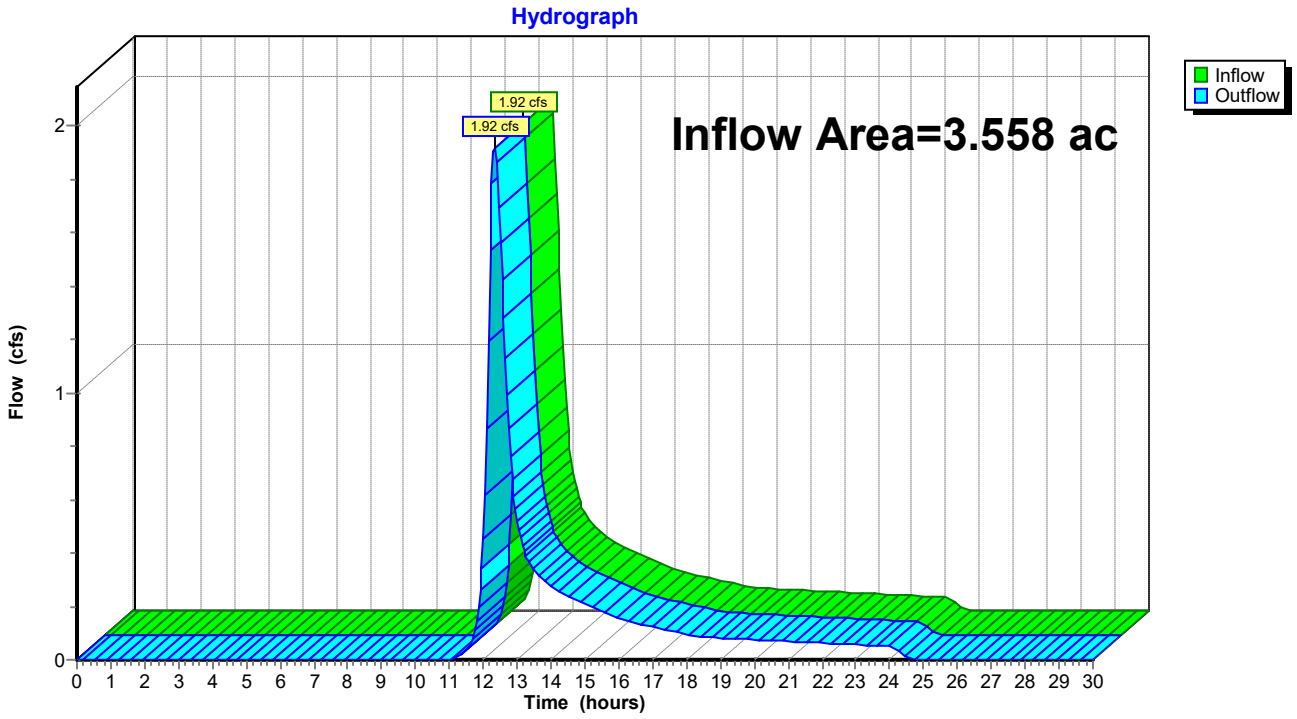
Summary for Reach DP-1: STREAM

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 3.558 ac, 14.80% Impervious, Inflow Depth = 0.76" for 1YR event
Inflow = 1.92 cfs @ 12.33 hrs, Volume= 0.225 af
Outflow = 1.92 cfs @ 12.33 hrs, Volume= 0.225 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP-1: STREAM



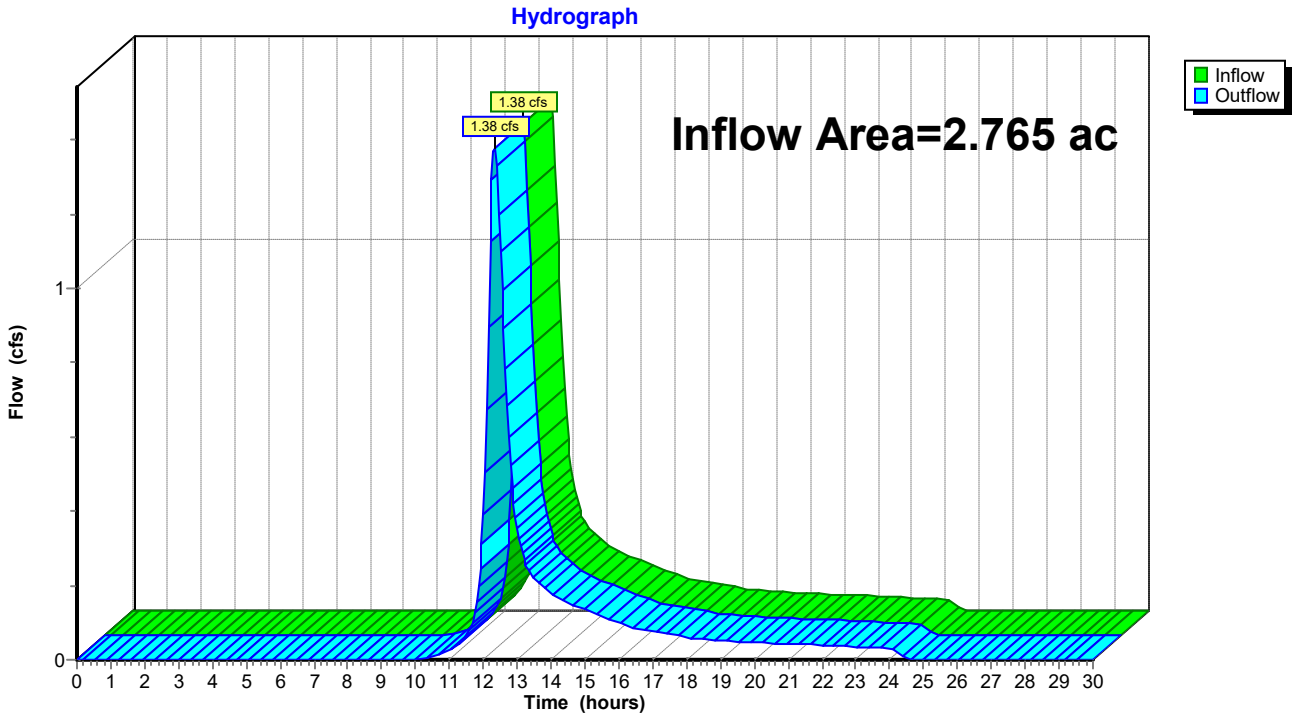
Summary for Reach DP-2: PROP LINE

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.765 ac, 32.79% Impervious, Inflow Depth = 0.68" for 1YR event
Inflow = 1.38 cfs @ 12.32 hrs, Volume= 0.156 af
Outflow = 1.38 cfs @ 12.32 hrs, Volume= 0.156 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP-2: PROP LINE



Summary for Pond A: FOREBAY

Inflow Area = 0.665 ac, 78.11% Impervious, Inflow Depth = 1.96" for 1YR event
Inflow = 1.35 cfs @ 12.09 hrs, Volume= 0.109 af
Outflow = 1.20 cfs @ 12.13 hrs, Volume= 0.094 af, Atten= 11%, Lag= 2.7 min
Primary = 1.20 cfs @ 12.13 hrs, Volume= 0.094 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 202.00' @ 12.13 hrs Surf.Area= 1,359 sf Storage= 946 cf

Plug-Flow detention time= 113.2 min calculated for 0.094 af (87% of inflow)
Center-of-Mass det. time= 52.4 min (822.9 - 770.5)

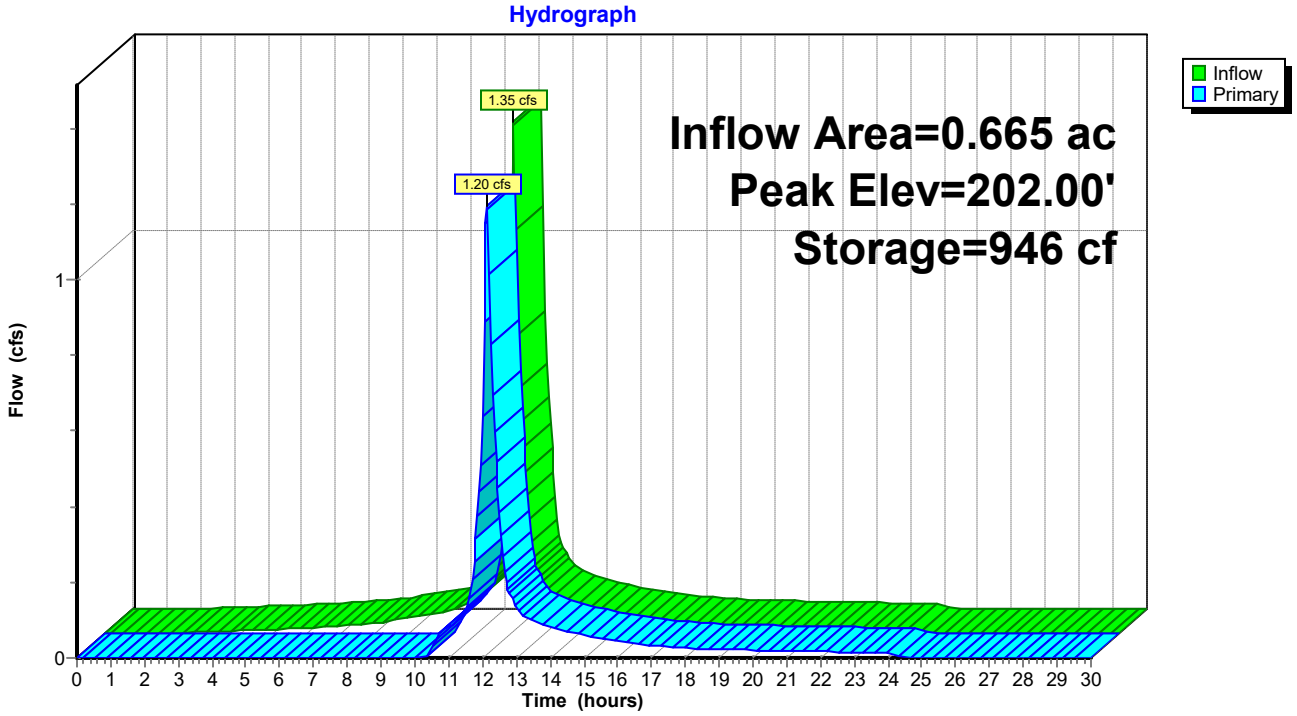
Volume	Invert	Avail.Storage	Storage Description
#1	201.00'	2,705 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
201.00	589	243.0	0	0	589
202.00	1,360	263.0	948	948	1,433
203.00	2,186	284.0	1,757	2,705	2,387

Device	Routing	Invert	Outlet Devices
#1	Primary	201.75'	**4.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=1.18 cfs @ 12.13 hrs HW=202.00' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 1.18 cfs @ 1.20 fps)

Pond A: FOREBAY



Summary for Pond B: I-BASIN

Inflow Area = 0.827 ac, 62.85% Impervious, Inflow Depth = 1.49" for 1YR event
Inflow = 1.29 cfs @ 12.13 hrs, Volume= 0.103 af
Outflow = 0.04 cfs @ 17.18 hrs, Volume= 0.057 af, Atten= 97%, Lag= 303.3 min
Discarded = 0.04 cfs @ 17.18 hrs, Volume= 0.057 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 201.06' @ 17.18 hrs Surf.Area= 3,220 sf Storage= 3,064 cf

Plug-Flow detention time= 505.1 min calculated for 0.057 af (56% of inflow)
Center-of-Mass det. time= 398.9 min (1,226.4 - 827.5)

Volume	Invert	Avail.Storage	Storage Description
#1	200.00'	9,778 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
200.00	2,560	194.0	0	0	2,560
202.00	3,865	241.0	6,380	6,380	4,244
203.50	982	270.0	3,398	9,778	5,484

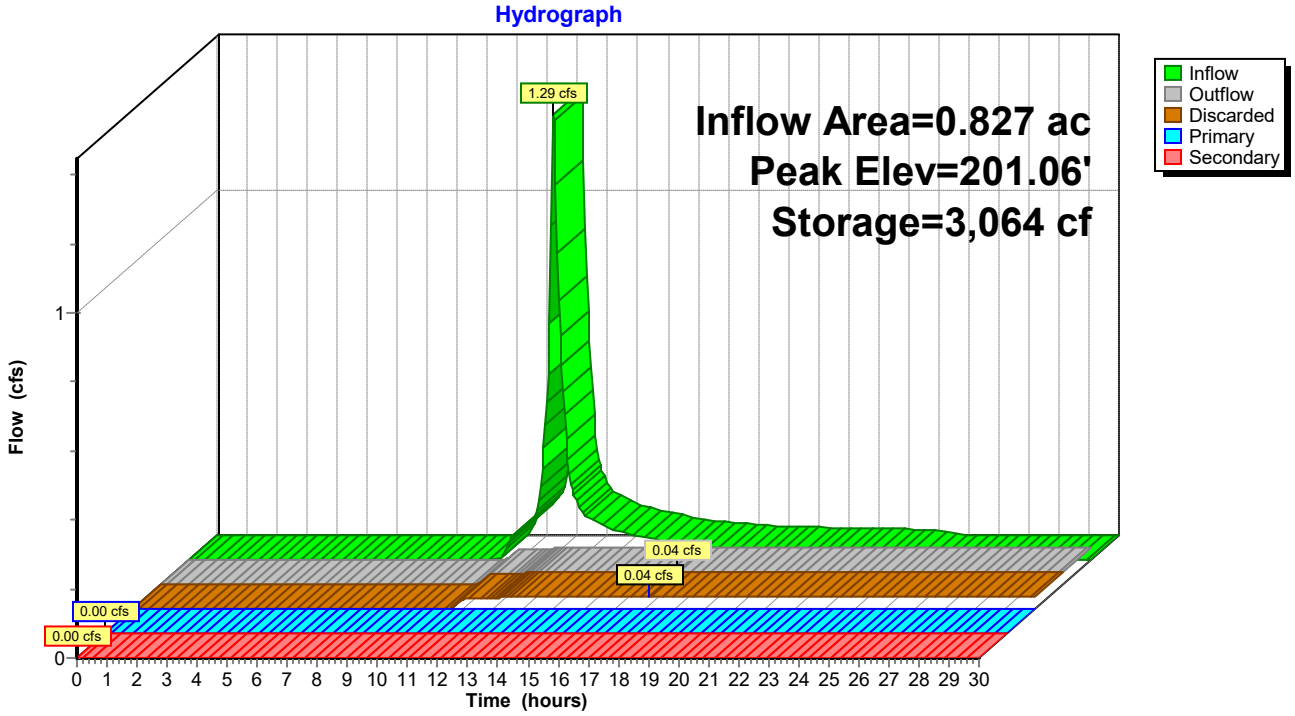
Device	Routing	Invert	Outlet Devices
#1	Discarded	200.00'	**0.500 in/hr Exfiltration over Surface area**
#2	Primary	201.50'	**12.0" Round Culvert** L= 20.0' Ke= 0.500 Outlet Invert= 201.00' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#3	Secondary	202.50'	**8.0' long x 4.0' breadth EMERGENCY WEIR** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.04 cfs @ 17.18 hrs HW=201.06' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=200.00' (Free Discharge)
└**2=Culvert** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=200.00' (Free Discharge)
└**3=EMERGENCY WEIR** (Controls 0.00 cfs)

Pond B: I-BASIN



Summary for Subcatchment 101: DB 100

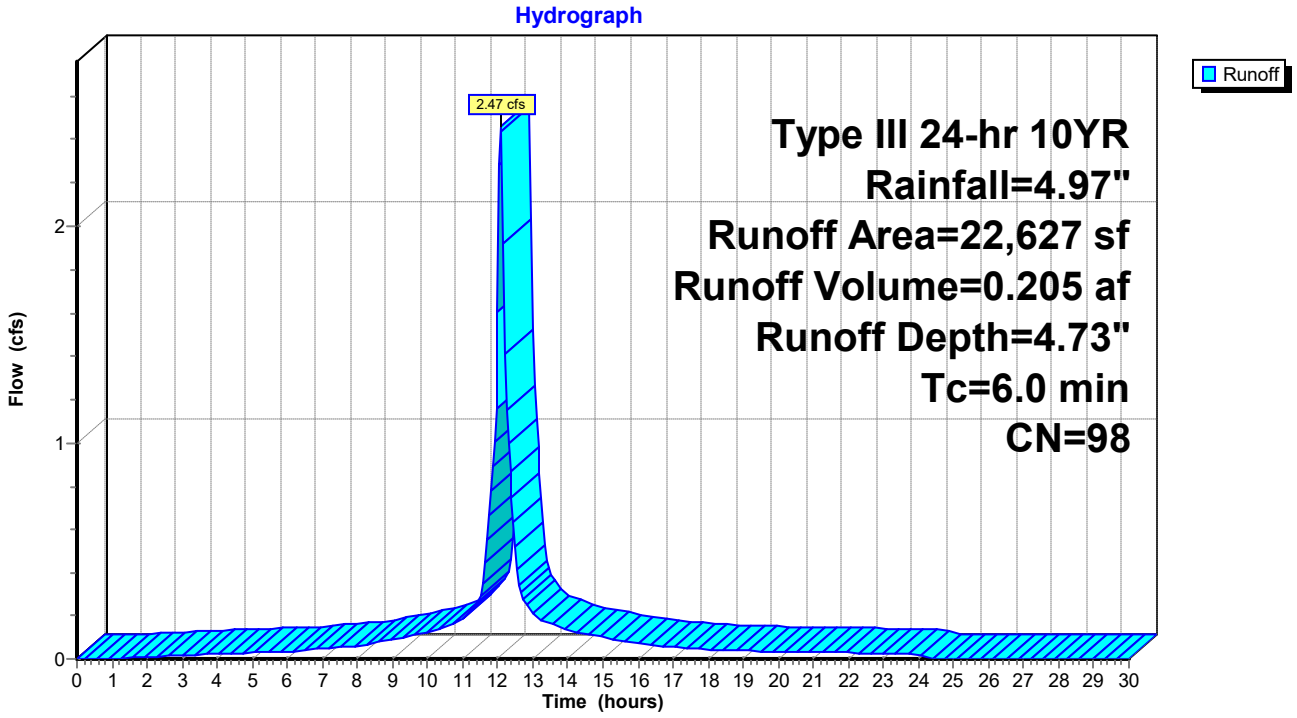
Runoff = 2.47 cfs @ 12.09 hrs, Volume= 0.205 af, Depth= 4.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.97"

Area (sf)	CN	Description
22,627	98	Paved roads w/curbs & sewers, HSG D
22,627		100.00% Impervious Area

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

Subcatchment 101: DB 100



Summary for Subcatchment 101-1: FOREBAY AREA

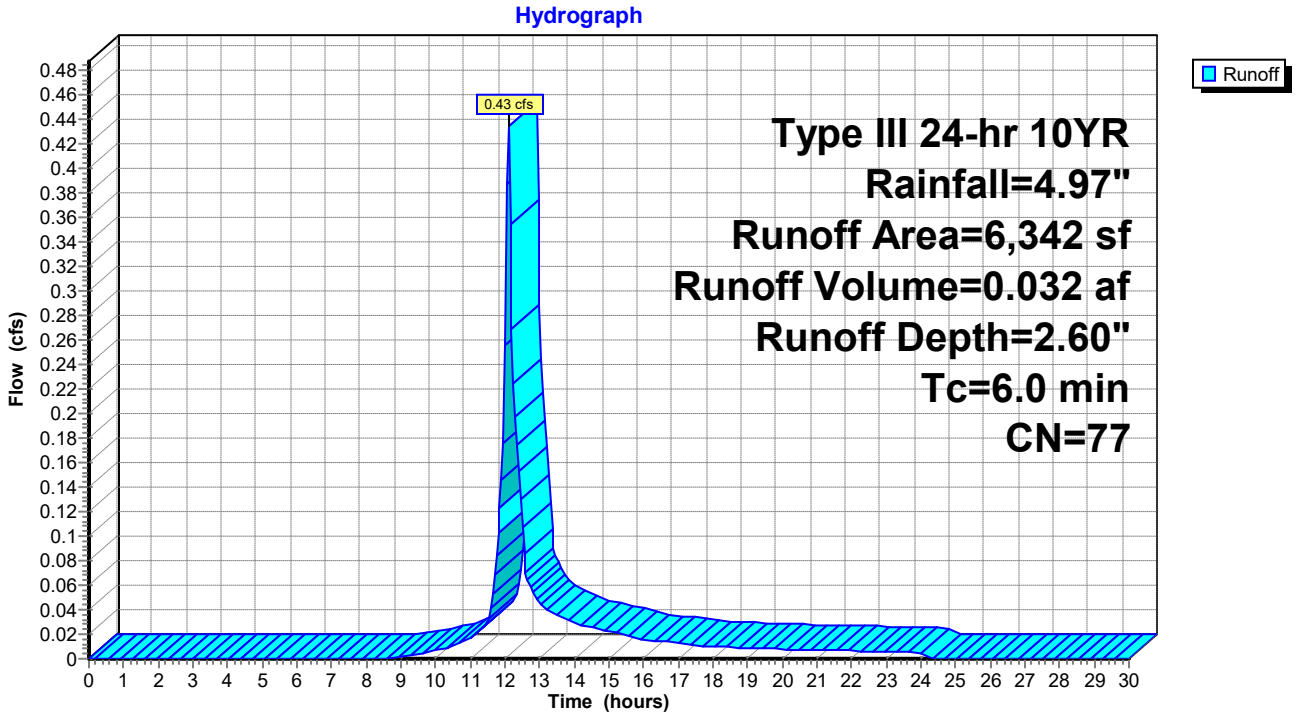
Runoff = 0.43 cfs @ 12.09 hrs, Volume= 0.032 af, Depth= 2.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.97"

Area (sf)	CN	Description
3,275	80	>75% Grass cover, Good, HSG D
3,067	74	>75% Grass cover, Good, HSG C
6,342	77	Weighted Average
6,342		100.00% Pervious Area

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

Subcatchment 101-1: FOREBAY AREA



Summary for Subcatchment 101-2: I BASIN AREA

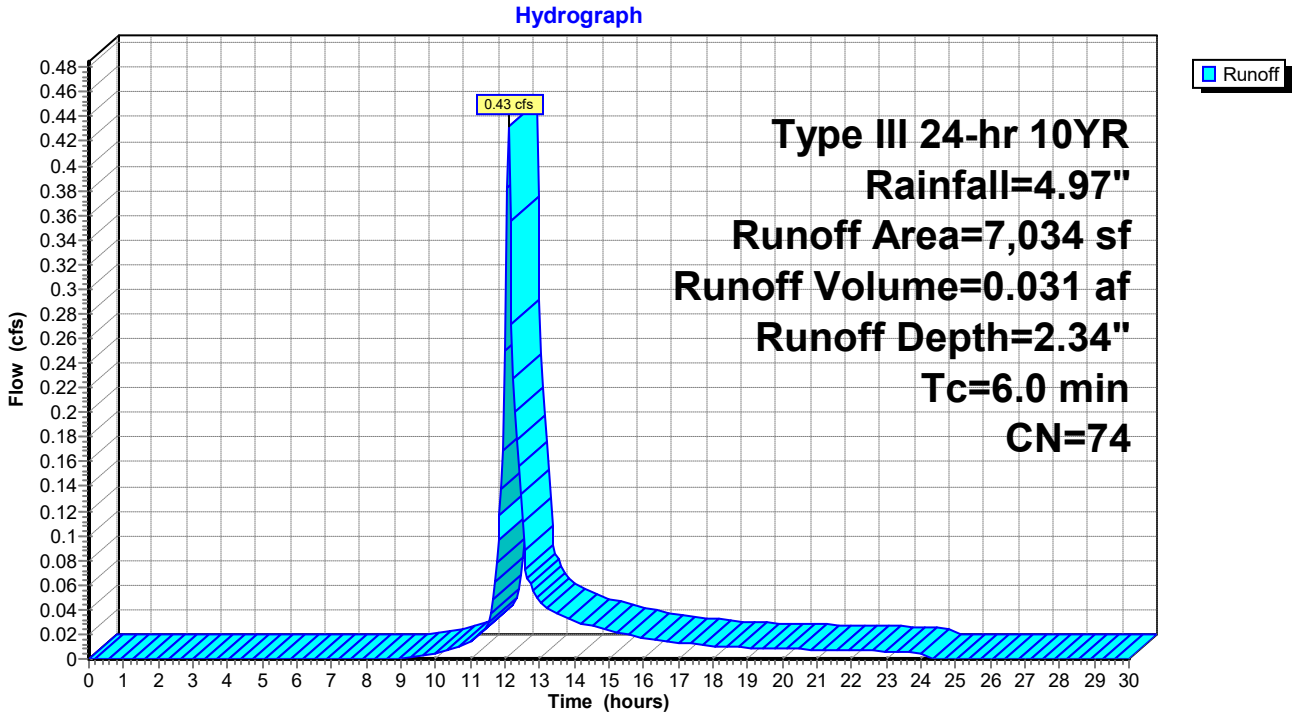
Runoff = 0.43 cfs @ 12.09 hrs, Volume= 0.031 af, Depth= 2.34"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.97"

Area (sf)	CN	Description
7,034	74	>75% Grass cover, Good, HSG C
7,034		100.00% Pervious Area

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

Subcatchment 101-2: I BASIN AREA



Summary for Subcatchment 102: DB 102 BYPASS

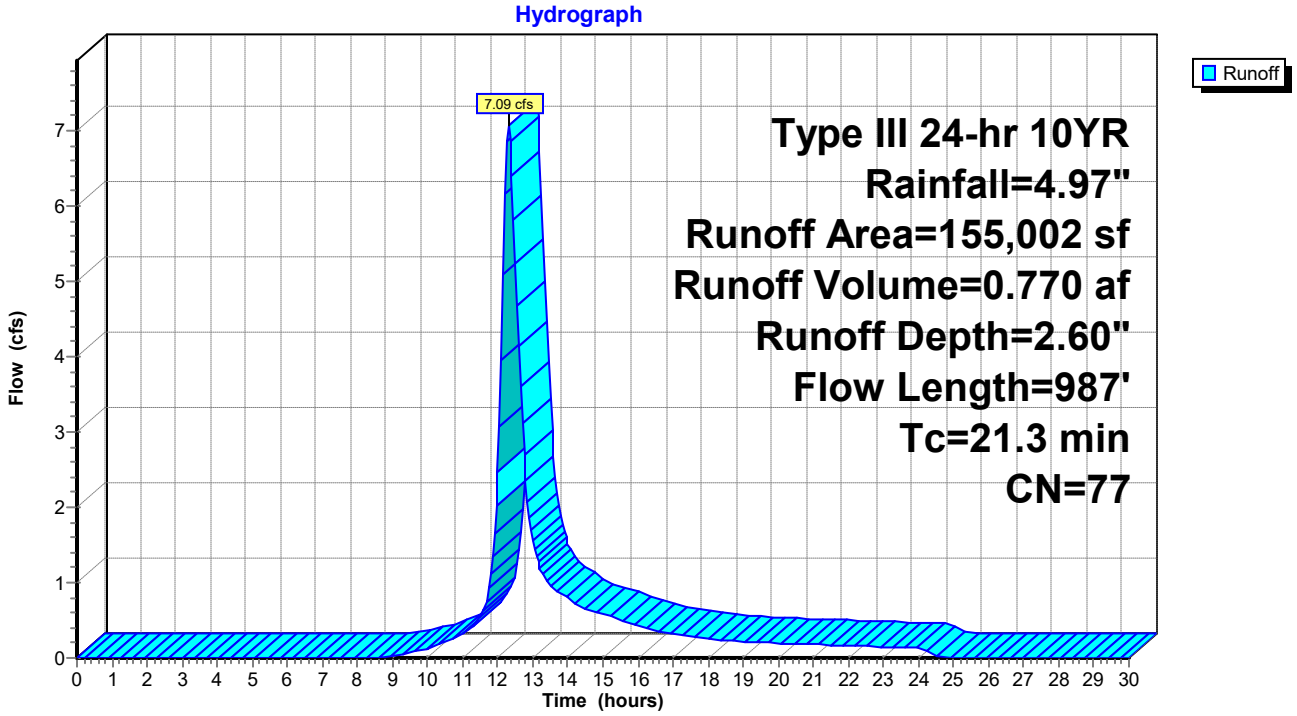
Runoff = 7.09 cfs @ 12.30 hrs, Volume= 0.770 af, Depth= 2.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.97"

	Area (sf)	CN	Description
	7,391	80	>75% Grass cover, Good, HSG D
	7,542	74	>75% Grass cover, Good, HSG C
*	9,934	79	Woods, Fair, HSG D
	107,196	73	Woods, Fair, HSG C
*	22,939	98	Wetlands, HSG D
	155,002	77	Weighted Average
	132,063		85.20% Pervious Area
	22,939		14.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0790	0.13		**Sheet Flow, SHEET A-B** Woods: Light underbrush n= 0.400 P2= 3.14"
1.6	117	0.0625	1.25		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
2.3	219	0.0975	1.56		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
0.3	57	0.2807	3.71		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
2.5	194	0.1237	1.31	10.51	**Parabolic Channel, F-G SWALE** W=12.00' D=1.00' Area=8.0 sf Perim=12.2' n= 0.300
2.1	300	0.0133	2.34		**Shallow Concentrated Flow, G-H WETLAND** Paved Kv= 20.3 fps
21.3	987	Total			

Subcatchment 102: DB 102 BYPASS



Summary for Subcatchment 103: DB-103 BYPASS

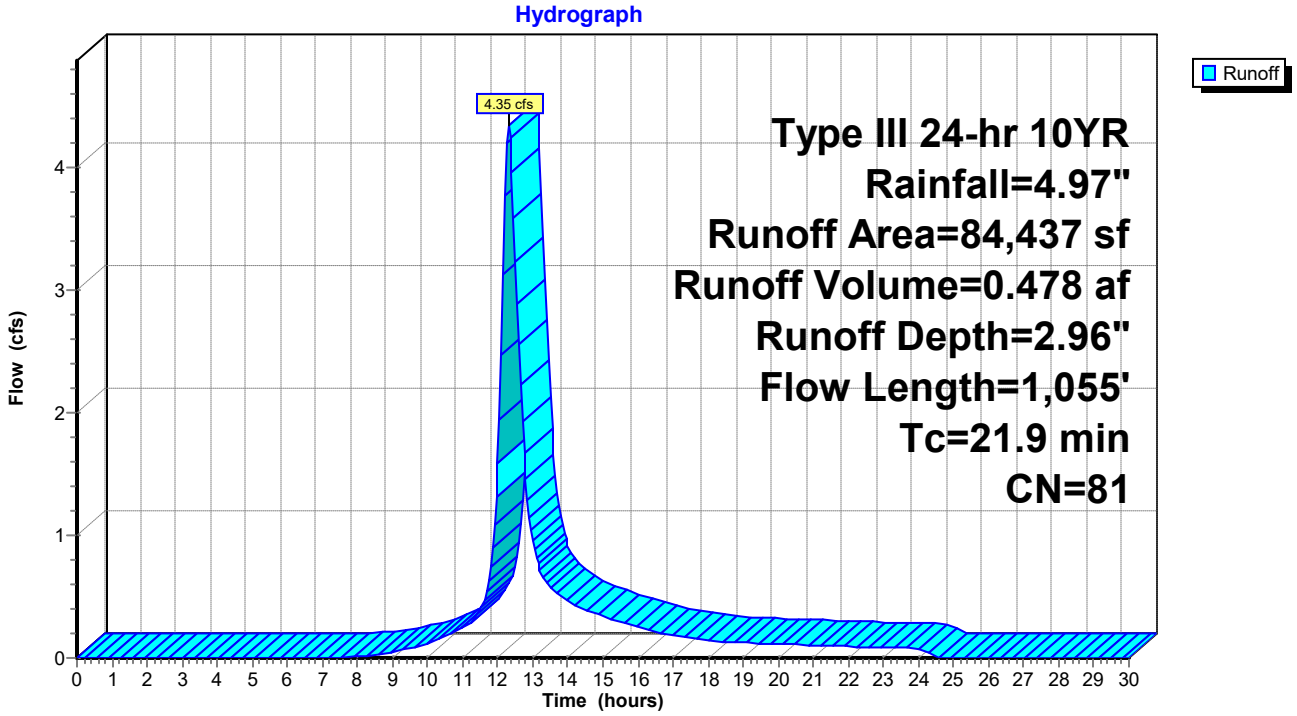
Runoff = 4.35 cfs @ 12.30 hrs, Volume= 0.478 af, Depth= 2.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10YR Rainfall=4.97"

	Area (sf)	CN	Description
	20,171	80	>75% Grass cover, Good, HSG D
*	20,063	79	Woods, Fair, HSG D
	27,339	73	Woods, Fair, HSG C
*	16,864	98	Wetlands, HSG D
	84,437	81	Weighted Average
	67,573		80.03% Pervious Area
	16,864		19.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	100	0.0582	0.12		**Sheet Flow, SHEET A-B** Woods: Light underbrush n= 0.400 P2= 3.14"
5.6	520	0.0964	1.55		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.6	53	0.0755	1.37		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
0.2	201	0.2000	17.10	119.67	**Trap/Vee/Rect Channel Flow, D-E** Bot.W=4.00' D=1.00' Z= 3.0 '/' Top.W=10.00' n= 0.030 Earth, grassed
0.6	32	0.0357	0.94		**Shallow Concentrated Flow, E-F** Woodland Kv= 5.0 fps
0.8	149	0.0253	3.23		**Shallow Concentrated Flow, F-G WETLAND** Paved Kv= 20.3 fps
21.9	1,055	Total			

Subcatchment 103: DB-103 BYPASS



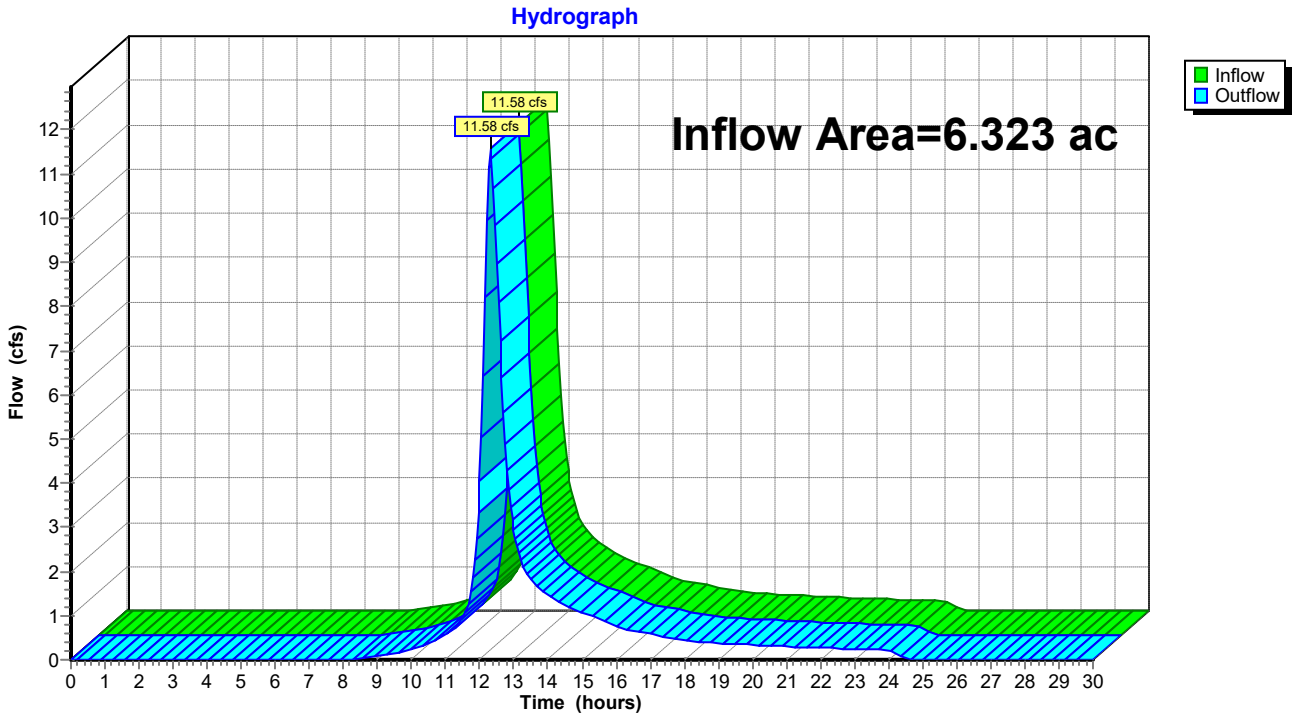
Summary for Reach 1R: COMBINED

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 6.323 ac, 22.67% Impervious, Inflow Depth = 2.55" for 10YR event
Inflow = 11.58 cfs @ 12.31 hrs, Volume= 1.343 af
Outflow = 11.58 cfs @ 12.31 hrs, Volume= 1.343 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 1R: COMBINED



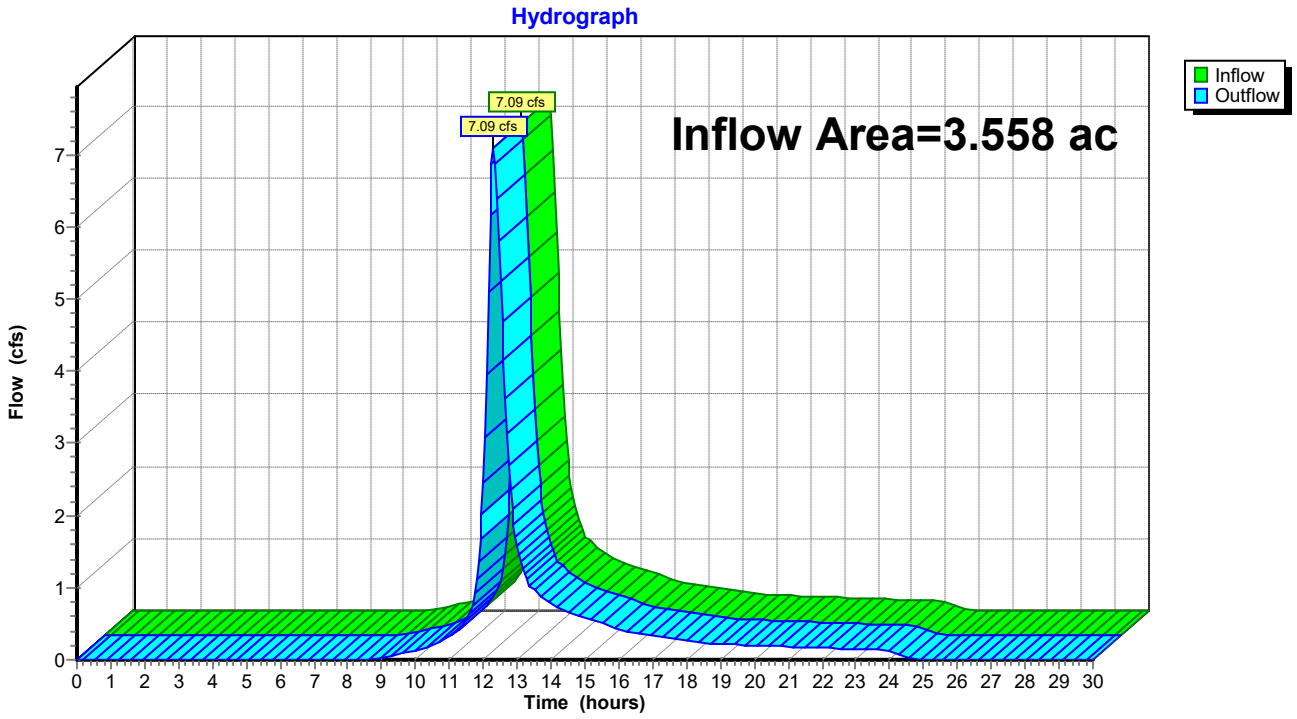
Summary for Reach DP-1: STREAM

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 3.558 ac, 14.80% Impervious, Inflow Depth = 2.60" for 10YR event
Inflow = 7.09 cfs @ 12.30 hrs, Volume= 0.770 af
Outflow = 7.09 cfs @ 12.30 hrs, Volume= 0.770 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP-1: STREAM



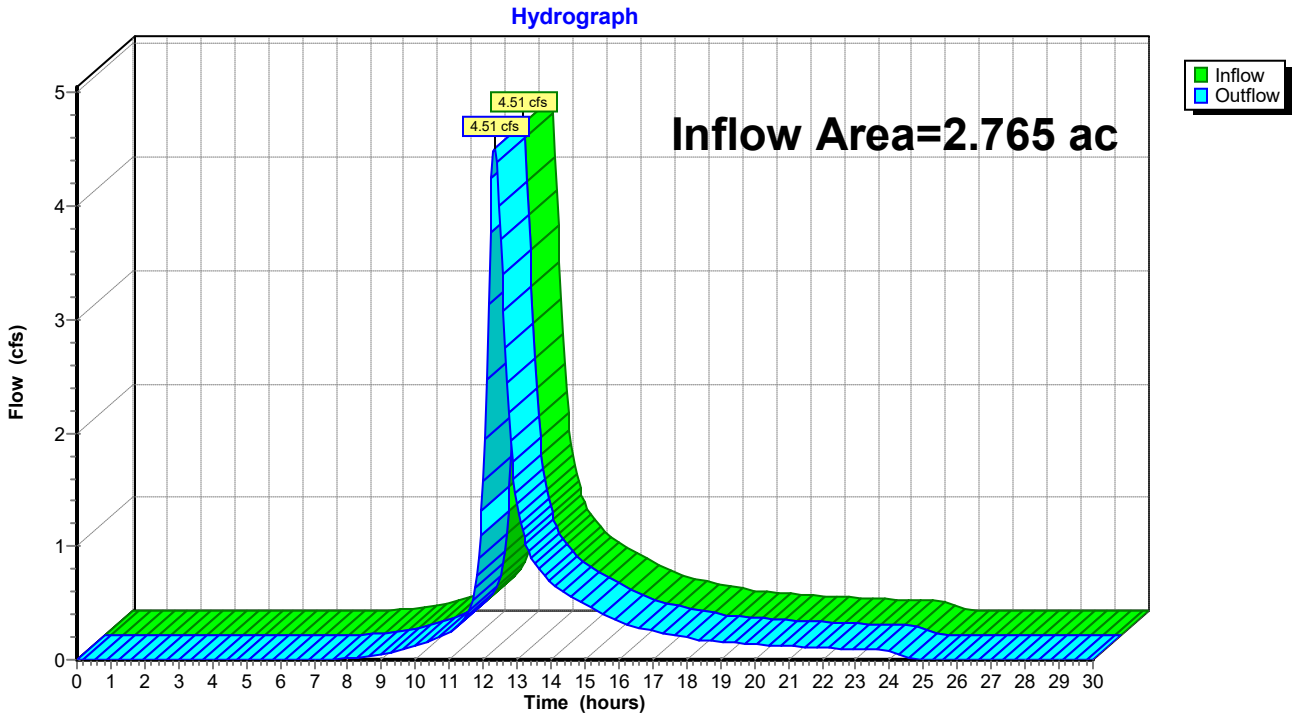
Summary for Reach DP-2: PROP LINE

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.765 ac, 32.79% Impervious, Inflow Depth = 2.49" for 10YR event
Inflow = 4.51 cfs @ 12.32 hrs, Volume= 0.573 af
Outflow = 4.51 cfs @ 12.32 hrs, Volume= 0.573 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP-2: PROP LINE



Summary for Pond A: FOREBAY

Inflow Area = 0.665 ac, 78.11% Impervious, Inflow Depth = 4.27" for 10YR event
Inflow = 2.90 cfs @ 12.09 hrs, Volume= 0.236 af
Outflow = 2.66 cfs @ 12.12 hrs, Volume= 0.222 af, Atten= 8%, Lag= 2.1 min
Primary = 2.66 cfs @ 12.12 hrs, Volume= 0.222 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 202.16' @ 12.12 hrs Surf.Area= 1,479 sf Storage= 1,174 cf

Plug-Flow detention time= 70.0 min calculated for 0.222 af (94% of inflow)
Center-of-Mass det. time= 35.3 min (794.3 - 759.0)

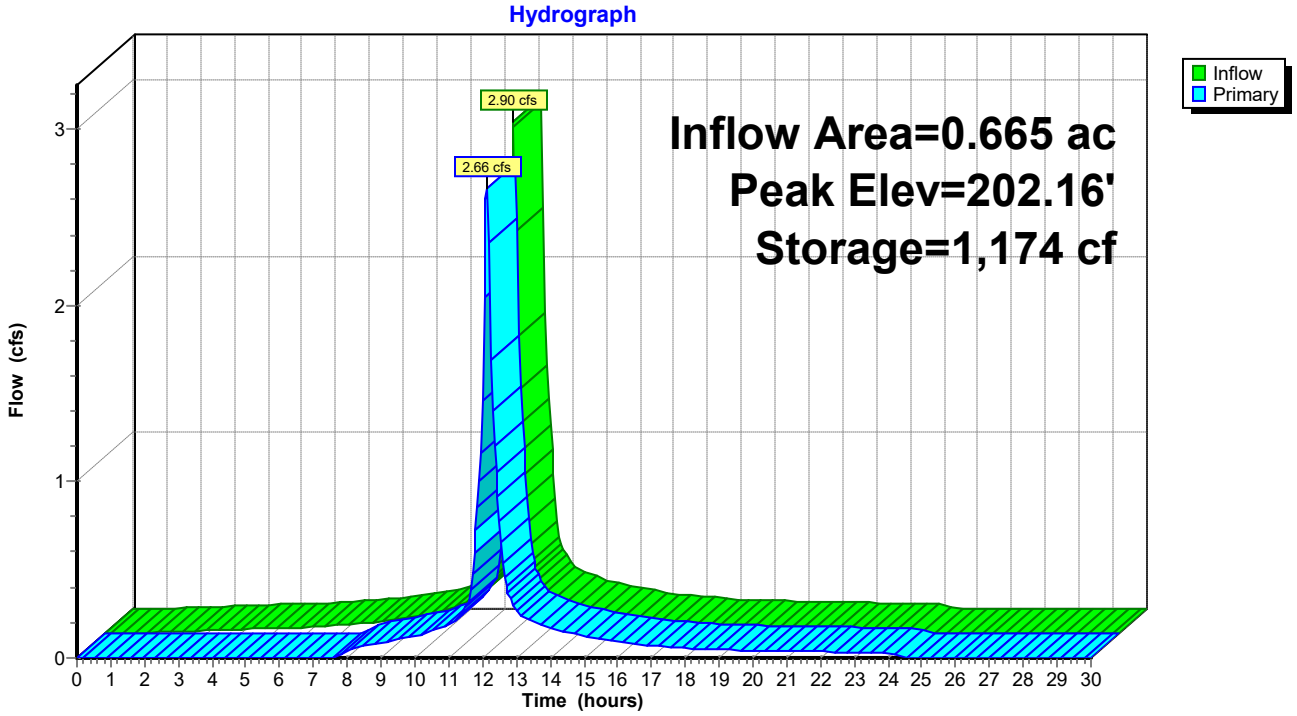
Volume	Invert	Avail.Storage	Storage Description
#1	201.00'	2,705 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
201.00	589	243.0	0	0	589
202.00	1,360	263.0	948	948	1,433
203.00	2,186	284.0	1,757	2,705	2,387

Device	Routing	Invert	Outlet Devices
#1	Primary	201.75'	**4.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=2.59 cfs @ 12.12 hrs HW=202.15' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 2.59 cfs @ 1.61 fps)

Pond A: FOREBAY



Summary for Pond B: I-BASIN

[79] Warning: Submerged Pond A Primary device # 1 by 0.11'

Inflow Area = 0.827 ac, 62.85% Impervious, Inflow Depth = 3.68" for 10YR event
Inflow = 3.08 cfs @ 12.12 hrs, Volume= 0.253 af
Outflow = 0.57 cfs @ 12.62 hrs, Volume= 0.166 af, Atten= 82%, Lag= 30.4 min
Discarded = 0.04 cfs @ 12.62 hrs, Volume= 0.071 af
Primary = 0.52 cfs @ 12.62 hrs, Volume= 0.095 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 201.86' @ 12.62 hrs Surf.Area= 3,766 sf Storage= 5,851 cf

Plug-Flow detention time= 297.9 min calculated for 0.166 af (66% of inflow)
Center-of-Mass det. time= 200.2 min (999.9 - 799.7)

Volume	Invert	Avail.Storage	Storage Description
#1	200.00'	9,778 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
200.00	2,560	194.0	0	0	2,560
202.00	3,865	241.0	6,380	6,380	4,244
203.50	982	270.0	3,398	9,778	5,484

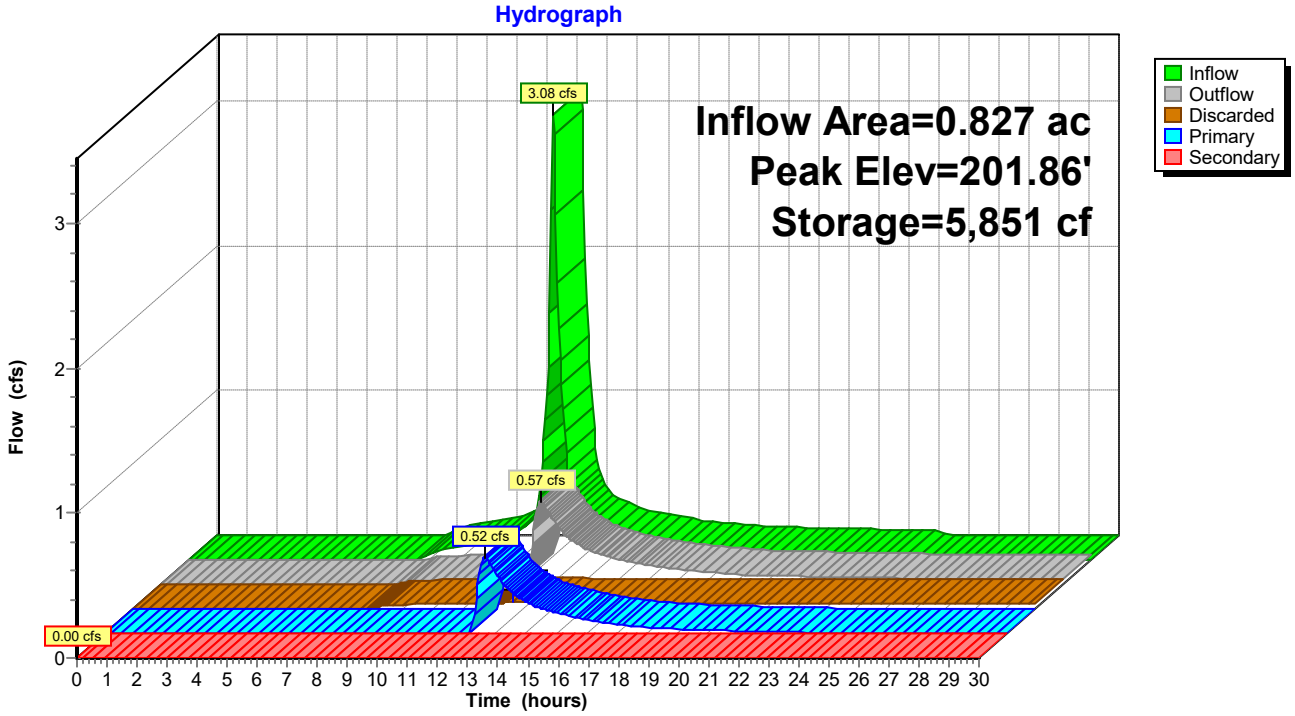
Device	Routing	Invert	Outlet Devices
#1	Discarded	200.00'	**0.500 in/hr Exfiltration over Surface area**
#2	Primary	201.50'	**12.0" Round Culvert** L= 20.0' Ke= 0.500 Outlet Invert= 201.00' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#3	Secondary	202.50'	**8.0' long x 4.0' breadth EMERGENCY WEIR** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.04 cfs @ 12.62 hrs HW=201.86' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.52 cfs @ 12.62 hrs HW=201.86' (Free Discharge)
↑—**2=Culvert** (Inlet Controls 0.52 cfs @ 2.04 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=200.00' (Free Discharge)
↑—**3=EMERGENCY WEIR** (Controls 0.00 cfs)

Pond B: I-BASIN



Summary for Subcatchment 101: DB 100

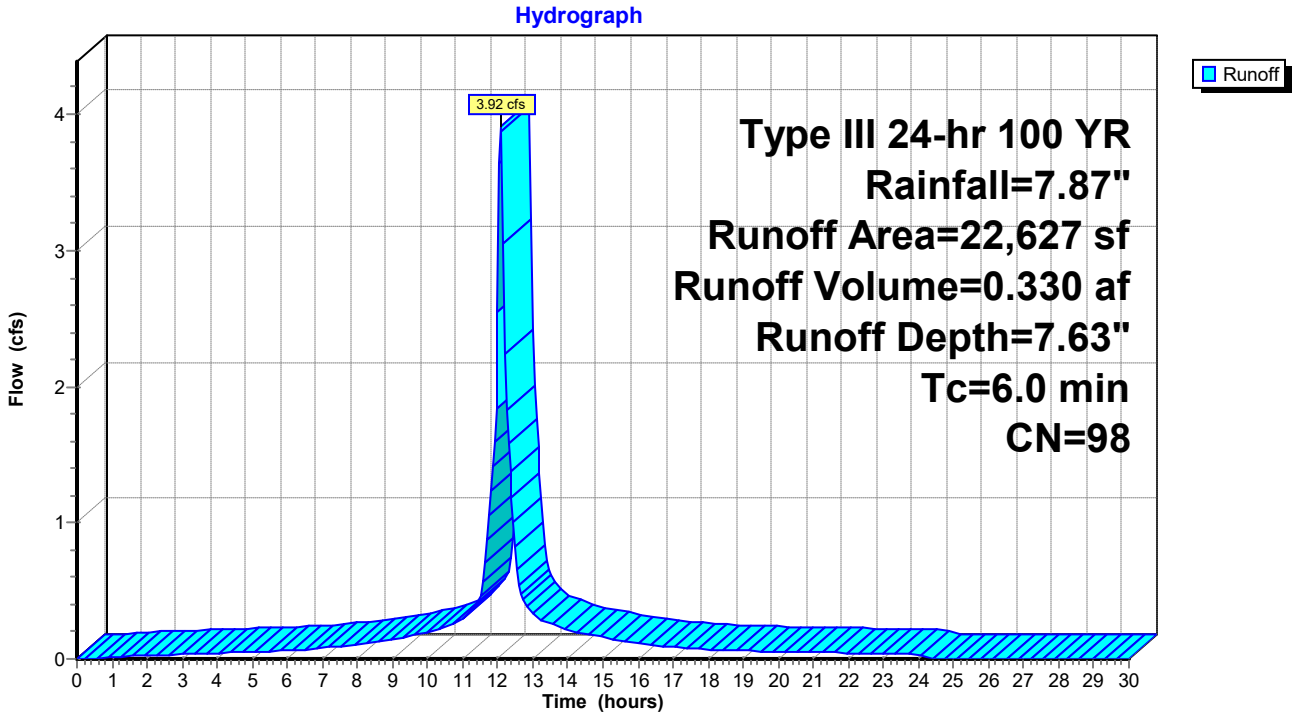
Runoff = 3.92 cfs @ 12.09 hrs, Volume= 0.330 af, Depth= 7.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 YR Rainfall=7.87"

Area (sf)	CN	Description
22,627	98	Paved roads w/curbs & sewers, HSG D
22,627		100.00% Impervious Area

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

Subcatchment 101: DB 100



Summary for Subcatchment 101-1: FOREBAY AREA

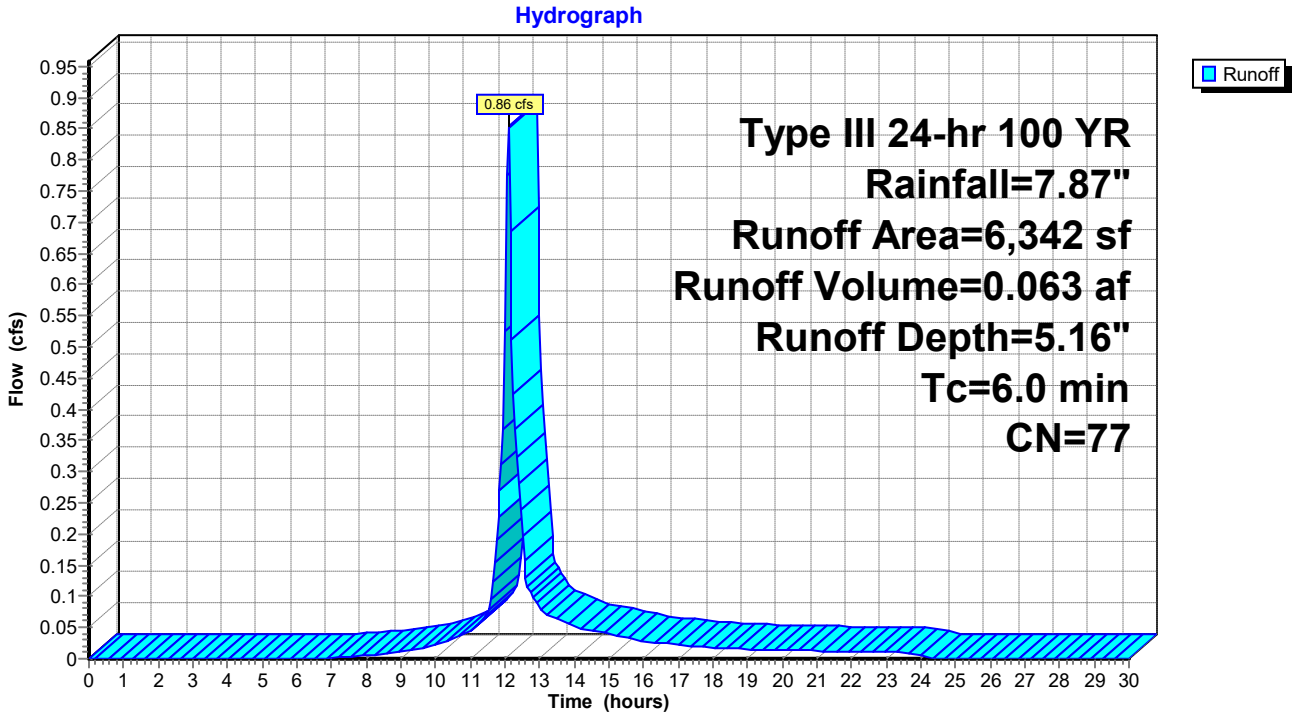
Runoff = 0.86 cfs @ 12.09 hrs, Volume= 0.063 af, Depth= 5.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 YR Rainfall=7.87"

Area (sf)	CN	Description
3,275	80	>75% Grass cover, Good, HSG D
3,067	74	>75% Grass cover, Good, HSG C
6,342	77	Weighted Average
6,342		100.00% Pervious Area

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

Subcatchment 101-1: FOREBAY AREA



Summary for Subcatchment 101-2: I BASIN AREA

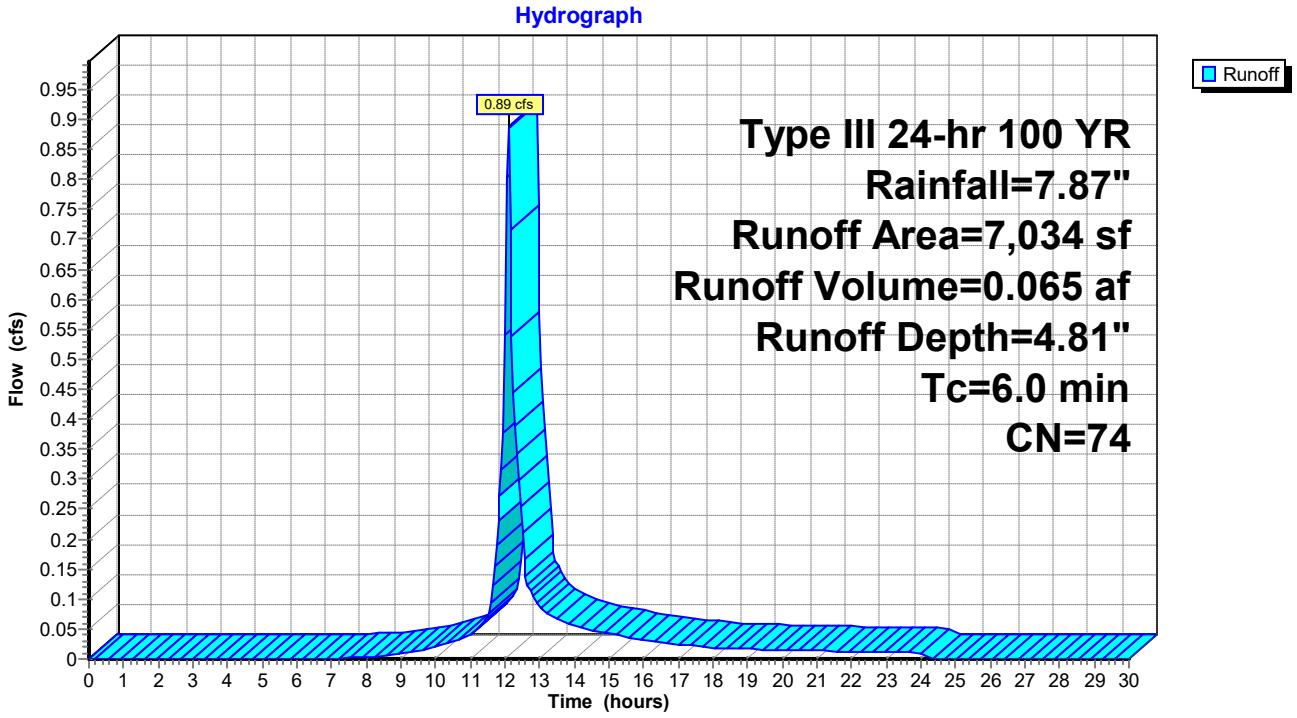
Runoff = 0.89 cfs @ 12.09 hrs, Volume= 0.065 af, Depth= 4.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 YR Rainfall=7.87"

Area (sf)	CN	Description
7,034	74	>75% Grass cover, Good, HSG C
7,034		100.00% Pervious Area

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

Subcatchment 101-2: I BASIN AREA



Summary for Subcatchment 102: DB 102 BYPASS

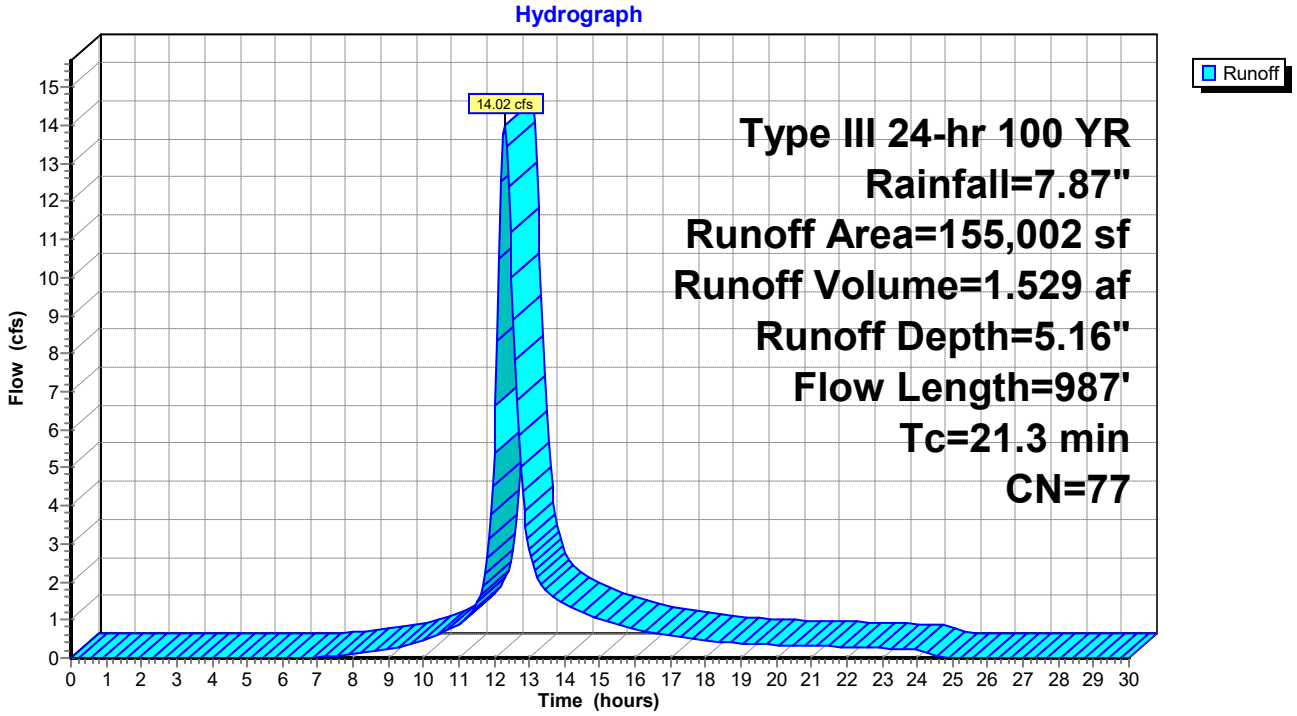
Runoff = 14.02 cfs @ 12.29 hrs, Volume= 1.529 af, Depth= 5.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 YR Rainfall=7.87"

	Area (sf)	CN	Description
	7,391	80	>75% Grass cover, Good, HSG D
	7,542	74	>75% Grass cover, Good, HSG C
*	9,934	79	Woods, Fair, HSG D
	107,196	73	Woods, Fair, HSG C
*	22,939	98	Wetlands, HSG D
	155,002	77	Weighted Average
	132,063		85.20% Pervious Area
	22,939		14.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0790	0.13		**Sheet Flow, SHEET A-B** Woods: Light underbrush n= 0.400 P2= 3.14"
1.6	117	0.0625	1.25		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
2.3	219	0.0975	1.56		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
0.3	57	0.2807	3.71		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
2.5	194	0.1237	1.31	10.51	**Parabolic Channel, F-G SWALE** W=12.00' D=1.00' Area=8.0 sf Perim=12.2' n= 0.300
2.1	300	0.0133	2.34		**Shallow Concentrated Flow, G-H WETLAND** Paved Kv= 20.3 fps
21.3	987	Total			

Subcatchment 102: DB 102 BYPASS



Summary for Subcatchment 103: DB-103 BYPASS

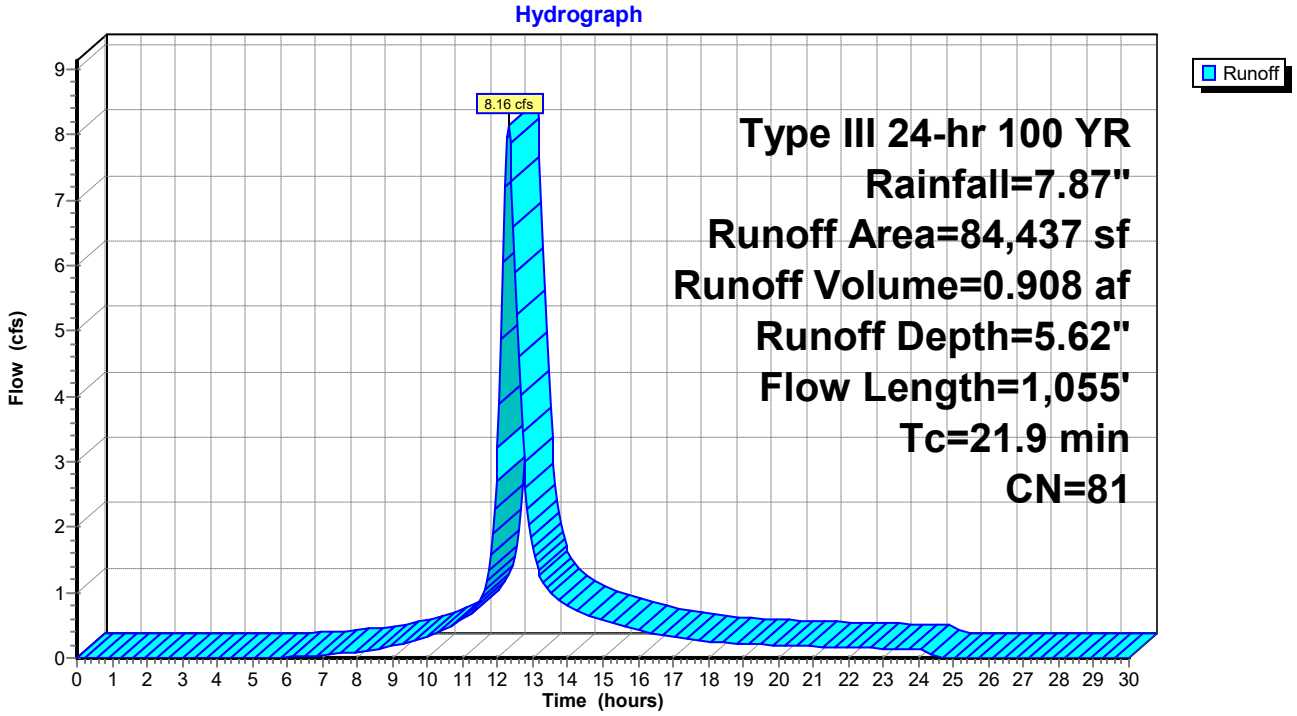
Runoff = 8.16 cfs @ 12.30 hrs, Volume= 0.908 af, Depth= 5.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 YR Rainfall=7.87"

	Area (sf)	CN	Description
	20,171	80	>75% Grass cover, Good, HSG D
*	20,063	79	Woods, Fair, HSG D
	27,339	73	Woods, Fair, HSG C
*	16,864	98	Wetlands, HSG D
	84,437	81	Weighted Average
	67,573		80.03% Pervious Area
	16,864		19.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	100	0.0582	0.12		**Sheet Flow, SHEET A-B** Woods: Light underbrush n= 0.400 P2= 3.14"
5.6	520	0.0964	1.55		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.6	53	0.0755	1.37		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
0.2	201	0.2000	17.10	119.67	**Trap/Vee/Rect Channel Flow, D-E** Bot.W=4.00' D=1.00' Z= 3.0 '/' Top.W=10.00' n= 0.030 Earth, grassed
0.6	32	0.0357	0.94		**Shallow Concentrated Flow, E-F** Woodland Kv= 5.0 fps
0.8	149	0.0253	3.23		**Shallow Concentrated Flow, F-G WETLAND** Paved Kv= 20.3 fps
21.9	1,055	Total			

Subcatchment 103: DB-103 BYPASS



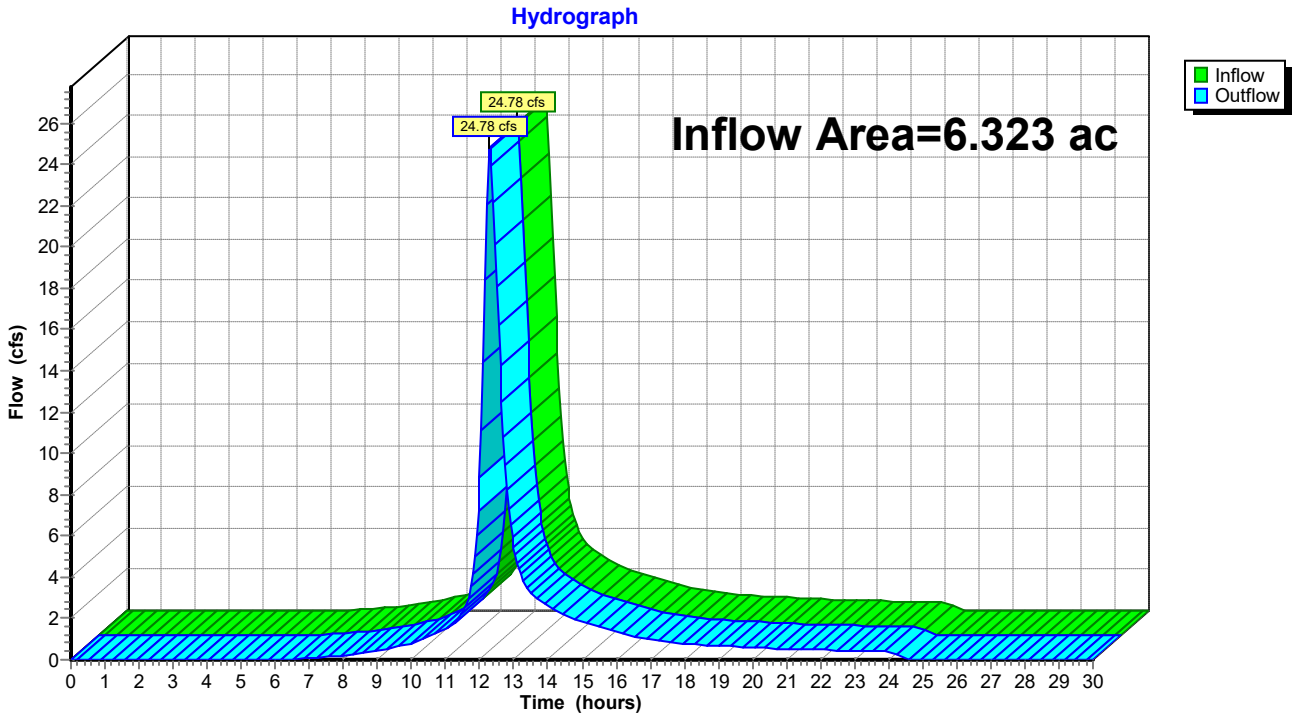
Summary for Reach 1R: COMBINED

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 6.323 ac, 22.67% Impervious, Inflow Depth = 5.15" for 100 YR event
Inflow = 24.78 cfs @ 12.29 hrs, Volume= 2.712 af
Outflow = 24.78 cfs @ 12.29 hrs, Volume= 2.712 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 1R: COMBINED



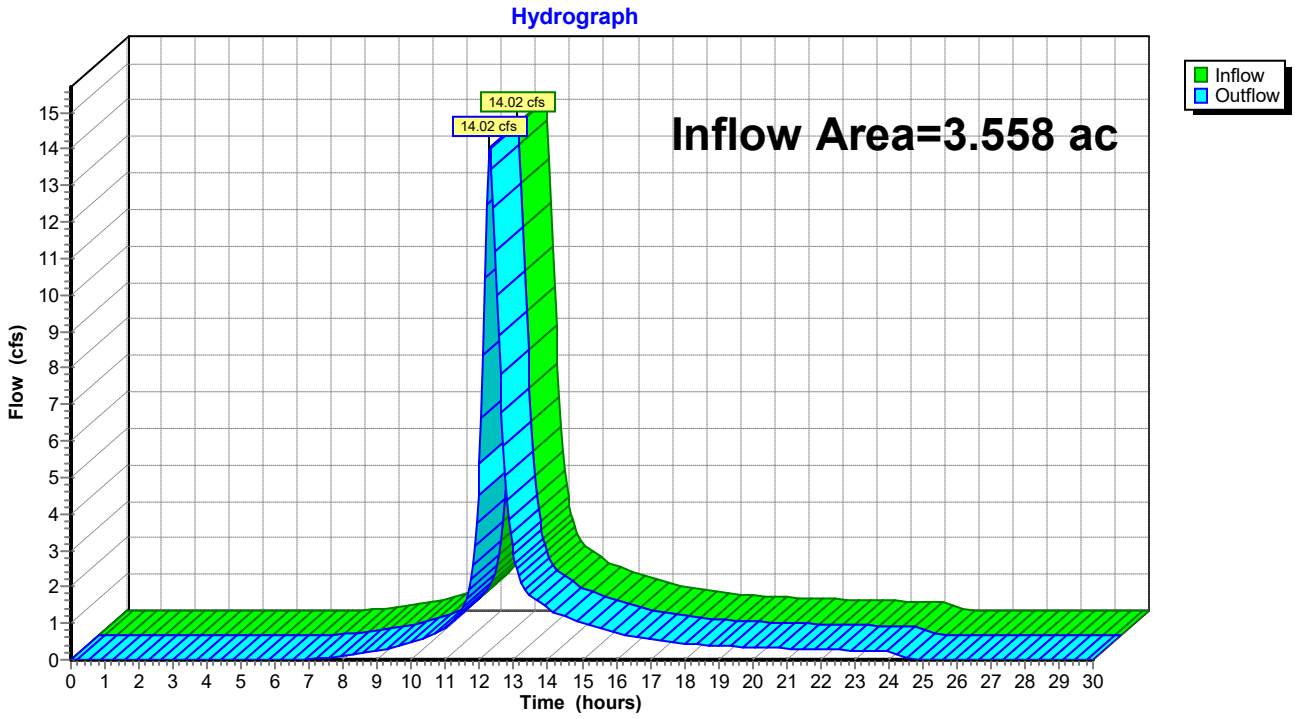
Summary for Reach DP-1: STREAM

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 3.558 ac, 14.80% Impervious, Inflow Depth = 5.16" for 100 YR event
Inflow = 14.02 cfs @ 12.29 hrs, Volume= 1.529 af
Outflow = 14.02 cfs @ 12.29 hrs, Volume= 1.529 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP-1: STREAM



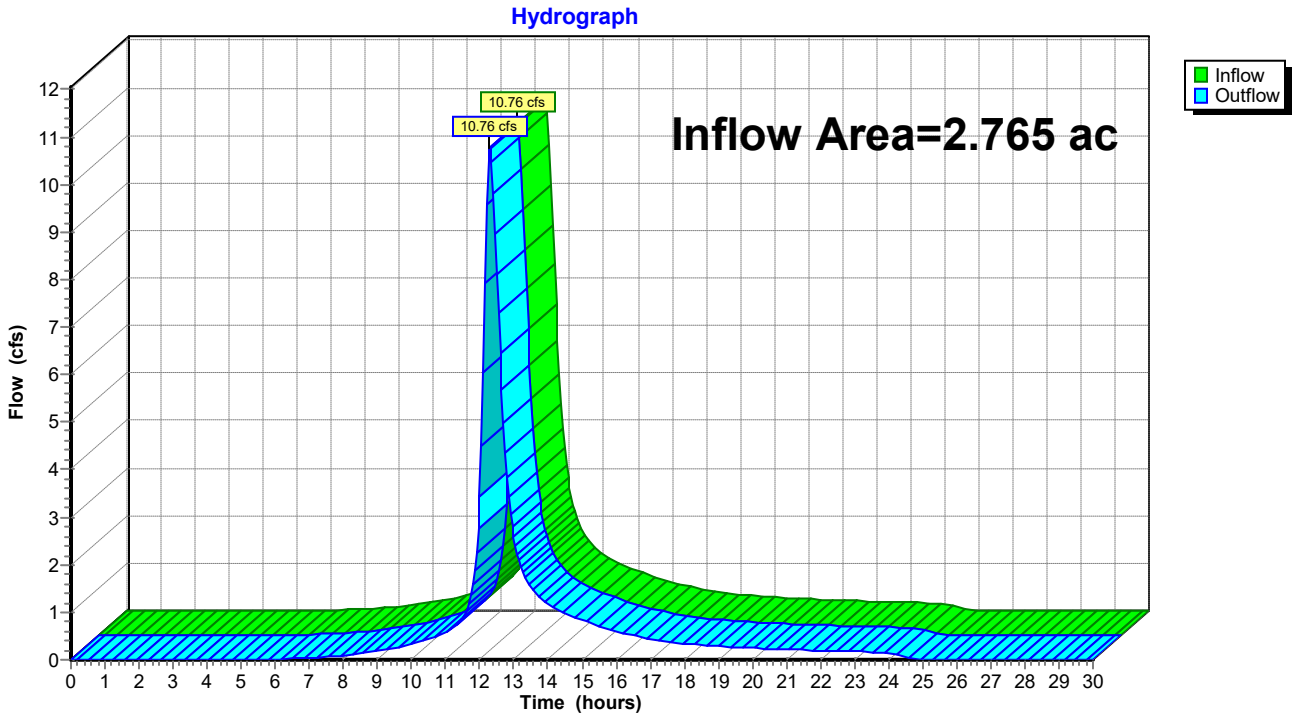
Summary for Reach DP-2: PROP LINE

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.765 ac, 32.79% Impervious, Inflow Depth = 5.14" for 100 YR event
Inflow = 10.76 cfs @ 12.30 hrs, Volume= 1.184 af
Outflow = 10.76 cfs @ 12.30 hrs, Volume= 1.184 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP-2: PROP LINE



Summary for Pond A: FOREBAY

Inflow Area = 0.665 ac, 78.11% Impervious, Inflow Depth = 7.09" for 100 YR event
Inflow = 4.77 cfs @ 12.09 hrs, Volume= 0.393 af
Outflow = 4.46 cfs @ 12.12 hrs, Volume= 0.378 af, Atten= 6%, Lag= 1.9 min
Primary = 4.46 cfs @ 12.12 hrs, Volume= 0.378 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 202.31' @ 12.12 hrs Surf.Area= 1,596 sf Storage= 1,407 cf

Plug-Flow detention time= 48.3 min calculated for 0.378 af (96% of inflow)
Center-of-Mass det. time= 26.1 min (778.5 - 752.4)

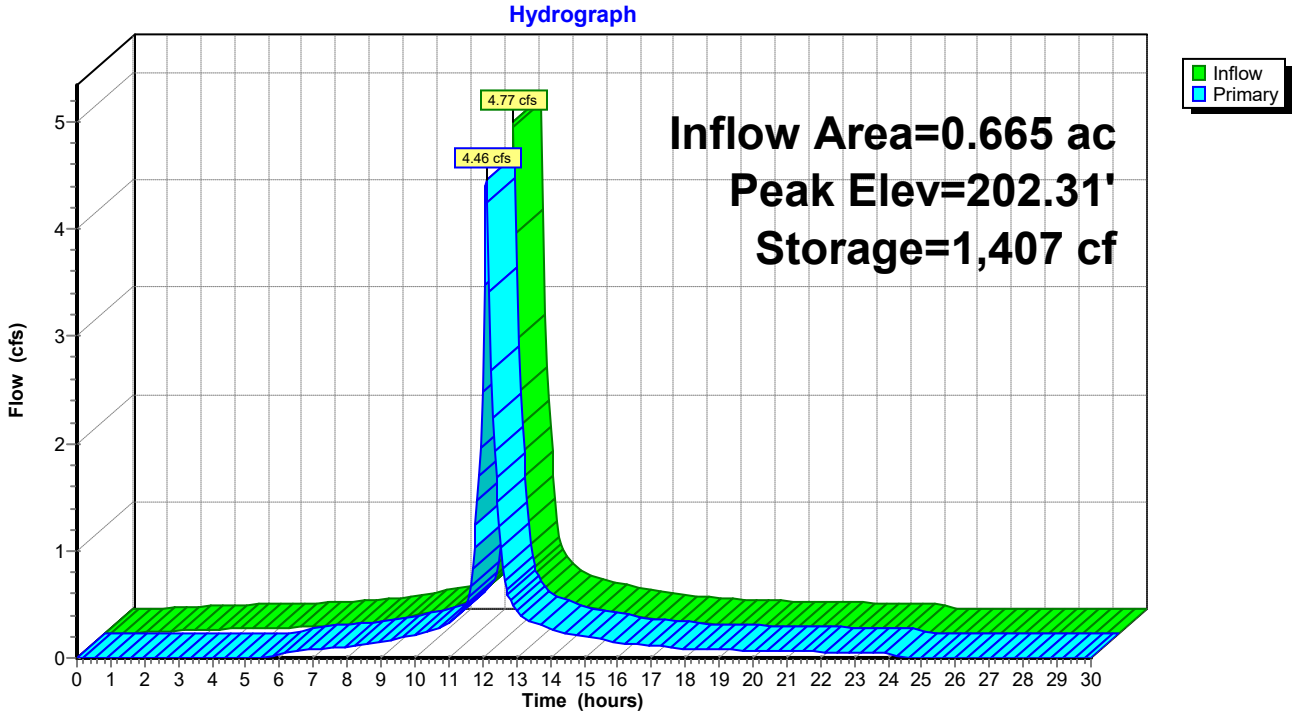
Volume	Invert	Avail.Storage	Storage Description
#1	201.00'	2,705 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
201.00	589	243.0	0	0	589
202.00	1,360	263.0	948	948	1,433
203.00	2,186	284.0	1,757	2,705	2,387

Device	Routing	Invert	Outlet Devices
#1	Primary	201.75'	**4.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=4.34 cfs @ 12.12 hrs HW=202.30' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 4.34 cfs @ 1.97 fps)

Pond A: FOREBAY



Summary for Pond B: I-BASIN

[81] Warning: Exceeded Pond A by 0.37' @ 12.35 hrs

Inflow Area = 0.827 ac, 62.85% Impervious, Inflow Depth = 6.43" for 100 YR event
Inflow = 5.32 cfs @ 12.11 hrs, Volume= 0.443 af
Outflow = 2.64 cfs @ 12.30 hrs, Volume= 0.353 af, Atten= 50%, Lag= 11.5 min
Discarded = 0.04 cfs @ 12.99 hrs, Volume= 0.077 af
Primary = 2.61 cfs @ 12.30 hrs, Volume= 0.276 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 202.47' @ 12.30 hrs Surf.Area= 2,758 sf Storage= 7,928 cf

Plug-Flow detention time= 193.8 min calculated for 0.353 af (80% of inflow)
Center-of-Mass det. time= 118.2 min (902.3 - 784.1)

Volume	Invert	Avail.Storage	Storage Description
#1	200.00'	9,778 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
200.00	2,560	194.0	0	0	2,560
202.00	3,865	241.0	6,380	6,380	4,244
203.50	982	270.0	3,398	9,778	5,484

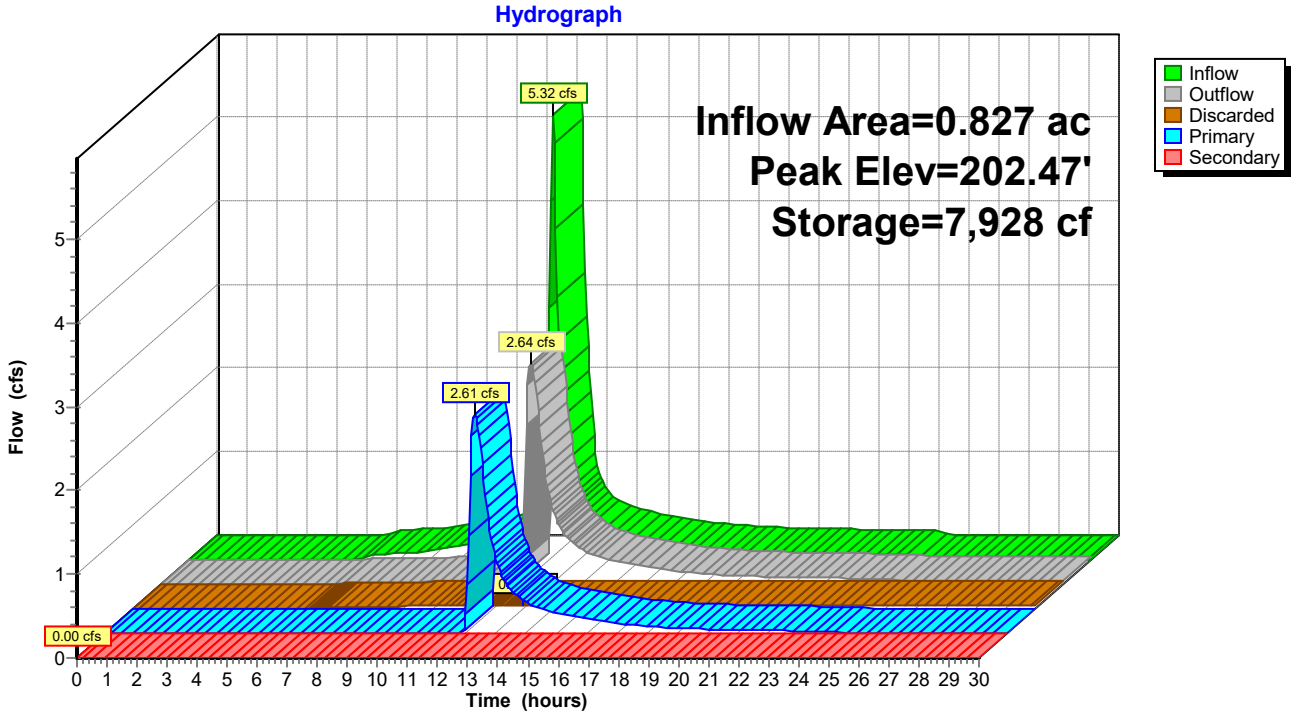
Device	Routing	Invert	Outlet Devices
#1	Discarded	200.00'	**0.500 in/hr Exfiltration over Surface area**
#2	Primary	201.50'	**12.0" Round Culvert** L= 20.0' Ke= 0.500 Outlet Invert= 201.00' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#3	Secondary	202.50'	**8.0' long x 4.0' breadth EMERGENCY WEIR** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.04 cfs @ 12.99 hrs HW=201.99' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=2.61 cfs @ 12.30 hrs HW=202.47' (Free Discharge)
2=Culvert (Inlet Controls 2.61 cfs @ 3.35 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=200.00' (Free Discharge)
3=EMERGENCY WEIR (Controls 0.00 cfs)

Pond B: I-BASIN



Summary for Subcatchment 101: DB 100

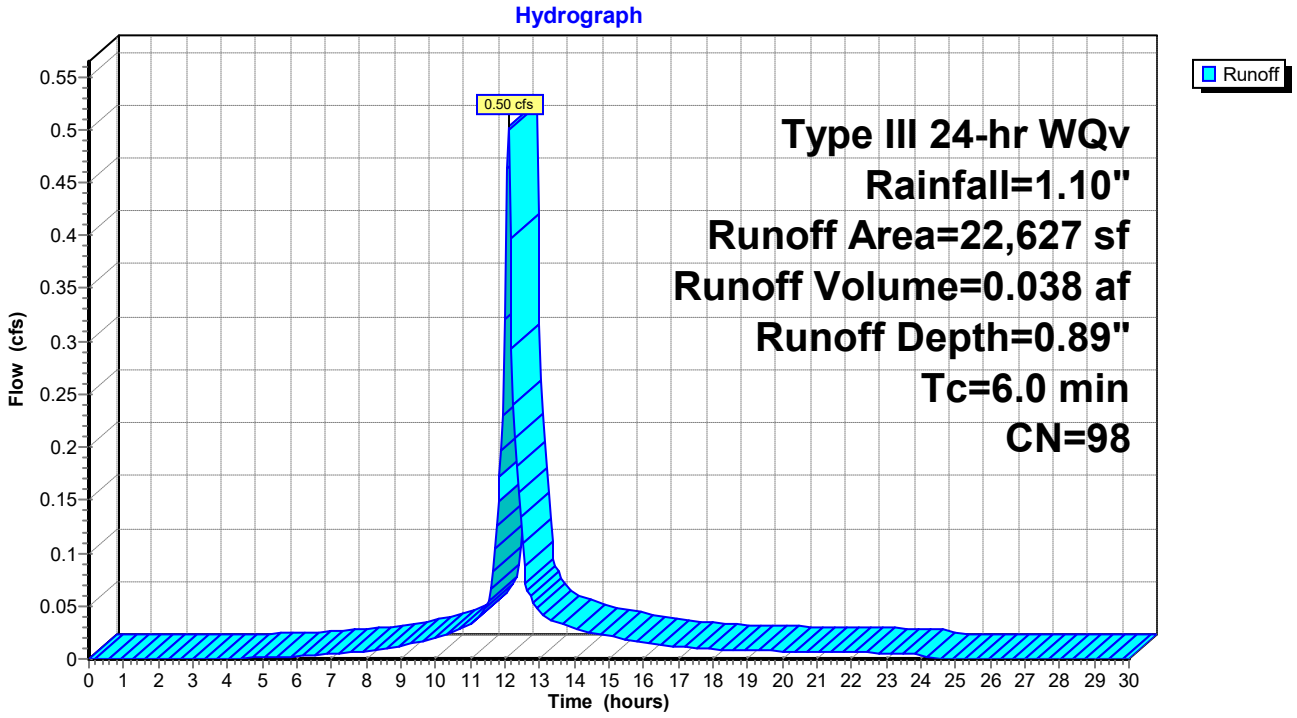
Runoff = 0.50 cfs @ 12.09 hrs, Volume= 0.038 af, Depth= 0.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr WQv Rainfall=1.10"

Area (sf)	CN	Description
22,627	98	Paved roads w/curbs & sewers, HSG D
22,627		100.00% Impervious Area

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

Subcatchment 101: DB 100



Summary for Subcatchment 101-1: FOREBAY AREA

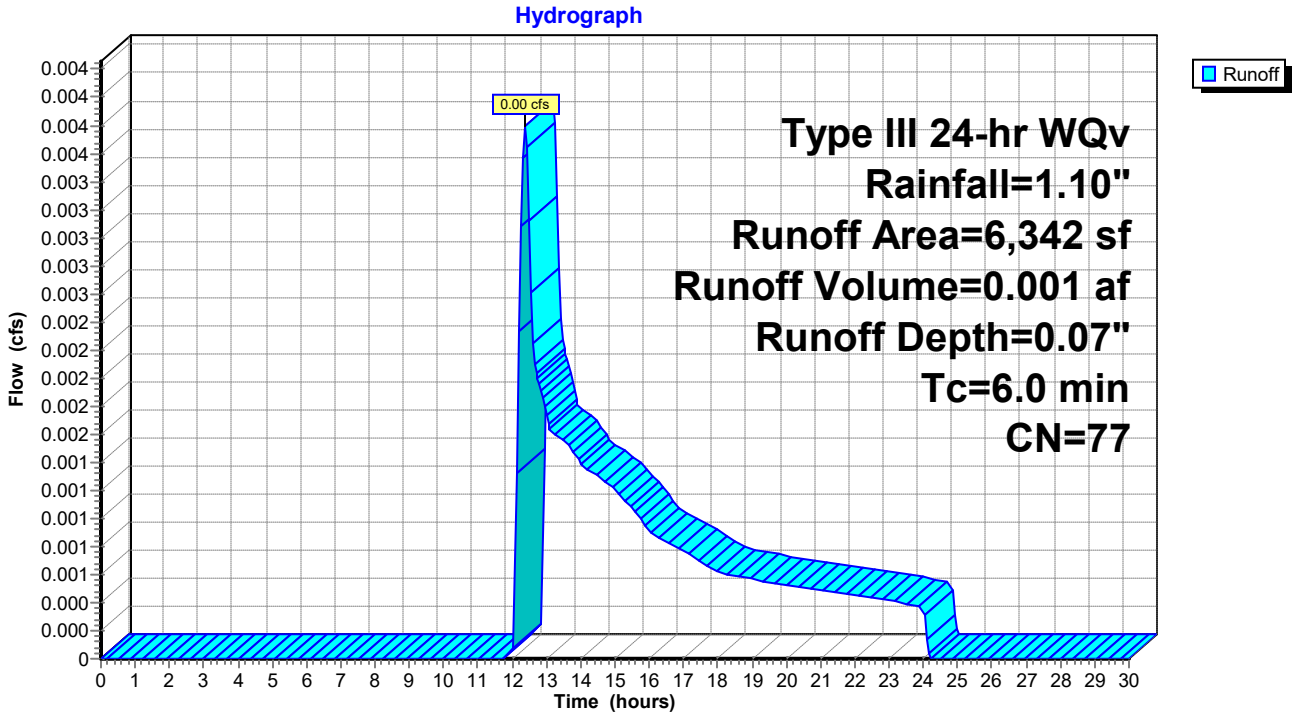
Runoff = 0.00 cfs @ 12.37 hrs, Volume= 0.001 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr WQv Rainfall=1.10"

Area (sf)	CN	Description
3,275	80	>75% Grass cover, Good, HSG D
3,067	74	>75% Grass cover, Good, HSG C
6,342	77	Weighted Average
6,342		100.00% Pervious Area

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

Subcatchment 101-1: FOREBAY AREA



Summary for Subcatchment 101-2: I BASIN AREA

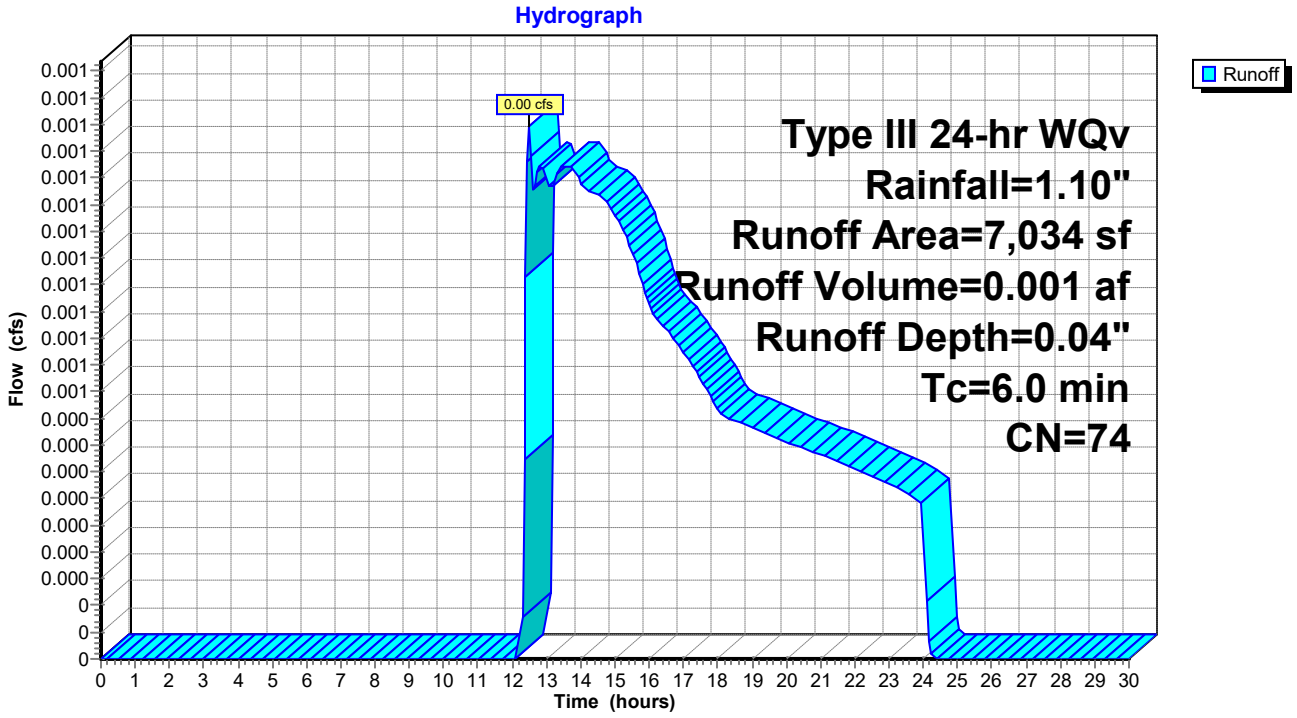
Runoff = 0.00 cfs @ 12.50 hrs, Volume= 0.001 af, Depth= 0.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr WQv Rainfall=1.10"

Area (sf)	CN	Description
7,034	74	>75% Grass cover, Good, HSG C
7,034		100.00% Pervious Area

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

Subcatchment 101-2: I BASIN AREA



Summary for Subcatchment 102: DB 102 BYPASS

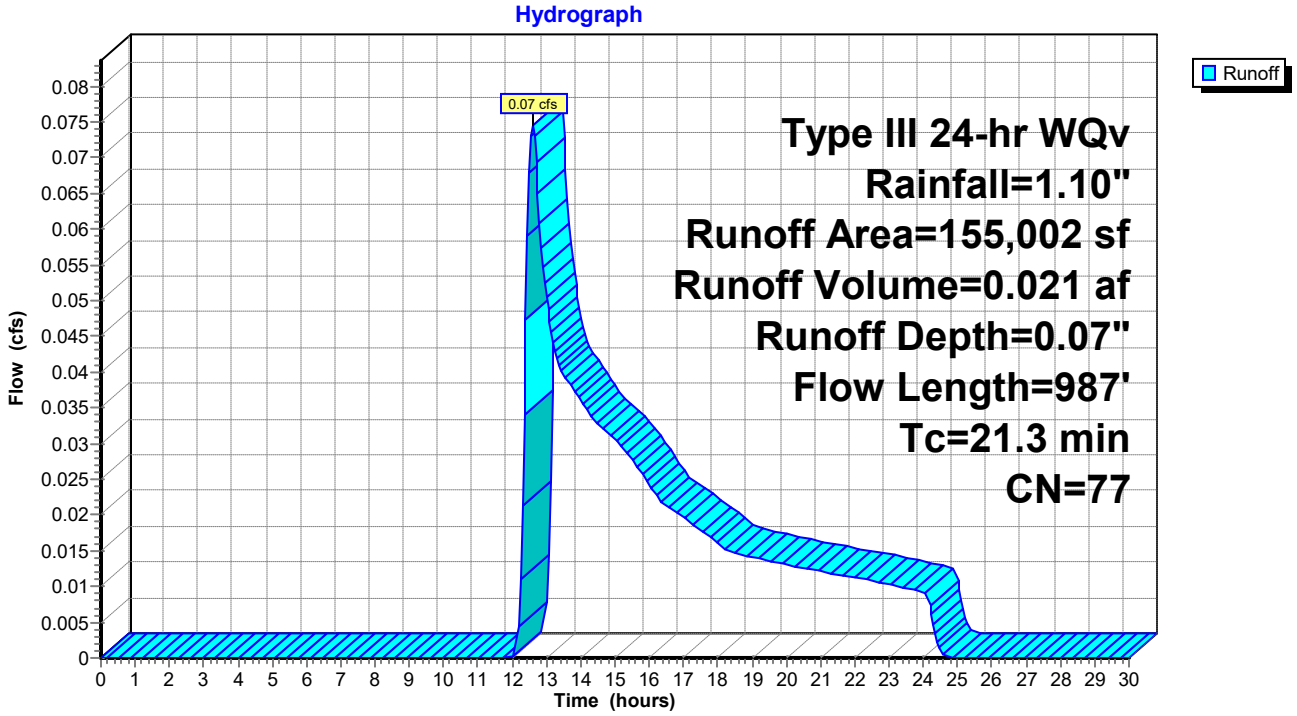
Runoff = 0.07 cfs @ 12.60 hrs, Volume= 0.021 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr WQv Rainfall=1.10"

	Area (sf)	CN	Description
	7,391	80	>75% Grass cover, Good, HSG D
	7,542	74	>75% Grass cover, Good, HSG C
*	9,934	79	Woods, Fair, HSG D
	107,196	73	Woods, Fair, HSG C
*	22,939	98	Wetlands, HSG D
	155,002	77	Weighted Average
	132,063		85.20% Pervious Area
	22,939		14.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0790	0.13		**Sheet Flow, SHEET A-B** Woods: Light underbrush n= 0.400 P2= 3.14"
1.6	117	0.0625	1.25		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
2.3	219	0.0975	1.56		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
0.3	57	0.2807	3.71		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
2.5	194	0.1237	1.31	10.51	**Parabolic Channel, F-G SWALE** W=12.00' D=1.00' Area=8.0 sf Perim=12.2' n= 0.300
2.1	300	0.0133	2.34		**Shallow Concentrated Flow, G-H WETLAND** Paved Kv= 20.3 fps
21.3	987	Total			

Subcatchment 102: DB 102 BYPASS



Summary for Subcatchment 103: DB-103 BYPASS

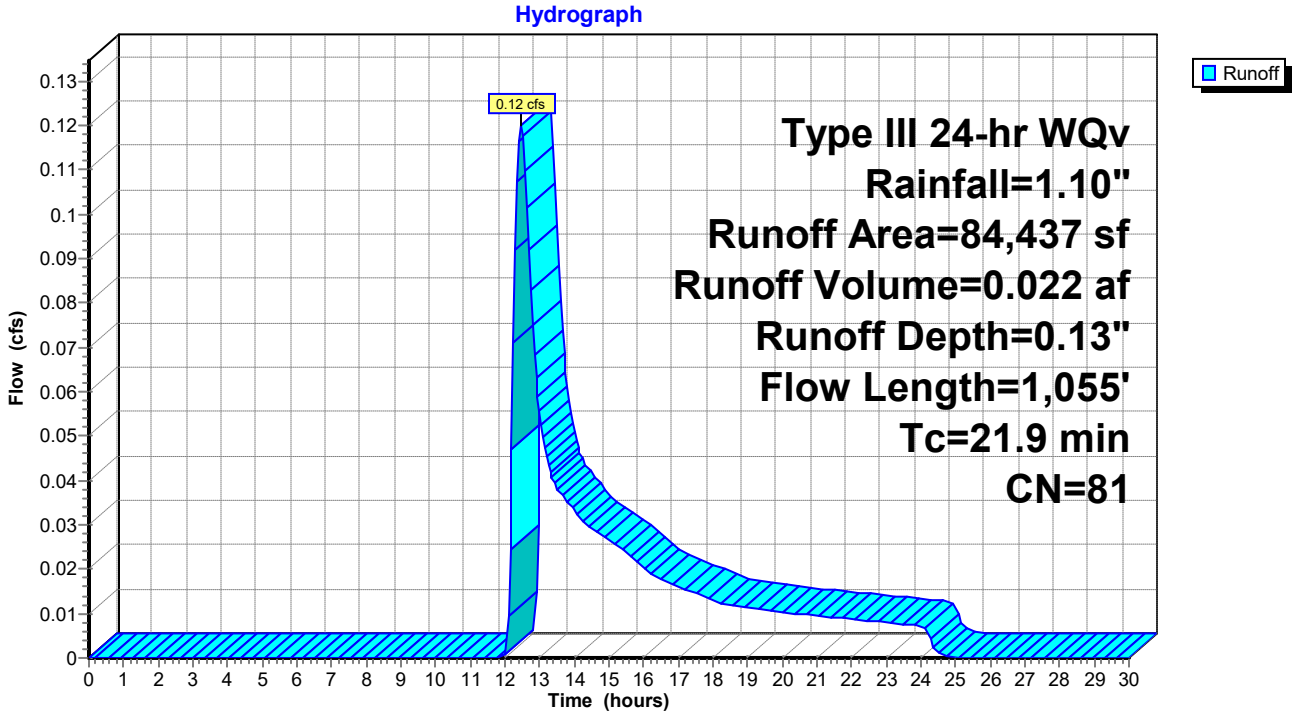
Runoff = 0.12 cfs @ 12.47 hrs, Volume= 0.022 af, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr WQv Rainfall=1.10"

	Area (sf)	CN	Description
	20,171	80	>75% Grass cover, Good, HSG D
*	20,063	79	Woods, Fair, HSG D
	27,339	73	Woods, Fair, HSG C
*	16,864	98	Wetlands, HSG D
	84,437	81	Weighted Average
	67,573		80.03% Pervious Area
	16,864		19.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	100	0.0582	0.12		**Sheet Flow, SHEET A-B** Woods: Light underbrush n= 0.400 P2= 3.14"
5.6	520	0.0964	1.55		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.6	53	0.0755	1.37		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
0.2	201	0.2000	17.10	119.67	**Trap/Vee/Rect Channel Flow, D-E** Bot.W=4.00' D=1.00' Z= 3.0 '/' Top.W=10.00' n= 0.030 Earth, grassed
0.6	32	0.0357	0.94		**Shallow Concentrated Flow, E-F** Woodland Kv= 5.0 fps
0.8	149	0.0253	3.23		**Shallow Concentrated Flow, F-G WETLAND** Paved Kv= 20.3 fps
21.9	1,055	Total			

Subcatchment 103: DB-103 BYPASS



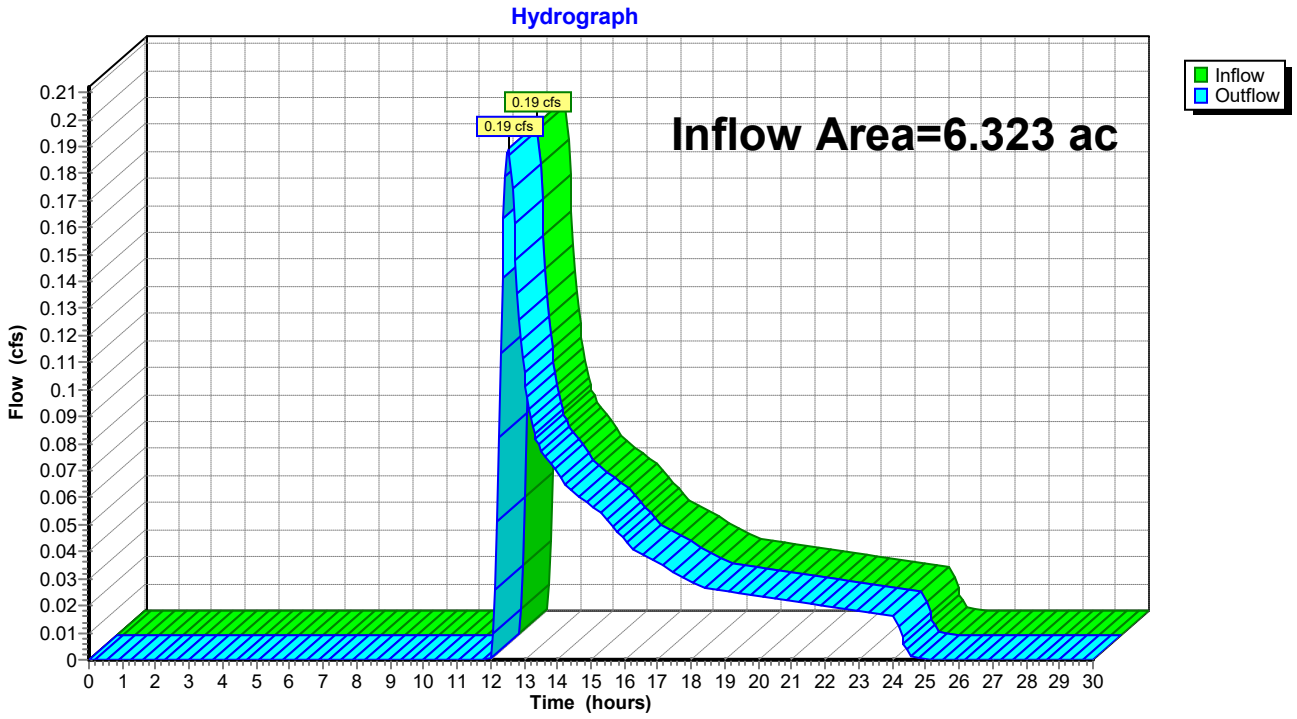
Summary for Reach 1R: COMBINED

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 6.323 ac, 22.67% Impervious, Inflow Depth = 0.08" for WQv event
Inflow = 0.19 cfs @ 12.54 hrs, Volume= 0.043 af
Outflow = 0.19 cfs @ 12.54 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 1R: COMBINED



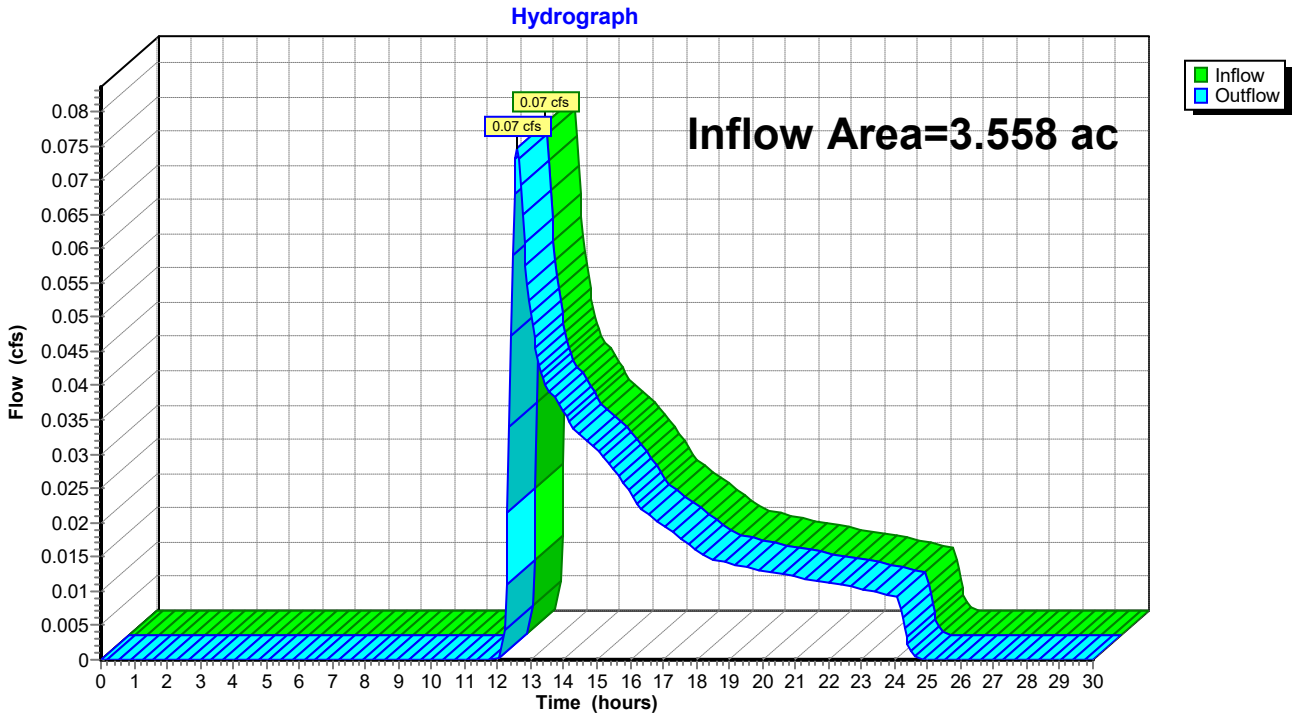
Summary for Reach DP-1: STREAM

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 3.558 ac, 14.80% Impervious, Inflow Depth = 0.07" for WQv event
Inflow = 0.07 cfs @ 12.60 hrs, Volume= 0.021 af
Outflow = 0.07 cfs @ 12.60 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP-1: STREAM



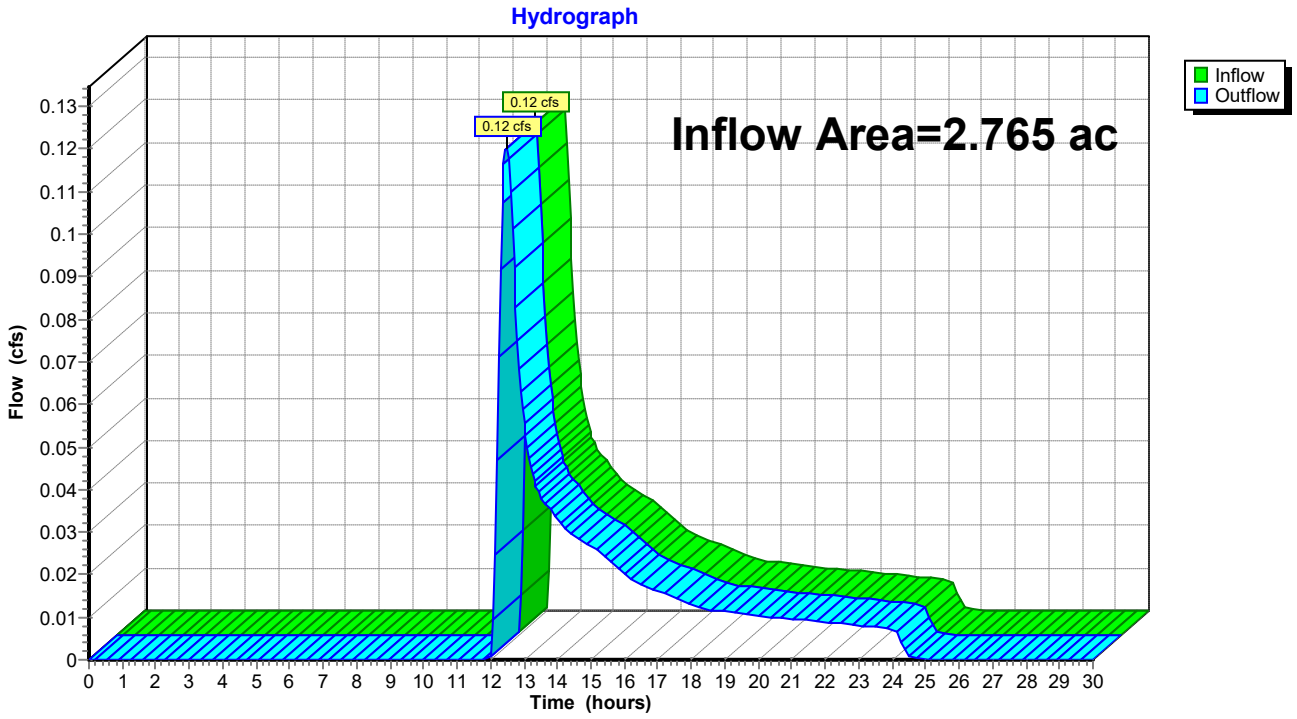
Summary for Reach DP-2: PROP LINE

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.765 ac, 32.79% Impervious, Inflow Depth = 0.09" for WQv event
Inflow = 0.12 cfs @ 12.47 hrs, Volume= 0.022 af
Outflow = 0.12 cfs @ 12.47 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach DP-2: PROP LINE



Summary for Pond A: FOREBAY

Inflow Area = 0.665 ac, 78.11% Impervious, Inflow Depth = 0.71" for WQv event
Inflow = 0.50 cfs @ 12.09 hrs, Volume= 0.039 af
Outflow = 0.30 cfs @ 12.21 hrs, Volume= 0.025 af, Atten= 40%, Lag= 7.5 min
Primary = 0.30 cfs @ 12.21 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 201.85' @ 12.21 hrs Surf.Area= 1,224 sf Storage= 754 cf

Plug-Flow detention time= 195.6 min calculated for 0.025 af (63% of inflow)
Center-of-Mass det. time= 92.9 min (881.7 - 788.9)

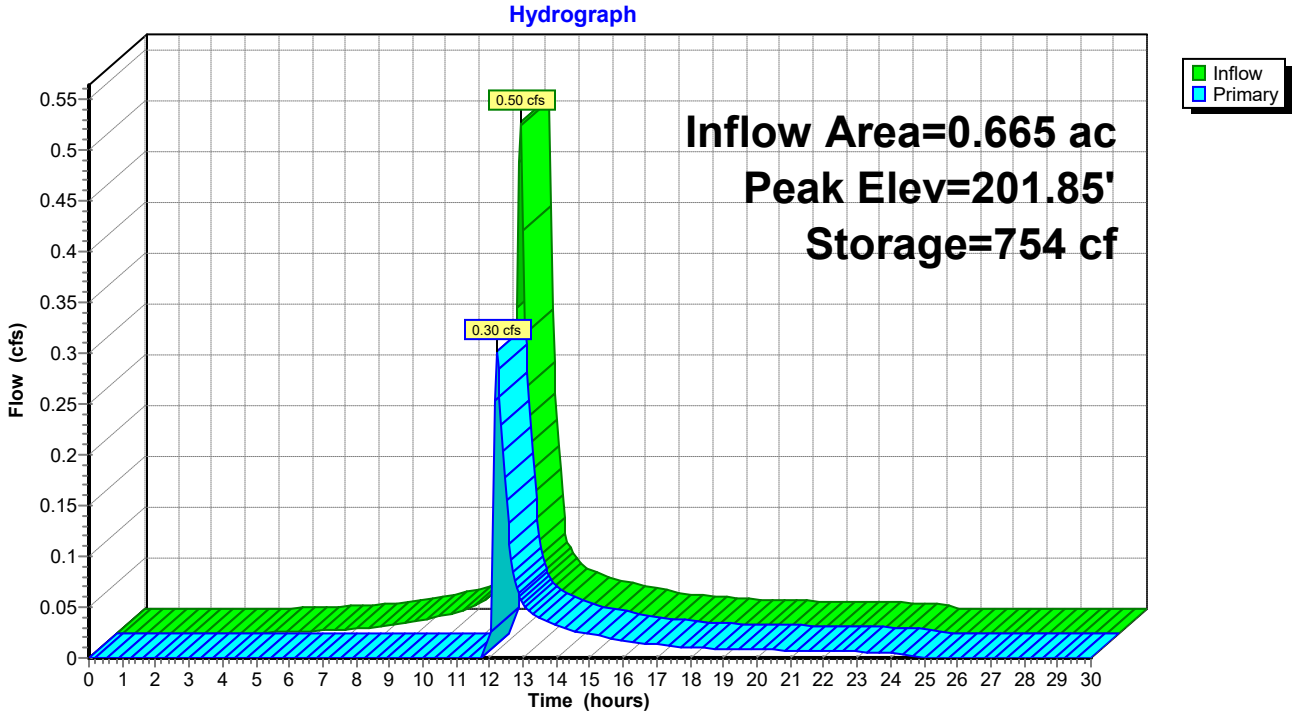
Volume	Invert	Avail.Storage	Storage Description
#1	201.00'	2,705 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
201.00	589	243.0	0	0	589
202.00	1,360	263.0	948	948	1,433
203.00	2,186	284.0	1,757	2,705	2,387

Device	Routing	Invert	Outlet Devices
#1	Primary	201.75'	**4.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.30 cfs @ 12.21 hrs HW=201.85' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.30 cfs @ 0.75 fps)

Pond A: FOREBAY



Summary for Pond B: I-BASIN

Inflow Area = 0.827 ac, 62.85% Impervious, Inflow Depth = 0.37" for WQv event
Inflow = 0.30 cfs @ 12.21 hrs, Volume= 0.025 af
Outflow = 0.03 cfs @ 14.16 hrs, Volume= 0.025 af, Atten= 90%, Lag= 117.0 min
Discarded = 0.03 cfs @ 14.16 hrs, Volume= 0.025 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 200.17' @ 14.16 hrs Surf.Area= 2,660 sf Storage= 441 cf

Plug-Flow detention time= 154.0 min calculated for 0.025 af (100% of inflow)
Center-of-Mass det. time= 154.0 min (1,038.6 - 884.7)

Volume	Invert	Avail.Storage	Storage Description
#1	200.00'	9,778 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
200.00	2,560	194.0	0	0	2,560
202.00	3,865	241.0	6,380	6,380	4,244
203.50	982	270.0	3,398	9,778	5,484

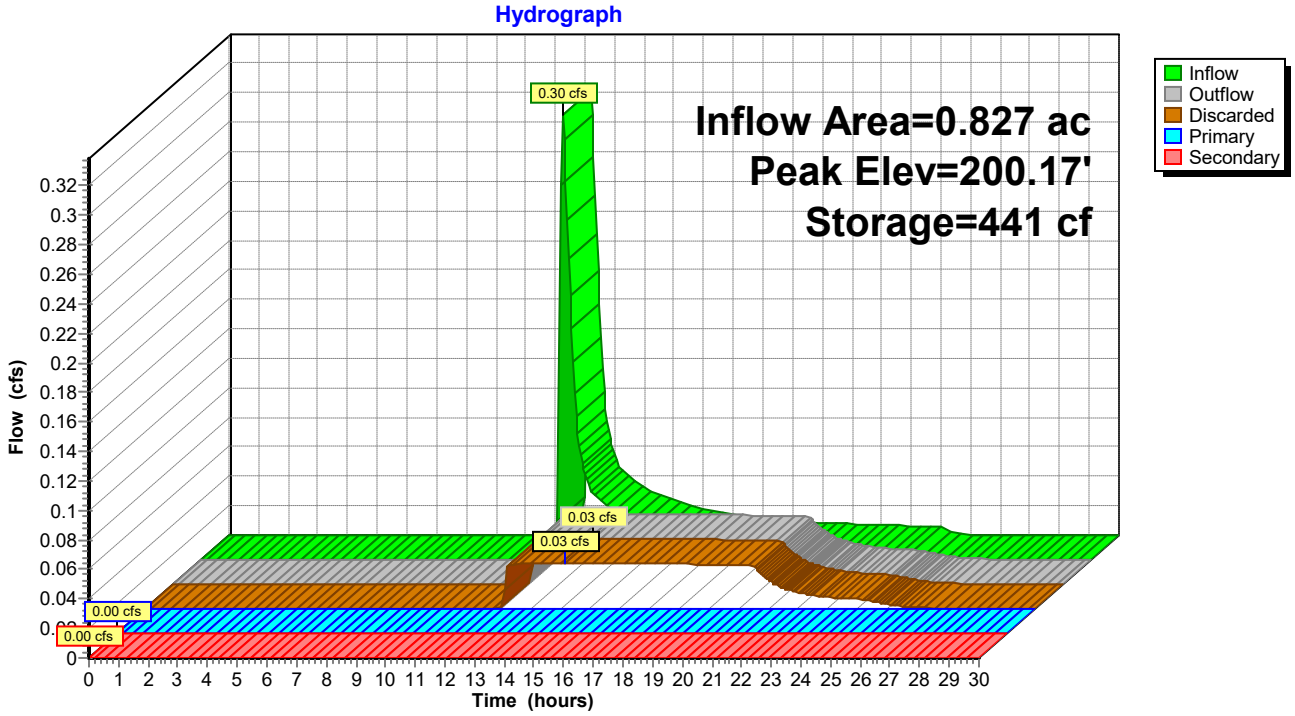
Device	Routing	Invert	Outlet Devices
#1	Discarded	200.00'	**0.500 in/hr Exfiltration over Surface area**
#2	Primary	201.50'	**12.0" Round Culvert** L= 20.0' Ke= 0.500 Outlet Invert= 201.00' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#3	Secondary	202.50'	**8.0' long x 4.0' breadth EMERGENCY WEIR** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Discarded OutFlow Max=0.03 cfs @ 14.16 hrs HW=200.17' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=200.00' (Free Discharge)
↑**2=Culvert** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=200.00' (Free Discharge)
↑**3=EMERGENCY WEIR** (Controls 0.00 cfs)

Pond B: I-BASIN



Appendix I

Post-Construction Inspections and Maintenance

Post-Construction Inspections and Maintenance

1 Site Cover, Structures, and Embankments

1.1 Inspections

Site cover, structures (i.e., catch basins, manholes, etc.), and embankments should be inspected periodically for the first few months following construction then on an annual basis. Items to check for include (but are not limited to):

1. Differential settlement of embankments, cracking or erosion.
2. Lack of vigor and density of grass turf.
3. Accumulation of sediments or litter on lawn areas, paved areas, or within catch basin sumps.
4. Accumulation of pollutants, including oils or grease, in catch basin sumps.
5. Damage or fatigue of storm sewer structures or associated components.
6. Animal burrows.

1.2 Mowing and Sweeping

Vegetated areas and landscaping should be maintained to promote vigorous and dense growth. Lawn areas should be mowed at least three times a year (more frequent mowing may be desired for aesthetic reasons). Resultant yard waste shall be collected and disposed of off-site.

Paved areas should be swept at least twice a year. Additional sweeping may be appropriate in the early spring for removal of deicing materials.

1.3 Debris and Litter Removal

Accumulated litter and debris should be removed during each mowing or sweep operation.

1.4 Sediment and Silt Removal

The frequency for cleanout of catch basin sumps will depend on the efficiency of mowing, sweeping and debris and litter removal. Sumps should be cleaned when accumulation of sediments are within six inches of the catch basin outlet pipe.

Catch basin and manhole cleaning to be performed in a manner that keeps removed sediment and water from being discharged back into the storm system.

1.5 Structural Maintenance, Repair, and Replacement

Components of the system which require repair or replacement should be addressed immediately following identification.

1.6 Winter Maintenance

To prevent impacts to storm water management facilities, the following winter maintenance limitations, restrictions or requirements are recommended:

1. Remove snow and ice from inlet structures, basin inlet and outlet structures and away from culvert end sections.
2. Snow removed from paved areas should not be piled at inlets/outlets of the storm water management basin.
3. Use of deicing materials should be limited to sand and "environmentally friendly" chemical products. Use of salt mixtures should be kept to a minimum.
4. Sand used for deicing should be clean, course material free of fines, silt, and clay.
5. Materials used for deicing should be removed during the early spring by sweeping.

2 Swales

2.1 Inspections

Annually and After Major Storm Events:

Items to check for include (but are not limited to):

1. Erosion of side slopes.
2. Formation of rills or gullies.
3. Grass growth and undesirable vegetation.

Monthly:

Items to check for include (but are not limited to):

1. Swales dewater between storms.
2. Overflow spillways and check dams are in good condition.

2.2 Debris and Litter Removal

Trash and debris shall be removed monthly from the surface of swales.

2.3 Sediment and Silt Removal

Accumulated sediment should be removed annually from the swales.

2.4 Vegetation Growth

Vegetation growth shall be checked monthly. The grass in the swales and side slopes should be mowed as required during the growing season. Mowing should not be performed when the ground is soft to avoid the creation of ruts and compaction. Any undesirable vegetation should be removed.

2.5 Structure Maintenance, Repair, and Replacement

Areas of erosion and slope failure shall be repaired and reseeded as soon as possible.

If the channel develops ruts or holes, it shall be repaired utilizing a suitable soil that is properly tamped and seeded. The grass cover should be thick; if it is not, it shall be reseed as necessary. If possible, flow will be redirected until new grass is firmly established to avoid deterioration. If invasive species and/or weeds develop, promptly remove to avoid disruption to original vegetation.

Residual sand from winter deicing operations should be removed after the spring melt. Any damaged vegetation should be replaced.

Check dam stone shall be replaced as needed.

3 Rain Gardens

3.1 General

Routine maintenance shall be performed, which may include the occasional replacement of plants, mulching, weeding, and thinning to maintain the desired appearance.

Weeding and watering are essential the first year, and can be minimized with the use of a weed-free mulch layer.

After rainstorms, inspect the rain gardens and make sure drainage paths are clear and ponding water dissipates over 4-6 hours. Water may pond for longer times during the winter and early spring.

3.2 Soil, Mulch, and Plants

Soil:

- Visually inspect and repair erosion monthly. Use small stones to stabilize erosion along drainage paths.

- Check the pH once or twice a year. Apply an alkaline product, such as limestone, if needed.

Mulch:

- Re-mulch any void areas by hand, as needed.
- Add a fresh mulch layer every 6 months (in spring and fall).
- Remove old mulch layer before applying new one in the spring once every 2 to 3 years.

Plants:

- Immediately after completion of construction, water plant material for 14 consecutive days unless there is sufficient natural rainfall.
- Remove stakes and wires when trees have taken root or at least by 6 months.
- Visually inspect vegetation for disease or pest problems once a month (more frequently in the summer).
- Twice a year, from March 15th to April 30th and October 1st to November 30th, remove and replace all dead and diseased vegetation.
- Prune excess growth annually or more often, if desired. Weed regularly, if needed.

3.3 Sediment and Silt Removal

Inspect for sediment accumulations or heavy organic matter where runoff enters the garden. Remove as necessary.

3.4 Structure Maintenance, Repair, and Replacement

The top few inches of planting soil shall be removed and replaced when water ponds for more than 48 hours.

If the garden overflow device is an earthen berm or lip, check for erosion and repair as soon as possible. If this continues, a harder armoring of stone may be necessary.

Make sure all appropriate elevations have been maintained, no settlement has occurred and no low spots have

been created.

4 Infiltration Practices

See Post-Construction Inspections Checklist for Infiltration Practices below.

Post-Construction Inspections Checklist for Infiltration Basins

	Yes	No	NA
1. Debris Cleanout (Monthly):			
a. Basin clear of debris	☐	☐	☐
b. Inflow pipes clear of debris	☐	☐	☐
c. Overflow spillway clear of debris	☐	☐	☐
d. Inlet area clear of debris	☐	☐	☐
2. Sediment Traps or Forebays (Annual):	**Yes**	**No**	**NA**
a. Trapping sediment	☐	☐	☐
b. Sediment greater than 50% of storage volume remaining	☐	☐	☐
3. Vegetation (Monthly):	**Yes**	**No**	**NA**
a. Mowing done when needed.	☐	☐	☐
b. Minimum mowing depth not exceeded.	☐	☐	☐
c. No evidence of erosion.	☐	☐	☐
d. Fertilized per specification.	☐	☐	☐
4. Dewatering (Monthly):	**Yes**	**No**	**NA**
a. Dewaters between storms.	☐	☐	☐
5. Sediment deposition (Annual):	**Yes**	**No**	**NA**
a. No evidence of sedimentation in basin.	☐	☐	☐
b. Sediment accumulation requires removal	☐	☐	☐
6. Inlets (Annual):	**Yes**	**No**	**NA**
a. Good condition.	☐	☐	☐
b. No evidence of erosion	☐	☐	☐
7. Outlet/Overflow Spillway (Annual):	**Yes**	**No**	**NA**
a. Good condition, no need for repairs.	☐	☐	☐
b. No evidence of erosion.	☐	☐	☐

Comments:

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Actions to be Taken:

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