Appendix 5-B: Preliminary SWPPP: Former Rasco Parcel

Preliminary Stormwater Pollution Prevention Plan

Issued for SEQRA Review

Cricket Valley Energy
On-Site Construction and Laydown Area (Former Rasco Parcel)

NYS Route 22
Town of Dover
Dutchess County, New York

February 24, 2012

THE Chazen COMPANIES®

Engineers / Surveyors
Planners
Environmental Scientists
Landscape Architects

Prepared for:
Cricket Valley Energy Center, LLC
31 Milk Street
Boston, Massachusetts

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1.0 INTRODUCTION

This Preliminary Stormwater Pollution Prevention Plan (SWPPP) has been prepared for major construction activities associated with the 57-acre former Rasco property to be utilized for on-site construction laydown and parking area in support of construction of Cricket Valley Energy (CVE), located in the Town of Dover, Dutchess County, NY. This Preliminary SWPPP includes the elements necessary to comply with the national baseline general permit for construction activities enacted by the U.S. Environmental Protection Agency (EPA) under the National Pollutant Discharge Elimination System (NPDES) program and all local governing agency requirements.

The preliminary analysis and design completed and documented in this report is intended to support the State Environmental Quality Review (SEQR) of the application made for a power plant project completed on behalf of the Cricket Valley Energy Center, LLC. It has been developed in accordance with the "New York State Department of Environmental Conservation (NYSDEC) State Pollution Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity" General Permit Number GP-0-10-001, effective January 29, 2010 through January 28, 2015," included in Appendix A. Since the site will be temporary in nature and restored following the completion of construction of the power plant, only preliminary hydrologic analyses for pre-development and construction phase conditions were performed using computer modeling. As such, design concepts are provided for quantity control facilities, sediment control facilities, and soil restoration. Although preliminary sizing has been provided for the stormwater management and sediment control facilities, this report is not an engineering design report to accompany design of facilities.

The intent of this Preliminary SWPPP is to provide sufficient documentation for an overall SEQR determination, and to serve as a baseline for the Final SWPPP to follow during the site plan review, approval and permitting processes. The methodology used to develop this Preliminary SWPPP shall be adhered to for the preparation of the subsequent Final SWPPP. Stormwater and erosion and sediment control measures for this SWPPP are preliminary in nature and are intended to demonstrate their location, approximate size, and design concept. Detailed analysis and design of these practices will be advanced after SEQR is completed.

1.1 Project Description

Cricket Valley Energy Center, LLC is proposing to construct a natural gas-fired, combined-cycle electric generating facility in the Town of Dover, New York (the Project). The proposed Project would occupy approximately 30 acres (the Site) of a combined 193-acre property (the Property) which consists of five industrially zoned parcels off NY Route 22. The proposed Site has an address of 2241 NY Route 22, Dover, New York.

The Project would generate a nominal 1,000 megawatts (MW) of electricity for the local/regional electric transmission grid through an interconnection with the ConEd 345-kilovolt (kV) transmission lines, which abut the north property line of the Property. Natural gas would be supplied as the sole fuel to the facility via a short lateral pipeline (less than 500ft) from the Iroquois Gas Transmission Company (IGT) interstate pipeline, which also passes just north of the Property.

Construction of the facility would span approximately 30-36 months. The proposed commercial operation date for the facility is late 2015 with construction proposed to start in late 2012. The construction of the facility will require an on-site construction parking and equipment laydown area. This area will be used temporarily for construction parking and laydown during construction of the natural gas-fired, combined-cycle electric generating facility. The on-site area will minimize the amount of site disruption and congestion on the parcel where the generating facility is being constructed, and will ensure accessibility and safe maneuverability for transport and off-loading of workers, materials, and equipment.

The on-site construction worker parking and equipment laydown area will be located adjacent to the proposed Cricket Valley Energy plant and consist of two parcels. Parcel one consists of approximately 20 acres and is identified as tax parcel 7061-00-585063in the Town of Dover. Parcel two consists of approximately 40 acres and is identified as tax parcel 7060-00-610940 in the Town of Dover. The site is located off of and between Route 22 and the Metro North Rail. The site is accessed via a gravel road/driveway off of Route 22 (the street address is listed as 2241 Route 22). The Site is bounded to the east by Route 22, to the west by the Metro North Rail, to the south by residential homes, and to the north by the former Mica Products Corporation. A fence is also located between the property buildings and the access road along the northern boundary. The western, southern, and portions of the northern boundaries of the site are not bounded by a fence. Several buildings occupy the site associated with former operations and uses. The Site has been owned and occupied by several entities, but is currently owned by Howlands Lake Partners, LLC.

The site (and parcels to the north and west of the site) was used in magnesium ore refining processes between 1932 and 1966. Mica Products operated a business that assembled various products requiring lamination of wood bases (laminating Formica onto particle board) between 1966 and 1980. TT Materials, Inc. (from 1993 to 2004) and then Rasco Materials, LLC operated approximately 3 acres of the site as a petroleum-contaminated soil (PCS) recycling facility. The parcel to the north of the site was used by Poly Tech Recycling Corporation for tire recycling operations (between the early 1990s and January 1, 1996; at which time a fire destroyed the majority of the main property building). There is an approximately 20,000-gallon inactive AST, as well as a diesel tanker truck, next to the access road. The northern portion of the site, encompassing an area of approximately 10 acres, was observed to be the location of the majority of site buildings and development. There is still debris evidence on the site of its varied history.

Prior to utilizing the area for temporary construction laydown and parking, remedial efforts will be conducted to address past uses. In general, the proposed remediation plan consists of the following:

1. Remove surface trash (Formica debris, tire crumb, barrels, etc.).

2. Remove soil from discrete areas associated with historical contamination (Rasco dirt piles).

3. Retain remaining soil on-site, depending upon specific development needs as follows:

a. Grade and/or stabilize in place
b. Excavate and use in other locations on site
c. Excavate and commingle with other clean fill for use in other locations on-site

The remediation plan was submitted to the NYSDEC on March 2, 2012.

The site work necessary for preparing the lay down area consists of removing useable top-soil and stock piling it on-site temporarily and then hauled to an off-site stockpile location to free up additional space. This top-soil will be saved and re-used during the restoration stage following construction. The site would be graded and compacted to support parking and unloading/loading of equipment for temporary storage (via semi-trailers, large forklifts, and mobile cranes). Potential parking to accommodate up to 654 cars will be required. Temporary yard lighting for parking and the equipment lay down area would be strung with wooden poles. Geo-tech fabric would be laid down with gravel on-top. Access to the laydown and parking area will be through the main entrance to the power plant site. Following three years of construction, the site will be restored.

1.2 Relevant Standards and Guidelines

Based upon verbal correspondence with NYSDEC on February 2 and 3, 2012, the post-development storm water management measures would consist of soil restoration (NYSSWDM section 5.1.6) and re-vegetation.

Since the project will be restored to pre-development conditions (vegetated), no permanent impervious areas are proposed, and no change in site hydrology is anticipated, only temporary erosion and sediment control measures will be required for the duration of the on-site construction parking and equipment laydown area. In addition to the guidance provided by the NYSDEC, some sediment traps have been modified to provide not only adequate sediment storage volume, but also rate control for limited storms by detaining runoff prior to its discharge off-site, where adequate area and head were available for expanding the traps. Pre- and construction phase surface runoff rates have been evaluated for the 1, 10, and 100-year 24-hour storm events. The design intent is to attenuate runoff generated during the 1, 10, and 100-year 24 hour rainfall events such that the peak rates realized at the designated design points will not exceed the rates that existed prior to development of the project during the temporary disturbance.

Erosion control measures, designed to minimize soil loss, and sediment control measures, intended to retain eroded soil and prevent it from reaching water bodies or adjoining properties, have been recommended in accordance with the following documents:

- NYSDEC SPDES General Permit for Stormwater Discharges From Construction Activity, Permit No. GP-0-010-001 (effective January 29, 2010 through January 28, 2015)

- New York State Standards and Specifications for Erosion and Sediment Control, NYSDEC (August 2005)

- New York State Storm Water Management Design Manual (August 2010)

- Town of Dover Erosion and Sediment Control Ordinance

1.3 Stormwater Discharges Associated With Industrial Activity

At a meeting on February 3, 2010, the New York State Department of Environmental Conservation (NYSDEC) determined that the proposed electric power generating facility and on-site construction parking and laydown areas will not be subject to an Individual SPDES Permit or SPDES Multi-Sector General Permit since the project will not discharge storm water to the waters of the United States from a point source that conducts industrial activities identified within 49 CFR Part 122.26(b)(14)(i) through (ix) and (x).

On-site runoff directed toward the recommended storm water management practices will consist of roofs from the construction trailers, access drive, and parking lot runoff.

Cricket Valley Energy will implement measures to prevent contamination of surface runoff from the following industrial activities listed below through containment and reuse or sheltering practices:

- Temporary covers and containment will be placed during the use of the lay down areas. Temporary covers consisting of plywood or tarps will cover the lay down areas prior to placement of non-oily equipment/parts or parts that do not have liquid associated in its process. Equipment/parts that have oil or liquid associated with its process will be placed within temporary spill containment berms or environmental sorbent material pads. The lay down areas are used for temporary storage of new equipment.

1.4 Preliminary SWPPP Summary

The primary goals of this preliminary SWPPP are to manage soil erosion and sediment transport and provide limited detention during the use of the temporary off-site construction parking and equipment laydown area; and to minimize the impact to the quality and quantity of runoff exiting the site following restoration. The preliminary SWPPP and accompanying plans, entitled "Cricket Valley Energy – On-Site Construction Laydown and Parking Area (Former Rasco Parcel)" identify and detail erosion and sediment control facilities measures necessary during the course of construction and the restoration of the site.

This report considers the impacts associated with the intended development with the purpose of:

1. Maintaining existing drainage patterns as much as possible while continuing the conveyance of upland watershed runoff;

2. Where possible, provide limited rate control during the temporary use of the on-site construction parking and equipment laydown area so as not to adversely alter downstream conditions; and

3. Minimizing potential storm water quality impacts and preventing soil erosion and sedimentation resulting from storm water runoff generated both during and after construction.

2.0 SITE CHARACTERISTICS

2.1 Existing Land Use and Topography

The site is located within the Lower Hudson physiographic province of New York. The site is generally located east of the Swamp River and west of the larger Ten Mile River. The site area is bounded on the east by sharply rising uplands that increase as much as 600 feet above the valley. The site is bounded on the west by a very flat region comprised of wetlands surrounding the Swamp River. The site itself slopes generally to the west toward the Swamp River, with a maximum elevation in the eastern half of the site of approximately 500 feet above mean sea level (MSL). Regionally, the site is located within a valley (the Swamp River Valley) with topography increasing significantly to the east of the site (in the area defined as East Mountain) and west of the site (West Mountain).The extreme northern portion of the site (where the buildings are located) is flat, with an average elevation of approximately 430 feet MSL. To the south of the buildings, the elevation increases along a north-south oriented ridgeline with an average maximum elevation of 500 feet MSL. The topographic elevation in the southern portion of the site area varies from 500 feet MSL in the east to 400 feet MSL in the west, with a northwesterly sloping gradient.

2.2 Soils and Groundwater

The United States Department of Agriculture (USDA) Soil Conservation Service (SCS) Soil Survey for Dutchess County was reviewed and provided surficial soil conditions for the study area. The SCS identified the presence of FcC, FcE, SmB, and Wy series soil types. Soil data as provided by the SCS is presented in Table 1.

Table 1: USDA Soil Data

Map Symbol & Description	Hydrologic Soil Group	Permeability (inches/hour)	Erosion Factor K	Depth to Water Table (feet)	Depth to Bedrock (inches)
FcC & FcE- Farmington-Galway complex, rolling, very rocky, 5 to 16 percent slopes	C	0.6 – 2.0	0.32	> 6.0	10 - 20
SmB – Stockbridge-Farmington complex, undulating, rocky, 1 to 6 percent slopes	C	0.6 – 2.0	0.28	> 6.0	> 60
Wy - Wayland silt loam, 0 to 3 percent slopes	C/D	0.2 – 2.0	0.43	+0.5 – 1.0	> 60

Upon review of the soil data presented in Table 1, the project site does not contain soils with a soil slope phase of E or F.

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

- Type C Soils: Soils having a low infiltration rate when thoroughly wet and consisting 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.

A soils map for the study area and the watershed area is presented in Appendix B, as Figure 2A and Figure 2B, respectively.

2.3 Watershed Designation

Because the project site is not located in a restricted watershed identified in Appendix C of GP-0-10-001, enhanced phosphorous removal standards are not required.

Because this type of project is included in Table 2 of Appendix B of GP-0-10-001; and not located within an enhanced phosphorous removal watershed, the Final SWPPP will only need to include erosion and sediment controls and post-construction storm water management measures listed herein.

2.4 Receiving Water Bodies

Runoff from the project site will be discharged to an on-site wetland and Intermittent Stream, described in Section 2.6, and eventually conveyed to the Swamp River.

The Swamp River is classified by NYSDEC as a Class C (T) water course, and is not included in the Section 303(d) list of impaired waters found in Appendix E of GP-0-10-001. Impaired waters are identified as by the NYSDEC as waters that do not support appropriate uses and require the development of a Total Maximum Daily Load (TMDL) or other strategy to reduce the input of the specific pollutant(s) that restrict water uses; in order to restore and protect such uses.

2.5 Aquifer Designation

The project site is located over the Carbonate Rock aquifer, which is not listed as a sole source aquifer. Thus, additional separation requirements to groundwater are not required for proposed stormwater measures. This aquifer is identified as a principle aquifer in the Global Information Systems (GIS) data set obtained from the U.S. Geological Survey, entitled “Principal Aquifers of New York State States, Polygon (Shapefile: 1998).

2.6 Wetlands

Wetlands depicted on the accompanying plan set were delineated by ARCADIS in September 2011. The wetland identification and boundary delineations were performed in accordance with the Routine Determination Method presented in the 1987 United States Army Corps of Engineers (USACE) *Wetlands Delineation Manual* (the Manual) (Environmental Laboratory 1987) and the draft regional supplement to the Manual (USACE 2008). Six areas were identified as wetlands.

- Wetland A consists of 0.67acres and is neither USACE nor NYSDEC jurisdictional.
- Wetland B consists of 0.18 acres and is neither USACE nor NYSDEC jurisdictional.
- Wetland C consists of 0.012 acres and is neither USACE nor NYSDEC jurisdictional.
- Wetland D consists of 5.91 acres and is USACE and NYSDEC jurisdictional. It is located on the property, but outside of the temporary construction laydown and parking area. However, the 100-foot Adjacent Area extends into the project area.
- Wetland E consists of 0.059 acres and is neither USACE nor NYSDEC jurisdictional.
- Wetland F consists of 0.35 acres and is USACE jurisdictional.

2.7 Flood Plains

According to the National Flood Insurance Program Flood Insurance Rate Map (FIRM), Town of Dover, New York, Community Panel Numbers 361335 0020 A and 0025 A, this lies outside of the 100-year flood zone. A printout of the flood plain map is presented in Appendix B, as Figure 6.

2.8 Listed, Endangered, or Threatened Species

In support of the FEIS, ARCADIS has performed studies relative to natural resources for this on-site laydown and parking area. Details of the specific characteristics of the land and natural resources were investigated and recorded in Section 3 within the FEIS prepared by ARCADIS.

Studies were performed for:

1) Federally listed threatened and State listed endangered bog turtle.

2) Federally and State listed endangered Indiana bat.

3) Timber Rattle Snake as State Listed threatened species.

4) The New England cottontail, which is a candidate species being considered by the Service for addition to the Federal List of Endangered and Threatened Wildlife and Plants.

The following was reported respectively:

1) The Phase 1 bog turtle survey is essentially a study of the potential of bog turtle presence or habitat suitability for bog turtles in the on-site wetlands. Four of the six wetlands

(wetlands B, C, E and F) did not have characteristics representing suitable bog turtle habitat and the other two (wetlands A and D) were recommended for additional consideration. Wetland A contained a fen indicator species as well as containing marginally suitable soils and hydrology. A portion of wetland D (western portion – 3 acres approximate size) contained suitable vegetation and hydrology for a bog turtle habitat.

2) Habitat suitability for the Indiana Bat at the on-site construction laydown and parking area (Former Rasco Parcel) was indicated to be low overall by ARCADIS. There is a low probability or expectation that the Indiana Bats to use this area for summer roosting or as a maternity colony site. The wetlands corridor to the parcels western border has the highest potential of suitable habitat characteristics which yields a slightly higher probability or expectation that they use as alternate roosting or as a foraging site.

3) No potentially suitable timber rattle snake dens or living habitat was identified on-site. There was however potential for suitable foraging habitat in the upland forest areas. Overall, the former Rasco Parcel situated between NYS Route 22 and the Metro North Rail Track limit the mobility and accessibility of the snakes that may range from more probable den site 1 to 4 miles north of the parcel. No timber rattle snakes were observed during a September 2011 field survey within their expected "active season".

4) Lands consisting of wetlands, old overgrown field, tree/shrub/thicket undergrowth and mixed hardwood forest which offer suitable habitat for the New England cottontail do exist but are considered degraded and less than ideal to sustain a population of this species. Due to the tolerance of this species for a variety of habitat conditions, this project poses no adverse impact on the New England Cottontail species.

The storm water that discharges from the project site will not adversely impact listed, endangered or threatened species listed herein so long as the storm water management practices have been constructed in accordance with this SWPPP.

2.9 Historic Places

A State Preservation Historical Information Network Exchange search on the New York State Historic Preservation Office website, performed on February 17, 2012, revealed that the property is not located within state or nationally registered historical place, but is partially located within an archeologically sensitive area. A printout of the historic places screening map is presented in Appendix B, as Figure 3.

An information request has been submitted to the State Historic Preservation Office (SHPO) by ARCADIS and they are awaiting a reply. This information request can be found in Appendix F, State Historic Preservation Office (SHPO) Correspondence.

2.10 Rainfall Data

Rainfall data utilized in the modeling and analysis were interpolated from maps presented in Chapter 4 of the NYSDEC Stormwater Management Design Manual, and in the National

Weather Service (NWS) Technical Paper 40 (TP-40), *Rainfall Frequency Atlas of the United States for Durations from 30 minutes to 24 Hours and Return Periods from 1 to 100 Years* (1961). Rainfall data specific to the portion of Dutchess County under consideration, for various 24-hour storm events, is presented in Table 2:

Table 2: Rainfall Data

Storm Event Return Period	24-Hour Rainfall (inches)
1-year	2.8
10-year	5.0
100-year	8.0

These values were used to evaluate the pre- and construction phase storm water runoff characteristics.

3.0 CONSTRUCTION SEQUENCE

Project construction activities will consist primarily of site grading, and the installation of erosion and sediment control facilities and storm drainage, and gravel parking lots and laydown areas, to support the construction of the power plant facilities. Construction phase pollutant sources anticipated at the site are disturbed (exposed) soil, vehicle fuels and lubricants, chemicals associated with equipment construction, and building materials. Without adequate control there is the potential for each type of pollutant to be transported by runoff.

The site work necessary for preparing the laydown area consists of removing the top-soil and stock piling it off-site for future use (restoration following construction). The site would be graded and compacted to support parking and unloading/loading of equipment for temporary storage (via semi-trailers, large forklifts, and mobile cranes). Potential parking to accommodate up to 654 cars will be required. Temporary yard lighting for parking and the equipment laydown area would be strung with wooden poles. Geo-tech separation and stabilization fabric would be laid down on the graded soil surface and gravel placed and compacted on-top. Access will be provided via the adjoining main site, from NYS Route 22. Following three years of construction, the site would be restored to original conditions.

In order for construction to progress in a practical and efficient manner, soil disturbance in excess of five acres at any given time will be required. The General Permit allows for soil disturbance of greater than five acres upon written authorization from the NYSDEC. As the development plan is refined during the permitting process, a waiver to disturb greater than 5-acres of soil will be requested from the NYSDEC. The waiver request will include a phasing plan that defines the maximum disturbed area per phase and shows the required cuts and fills. When received, a copy of the approval will be included in the Site Log Book. This approval will be subject to the limitations outlined in the approval letter and documented within the construction sequencing plans included with the waiver request.

Should the waiver request be denied by NYSDEC, the Contractor, as described in Section 6.0, will have to develop a plan for limiting the area of disturbance to less than five acres of disturbance at any given time. The Contractor shall prepare and submit to the Operator's Engineer, as described in Section 6.0, a sequencing plan that identifies the progression of construction through the site. This sequencing plan must be retained as part of the Site Log Book.

The "Preliminary Erosion & Sediment Control Plan – Prior To Construction" (Sheet SP3A) and "Preliminary Erosion & Sediment Control Plan – During Construction" (Sheet SP3B) in the accompanying drawings identifies the major construction activities that are the subject of this preliminary SWPPP. The order (or sequence) in which the major activities are expected to begin is presented on the accompanying drawings, though each activity will not necessarily be completed before the next begins. In addition, these activities could occur in a different order if necessary to maintain adequate erosion and sediment control. If this is the case, the Contractor shall notify the Operator's Engineer overseeing the implementation of the Final SWPPP.

The Contractor will be responsible for implementing the erosion and sediment control measures identified on the Final SWPPP.

4.0 CONSTRUCTION-PHASE POLLUTION CONTROL

The preliminary SWPPP and accompanying plans identify the temporary and permanent erosion and sediment control measures that should be considered in the final design of this project. These measures should be implemented during construction, to minimize soil erosion and control sediment transport off-site and to control the quality and quantity of storm water runoff from the construction site.

The preliminary SWPPP and accompanying plans identify the temporary and permanent erosion and sediment control structures that should be installed prior to construction. The Final SWPPP will depict the phasing and detailed erosion and sediment control plans for each phase; will outline the construction scheduling for implementing the erosion and sediment control measures associated with each phase; and will include limitations on the duration of soil exposure, criteria and specifications for placement and installation of the erosion and sediment control measures, a maintenance schedule, and specifications for the implementation of erosion and sediment control practices and procedures.

Temporary and permanent erosion and sediment control measures that should be applied during construction generally include:

1. Minimizing soil erosion and sedimentation by stabilization of disturbed areas and by removing sediment from construction-site discharges.

2. Following the completion of construction activities in any portion of the site permanent vegetation shall be established on all exposed soils.

3. Site preparation activities should be planned to minimize the area and duration of soil disruption.

4. Establishment of traffic corridors and "routes of convenience" shall be avoided.

4.1 Temporary Erosion and Sediment Control Measures

The temporary erosion and sediment control measures recommended and described in the following sections are preliminary in nature and will be further reviewed and detailed during the preparation of the Final SWPPP. They should be installed and/or implemented prior to the initiation of construction and during construction.

4.1.1 Stabilized Construction Entrance

Prior to construction, stabilized construction entrances should be installed at points of entry and egress from the site to reduce the tracking of sediment onto public roadways.

Construction traffic must enter and exit the site at the stabilized construction entrance. The intent is to trap dust and mud that would otherwise be carried off-site by construction traffic.

The entrance should be maintained in a 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 should 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.

4.1.2 Dust Control

Water trucks should 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, and in compliance with the applicable local and state dust control requirements.

4.1.3 Temporary Soil Stockpile

Materials, such as topsoil, will be temporarily stockpiled (if necessary) on the site during the grading process. Stockpiles should be located in an area away from storm drainage, water bodies and/or courses, and will be properly protected from erosion by a surrounding silt fence barrier. Excess material following the grading process will be stored off-site at the Remote Laydown Site.

4.1.4 Silt Fencing

Prior to the initiation of and during construction activities, a geotextile filter fabric (or silt fence) shall be established along the down slope perimeter of areas to be disturbed as a result of the construction which lie up gradient of watercourses or adjacent properties. These barriers may extend into non-impact areas to provide adequate protection of adjacent lands.

Clearing and grubbing shall be performed only as necessary for the installation of the sediment control barrier. To facilitate effectiveness of the silt fencing, daily inspections and inspections immediately after significant storm events shall be performed by site personnel. Maintenance of the fence will be performed as needed.

4.1.5 Temporary Seeding

Areas undergoing clearing or grading and any areas disturbed by construction activities where work has temporarily or permanently ceased shall be stabilized with temporary vegetative cover within seven days from the date the soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the New York State Standards and Specifications for Erosion and Sediment Control.

4.1.6 Stone Inlet Protection Barrier

Concrete blocks surrounded by wire mesh and crushed stone will be placed around both existing catch basins, and proposed catch basins within areas of pavement once they have been installed, to keep sediment from entering the catch basins and storm sewer system. During construction, crushed stone shall be replaced as necessary to ensure proper function of the structure.

4.1.7 Erosion Control Blanket

Erosion control blankets (jute mesh) shall be installed on top of topsoil and seed within slopes between 15% and 30% to provide temporary erosion protection while the vegetation is establishing on the adjacent slopes. 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. The blankets shall then be unrolled to maintain direct contact with the soil and anchored to the slope in accordance with the manufacturer's instructions.

4.1.8 Stone Check Dams

Stone check dams shall be installed within temporary diversion swales to reduce the velocity of stormwater runoff, to promote settling of sediment, and to reduce sediment transport offsite.

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.

4.1.9 Temporary Sediment Trap

Rip-rap outlet and rip-rap/pipe outlet sediment traps (modified sediment trap to provide limited detention as well as sediment storage) have been proposed as part of the preliminary erosion and sediment control plan to intercept sediment-laden runoff and allow it to settle out of the surface runoff prior to being discharged from the site. Temporary sediment traps shall be constructed to intercept sediment-laden runoff and reduce the amount of sediment leaving the disturbed areas and to protect drainage ways, properties, and rights-of-way.

Accumulated sediment shall be removed from the 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.

Temporary sediment traps have been designed to provide 3,600 cf. of storage per acre of tributary watershed. Rip-rap/pipe outlet sediment traps have been designed to provide 3,600 cf of storage per acre of tributary watershed behind a stone berm prior to a pipe outlet. The intent is to trap sediment behind a stone berm and allow the sediment trap to dewater through a stone berm consisting of one to two inch stone wrapped in filter fabric. The intent is to provide volume for detention, as well as sediment storage. Preliminary calculations have been identified on the project plans and provided in Appendix E. The following table has been provided summarizing the sediment traps proposed for this project:

Table 3: Summary of Sediment Trap Sizing

Sediment Trap	Type of Facility	Watershed Area (ac)	Volume Required (cf)	Volume Provided (cf)
1	Rip-Rap/Pipe Outlet Trap	1.06	3,816	4,471
2	Pipe Outlet Trap	2.69	9,684	9,711
3	Rip-Rap/Pipe Outlet Trap	0.27	972	1,110
4	Rip-Rap/Pipe Outlet Trap	1.67	6,012	7,018
5	Rip-Rap Outlet Trap	4.00	14,400	19,866

Note:
1. Storage is measured to one foot below overflow weir elevation.

4.1.10 Temporary Diversion Swales

Temporary diversion swales will be used to divert off-site runoff around the construction site, divert runoff from stabilized areas around disturbed areas, and direct runoff from disturbed areas into sediment traps.

4.1.11 Dewatering Operations

Dewatering will be used to intercept sediment-laden stormwater or pumped groundwater and allow it to settle out of the pumped discharge prior to being discharged from the site. Water from dewatering operations shall be treated to eliminate the discharge of sediment and other pollutants. Water resulting from dewatering operations shall be directed to the temporary sediment traps, or dewatering devices, such as the Dandy Dewatering Bag, manufactured by Mirafic Geosynthetics. Temporary sediment traps and dewatering bags will be provided, installed and maintained at down-gradient locations to control sediment deposits to the wetlands.

4.2 Permanent Erosion and Sediment Control Measures

The permanent erosion and sediment control measures described in the following sections are included as part of the construction documents.

4.2.1 Establishment of Permanent Vegetation

Disturbed areas that will be vegetated must be seeded in accordance with the contract documents. The type of seed, mulch, and maintenance measures as described in the contract documents shall also be followed.

All areas at final grade must be seeded and mulched within 14 days after completion of the major construction activity. All seeded areas should be protected with mulch.

Final site stabilization is achieved when all soil-disturbing activities at the site have 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.

4.2.2 Rock Outlet Protection

Rock outlet protection shall be installed at the locations as indicated and detailed 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 watercourse or water body. Where noted on the Landscaping and Restoration Plan, sheet LS1 on the accompanying drawings, rock outlet protection or rip-rap shall remain in place permanently. All other areas of rock protection as part of the construction process shall be removed in their entirety.

4.2.3 Permanent Turf Reinforcement

Permanent turf reinforcement mats (TRMs) provide long-term erosion protection and vegetation establishment assistance while permanently reinforcing vegetation. TRMs shall be installed on all slopes exceeding 30%. TRM's provide two key advantages. First, their unique fiber shape and 3-D pattern create a thick matrix of voids that trap seed, soil and water in place for quicker, thicker vegetation growth. Secondly, they provide additional reinforcement that doubles your vegetation's natural erosion protection abilities by remaining a permanent part of the application, anchoring mature plants to the soil for superior, long-term erosion resistance.

4.3 Other Pollutant Controls

Control of sediments has been described previously. Other aspects of this preliminary SWPPP are listed below:

4.3.1 Solid and Liquid Waste Disposal

No solid or liquid waste materials, including building materials, shall be discharged from the site with stormwater. All solid waste, including disposable materials incidental to any construction activities, must be collected and placed in containers. The containers shall be emptied periodically by a licensed trash disposal service and hauled away from the site.

Substances that have the potential for polluting surface and/or groundwater must be controlled by whatever means necessary in order to ensure that they do not discharge from the site. As an example, special care must be exercised during equipment fueling and servicing operations. If a spill occurs, it must be contained and disposed of so that it will not flow from the site or enter groundwater, even if this requires removal, treatment, and disposal of soil. In this regard, potentially polluting substances should be handled in a manner consistent with the impact they represent.

4.3.2 Sanitary Facilities

Temporary sanitary facilities shall be provided by the Contractor throughout the construction phase. They must be utilized by all construction personnel and will be serviced by a licensed

commercial Contractor. These facilities must comply with state and local sanitary or septic system regulations.

4.3.3 Water Source

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. Such water can be captured and allowed to evaporate or infiltrate on-site.

4.4 Construction Housekeeping Practices

During the construction phase, the general Contractor will implement the following measures:

4.4.1 Material Stockpiles

Material resulting from the clearing and grubbing operation will be stockpiled off-site. The topsoil from this site shall be stripped and stockpiled at the remote laydown site for re-use during the restoration stage.

4.4.2 Equipment Cleaning and Maintenance

The general Contractor shall designate areas for equipment cleaning, maintenance, and repair. The general Contractor and subcontractors will utilize those areas. The areas will be protected by a temporary perimeter berm and will be identified on the plans accompanying the Final SWPPP.

4.4.3 Detergents

In the event, detergents are used for large-scale washing, containment systems shall be used to capture wash water. Captured wash water shall be pumped, removed from the site, and sisposed of at an approved facility.

Otherwise, routine external building washdowns shall not include the use of detergents (i.e., vehicles, buildings, pavement surfaces, etc.)

4.4.4 Spill Prevention and Response

A Spill Prevention and Response Plan shall be developed for the site by the Contractor. The plan shall detail the steps needed to be followed in the event of an accidental spill and shall identify contact names and phone numbers of people and agencies that must be notified.

The plan shall include Material Safety Data Sheets (MSDS) for all materials to be stored on-site. All workers on-site will be required to be trained on safe handling and spill prevention procedures for all materials used during construction. Regular tailgate safety meetings shall be held and all workers that are expected on the site during the week shall be required to attend.

4.4.5 Material Storage

Construction materials shall be stored in a dedicated staging area. The staging area shall be located in an area that minimizes the impacts of the construction materials effecting stormwater quality.

Chemicals, paints, solvents, fertilizers, and other toxic material must be stored in waterproof containers. Except during application, the contents must be kept in trucks or within storage facilities. Runoff containing such material must be collected, removed from the site, treated, and disposed of at an approved solid waste or chemical disposal facility.

5.0 POST-CONSTRUCTION STORMWATER CONTROL

Based upon verbal correspondence with NYSDEC on February 2 and 3, 2012, the construction phase storm water management measures should consist of soil restoration (NYSSWDM section 5.1.6) and re-vegetation; since the project site will be restored to pre-development conditions (vegetated), no permanent impervious areas are proposed, and no change in site hydrology is anticipated. Only temporary erosion and sediment control measures will be required for the duration of the site construction parking and equipment laydown area. In addition to the guidance provided by the NYSDEC, some sediment traps have been modified to provide not only adequate sediment storage volume, but also limited rate control for storms by detaining runoff prior to its discharge off-site where adequate area and head were available for expanding the traps. Pre- and construction phase surface runoff rates have been evaluated for the 1, 10, and 100-year 24-hour storm events.

5.1 Stormwater Control Practices

The sediment and sediment/detention control facilities provided on this project site were designed to primarily capture sediment during the construction phase. Where area and head were available, rip-rap outlet sediment traps were retrofitted to include a pipe outlet control structure to provide attenuation. Where constraints such as topography or wetlands did not permit the use of detention facilities, standard NYS Erosion and Sediment Control rip rap outlet sediment traps were designed to capture and control sediment transport before leaving the site. Preliminary design calculations for each measure have been included in Appendix E.

The layout of the recommended practices has been depicted on Sheet SP2 titled “Preliminary Grading & Drainage Plan.” They are intended to demonstrate their preliminary location and design concept. A detailed analysis of these practices must be performed, and the design of each practice must be refined as part of the final SWPPP to be prepared for the site plan review, approval and permitting processes.

Based upon a review of the NYS Division of Water Regulations Part 673.4, none of the stormwater management facilities to be constructed as part of this project require a dam permit for construction, reconstruction, repair, breach, or removal.

5.2 Stormwater Quantity Analysis

This report presents the pre-development and construction phase features and conditions associated with the rate of surface water runoff within the study area. Although this project is not required to provide qualitative or quantitative control structures following restoration of the temporary parking and laydown areas, sediment traps have been modified where area and head were available to provide limited rate control during the course of construction. The following criteria were used in our hydrologic evaluation.

5.2.1 NYSDEC Requirements

The NYS Stormwater Management Design Manual requires that projects meet three separate storm water quantity criteria listed below during post-development. Since the project will be restored to pre-development conditions (vegetated), no permanent impervious areas are proposed, and no change in site hydrology is anticipated, post construction storm water quantity facilities are not required. However, since this project is not subject to the criteria listed below, some sediment traps have been modified to provide not only adequate sediment storage volume, but also limited rate control, during the temporary use of the site.

1. The Channel Protection (CPv) requirement is designed to protect stream channels from erosion. This is accomplished by providing 24 hours of extended detention for the 1-year, 24-hour storm event. The Design Manual defines the CPv detention time as the center of mass detention time through each storm water management practice.

    - Three of the five sediment traps/detention facilities utilize the minimum size orifice of 3-inches. In order to provide extended detention, orifices less than 3-inches would have been required, which are not recommended due to their abilities to clog.

2. The Overbank Flood Control (Qp) requirement is designed to prevent an increase in the frequency and magnitude of flow events that exceed the bank-full capacity of a channel, and therefore must spill over into the floodplain. This is accomplished by providing detention storage to ensure that, at each design point, the construction phase 10-year 24-hour peak discharge rate does not exceed the corresponding pre-development rate.

    - Both Design Points, as described in Section 5.2.3, achieve this criterion.

3. The Extreme Flood Control (Qf) requirement is designed to prevent the increased risk of flood damage from large storm events, to maintain the boundaries of the pre-development 100-year floodplain, and to protect the physical integrity of storm water management practices. This is accomplished by providing detention storage to ensure that, at each design point, the construction phase 100-year 24-hour peak discharge rate does not exceed the corresponding pre-development rate.

    - Both Design Points, as described in Section 5.2.3, achieve this criterion.

5.2.2 Methodology

In order to demonstrate that detention storage requirements are being met, the draft NYS Stormwater Management Design Manual requires that a hydrologic and hydraulic analysis of the pre- and construction phase conditions be performed using the Natural Resources Conservation Service Technical Release 20 (TR-20) and Technical Release 55 (TR-55) methodologies. HydroCAD, developed by HydroCAD Software Solutions LLC of Tamworth, New Hampshire, is a Computer-Aided-Design (CAD) program for analyzing the hydrologic and hydraulic characteristics of a given watershed and associated stormwater management facilities. HydroCAD uses the TR-20 algorithms and TR-55 methods to create and route runoff hydrographs.

HydroCAD has the capability of computing hydrographs (which represent discharge rates characteristic of specified watershed conditions, precipitation, and geologic factors) combining hydrographs and routing flows though pipes, streams and ponds. HydroCAD can also calculate the center of mass detention time for various hydraulic features. Documentation for HydroCAD can be found on their website: http://www.hydrocad.net/.

For this analysis, the watershed and drainage system was broken down into a network consisting of three types of components as described below:

1. Subcatchment: A relatively homogeneous area of land, which produces a volume and rate of runoff unique to that area.

2. Reach: Uniform streams, channels, or pipes that convey stormwater from one point to another.

3. Pond: Natural or man-made impoundment, which temporarily stores stormwater runoff and empties in a manner determined by its geometry and the hydraulic structure located at its outlets.

Subcatchments, reaches, and ponds are represented by hexagons, squares, and triangles, respectively, on the watershed routing diagrams provided with the computations included in Appendix C and Appendix D.

The analysis of hydrologic and hydraulic conditions and proposed stormwater management facilities, servicing the study area, was performed by dividing the tributary watershed into relatively homogeneous subcatchments. The separation of the watershed into subcatchments was dictated by watershed conditions, methods of collection, conveyance, and points of discharge. Watershed characteristics for each subcatchment were then assessed from United States Geological Service (USGS) 7.5-minute topographic maps, aerial photographs, a topographical survey, soil surveys, site investigations, and land use maps.

The detailed design of the storm sewer system will be presented during the site plan review, approval and permitting processes. The hydrologic and hydraulic analysis considered the SCS, Type III 24-hour storm events identified in Table 4.

Table 4: Design Events

Facility	24-hour Storm Event
Storm Sewer	25-year (During Site Plan Approval Phase)
Detention Basin	1-year
	10-year
	100-year
Flood Conditions	100-year

5.2.3 Description of Design Points

The study area consists of an overall watershed that encompasses approximately 70 acres and contains the 60 acre former Rasco parcel. 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 location was defined as a Design Point (DP) in order to compare the effects resulting from stormwater management facilities proposed as part of the project. Descriptions of each of the selected design points are provided below.

- Design Point 1: 3-foot x 1-foot concrete box culvert under railroad.

- Design Point 2: Entrance point to an existing 36" RCP culvert, located to the northwest corner of the former Rasco Parcel. The culvert flows from east to west under the railroad tracks.

5.2.4 Pre-development Watershed Conditions

A site visit was conducted by Chazen personnel on January 15, 2010 and November 7, 2011, to verify predevelopment watershed conditions at and around the power plant site. As part of the site visit, the predevelopment watershed boundaries were identified for that project, as were ground cover conditions, and design points. Overall, it was found that the contributing pre-development watershed area was comprised of two large subcatchments, labeled in the Pre-Development Stormwater Modeling Calculations as ES1 and ES2 (See Appendix B, Figure 4).

Subcatchment ES1 is largely comprised of wooded areas, scattered brush areas, wetlands, and some lawn areas. NYSDEC Jurisdictional Wetland "D" is found in the western central portion of ES1. The east boundary of the subcatchment is a wooded hill and to the west the subcatchment forms at the centerline of the Metro-North Commuter Railroad. Wetland D outlets to an existing 3-foot by 1-foot concrete box culvert under the Metro-North Commuter Rail at the northwestern corner of the subcatchment. This point will represent Design Point #1 (DP1).

ES2 is also largely comprised of wooded areas in its east, south and western sections, with the central portion of the site containing a gravel pit. The north end of ES2 contains half of the existing site, with all areas draining to Design Point #2, a 36" RCP culvert located in the western edge of the Subcatchment, under the rail road.

A Pre-Development Watershed Delineation Map has been provided in Appendix B as Figure 4. The analysis of pre-development conditions considered existing drainage patterns, soil types, ground cover, and topography.

The results of the computer modeling used to analyze the overall watershed under pre-development conditions are presented in Appendix C. A summary of the pre-development watershed runoff rates at each Design Point is presented in Table 5.

5.2.5 Construction Phase Watershed Conditions

During construction the project site will be covered predominantly by gravel, temporary trailers and offices, existing brush, woods and wetlands. The analysis of construction phase conditions

considered existing drainage patterns, soil types, ground cover to remain, planned site improvements, site grading and sediment and detention facilities proposed as part of site construction.

The contributing construction phase watershed areas were divided into 10 subcatchments, labeled PS-1, PS-2, PS-2.2, PS-2.4, PS-3, PS-4, PS-5, PS-6, PS-7 and PS-8. The following subcatchments are tributary to these storm water/sediment management devices:

- Sediment Control & Detention Facility #1 (PS-3)
- Sediment Control & Detention Facility #2 (PS-4)
- Sediment Control & Detention Facility #3 (PS-5)
- Sediment Control & Detention Facility #4 (PS-7, PS-8)
- Sediment Control Facility #5 (PS-6)

The Construction Phase Watershed Delineation Map which depicts the subcatchments, has been provided in Appendix B as Figure 5.

The results of the computer modeling used to analyze the overall watershed during construction are presented in Appendix D. A summary of the construction phase watershed runoff rates at each design point is presented in Table 5.

Stormwater discharge is controlled by four sediment control and storm water detention facilities (one of which being a pipe outlet sediment trap which provides limited detention) and one sediment control facilities (rip rap outlet sediment trap). They have been designed to provide a practical level of quantity controls by attenuating storm water runoff and releasing runoff to off-site locations at a rate equal to or less than that which existed prior to construction at the site. The design is detailed on the accompanying plans.

5.2.6 Performance Summary

A comparison of the pre- and construction phase watershed conditions was performed for all design points and storm events evaluated herein. For all design points and design storms, this comparison demonstrates that the peak rate of runoff will not be increased. Therefore, the project will not have a significant adverse impact on the adjacent or downstream properties or receiving water courses.

The results of the computer modeling used to analyze the pre- and construction phase watersheds are presented in Appendix C and Appendix D, respectively. Table 5 summarizes the results of this analysis.

Table 5: Summary of Pre-Development and Construction Phase Peak Discharge Rates

Pre-Development vs. Construction Phase Discharge Rate (cfs)						
Design Point (DP #)	**1-year 24-hour storm event**		**10-year 24-hour storm event**		**100-year 24-hour storm event**	
	Pre	**Construction**	**Pre**	**Construction**	**Pre**	**Construction**
1	8.15	7.22	26.99	23.81	56.97	52.59
2	20.54	14.21	60.57	42.79	121.37	93.62

5.3 Post-Construction Restoration

5.3.1 Soil Restoration

The structure of healthy soil is permeable, with spaces between solid particles where water, air, and soil organisms can move. Soil compaction occurs when weight on the soil surface collapses these spaces, creating a hard solid mass. Water, air, and roots may be completely unable to penetrate compacted soil, reducing or destroying its capacity to sustain life. Soil restoration promotes greater storm water infiltration in areas with pervious cover, and therefore helps to reduce runoff volume.

Soil restoration is achieved by aeration through mechanical loosening, and addition of organic matter and soil amendments. In areas where soil disturbance has occurred outside of buildings and pavement areas, the disturbed sub-soils shall be returned to rough grade and the following soils restoration steps applied:

1) Remove stone parking and laydowns areas once construction is complete.

2) Till subsoil to a depth of at least 12-inches using a cat-mounted ripper, tractor mounted disc, or tiller, mixing and circulating air and compost into sub-soils.

3) Rock-pick until uplifted stone/rock materials of four inches and larger size are cleaned off the site.

4) Apply topsoil to a depth of six inches.

5) Remove temporary fencing, storm piping, rip-rap, lighting, and structures where indicated on the plans.

6.0 SWPPP IMPLEMENTATION RESPONSIBILITIES

A summary of the responsibilities and obligations of all parties involved with compliance with the NYSDEC SPDES General Permit GP-0-10-001 conditions is outlined in the subsequent sections. For a complete listing of the definitions, responsibilities, and obligations, refer to the SPDES General Permit GP-0-10-001 presented in Appendix A.

6.1 Definitions

1. "General SPDES Permit" means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 authorizing a category of discharges.

2. "Owner" or "Operator" means the person, persons, or legal entity which owns or leases the property on which the construction activity is occurring; and/or an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications. There may be occasions during the course of a project in which there are multiple Operators, all of which will need to file and maintain the appropriate SWPPP documents and plans, including without limitation, the Notice of Intent (NOI) and Notice of Termination (NOT).

3. "Operator's Engineer" shall be that person or entity retained by an Operator to design and oversee the implementation of the Final SWPPP.

4. "Contractor" shall be that person or entity identified as such in the construction contract with the Operator. The term "Contractor" shall also include the Contractor's authorized representative, as well as any and all subcontractors retained by the Contractor.

5. "Qualified Inspector" means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), licensed Landscape Architect, or other Department endorsed individual(s). It also means someone working under the direct supervision of the licensed Professional Engineer or licensed Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control (herein referred to as "Trained Inspector.") Training in the principles and practices of erosion and sediment control means that an individual performing a site inspection has received four (4) hours of training, endorsed by the Department, from a Soil and Water Conservation District, or other Department endorsed entity in proper erosion and sediment control principles. After receiving the initial training, an individual working under the direct supervision of the licensed Professional Engineer or licensed Landscape Architect shall receive four (4) hours of training every three (3) years. 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.

6. "Qualified Professional" means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, licensed 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 in order to prepare a SWPPP that conforms to the Department's technical standards. 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.

7. "Trained Contractor" means an employee from a contracting (construction) firm that has received four (4) hours of training, which has been endorsed by the Department, from a Soil and Water Conservation District, or other Department endorsed entity, in proper erosion and sediment control principles. After receiving the initial training, the Trained Contractor shall receive four (4) hours of training every three (3) years. The Trained Contractor will be responsible for the day to day implementation of the SWPPP.

6.2 Operator's Responsibilities

1. Retain the services of a "Qualified Professional", as defined under Section 6.1, to provide the services outlined in Section 6.3 "Operator's Engineer's Responsibilities".

2. Have an authorized corporate officer sign a completed NOI. A copy of a sample NOI is included in Appendix G.

3. Submit the signed NOI to the following:

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

   Town of Dover
   126 East Duncan Hill Road
   Dover Plains, NY 12522

4. Pay the required initial and annual fees upon receipt of invoices from NYSDEC. These invoices are generally issued in the fall of each year. The initial fee is calculated as $100.00 per acre disturbed plus $600.00 per acre of net increase in impervious cover, and the annual fee is $100.00.

5. Retain the services of an independent certified materials testing and inspection firm operating under the direction of a licensed Professional Engineer to perform regular tests, inspections, and certifications of the construction materials used in the construction of all construction phase storm water management practices.

6. Prior to the commencement of construction activity, identify the contractor(s) and subcontractor(s) that will be responsible for implementing the erosion and sediment control measures and storm water management practices described in the Final SWPPP.

Have each of these contractors and subcontractors identify at least one "Trained Contractor", as defined under Section 6.1 that will be responsible for the implementation of the Final SWPPP. Ensure that the Contractor has at least one "Trained Contractor" on site on a daily basis when soil disturbance activities are being performed.

7. Schedule a pre-construction meeting which shall include the Town of Dover representative, Operator's Engineer, Contractor, and their sub-contractors to discuss responsibilities as they relate to the implementation of the Final SWPPP.

8. Require the Contractor to fully implement the Final SWPPP prepared for the site by the Operator's Engineer to ensure that the provisions of the Final 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.

9. Forward a copy of the NOI Acknowledgement Letter received from the regulatory agency to the Operator's Engineer for project records, and to the Contractor for display at the job site.

10. Maintain a copy of the General Permit (GP-0-10-001), NOI, NOI Acknowledgement Letter, Final SWPPP, inspection reports, Spill Prevention, Countermeasures, and Cleanup ("SPCC") Plan, inspection records, and other required records on the job site so that they may be made available to the regulatory agencies.

11. Post at the site, in a publicly accessible location, a copy of the General Permit (GP-0-10-001), a signed copy of the NOI, the NOI Acknowledgement Letter, and on a monthly basis a summary of the site inspection activities.

12. Prepare a written summary of projects status with respect to compliance with the general permit at a minimum frequency of every three months during which coverage under the permit exists. The summary should address the status of achieving the overall goal of the Final SWPPP. The summary shall be maintained at the site in a publicly accessible location.

13. Submit a Notice of Termination (NOT) form (see Appendix G) within 48 hours of receipt of the Operator's Engineer's certification of final site stabilization to the following:

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

    Town of Dover
    126 East Duncan Hill Road
    Dover Plains, NY 12522

14. Request and receive all SWPPP records from the Operator's Engineer and archive those records for a minimum of five years after the NOT is filed.

15. Require the implementation of the Post-Construction Inspections and Maintenance procedures outlined in Appendix K.

6.3 Operator's Engineer's Responsibilities

1. Prepare the Final SWPPP using good engineering practices, best management practices, and in compliance with all federal, state, and local regulatory requirements.

2. Prepare the Notice of Intent (NOI) form (see Appendix G), sign the "SWPPP Preparer Certification" section of the NOI, and forward to Operator for signature.

3. Provide copies of the Final SWPPP to the Town of Dover once all signatures and attachments are complete.

4. Prepare a construction Site Log Book to be used in maintaining a record of all inspection reports generated throughout the duration of construction.

5. Participate in a pre-construction meeting with the Town of Dover representative, Operator, Contractor, and their sub-contractors to discuss responsibilities as they relate to the implementation of the Final SWPPP.

6. Enter Contractor's information in Section 6.5 "SWPPP Participants" once a Contractor is selected by the Operator.

7. Conduct an initial assessment of the site prior to the commencement of construction and certify in an inspection report that the appropriate erosion and sediment control measures described within the Final SWPPP have been adequately installed and implemented to ensure overall preparedness of the site.

8. Provide on-site inspections to determine compliance with the Final SWPPP. Because this project involves the disturbance of greater than five acres of soil at any one time, site inspections shall occur at an interval of at least twice every seven calendar days, with the inspections separated by a minimum of at least two full calendar days. A written inspection report shall be provided to the Operator and general contractor within one business day of the completion of the inspection, with any deficiencies identified. Include color photographs, with date stamp, taken with a digital camera that clearly shows the condition of all practices that have been identified as needing corrective actions. Paper copies of photographs shall be attached to the inspection report within seven calendar days of inspection. Color photographs, with date stamp, must also be taken with a digital camera that clearly shows the condition of practice(s) after the corrective action has been completed. Paper copies of the digital photographs, that document completion of the corrective action work within 7 calendar days of inspection, shall be attached to inspection report. A sample inspection form is provided in Appendix I.

9. Review the Contractor's SWPPP records on a periodic basis to ensure compliance with the requirements for daily reports and inspections and maintenance logs.

10. Maintain the construction Site Log Book throughout the duration of construction.

11. Update the SWPPP each time there is a significant modification to the pollution prevention measures or a change of the principal Contractor working on the project who may disturb site soil.

12. Prepare the Notice of Termination (NOT). Sign the NOT Certifications VI (Final Stabilization) and VII (Post-construction Stormwater Management Practices), and forward the NOT to the Owner/Operator for his signature on Certification VIII (Owner or Operator Certification).

13. Transfer the SWPPP documents, along with all NOI's, permit certificates, NOT's, construction Site Log Book, and written records required by the General Permit to the Operator for archiving.

6.4 Contractor's Responsibilities

1. Sign the Final SWPPP Contractor's Certification Form contained within Appendix J and forward to the Operator's Engineer for inclusion in the Site Log Book.

2. Identify at least one Trained Contractor that will be responsible for implementation of the Final SWPPP. Ensure that at least one Trained Contractor is on site on a daily basis when soil disturbance activities are being performed.

3. Provide the names and addresses of all subcontractors working on the project site. Require all subcontractors who will be involved with construction activities that will result in soil disturbance to identify at least one Trained Contractor that will be on site on a daily basis when soil disturbance activities are being performed; and to sign a copy of the Contractor's Certification Form and forward to the Operator's Engineer for inclusion into the Site Log Book. This information must be retained as part of the Site Log Book.

4. Maintain a Spill Prevention and Response Plan in accordance with requirements outlined in Section 4.4.. This plan shall be provided to the Operator's Engineer for inclusion in the Site Log Book.

5. Participate in a pre-construction meeting which shall include the Town of Dover representative, Operator, Operator's Engineer, and all sub-contractors to discuss responsibilities as they relate to the implementation of the Final SWPPP.

6. If Contractor plans on utilizing additional properties for material, waste, borrow, or equipment storage areas, or if Contractor plans to engage in industrial activity other than construction (such as operating asphalt and/or concrete plants) at the site, Contractor shall submit appropriate documentation to the Operator's Engineer so that the Final SWPPP can be modified accordingly.

7. Implement site stabilization, erosion and sediment control measures, and other requirements of the Final SWPPP.

8. In accordance with the requirements in the most current version of the NYS Standards and Specifications for Erosion and Sediment Control, conduct inspections of erosion and sediment control measures installed at the site to ensure that they remain in effective operating condition at all times. Prepare and retain written documentation of inspections as well as of all repairs/maintenance activities performed. This information must be retained as part of the Site Log Book.

9. Maintain a record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated, until such time as the NOT is filed. A log for keeping such records is provided in Appendix H.

10. Begin implementing corrective actions within one day of receipt of notification by the Qualified Inspector that deficiencies exist with the erosion and sedimentation control measures employed at the site. Corrective actions shall be completed within a reasonable time frame.

6.5 Final SWPPP Participants

1. Operator's Engineer[1]: Name and Title: _____

   Company Name: _____

   Mailing Address: _____

   _____

   Phone: _____

   Fax: _____

2. Operator: Cricket Valley Energy Center, LLC
   31 Milk Street
   Suite 1001
   Boston, MA 02109
   Phone: (617) 456-2200
   Fax: (617) 456-2201
   Attention: Jeff Ahrens

3. Contractor[1]: Name and Title: _____

   Company Name: _____

   Mailing Address: _____

   _____

   Phone: _____

   Fax: _____

[1] Contractor's and Operator's Engineer information to be entered once they have been selected.

7.0 INSPECTIONS, MAINTENANCE, AND REPORTING

7.1 Inspection and Maintenance Requirements

7.1.1 Pre-Construction Inspection and Certification

Prior to the commencement of construction, the Operator's Engineer shall conduct an assessment of the site and certify that the appropriate erosion and sediment control measures have been adequately installed and implemented. The Contractor shall contact the Operator's Engineer once the erosion and sediment control measures have been installed.

7.1.2 Construction Phase Inspections and Maintenance

A Qualified Inspector, as defined in Appendix A of the General Permit GP-0-010-001, shall conduct regular site inspections between the time the Final SWPPP is implemented and final site stabilization. Because this project involves the disturbance of greater than five acres of soil at any one time, site inspections shall occur at an interval of at least twice every seven calendar days, with the inspections separated by a minimum of at least two full calendar days.

The purpose of site inspections is to assess performance of pollutant controls. Based on these inspections, the Qualified Inspector will decide whether it is necessary to modify the Final SWPPP, add or relocate sediment barriers, or whatever else may be needed in order to prevent pollutants from leaving the site via stormwater runoff. The general contractor has the duty to cause pollutant control measures to be repaired, modified, maintained, supplemented, or whatever else is necessary in order to achieve effective pollutant control.

Examples of particular items to evaluate during site inspections are listed below. This list is not intended to be comprehensive. During each inspection the inspector must evaluate overall pollutant control system performance as well as particular details of individual system components. Additional factors should be considered as appropriate to the circumstances.

1. Locations where vehicles enter and exit the site must be inspected for evidence of off-site sediment tracking. A stabilized construction entrance will be constructed where vehicles enter and exit. This entrance will be maintained or supplemented as necessary to prevent sediment from leaving the site on vehicles.
2. Sediment barriers must be inspected and, if necessary, they must be enlarged or cleaned in order to provide additional capacity. All material from behind sediment barriers will be stockpiled on the up slope side. Additional sediment barriers must be constructed as needed.
3. Inspections will evaluate disturbed areas and areas used for storing materials that are exposed to rainfall for evidence of, or the potential for, pollutants entering the drainage system. If necessary, the materials must be covered or original covers must be repaired or supplemented. Also, protective berms must be constructed, if needed, in order to contain runoff from material storage areas.
4. Grassed areas will be inspected to confirm that a healthy stand of grass is maintained. The site has achieved final stabilization once all areas are covered with building

foundation or pavement, or have a stand of grass with at least 80 percent density. The density of 80 percent or greater must be maintained to be considered as stabilized. Areas must be watered, fertilized, and reseeded as needed to achieve this goal.

5. All discharge points must be inspected to determine whether erosion control measures are effective in preventing significant impacts to receiving waters.

The inspection reports must be completed entirely and additional remarks should be included if needed to fully describe a situation. An important aspect of the inspection report is the description of additional measures that need to be taken to enhance plan effectiveness. The inspection report must identify whether the site was in compliance with the Final SWPPP at the time of inspection and specifically identify all incidents of non-compliance.

Within one business day of the completion of an inspection, the Qualified Inspector shall notify the Owner or Operator and appropriate contractor (or subcontractor) of any corrective actions that need to be taken. The Contractor (or subcontractor) shall begin implementing corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

In addition to the inspections performed by the Operator's Engineer, the Contractor shall perform routine inspections that include a visual check of all erosion and sediment control measures. All inspections and maintenance shall be performed in accordance with the inspection and maintenance schedule provided on the accompanying plans. Sediment removed from erosion and sediment control measures will be exported from the site, stockpiled for later use, or used immediately for general non-structural fill.

It is the responsibility of the general contractor to assure the adequacy of site pollutant discharge controls. Actual physical site conditions or contractor practices could make it necessary to install more structural controls than what will be shown on the Final Site Plans. (For example, localized concentrations of runoff could make it necessary to install additional sediment barriers.) Assessing the need for additional controls and implementing them or adjusting existing controls will be a continuing aspect of the Final SWPPP until the site achieves final stabilization.

7.1.3 Temporary Suspension of Construction Activities

For constructions 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 Qualified Inspector inspections can be reduced to once every 30 calendar days. Prior to reducing the frequency of inspections, the Owner/Operator shall notify the NYSDEC Region 3 storm water contact person in writing.

7.1.4 Partial Project Completion

For constructions sites where soil disturbance activities have been shut down with partial project completion, all areas disturbed as of the project shutdown date have achieved final stabilization, and all construction phase storm water management practices required for the completed portion of the project have been constructed in conformance with the Final SWPPP and are operational,

the Qualified Inspector inspections can stop. Prior to the shutdown, the Owner/Operator shall notify the NYSDEC Region 3 storm water contact person in writing.

If soil disturbance activities have not resumed within two years from the date of shutdown, a Notice of Termination (NOT) shall be properly completed and submitted to the NYSDEC.

7.1.5 Post-Construction Inspections and Maintenance

Inspections and maintenance of the restored site shall be performed in accordance with Appendix K, when all disturbed areas are stabilized and restored.

7.2 Reporting Requirements

7.2.1 Inspection and Maintenance Reports

Inspection/maintenance reports shall be prepared prior to and during construction in accordance with the schedule outlined herein and in the SPDES General Permit GP-0-010-001 Part IV.C.2. The reports shall be prepared to identify and document the maintenance of the erosion and sediment control measures. A sample inspection form is provided in Appendix I.

Specifically, each inspection shall record the following information:

1. Date and time of inspection.

2. Name and title of person(s) performing inspection.

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

4. A description of the condition of the runoff at all points of discharge (including conveyance systems and overland flow) from the construction site. This shall include identification of any discharges of sediment from the construction site.

5. Identification of all erosion and sediment control practices that need repair or maintenance.

6. Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or repaired.

7. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection.

8. Current phase of construction of all construction phase storm water management practices and identification of all construction that is not in conformance with the Final SWPPP and technical standards.

9. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the construction phase storm water management practice(s).

10. Include color photographs with date stamp, taken with a digital camera that clearly shows the condition of all practices that have been identified as needing corrective actions. Color copies of photographs shall be attached to the inspection report within 7 calendar days of inspection. Color photographs with date stamp, taken with a digital camera must clearly show the condition of practice(s) after the corrective action has been completed. Color copies of the photographs, that document completion of the corrective action work within 7 calendar days of inspection, shall be attached to inspection report.

7.2.2 Site Log Book

The Operator shall retain a copy of the Final SWPPP required by NYSDEC SPDES General Permit GP-0-10-001 at the construction-site from the date of initiation of construction activities to the date of final stabilization.

During construction, the Operator's Engineer shall maintain a record of all SWPPP inspection reports at the site in the Site Log Book. The Site Log Book shall be maintained on-site and made available to the permitting authority.

7.2.3 Post Construction Records and Archiving

Following construction, the Operator shall retain copies of the Final SWPPP, the complete construction Site Log Book, and records of all data used to complete the NOI to be covered by this permit, for a period of at least five years from the date that the site is finally stabilized. This period may be extended by the NYSDEC, at its sole discretion, at any time upon written notification.

Records shall be maintained of all post construction inspections and maintenance work performed in accordance with the requirements outlined in Appendix K.

8.0 CONCLUSION

8.1 Conclusion

This is not subject to the requirements of a regulated MS4, and this preliminary SWPPP has been prepared in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control as well as considerations for quantity control as identified by NYS Stormwater Management Design Manual, dated August 2010. As such, it is anticipated that GP-0-10-001 coverage will be effective five (5) business days from the date the NYSDEC receives the complete NOI, unless notified otherwise by the NYSDEC.

The proposed storm water collection system consisting of pipes, open drainage ways and on-site storm water management facilities will adequately collect and convey the storm water generated by the proposed activities during construction. Sediment control and storm water detention facilities will be provided to attenuate peak rates during construction.

Following construction of the natural gas-fired, combined-cycle electric generating facility site soils shall be restored (NYSSWDM section 5.1.6) and re-vegetation shall be implemented.

The parcel and accompanying temporary facilities will be owned and maintained by Cricket Valley Energy Center, LLC during the course of construction of the energy plant. Policy and procedures will be put in place, which ensure operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

It is our opinion that the proposed development will not adversely impact adjacent or downstream properties if the erosion and sediment control facilities are properly constructed for the duration of the temporary use and the site is restored and re-vegetated as specified.

Appendix A:
NYSDEC SPDES General Permit GP-0-10-001

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

from

CONSTRUCTION ACTIVITY

Permit No. GP-0-10-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70
of the Environmental Conservation Law

Effective Date: January 29, 2010 Expiration Date: January 28, 2015

William R. Adriance
Chief Permit Administrator

William R. Adriance — January 28, 2010
Authorized Signature — Date

Address: NYS DEC
Div. 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's *State Pollutant Discharge Elimination System ("SPDES")* is a NPDES-approved program with permits issued in accordance with the *Environmental Conservation Law ("ECL").*

This general permit ("permit") is issued pursuant to Article 17, Titles 7, 8 and Article 70 of the ECL. An *owner or operator* may obtain coverage under this permit by submitting a Notice of Intent ("NOI") to the Department. Copies of this permit and the NOI for New York are available by calling (518) 402-8109 or at any New York State Department of Environmental Conservation ("the Department") regional office (see Appendix G).They are also available on the Department's website at:

http://www.dec.ny.gov/

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 Article 17-0505 of the ECL, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. They 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 I. 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 (5000) square feet and one (1) acre of land.

B. Maintaining Water Quality - It shall be a violation of this permit and 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.

C. 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 D. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater discharges from *construction activities*.

(Part I. C)

3. Notwithstanding paragraphs C.1 and C.2 above, the following non-stormwater *discharges* may be authorized by this permit: discharges from fire fighting activities; fire hydrant flushings; waters to which cleansers or other components have not been added that are used to wash vehicles or control dust in accordance with the SWPPP, routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; uncontaminated groundwater or spring water; uncontaminated discharges from construction site de-watering operations; and foundation or footing drains where flows are not contaminated with process materials such as solvents. For those entities required to obtain coverage under this permit, and who discharge as noted in this paragraph, and with the exception of flows from fire fighting activities, these discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with water quality standards in Part I.B.

D. <u>Activities Which Are Ineligible for Coverage Under This General Permit</u> - All of the following are **<u>not</u>** authorized by this permit:

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

2. *Discharges* that are mixed with sources of non-stormwater other than those expressly authorized under subsection C.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, subparagraph K of this permit;

4. *Discharges* from *construction activities* that adversely affect a listed, or proposed to be listed, endangered or threatened species, or its critical habitat;

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 that:

    a. are tributary to waters of the state classified as AA or AA-s; and

(Part I. D. 6)

b. disturb one or more acres of land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey for the County in which the disturbance will occur.

7. *Construction activities* for linear transportation projects and linear utility projects that:
   a. are tributary to waters of the state classified as AA or AA-s; and

   b. disturb two or more acres of land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey for the County in which the disturbance will occur.

8. *Construction activities* that adversely affect a property that is listed or is eligible for listing on the State or National Register of Historic Places (Note: includes Archeological sites), unless there are written agreements in place with the NYS Office of Parks, Recreation and Historic Preservation (OPRHP) or other governmental agencies to mitigate the effects, or there are local land use approvals evidencing the same.

Part II. OBTAINING PERMIT COVERAGE

A. Notice of Intent (NOI) Submittal

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 develop a SWPPP in accordance with all applicable requirements of this permit and then submit a completed NOI form to the address below in order to be authorized to *discharge* under this permit. The NOI form shall be one which is associated with this permit, signed in accordance with Part VII.H. of this permit.

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

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 develop a SWPPP in accordance with all applicable requirements of this permit and then have its SWPPP reviewed and accepted by the *MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the "MS4 SWPPP Acceptance" form 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, and then submit that form along with the NOI to the address referenced under "Notice of Intent (NOI) Submittal".

(Part II. A)

3. This requirement does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.E. (Change of Owner or Operator).

4. 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.

5. 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.

B. <u>Permit Authorization</u>

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 <u>all</u> of the following criteria:

    a. project review pursuant to the State Environmental Quality Review Act (SEQRA) have been satisfied, when SEQRA is applicable,

    b. where required, all necessary Department permits subject to the *Uniform Procedures Act (UPA)* (see 6 NYCRR Part 621) 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 Regional Office 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. an 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.B.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

(Part II. B. 3)

a. For *construction activities* that are not 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 NOI for *construction activities* with a SWPPP that has been prepared in conformance with the technical standards referenced in Parts III.B.1, 2 and/or 3, or

ii. Sixty (60) business days from the date the Department receives a complete NOI for *construction activities* with a SWPPP that has not been prepared in conformance with the technical standards referenced in Parts III.B.1, 2 or 3.

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 a complete NOI and signed "MS4 SWPPP Acceptance" form,

4. The Department may suspend or deny an *owner's or operator's* coverage under this permit if the Department determines that the SWPPP does not meet the permit requirements.

5. 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.

C. 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.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-10-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form and inspection reports at the construction site until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department.

(Part II. C. 2)

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 MS4 (provided the 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. 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 been temporarily or permanently ceased, temporary and/or permanent soil stabilization measures shall be installed and/or implemented within seven (7) days from the date the soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control.

    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. 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.

(Part II. C)

5. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4,* the *owner or operator* shall notify the *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 *MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *MS4* prior to commencing construction of the post-construction stormwater management practice.

D. Permit Coverage for Discharges Authorized Under GP-0-08-001

1. Upon renewal of SPDES General Permit for Stormwater Discharges from Construction Activity (Permit No. GP-0-08-001), a*n owner or operator* of *construction activity* with coverage under GP-0-08-001, as of the effective date of GP-0-10-001, shall be authorized to *discharge* in accordance with GP-0-10-001 unless otherwise notified by the Department.

E. 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. 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.A.1.. 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.

   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. 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*.

(Part III. A)

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:

    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; and

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

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.

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.

(Part III. A. 6)

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 that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings. "

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.

8. The SWPPP must include documentation supporting the determination of permit eligibility with regard to Part I.D.8. (Historic Places or Archeological Resource). At a minimum, the supporting documentation shall include the following:

(Part III. A. 8)

a. Information on whether the stormwater discharge or *construction activities* would have an effect on a property (historic or archeological resource) that is listed or eligible for listing on the State or National Register of Historic Places;

b. Results of historic resources screening determinations conducted. Information regarding the location of historic places listed, or eligible for listing, on the State or National Registers of Historic Places and areas of archeological sensitivity that may indicate the need for a survey can be obtained online by viewing the New York State Office of Parks, Recreation and Historic Places (OPRHP) online resources located on their web site at: http://nysparks.state.ny.us/shpo/online-tools/ (using The Geographic Information System for Archeology and National Register). OPRHP can also be contacted at: NYS OPRHP, State Historic Preservation Office, Peebles Island Resources Center, P.O. Box 189, Waterford, NY 12188-0189, phone: 518-237-8643;

c. A description of measures necessary to avoid or minimize adverse impacts on places listed, or eligible for listing, on the State or National Register of Historic Places. If the *owner or operator* fails to describe and implement such measures, the stormwater *discharge* is ineligible for coverage under this permit; and

d. Where adverse effects may occur, any written agreements in place with OPRHP or other governmental agency to mitigate those effects, or local land use approvals evidencing the same.

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 most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control. Where erosion and sediment control practices are not designed in conformance with this 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;

(Part III. B. 1)

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), wetlands and drainage patterns that could be affected by the construction activity; existing and final slopes; 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 the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, 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;

(Part III. B. 1)

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6., 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 most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control;

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 requirements in the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control. 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 standards.

2. Post-construction stormwater management practice component - All construction projects 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 most current version of the technical standard, New York State Stormwater Management Design Manual ("Design Manual"). If the Design Manual is revised during the term of this permit, an *owner or operator* must begin using the revised version of the Design Manual to prepare their SWPPP six (6) months from the final revision date of the Design Manual.

   Where post-construction stormwater management practices are not designed in conformance with this technical standard, the *owner or operator* must demonstrate equivalence to the technical standard.

   At a minimum, 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;

(Part III. B. 2)

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

c. The dimensions, material specifications and installation details for each post-construction stormwater management practice;

d. Identification of any elements of the design that are not in conformance with the Design Manual. 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 standards;

e. A hydrologic and hydraulic analysis for all structural components of the stormwater management control system;

f. A detailed summary (including calculations) of the sizing criteria that was used to design all post-construction stormwater management practices. At a minimum, the summary shall address the required design criteria from the applicable chapter of the Design Manual; including the identification of and justification for any deviations from the Design Manual, and identification of any design criteria that are not required based on the design criteria or waiver criteria included in the Design Manual; and

g. 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 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.g. above.

(Part III. C)

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. *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.

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 and all post-construction stormwater management practices identified in the SWPPP are maintained in effective operating condition at all times.

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. Owner or Operator Maintenance Inspection Requirements

1. The *owner or operator* shall inspect, in accordance with the requirements in the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, the erosion and sediment controls identified in the SWPPP to ensure that they are being maintained in effective operating condition at all times.

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 *owner or operator* can stop conducting the maintenance inspections. The *owner or operator* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *owner or operator* 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.

(Part IV. C)

C. <u>Qualified Inspector Inspection Requirements</u> - 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. **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),
- 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, <u>with the exception of</u>:

    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 <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> 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 <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> 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 (5000) 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.

(Part IV. C. 2)

b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.C.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 Regional Office stormwater contact person (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the MS4 (provided the 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 Regional Office stormwater contact person (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the MS4 (provided the 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.A.1..

(Part IV. C. 3)

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices 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 that need repair or maintenance;

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

    h. Description and sketch of areas that are disturbed 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 to correct deficiencies identified with the construction of the post-construction stormwater management practice(s); and

k. 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 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.C.2., 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.A.1. The NOT form shall be one which is associated with this general permit, signed in accordance with Part VII.H.

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

(Part V. A. 2)

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.E.

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 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.

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 also have the MS4 sign the "MS4 Acceptance" statement on the NOT. The *owner or operator* shall have the principal executive officer, ranking elected official, or duly authorized representative from the *regulated, traditional land use control MS4*, sign the "MS4 Acceptance" statement. The 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 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.3.

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:

(Part V. A. 5)

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 modified their deed of record to include a deed covenant that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan,

d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, college, university), or government agency or authority, 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 OF 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 site achieves *final stabilization*. This period may be extended by the Department, in its sole discretion, at any time upon written notification.

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.A.1), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate Department 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.

(Part VII. A)

The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

B. Continuation of the Expired General Permit - This permit expires five (5) years from the effective date. However, coverage may be obtained under the expired general permit, which will continue in force and effect, until a new general permit is issued. Unless otherwise notified by the Department in writing, an *owner or operator* seeking authorization under the new general permit must submit a new NOI in accordance with the terms of such new general permit.

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 make available to the Department for review and copying or furnish to the Department within five (5) business days of receipt of a Department request for such information, any information requested for the purpose of determining compliance with this permit. This can include, but is not limited to, the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form, executed maintenance agreement, and inspection reports. Failure to provide information requested by the Department within the request timeframe shall be a violation 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 the NOI, SWPPP or inspection reports. 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 other report, 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. 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. <u>Signatory Requirements</u>

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

(Part VII. H. 1. c)

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. 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.;

   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. <u>Property Rights</u> - 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. <u>Severability</u> - 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.

(Part VII. K)
K. <u>Denial of Coverage Under This Permit</u>

1. At its sole discretion, 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 Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Regional Water Engineer, 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. Any *owner or operator* authorized by this permit may request to be excluded from the coverage under this permit by applying for an individual permit or another general permit. In such cases, the *owner or operator* shall submit an individual application or an alternative general permit application in accordance with the requirements of this general permit, 40 CFR 122.26(c)(1)(ii) and 6 NYCRR Part 621, with reasons supporting the request, to the Department at the address for the appropriate Department Office (see addresses in Appendix F).The request may be granted by issuance of an individual permit or another general permit at the discretion of the Department.

3. 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. <u>Proper Operation and Maintenance</u> - 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. <u>Inspection and Entry</u> - The *owner or operator* shall allow the Department or an authorized representative of EPA, the State, 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:

(Part VII. M)

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).

N. Permit Actions - At the Department's sole discretion, this permit may, at any time, be modified, suspended, revoked, or renewed. 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. 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 – Article 17 of the ECL provides for a civil penalty of $37,500 per day per violation of this permit. Articles 175 and 210 of the New York State Penal Law provide for a criminal penalty of a fine and/or imprisonment for falsifying forms and reports required by this permit.

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

Definitions

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.

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.

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

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 authorizing a category of discharges.

Groundwater - 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.

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.

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) application, 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.

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).

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.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the construction activity is occurring; and/or an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications.

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 Parts 700 et seq of this Title.

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, 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 in order to prepare a SWPPP that conforms to the Department's technical standard. 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.

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is required to gain coverage under New York State DEC's SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s).

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,
- Stream bank restoration projects (does not include the placement of spoil material),
- 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 makes 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.

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.

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 or underground 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.

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 sources. 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 sources, 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, 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* will be 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 and 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 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
- Bike paths and trails
- Sidewalk construction projects that are not part of a road/ highway construction or reconstruction project
- Slope stabilization projects
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics
- Spoil areas that will be covered with vegetation
- Land clearing and grading for the purposes of creating vegetated open space (i.e. recreational parks, lawns, meadows, fields), 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 less than five acres and construction activities that include the construction or reconstruction of impervious area

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 (5000) square feet and one (1) acre of land.

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 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 townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- 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, includes hospitals, prisons, schools and colleges
- Industrial facilities, includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW's and water treatment plants
- Office complexes
- Sports complexes
- Racetracks, includes racetracks with earthen (dirt) surface
- Road construction or reconstruction
- Parking lot construction or reconstruction
- 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 or other linear utility project
- All other construction activities that include the construction or reconstruction of *impervious area* and *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

APPENDIX C

Watersheds Where Enhanced Phosphorus Removal Standards Are Required

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

Figure 1 - New York City Watershed East of the Hudson

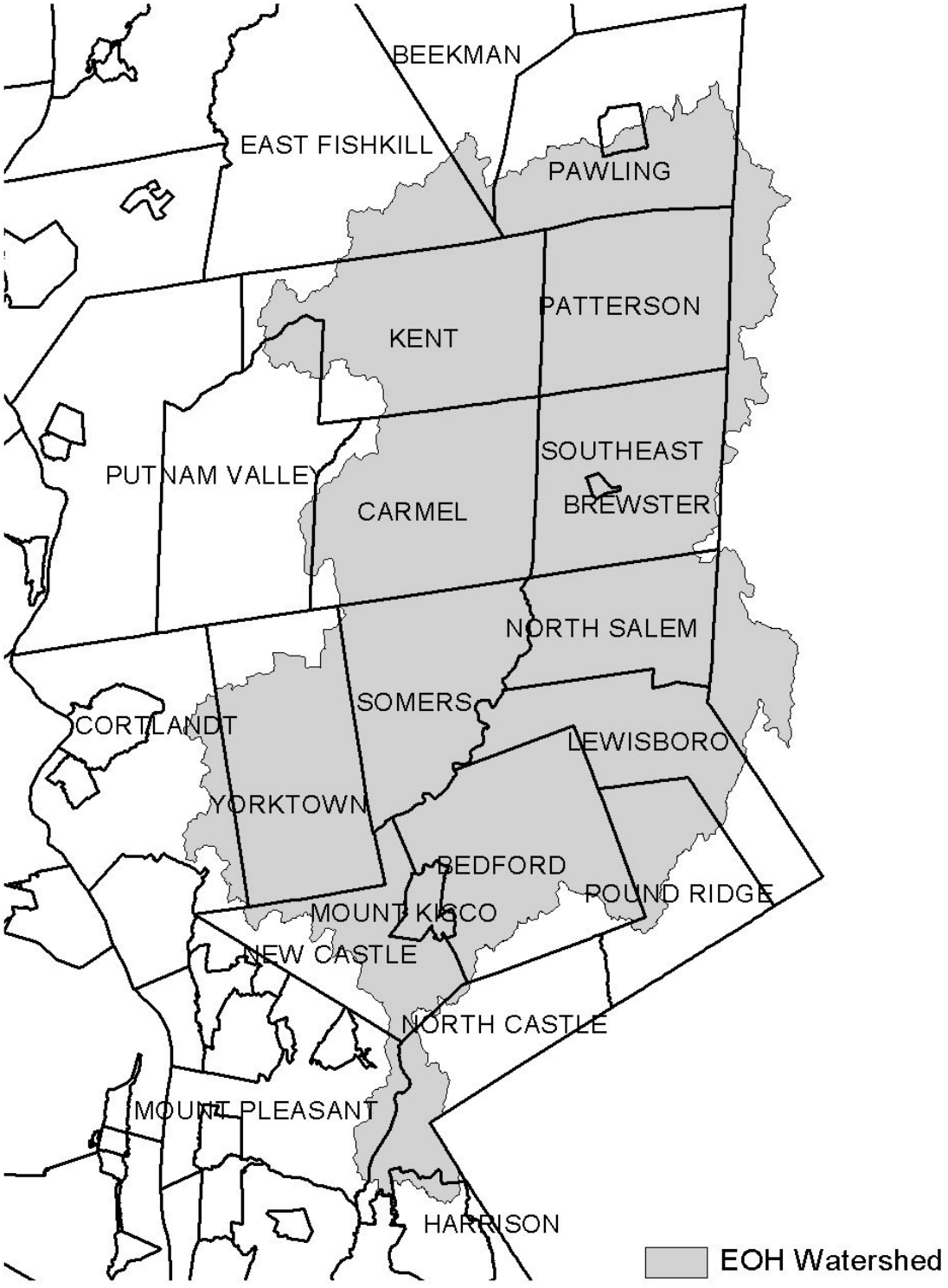
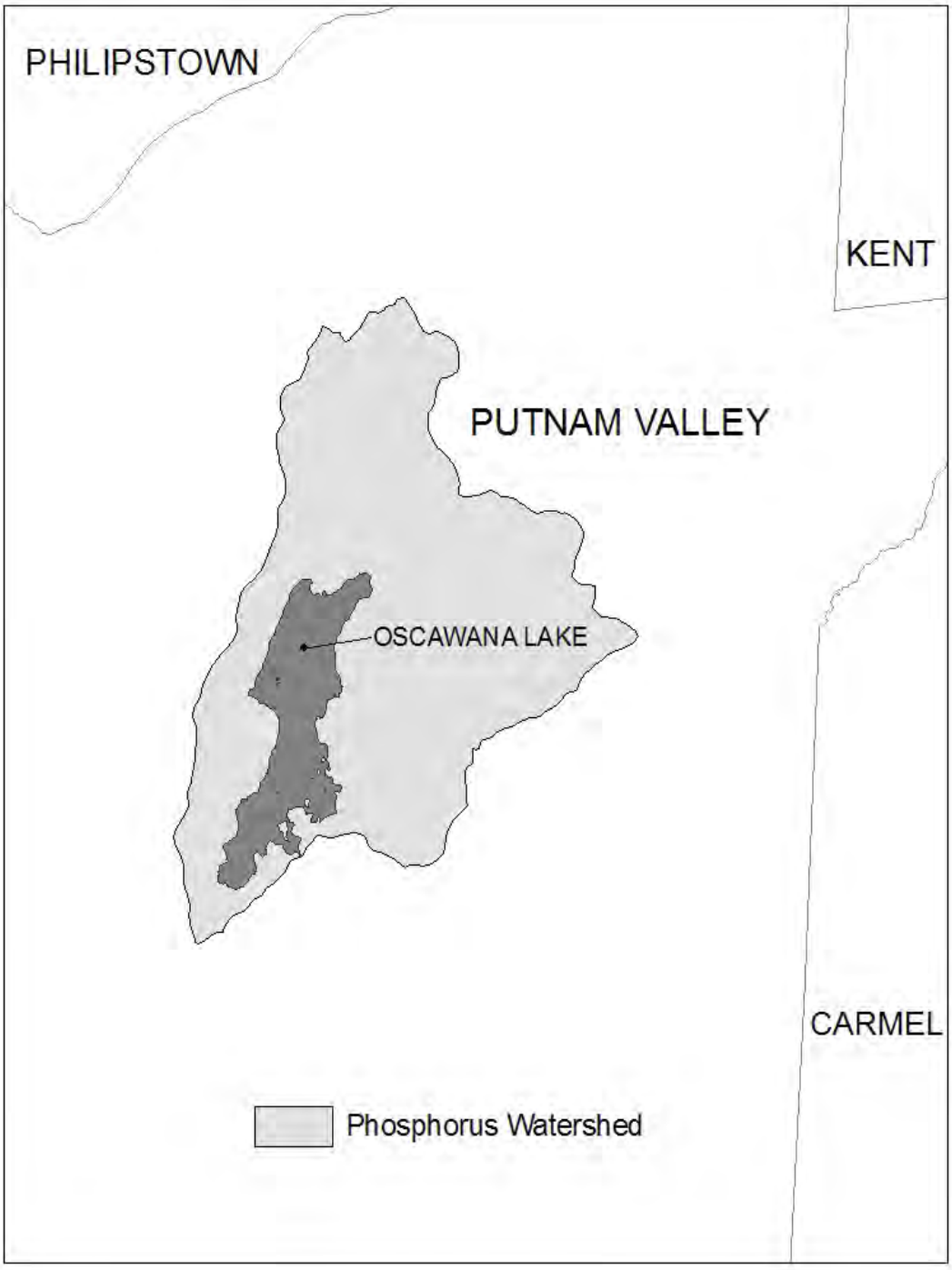


Figure 2 - Onondaga Lake Watershed

Figure 3 - Greenwood Lake Watershed

Figure 4 - Oscawana Lake Watershed



APPENDIX D

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

List of 303(d) segments impaired by pollutants related to construction activity (e.g. silt, sediment or nutrients). *Owners or operators* of single family home and single family residential subdivision construction activities 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 most current version of the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

COUNTY	WATERBODY
Albany	Ann Lee (Shakers) Pond, Stump Pond
Albany	Basic Creek Reservoir
Bronx	Van Cortlandt Lake
Broome	Whitney Point Lake/Reservoir
Broome	Beaver Lake
Broome	White Birch Lake
Chautauqua	Chautauqua Lake, North
Chautauqua	Chautauqua Lake, South
Chautauqua	Bear Lake
Chautauqua	Chadakoin River and tribs
Chautauqua	Lower Cassadaga Lake
Chautauqua	Middle Cassadaga Lake
Chautauqua	Findley Lake
Clinton	Great Chazy River, Lower, Main Stem
Columbia	Kinderhook Lake
Columbia	Robinson Pond
Dutchess	Hillside Lake
Dutchess	Wappinger Lakes
Dutchess	Fall Kill and tribs
Dutchess	Rudd Pond
Erie	Rush Creek and tribs
Erie	Ellicott Creek, Lower, and tribs
Erie	Beeman Creek and tribs
Erie	Murder Creek, Lower, and tribs
Erie	South Branch Smoke Cr, Lower, and tribs
Erie	Little Sister Creek, Lower, and tribs
Essex	Lake George (primary county listed as Warren)
Genesee	Black Creek, Upper, and minor tribs
Genesee	Tonawanda Creek, Middle, Main Stem
Genesee	Tonawanda Creek, Upper, and minor tribs
Genesee	Little Tonawanda Creek, Lower, and tribs
Genesee	Oak Orchard Creek, Upper, and tribs
Genesee	Bowen Brook and tribs
Genesee	Bigelow Creek and tribs
Greene	Schoharie Reservoir
Greene	Sleepy Hollow Lake
Herkimer	Steele Creek tribs
Kings	Hendrix Creek
Lewis	Mill Creek/South Branch and tribs
Livingston	Conesus Lake
Livingston	Jaycox Creek and tribs
Livingston	Mill Creek and minor tribs
Monroe	Genesee River, Lower, Main Stem
Monroe	Genesee River, Middle, Main Stem
Monroe	Black Creek, Lower, and minor tribs
Monroe	Buck Pond
Monroe	Long Pond
Monroe	Cranberry Pond
Monroe	Mill Creek and tribs
Monroe	Shipbuilders Creek and tribs
Monroe	Minor tribs to Irondequoit Bay
Monroe	Thomas Creek/White Brook and tribs
Nassau	Glen Cove Creek, Lower, and tribs
Nassau	LI Tribs (fresh) to East Bay
Nassau	East Meadow Brook, Upper, and tribs
Nassau	Hempstead Bay
Nassau	Hempstead Lake
Nassau	Grant Park Pond
Niagara	Bergholtz Creek and tribs
Oneida	Ballou, Nail Creeks
Onondaga	Ley Creek and tribs
Onondaga	Onondaga Creek, Lower and tribs
Onondaga	Onondaga creek, Middle and tribs
Onondaga	Onondaga Creek, Upper, and minor tribs
Onondaga	Harbor Brook, Lower, and tribs
Onondaga	Ninemile Creek, Lower, and tribs
Onondaga	Minor tribs to Onondaga Lake
Ontario	Honeoye Lake
Ontario	Hemlock Lake Outlet and minor tribs
Ontario	Great Brook and minor tribs
Oswego	Lake Neatahwanta
Putnam	Oscawana Lake
Putnam	Lake Carmel
Queens	Jamaica Bay, Eastern, and tribs (Queens)
Queens	Bergen Basin
Queens	Shellbank Basin
Rensselaer	Snyders Lake
Richmond	Grasmere, Arbutus and Wolfes Lakes
Saratoga	Dwaas Kill and tribs
Saratoga	Tribs to Lake Lonely
Saratoga	Lake Lonely
Saratoga	Schuyler Creek and tribs
Schenectady	Collins Lake

APPENDIX E

List of 303(d) segments impaired by pollutants related to construction activity, cont'd.

COUNTY	WATERBODY	COUNTY	WATERBODY
Schoharie	Engleville Pond		
Schoharie	Summit Lake		
St. Lawrence	Black Lake Outlet/Black Lake		
Steuben	Lake Salubria		
Steuben	Smith Pond		
Suffolk	Millers Pond		
Suffolk	Mattituck (Marratooka) Pond		
Suffolk	Tidal tribs to West Moriches Bay		
Suffolk	Canaan Lake		
Suffolk	Lake Ronkonkoma		
Tompkins	Cayuga Lake, Southern End		
Tompkins	Owasco Inlet, Upper, and tribs		
Ulster	Ashokan Reservoir		
Ulster	Esopus Creek, Upper, and minor tribs		
Warren	Lake George		
Warren	Tribs to L.George, Village of L George		
Warren	Huddle/Finkle Brooks and tribs		
Warren	Indian Brook and tribs		
Warren	Hague Brook and tribs		
Washington	Tribs to L.George, East Shore of Lake George		
Washington	Cossayuna Lake		
Wayne	Port Bay		
Wayne	Marbletown Creek and tribs		
Westchester	Peach Lake		
Westchester	Mamaroneck River, Lower		
Westchester	Mamaroneck River, Upper, and minor tribs		
Westchester	Sheldrake River and tribs		
Westchester	Blind Brook, Lower		
Westchester	Blind Brook, Upper, and tribs		
Westchester	Lake Lincolndale		
Westchester	Lake Meahaugh		
Wyoming	Java Lake		
Wyoming	Silver Lake		

Note: The list above identifies those waters from the final New York State "2008 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy", dated May 26, 2008, that are impaired by silt, sediment or nutrients.

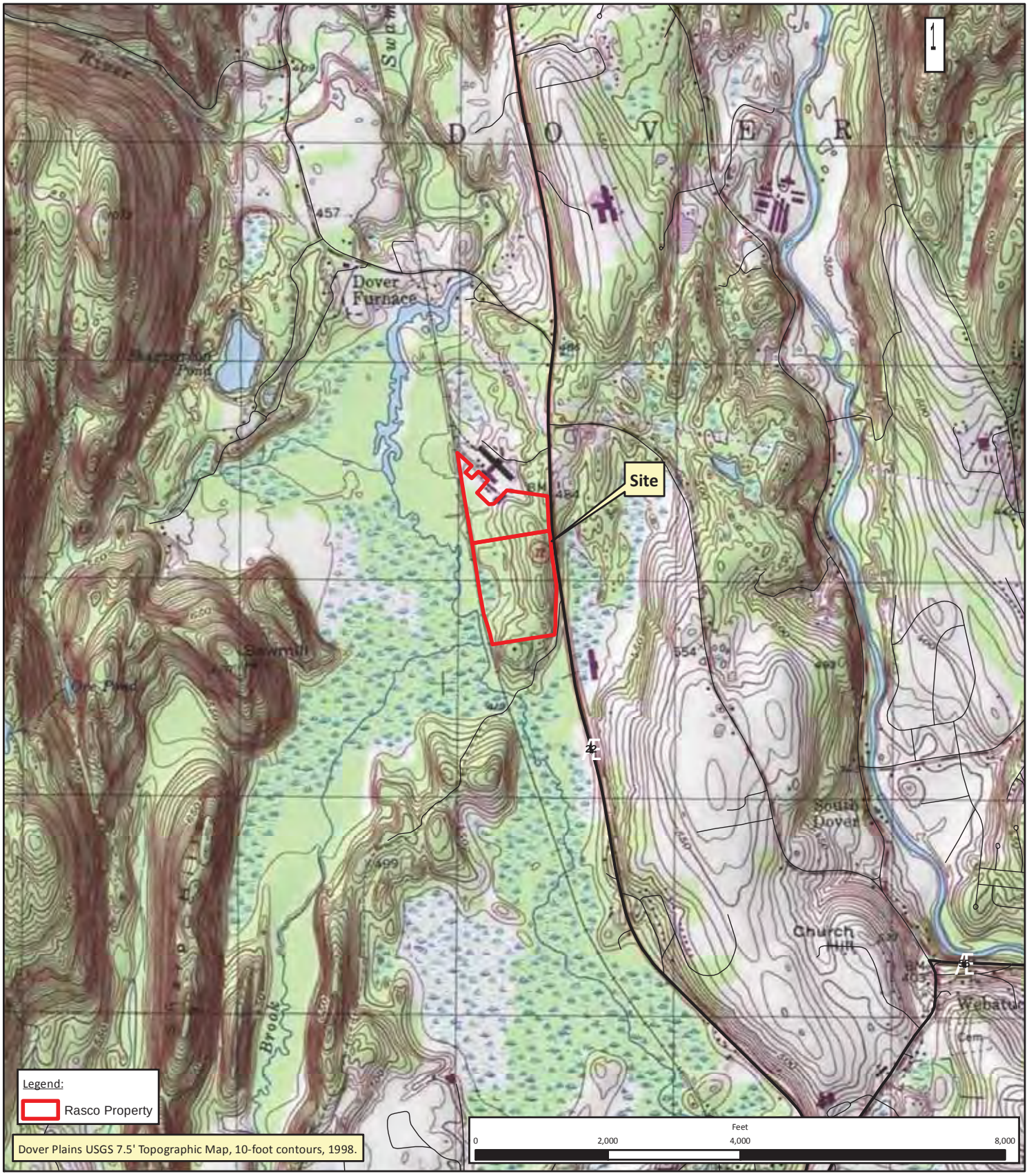
APPENDIX F

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, PO BOX 220 WARRENSBURG, NY 12885-0220 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 ROAD AVON, 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 AVE. BUFFALO, NY 14203-2999 TEL. (716) 851-7070

Appendix B: Figures

Figure 1:
Site Location Map



THE Chazen COMPANIES
ENGINEERS/SURVEYORS
PLANNERS
ENVIRONMENTAL SCIENTISTS
LANDSCAPE ARCHITECTS

Dutchess County Office:
21 Fox Street, Poughkeepsie, NY 12601
Phone: (845) 454-3980

Capital District Office:
547 River Street, Troy, NY 12180
Phone: (518) 273-0055

Glens Falls Office:
100 Glen Street, Glens Falls, NY 12801
Phone: (518) 812-0513

Cricket Valley Energy: Rasco Property

Location Map

State Route 22
Town of Dover
Dutchess County, New York

Drawn:	CLC/SCP
Date:	03/15/2012
Scale:	1 inch = 2,000 feet
Project:	81001.01
Figure:	1

Map Document: (R:\8\81000-81999\81001_01_CricketValleyEnergy\GIS\maps\81001_01_Rasco_LocationMap_8x11.mxd)
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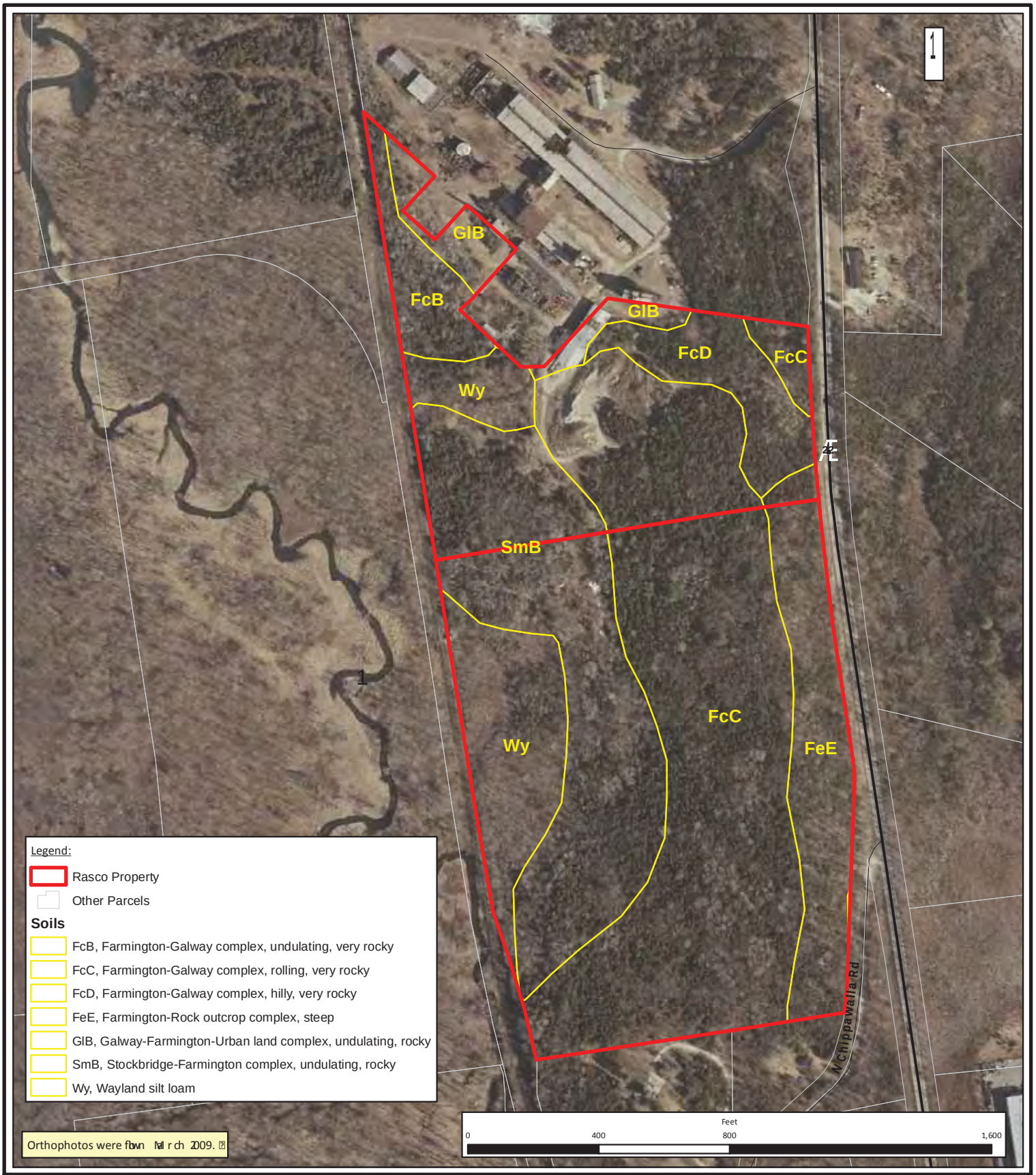
Figure 2:
Site Soils Map



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Cricket Valley Energy: Rasco Property

Soils

State Route 22
Town of Dover
Dutchess County, New York

Drawn:	CLC/SCP
Date:	03/15/2012
Scale:	1 inch = 400 feet
Project:	81001.01
Figure:	2

Map Document: (R:\$\81000-81999\81001_01_CricketValleyEnergy\GIS\maps\81001_01_Rasco_SoilsMap_8x11.mxd)
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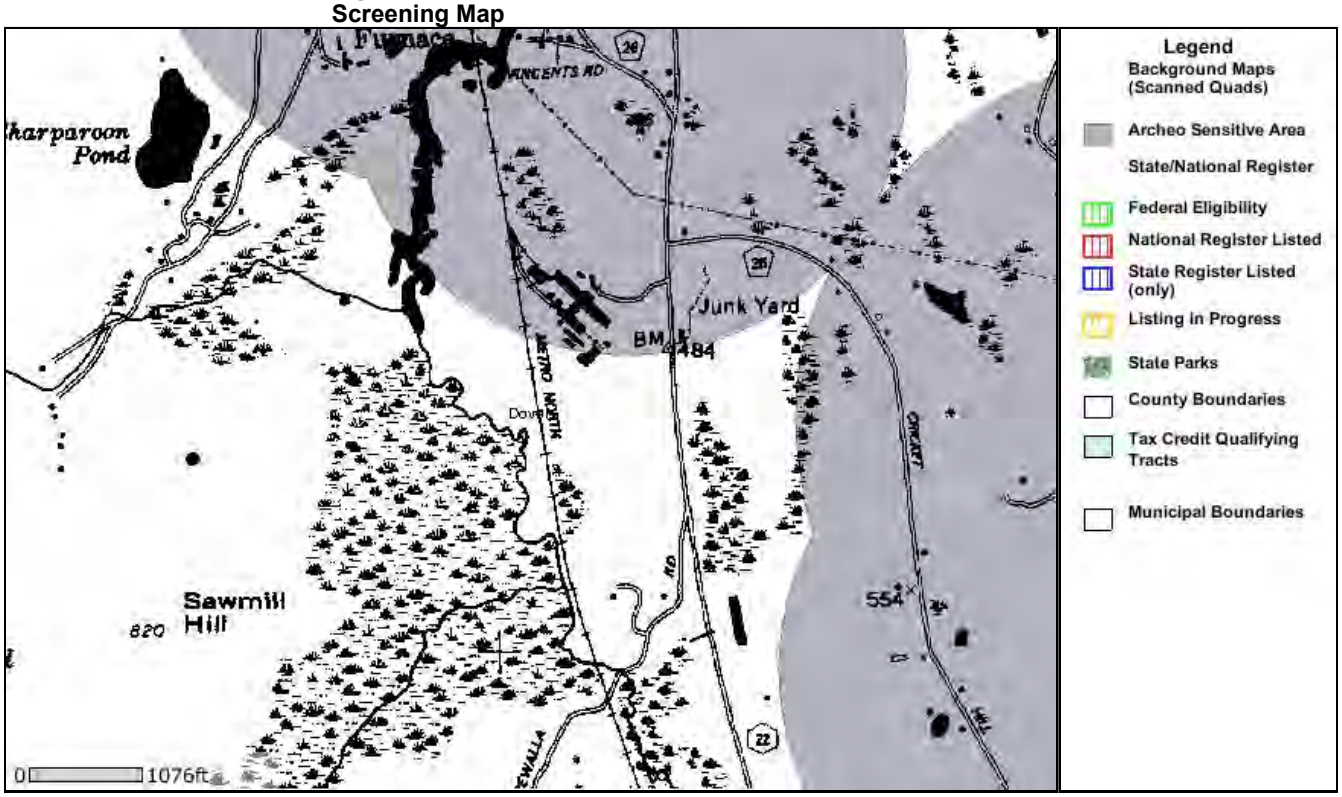
Figure 3:
Historic Places Screening Map

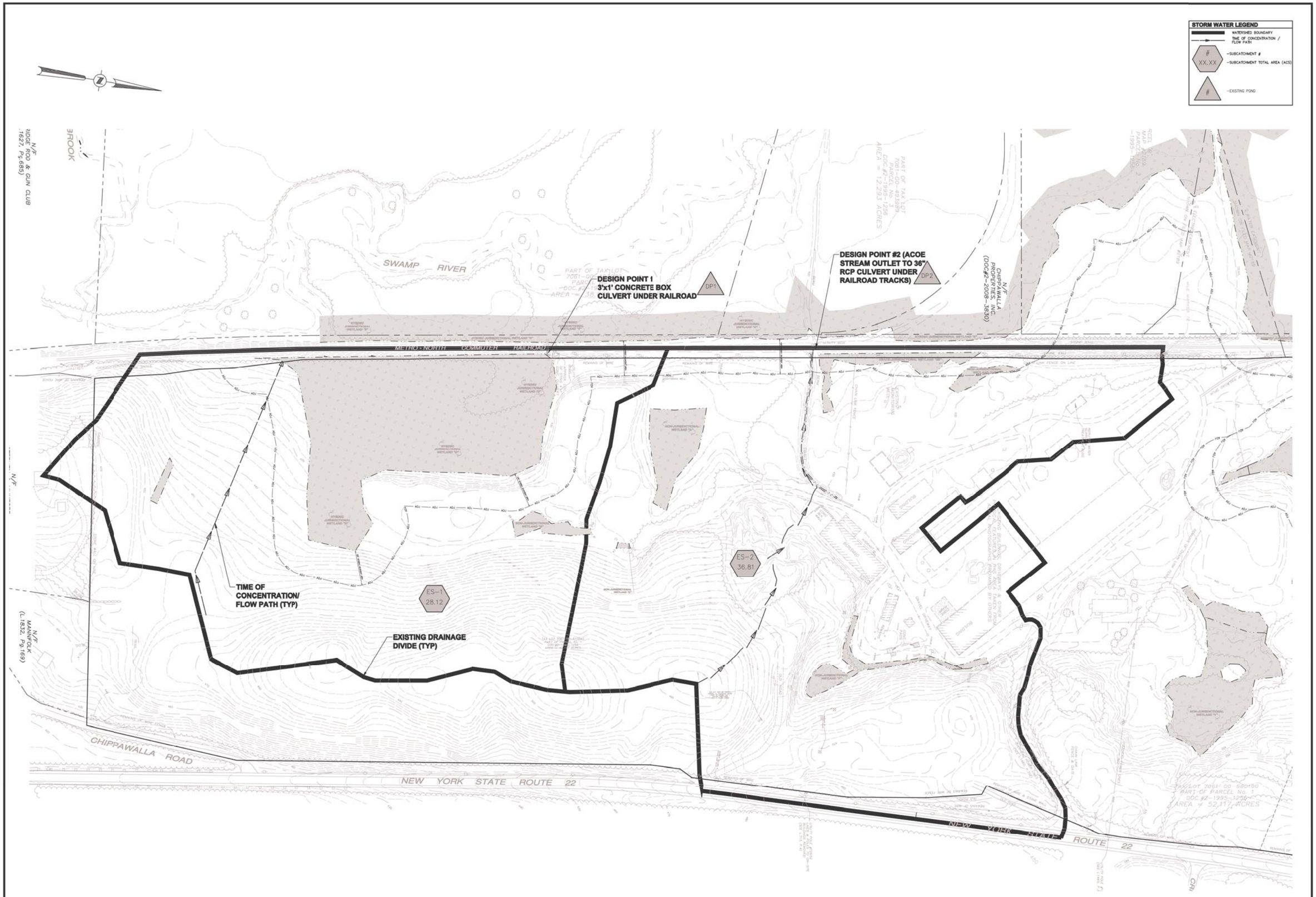
Figure 3 - Historical Places Screening Map



February 17, 2012

Disclaimer: This map was prepared by the New York State Parks, Recreation and Historic Preservation National Register Listing Internet Application. The information was compiled using the most current data available. It is deemed accurate, but is not guaranteed.

Figure 4:
Pre-Development Watershed Delineation Map



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THE Chazen COMPANIES
Engineers/Surveyors
Planners
Environmental Scientists
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Capital District Office: 547 River Street, Troy, New York 12180, Phone: (518) 273-0055
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rev.	date	description

CRICKET VALLEY ENERGY
ON-SITE CONSTRUCTION LAYDOWN & PARKING AREA (FORMER RASCO PARCEL)

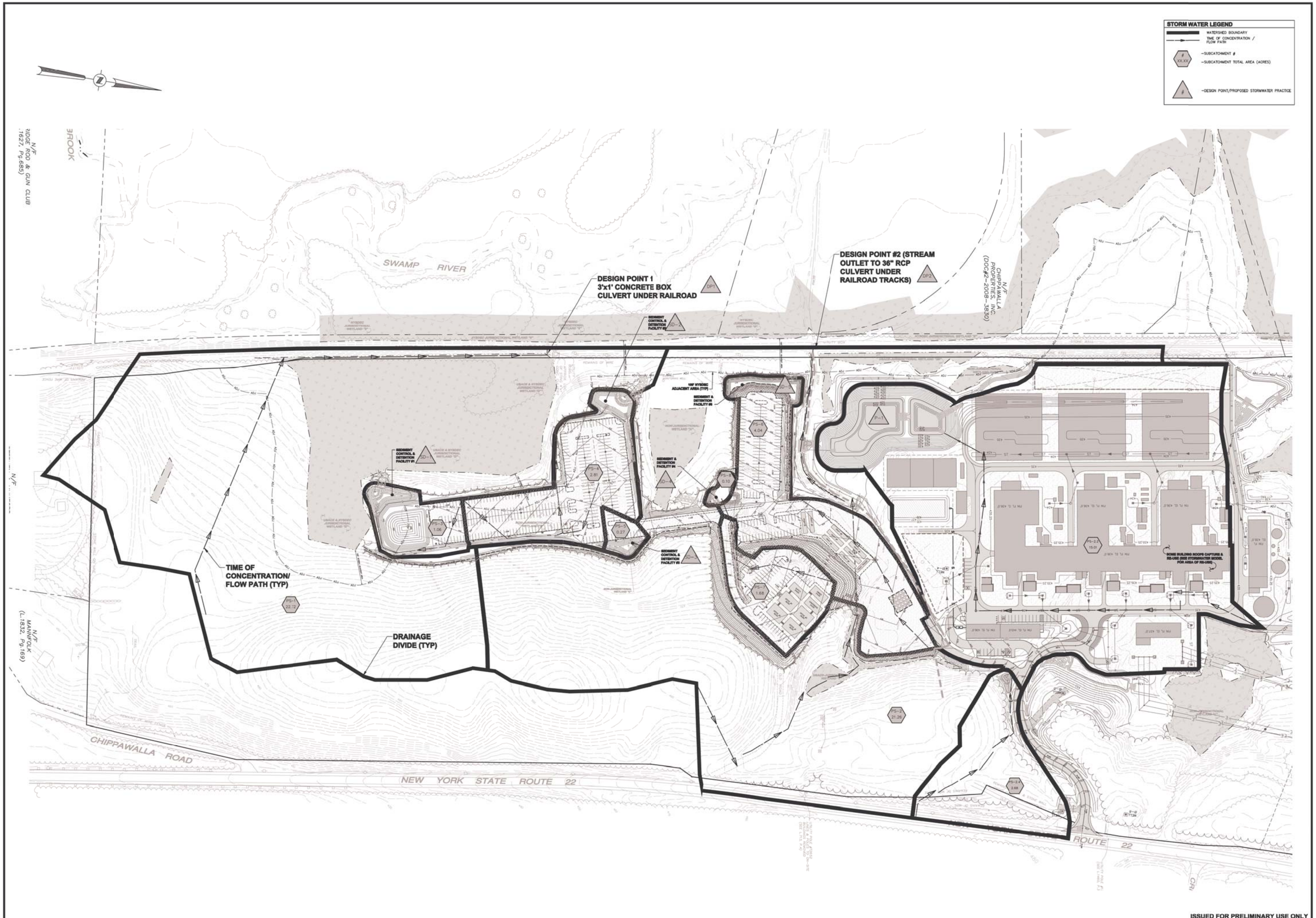
FIGURE 4
PRE-DEVELOPMENT WATERSHED MAP

NYS ROUTE 22, TOWN OF DOVER PLAINS, DUTCHESS COUNTY, NEW YORK

drawn: MMF	checked: CL
date: 02/24/12	scale: 1"=80'
project no.: 81001.01	
sheet no.: FIG. 4	

Drawing Name: S:\81001-81099\81001.01\ENGDWG-RASCO\10-FIG-4_81001-01_PRE-DEVEL.dwg
Last Saved By: MMF on 02/24/12
Date Printed: Mar 02, 2012, 8:34am

Figure 5:
Construction Phase Watershed Delineation Map



ISSUED FOR PRELIMINARY USE ONLY

PROJECT NAME
CRICKET VALLEY ENERGY – ON-SITE CONSTRUCTION LAYDOWN & PARKING AREA (FORMER RASCO PARCEL)

DEVELOPER
CRICKET VALLEY ENERGY CENTER, LLC.

OWNER OF RECORD
HOWLANDS LAKE PARTNERS, LLC
P.O. BOX 285
MOUNT KISCO, NEW YORK 10549

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rev.	date	description

CRICKET VALLEY ENERGY
ON-SITE CONSTRUCTION LAYDOWN & PARKING AREA (FORMER RASCO PARCEL)

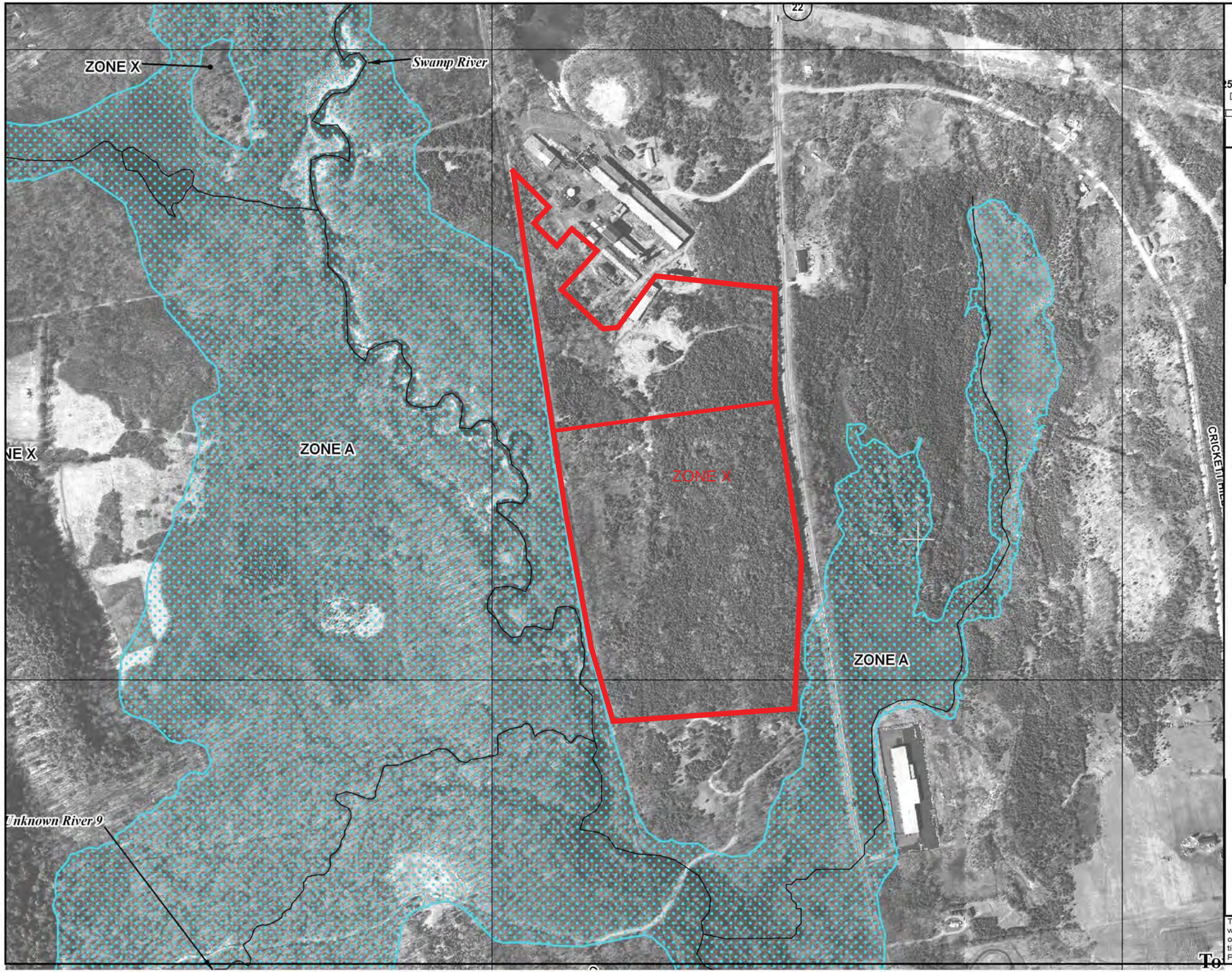
FIGURE 5
POST-DEVELOPMENT WATERSHED MAP

NYS ROUTE 22, TOWN OF DOVER PLAINS, DUTCHESS COUNTY, NEW YORK

drawn	checked
MMF	CL
date 02/24/12	scale 1"=80'
project no. 81001.01	
sheet no. FIG. 5	

81001.01

Figure 6:
FEMA Floodzone Map



MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0437E

FIRM

FLOOD INSURANCE RATE MAP

for DUTCHESS COUNTY, NEW YORK
(ALL JURISDICTIONS)

CONTAINS:

COMMUNITY	NUMBER
DOVER, TOWN OF	361335

PANEL 437 OF 602
MAP SUFFIX: E
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

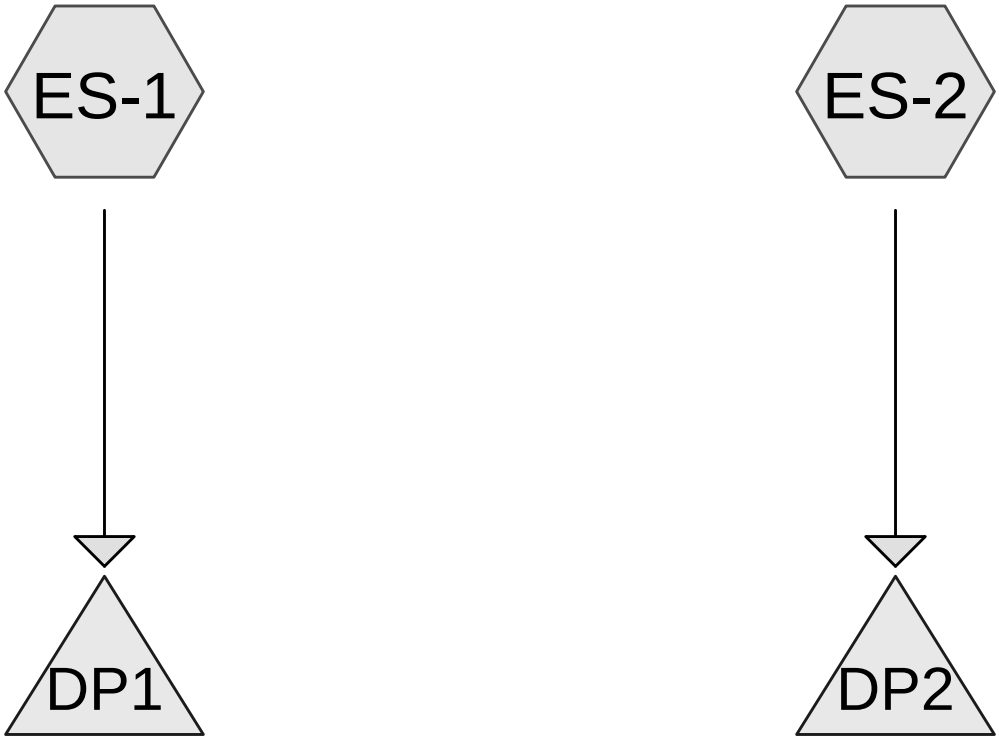
MAP NUMBER
36027C0437E

EFFECTIVE DATE
MAY 2, 2012

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Appendix C:
Pre-Development Stormwater Modeling



DESIGN POINT 1
(3'x1' CONC. BOX CULVERT)

DESIGN POINT 2
(36" RCP CULVERT)

Subcat Reach Pond Link

Drainage Diagram for 81001-01 CVE-RASCO - EXISTING CONDITIONS MODEL
Prepared by THE CHAZEN COMPANIES, Printed 3/2/2012
HydroCAD® 9.00 s/n 00927 © 2009 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.473	56	Brush, Fair, HSG B (ES-2)
1.120	60	Woods, Fair, HSG B (ES-2)
0.696	70	Brush, Fair, HSG C (ES-1, ES-2)
44.999	73	Woods, Fair, HSG C (ES-1, ES-2)
4.701	76	Gravel/Brush Mix, HSG B (ES-2)
1.356	77	Brush, Fair, HSG D (ES-1)
1.471	77	Woods, Good, HSG D (ES-2)
0.218	79	<50% Grass cover, Poor, HSG B (ES-2)
2.943	79	Woods, Fair, HSG D (ES-1)
4.292	89	Gravel roads, HSG C (ES-2)
0.141	91	Gravel roads, HSG D (ES-2)
2.516	98	Paved parking and buildings HSG C (ES-2)
64.927		**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Goup	Subcatchment Numbers
0.000	HSG A	
6.512	HSG B	ES-2
52.503	HSG C	ES-1, ES-2
5.912	HSG D	ES-1, ES-2
0.000	Other	
64.927		**TOTAL AREA**

Summary for Subcatchment ES-1:

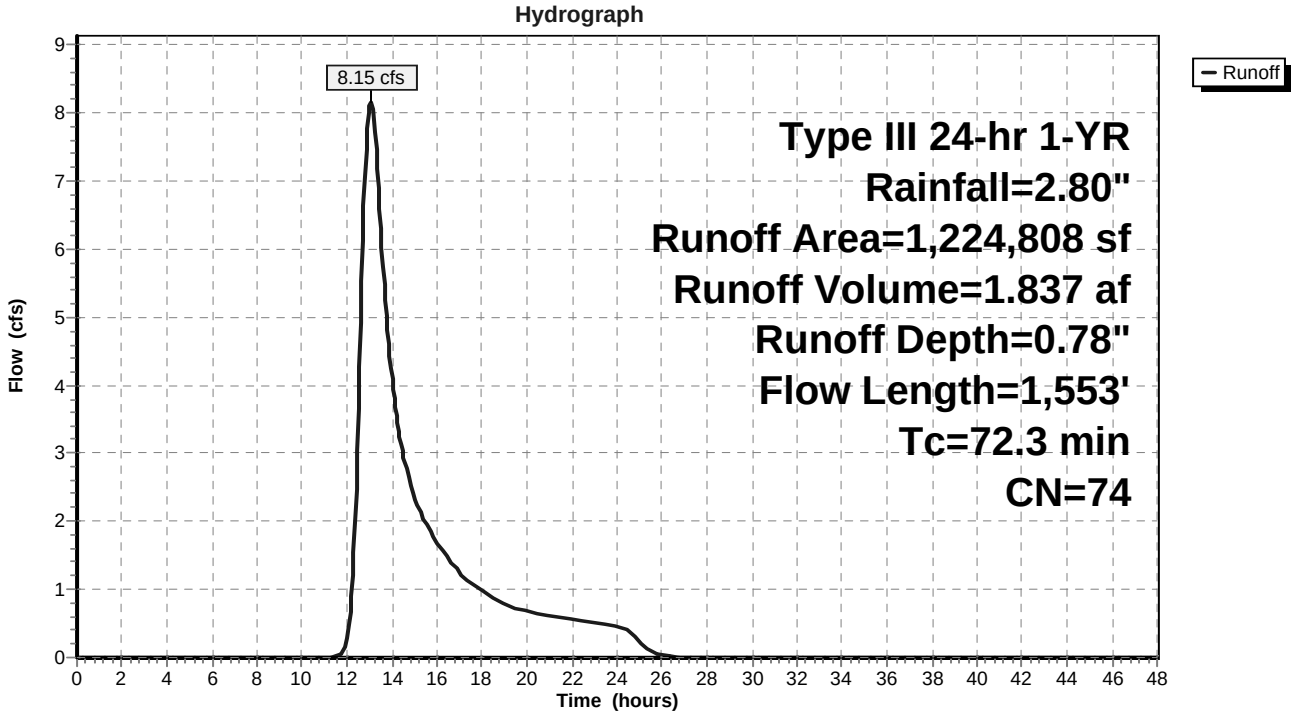
Runoff = 8.15 cfs @ 13.07 hrs, Volume= 1.837 af, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
17,027	70	Brush, Fair, HSG C
1,020,489	73	Woods, Fair, HSG C
128,203	79	Woods, Fair, HSG D
59,089	77	Brush, Fair, HSG D
1,224,808	74	Weighted Average
1,224,808		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
47.2	100	0.0100	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.2	80	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.1	593	0.0780	1.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	780	0.0030	0.82		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
72.3	1,553	Total			

Subcatchment ES-1:



Summary for Subcatchment ES-2:

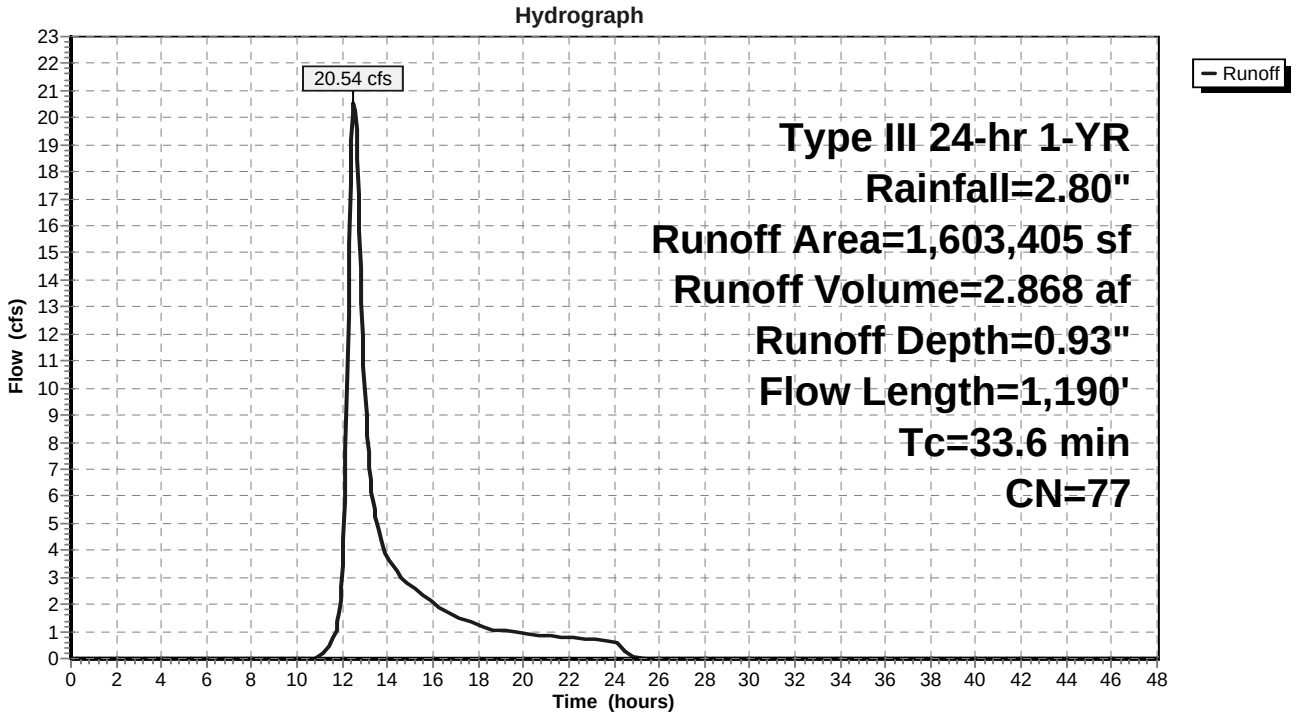
Runoff = 20.54 cfs @ 12.51 hrs, Volume= 2.868 af, Depth= 0.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-YR Rainfall=2.80"

	Area (sf)	CN	Description
	20,604	56	Brush, Fair, HSG B
	48,799	60	Woods, Fair, HSG B
	186,960	89	Gravel roads, HSG C
	13,281	70	Brush, Fair, HSG C
	939,678	73	Woods, Fair, HSG C
*	109,604	98	Paved parking and buildings HSG C
	64,079	77	Woods, Good, HSG D
*	204,772	76	Gravel/Brush Mix, HSG B
	6,151	91	Gravel roads, HSG D
	9,477	79	<50% Grass cover, Poor, HSG B
	1,603,405	77	Weighted Average
	1,493,801		93.16% Pervious Area
	109,604		6.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.0	100	0.0600	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.4	250	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	430	0.0800	1.98		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.6	410	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
33.6	1,190	Total			

Subcatchment ES-2:

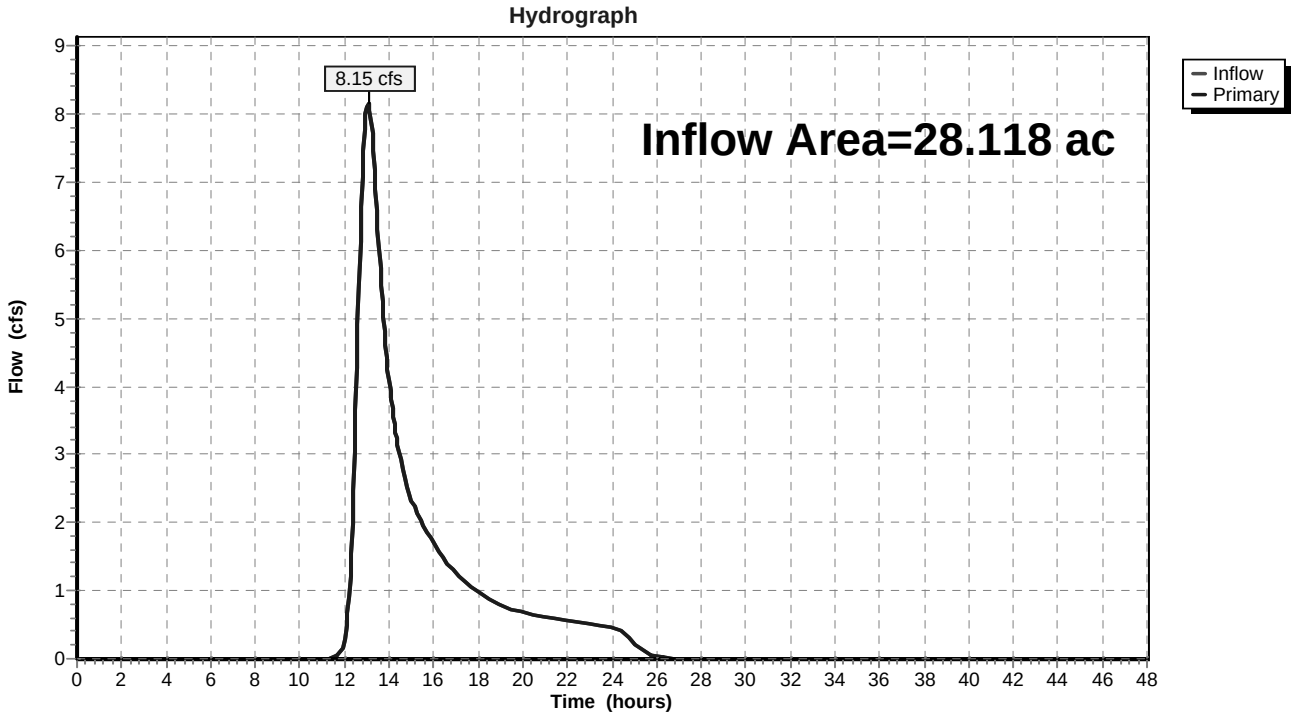


Summary for Pond DP1: DESIGN POINT 1 (3'x1' CONC. BOX CULVERT)

Inflow Area = 28.118 ac, 0.00% Impervious, Inflow Depth = 0.78" for 1-YR event
Inflow = 8.15 cfs @ 13.07 hrs, Volume= 1.837 af
Primary = 8.15 cfs @ 13.07 hrs, Volume= 1.837 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Pond DP1: DESIGN POINT 1 (3'x1' CONC. BOX CULVERT)

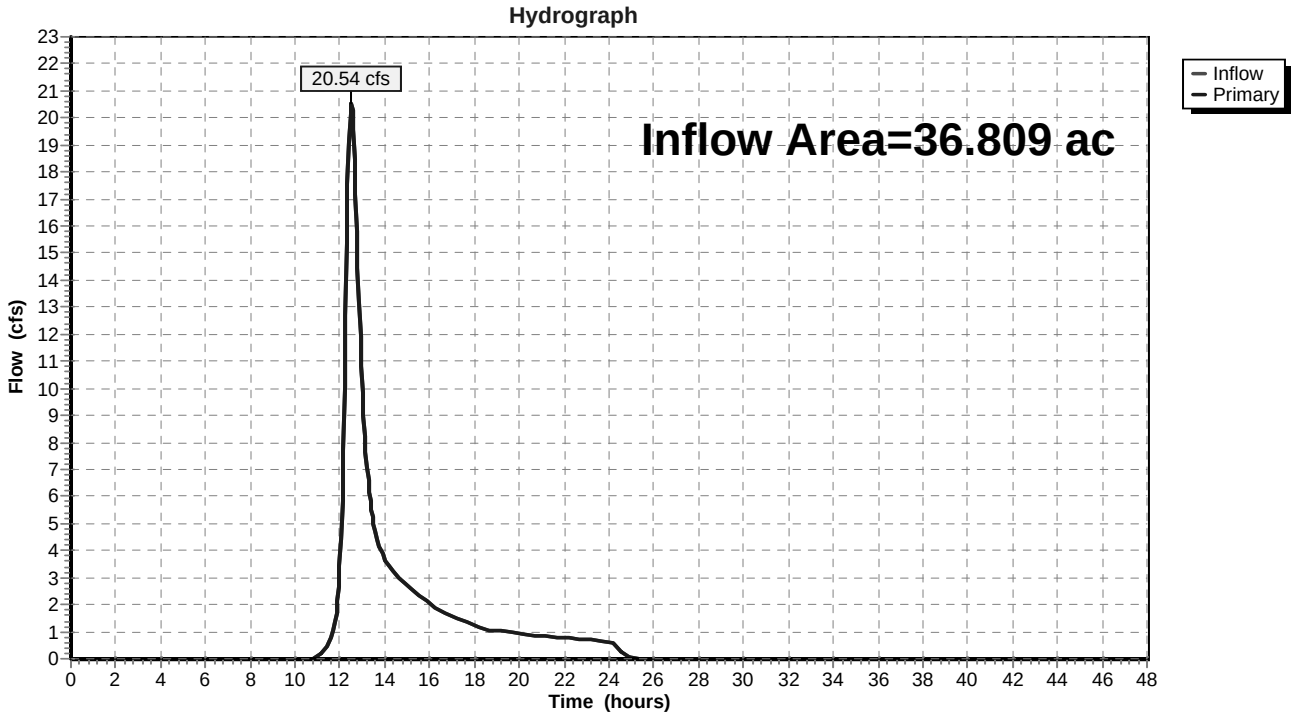


Summary for Pond DP2: DESIGN POINT 2 (36" RCP CULVERT)

Inflow Area = 36.809 ac, 6.84% Impervious, Inflow Depth = 0.93" for 1-YR event
Inflow = 20.54 cfs @ 12.51 hrs, Volume= 2.868 af
Primary = 20.54 cfs @ 12.51 hrs, Volume= 2.868 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Pond DP2: DESIGN POINT 2 (36" RCP CULVERT)



Summary for Subcatchment ES-1:

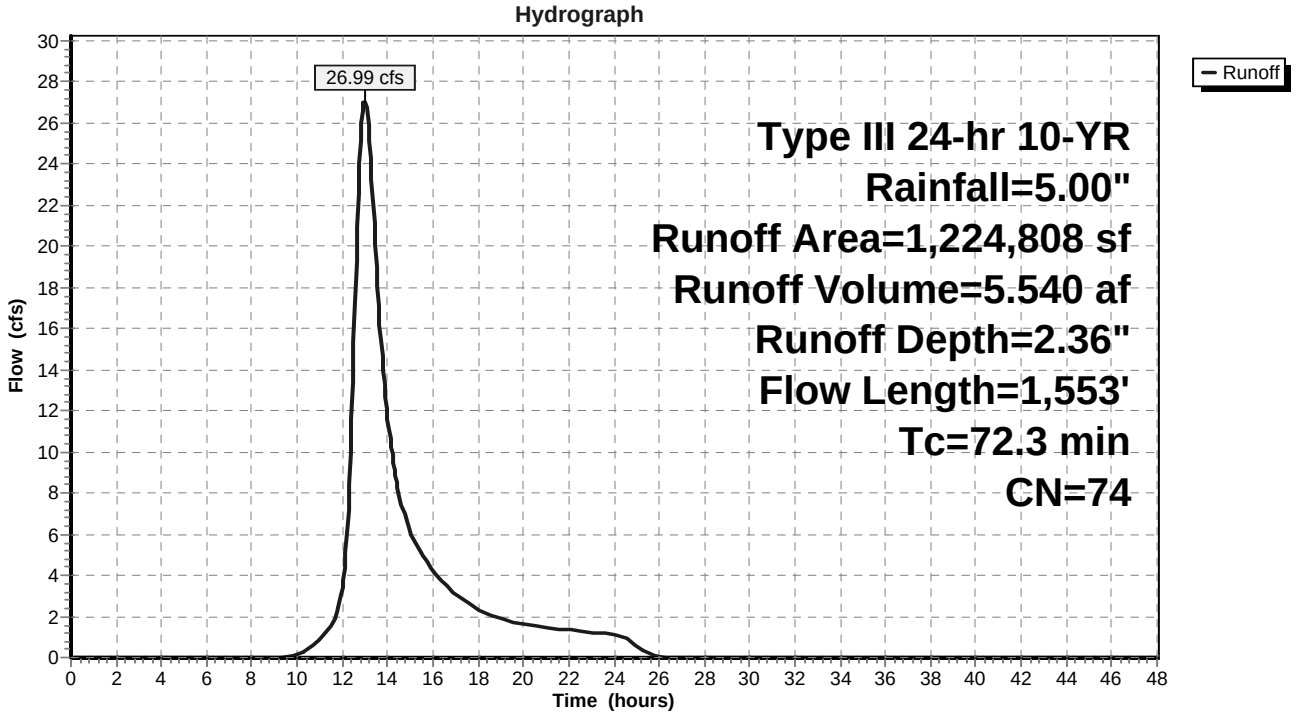
Runoff = 26.99 cfs @ 12.98 hrs, Volume= 5.540 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=5.00"

Area (sf)	CN	Description
17,027	70	Brush, Fair, HSG C
1,020,489	73	Woods, Fair, HSG C
128,203	79	Woods, Fair, HSG D
59,089	77	Brush, Fair, HSG D
1,224,808	74	Weighted Average
1,224,808		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
47.2	100	0.0100	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.2	80	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.1	593	0.0780	1.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	780	0.0030	0.82		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
72.3	1,553	Total			

Subcatchment ES-1:



Summary for Subcatchment ES-2:

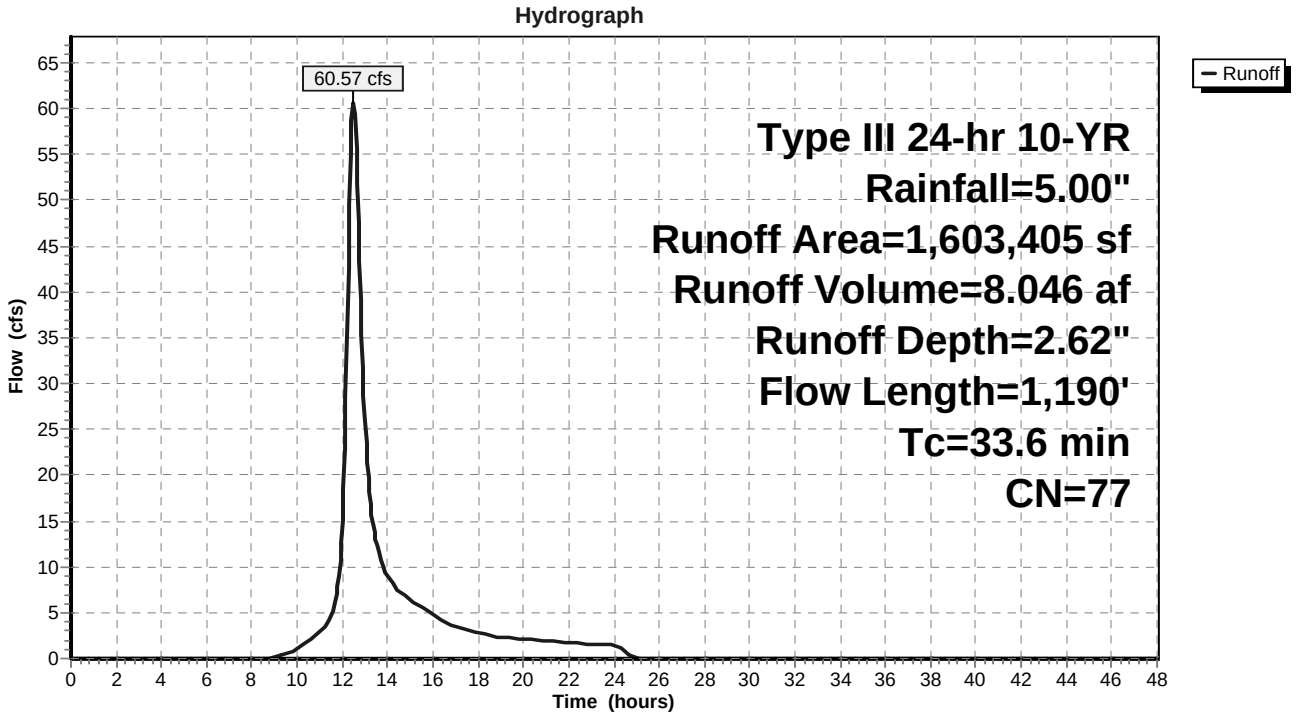
Runoff = 60.57 cfs @ 12.47 hrs, Volume= 8.046 af, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=5.00"

	Area (sf)	CN	Description
	20,604	56	Brush, Fair, HSG B
	48,799	60	Woods, Fair, HSG B
	186,960	89	Gravel roads, HSG C
	13,281	70	Brush, Fair, HSG C
	939,678	73	Woods, Fair, HSG C
*	109,604	98	Paved parking and buildings HSG C
	64,079	77	Woods, Good, HSG D
*	204,772	76	Gravel/Brush Mix, HSG B
	6,151	91	Gravel roads, HSG D
	9,477	79	<50% Grass cover, Poor, HSG B
	1,603,405	77	Weighted Average
	1,493,801		93.16% Pervious Area
	109,604		6.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.0	100	0.0600	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.4	250	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	430	0.0800	1.98		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.6	410	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
33.6	1,190	Total			

Subcatchment ES-2:

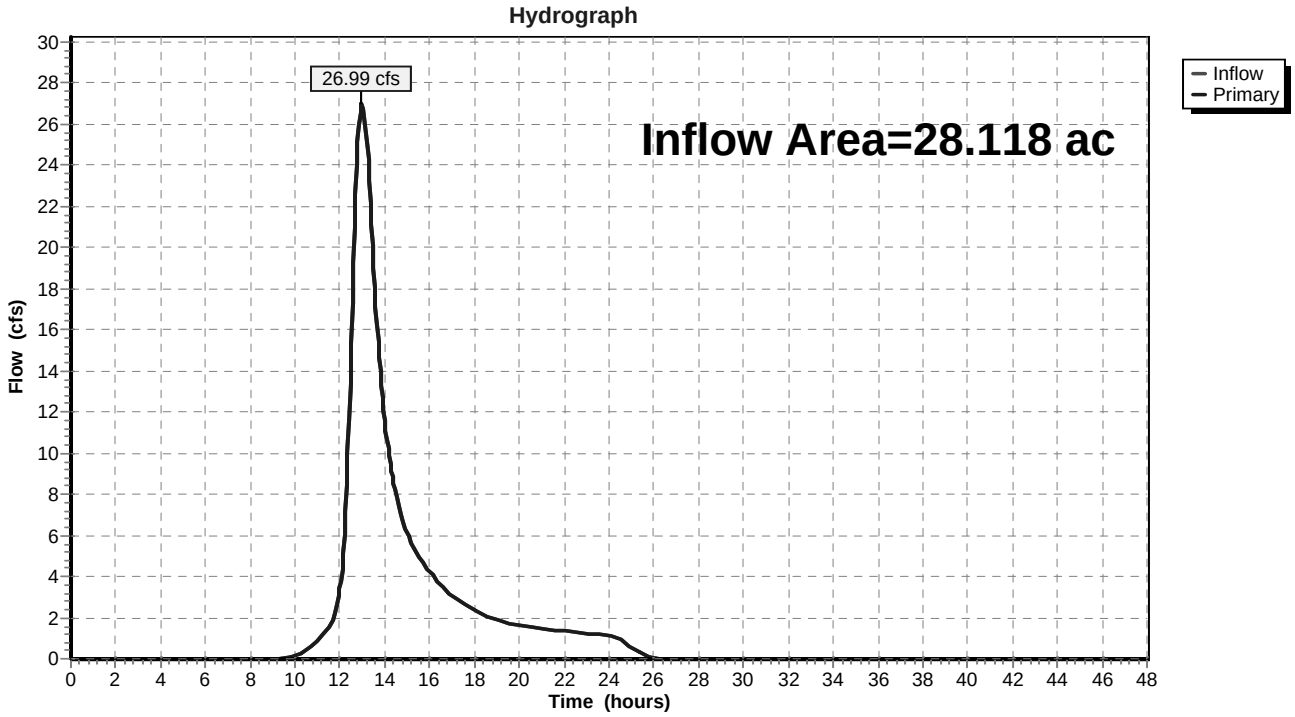


Summary for Pond DP1: DESIGN POINT 1 (3'x1' CONC. BOX CULVERT)

Inflow Area = 28.118 ac, 0.00% Impervious, Inflow Depth = 2.36" for 10-YR event
Inflow = 26.99 cfs @ 12.98 hrs, Volume= 5.540 af
Primary = 26.99 cfs @ 12.98 hrs, Volume= 5.540 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Pond DP1: DESIGN POINT 1 (3'x1' CONC. BOX CULVERT)

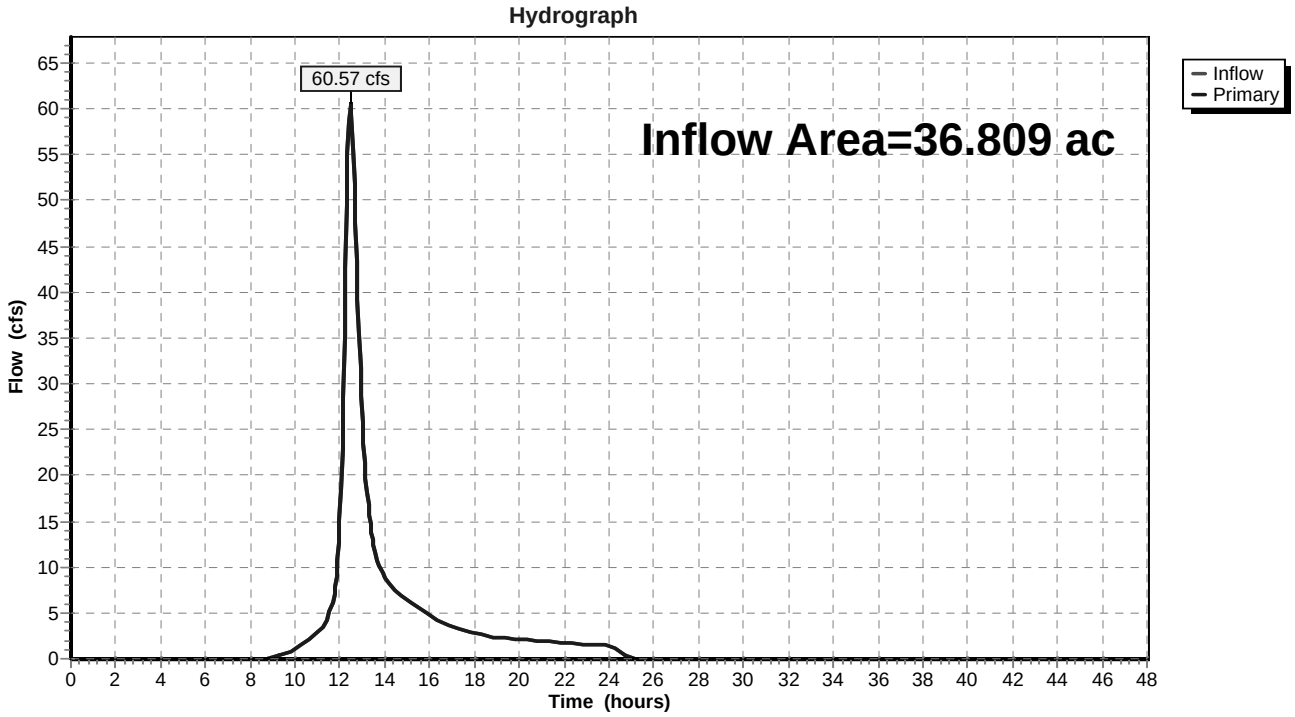


Summary for Pond DP2: DESIGN POINT 2 (36" RCP CULVERT)

Inflow Area = 36.809 ac, 6.84% Impervious, Inflow Depth = 2.62" for 10-YR event
Inflow = 60.57 cfs @ 12.47 hrs, Volume= 8.046 af
Primary = 60.57 cfs @ 12.47 hrs, Volume= 8.046 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Pond DP2: DESIGN POINT 2 (36" RCP CULVERT)



Summary for Subcatchment ES-1:

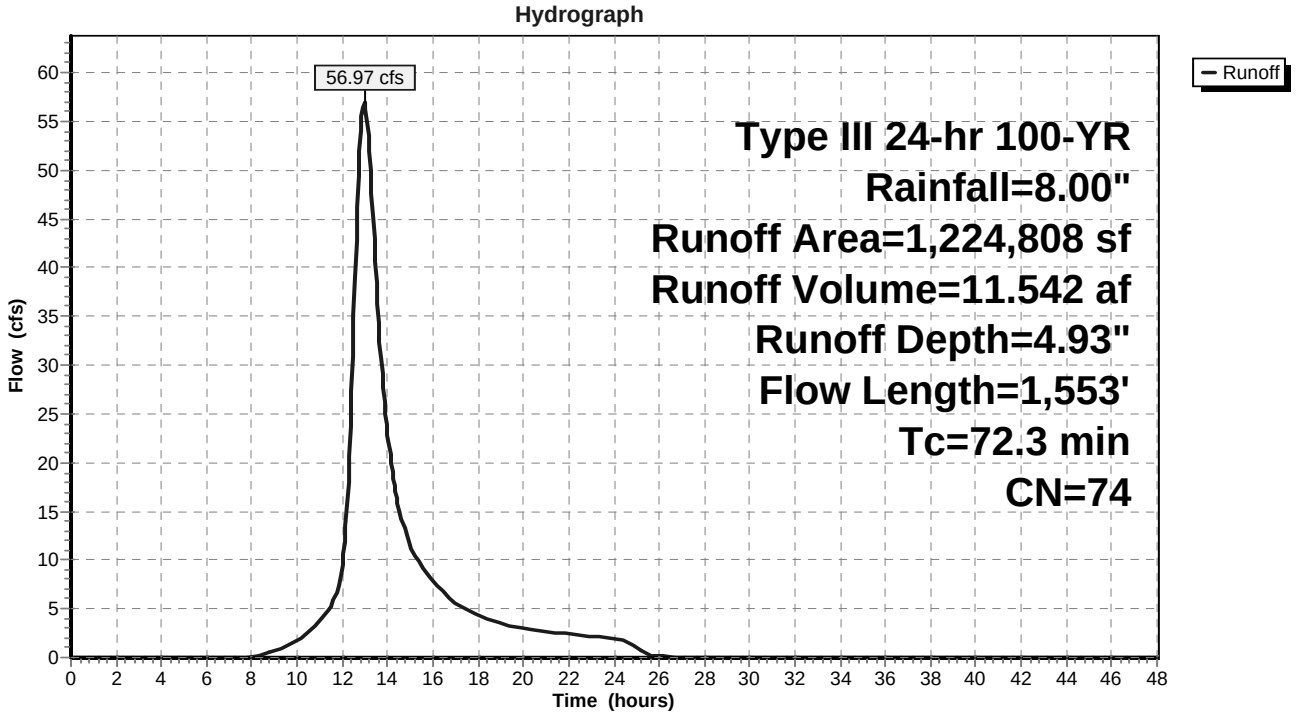
Runoff = 56.97 cfs @ 12.96 hrs, Volume= 11.542 af, Depth= 4.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=8.00"

Area (sf)	CN	Description
17,027	70	Brush, Fair, HSG C
1,020,489	73	Woods, Fair, HSG C
128,203	79	Woods, Fair, HSG D
59,089	77	Brush, Fair, HSG D
1,224,808	74	Weighted Average
1,224,808		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
47.2	100	0.0100	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.2	80	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.1	593	0.0780	1.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	780	0.0030	0.82		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
72.3	1,553	Total			

Subcatchment ES-1:



Summary for Subcatchment ES-2:

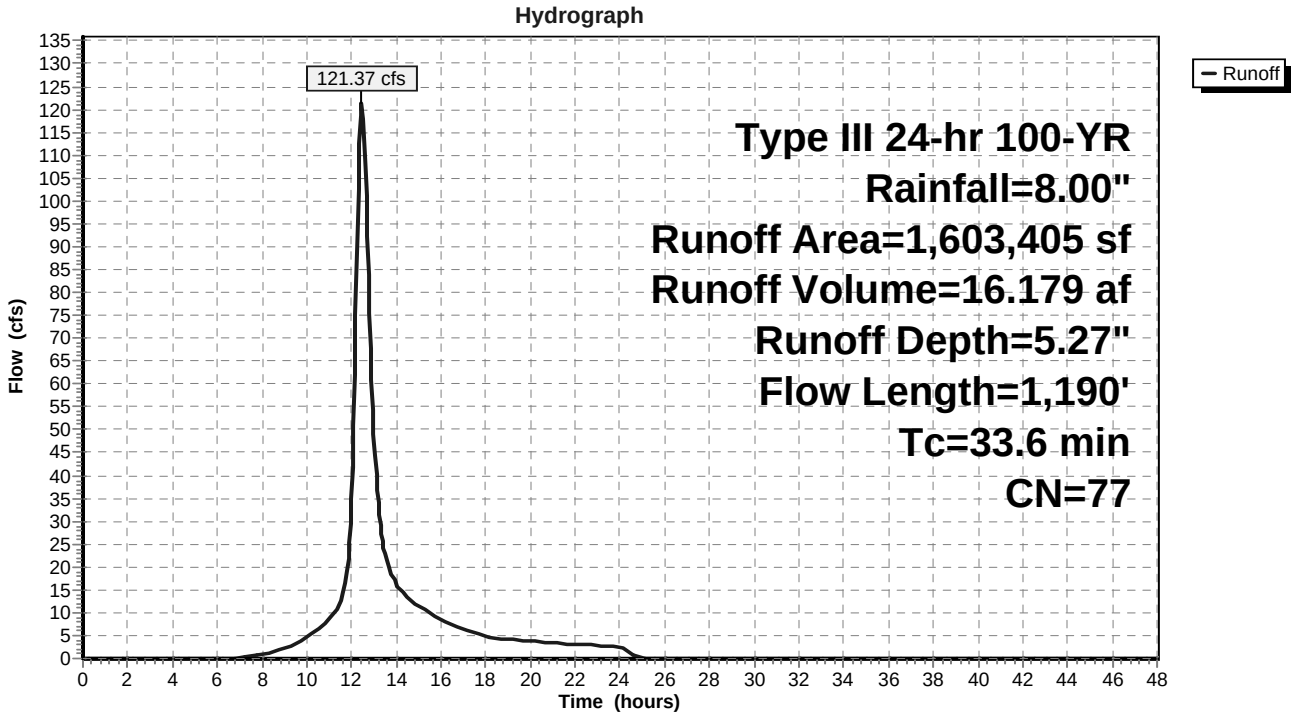
Runoff = 121.37 cfs @ 12.46 hrs, Volume= 16.179 af, Depth= 5.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=8.00"

	Area (sf)	CN	Description
	20,604	56	Brush, Fair, HSG B
	48,799	60	Woods, Fair, HSG B
	186,960	89	Gravel roads, HSG C
	13,281	70	Brush, Fair, HSG C
	939,678	73	Woods, Fair, HSG C
*	109,604	98	Paved parking and buildings HSG C
	64,079	77	Woods, Good, HSG D
*	204,772	76	Gravel/Brush Mix, HSG B
	6,151	91	Gravel roads, HSG D
	9,477	79	<50% Grass cover, Poor, HSG B
	1,603,405	77	Weighted Average
	1,493,801		93.16% Pervious Area
	109,604		6.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.0	100	0.0600	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.4	250	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	430	0.0800	1.98		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.6	410	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
33.6	1,190	Total			

Subcatchment ES-2:

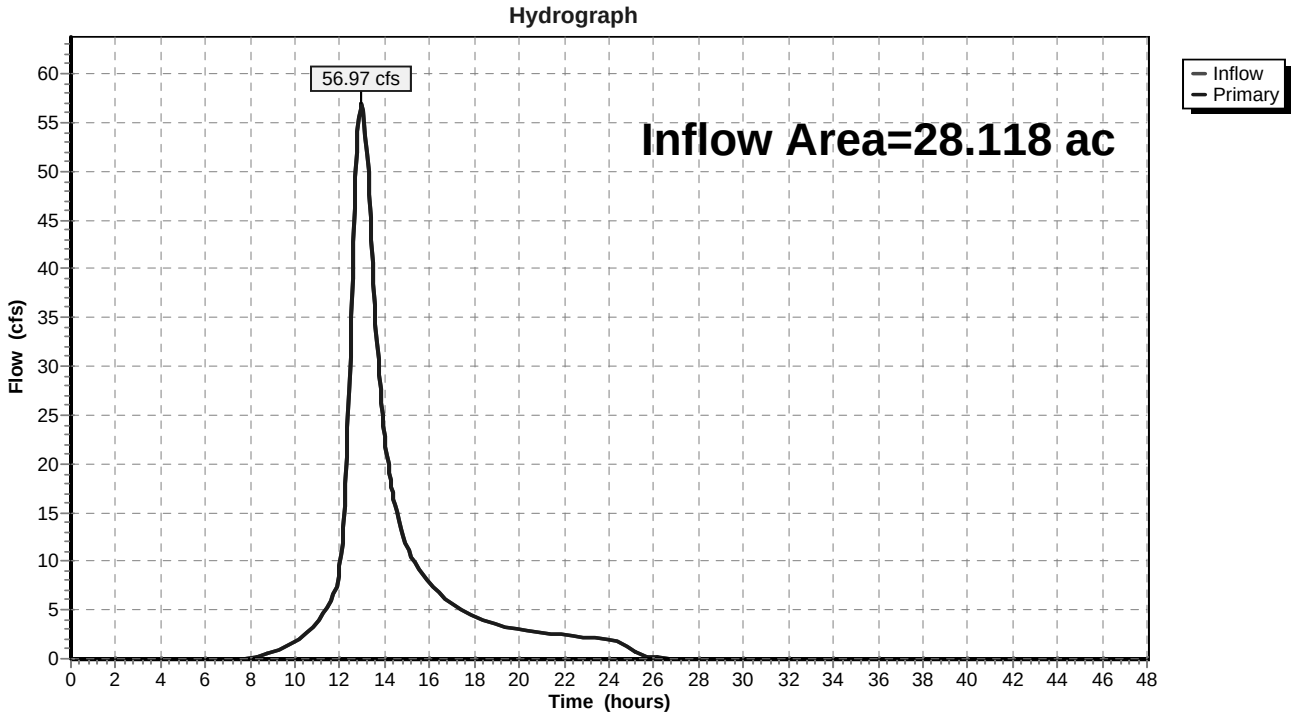


Summary for Pond DP1: DESIGN POINT 1 (3'x1' CONC. BOX CULVERT)

Inflow Area = 28.118 ac, 0.00% Impervious, Inflow Depth = 4.93" for 100-YR event
Inflow = 56.97 cfs @ 12.96 hrs, Volume= 11.542 af
Primary = 56.97 cfs @ 12.96 hrs, Volume= 11.542 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Pond DP1: DESIGN POINT 1 (3'x1' CONC. BOX CULVERT)

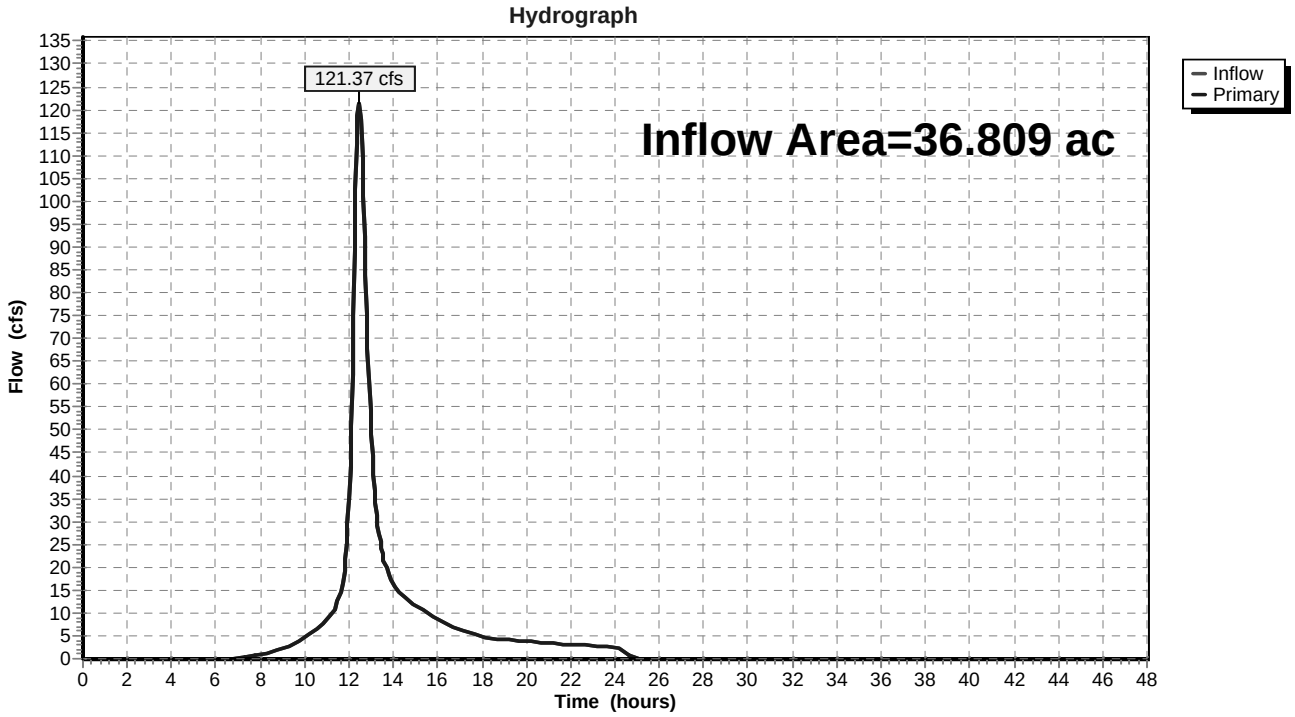


Summary for Pond DP2: DESIGN POINT 2 (36" RCP CULVERT)

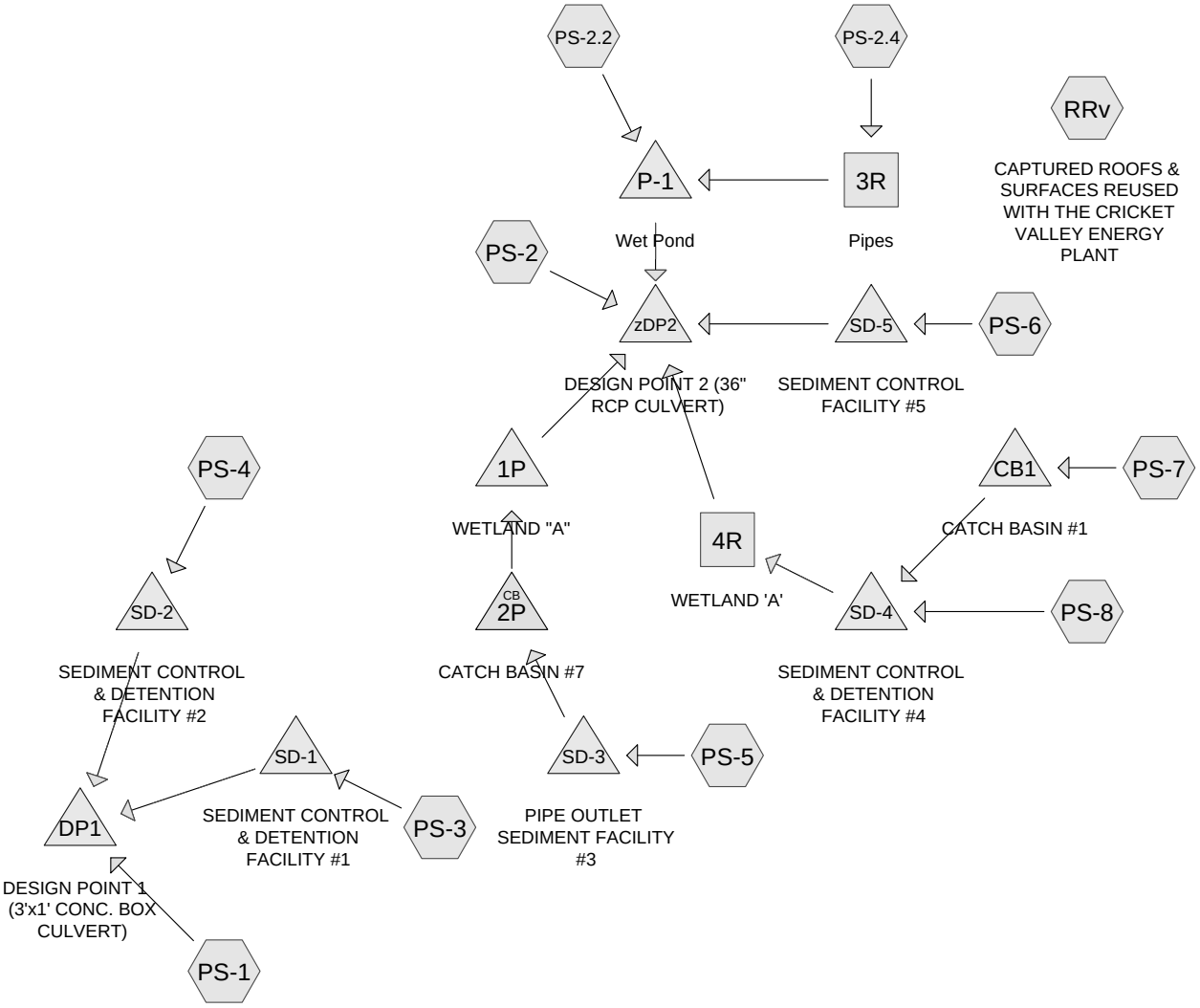
Inflow Area = 36.809 ac, 6.84% Impervious, Inflow Depth = 5.27" for 100-YR event
Inflow = 121.37 cfs @ 12.46 hrs, Volume= 16.179 af
Primary = 121.37 cfs @ 12.46 hrs, Volume= 16.179 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Pond DP2: DESIGN POINT 2 (36" RCP CULVERT)



Appendix D:
Construction Phase Stormwater Modeling



Drainage Diagram for 81001-01 CVE-RASCO -CONSTRUCTION PHASE MODEL

Prepared by THE CHAZEN COMPANIES, Printed 6/4/2012

HydroCAD® 9.00 s/n 00927 © 2009 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.021	56	Brush, Fair, HSG B (PS-2)
1.157	61	>75% Grass cover, Good, HSG B (PS-2, PS-2.2)
0.429	70	Brush, Fair, HSG C (PS-1, PS-2)
35.087	73	Woods, Fair, HSG C (PS-1, PS-2, PS-2.4)
6.730	74	>75% Grass cover, Good, HSG C (PS-1, PS-2, PS-2.2, PS-2.4, PS-3, PS-4, PS-5, PS-6, PS-7, PS-8)
1.356	77	Brush, Fair, HSG D (PS-1)
3.436	79	Woods, Fair, HSG D (PS-1, PS-2)
0.392	80	>75% Grass cover, Good, HSG D (PS-2, PS-2.2, PS-6)
5.515	85	Gravel roads, HSG B (PS-2.2)
8.306	89	Gravel roads, HSG C (PS-2, PS-2.2, PS-3, PS-4, PS-5, PS-6, PS-7)
1.972	91	Gravel roads, HSG D (PS-2, PS-2.2, PS-6)
0.408	98	Paved parking and buildings HSG C (PS-2)
5.477	98	Paved parking, HSG A (PS-2.2, RRv)
0.380	98	Paved parking, HSG C (PS-2.4)
3.293	98	Roofs, HSG A (PS-2.2)
0.704	98	Water Surface, HSG B (PS-2.2)
74.665		**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Goup	Subcatchment Numbers
8.770	HSG A	PS-2.2, RRv
7.398	HSG B	PS-2, PS-2.2
51.341	HSG C	PS-1, PS-2, PS-2.2, PS-2.4, PS-3, PS-4, PS-5, PS-6, PS-7, PS-8
7.156	HSG D	PS-1, PS-2, PS-2.2, PS-6
0.000	Other	
74.665		**TOTAL AREA**

Summary for Subcatchment PS-1:

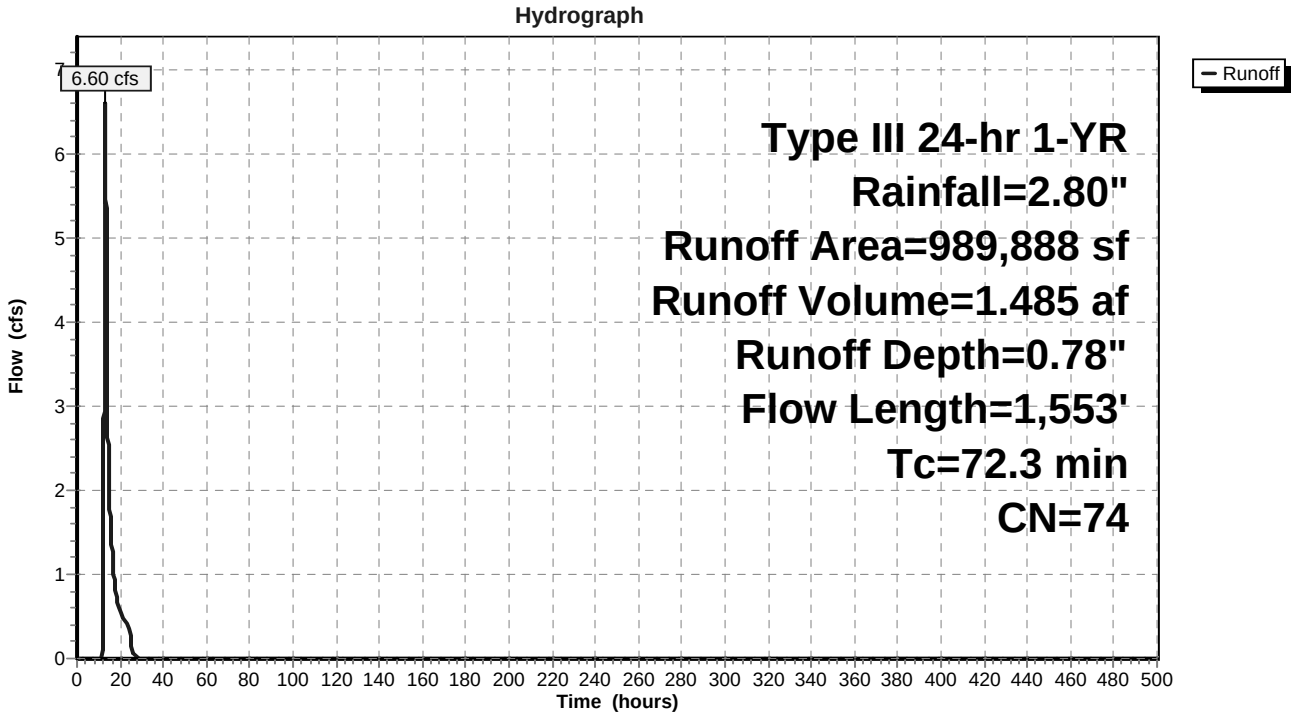
Runoff = 6.60 cfs @ 13.09 hrs, Volume= 1.485 af, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
17,027	70	Brush, Fair, HSG C
749,116	73	Woods, Fair, HSG C
123,257	79	Woods, Fair, HSG D
59,089	77	Brush, Fair, HSG D
41,399	74	>75% Grass cover, Good, HSG C
989,888	74	Weighted Average
989,888		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
47.2	100	0.0100	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.2	80	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.1	593	0.0780	1.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	780	0.0030	0.82		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
72.3	1,553	Total			

Subcatchment PS-1:



Summary for Subcatchment PS-2:

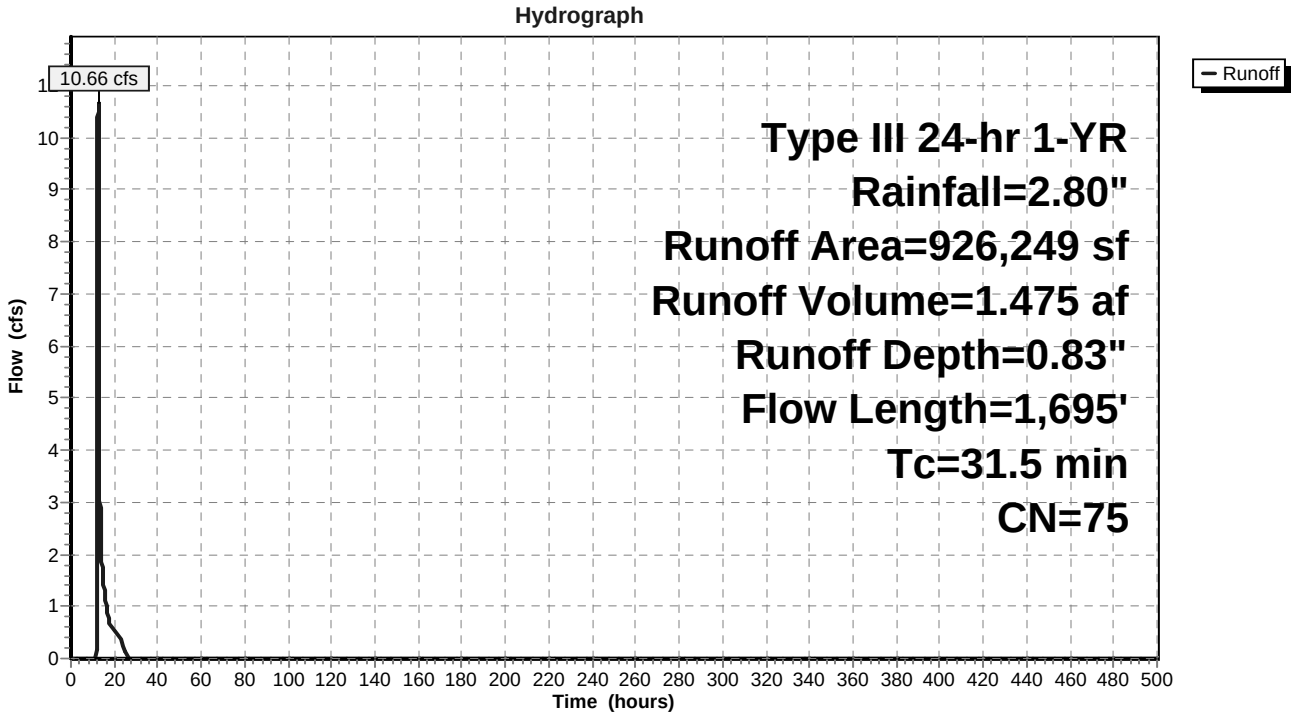
Runoff = 10.66 cfs @ 12.49 hrs, Volume= 1.475 af, Depth= 0.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.80"

	Area (sf)	CN	Description
	60,690	89	Gravel roads, HSG C
	1,678	70	Brush, Fair, HSG C
	692,579	73	Woods, Fair, HSG C
*	17,769	98	Paved parking and buildings HSG C
	26,415	79	Woods, Fair, HSG D
	14,855	91	Gravel roads, HSG D
	29,874	61	>75% Grass cover, Good, HSG B
	79,067	74	>75% Grass cover, Good, HSG C
	2,391	80	>75% Grass cover, Good, HSG D
	931	56	Brush, Fair, HSG B
	926,249	75	Weighted Average
	908,480		98.08% Pervious Area
	17,769		1.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.0	100	0.0600	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.5	235	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	42	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	151	0.1300	5.41		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
2.2	330	0.0270	2.46		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.8	360	0.0200	3.34	2.62	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
1.4	477	0.0125	5.75	115.01	**Channel Flow,** Area= 20.0 sf Perim= 15.0' r= 1.33' n= 0.035 Earth, dense weeds
31.5	1,695	Total			

Subcatchment PS-2:



Summary for Subcatchment PS-2.2:

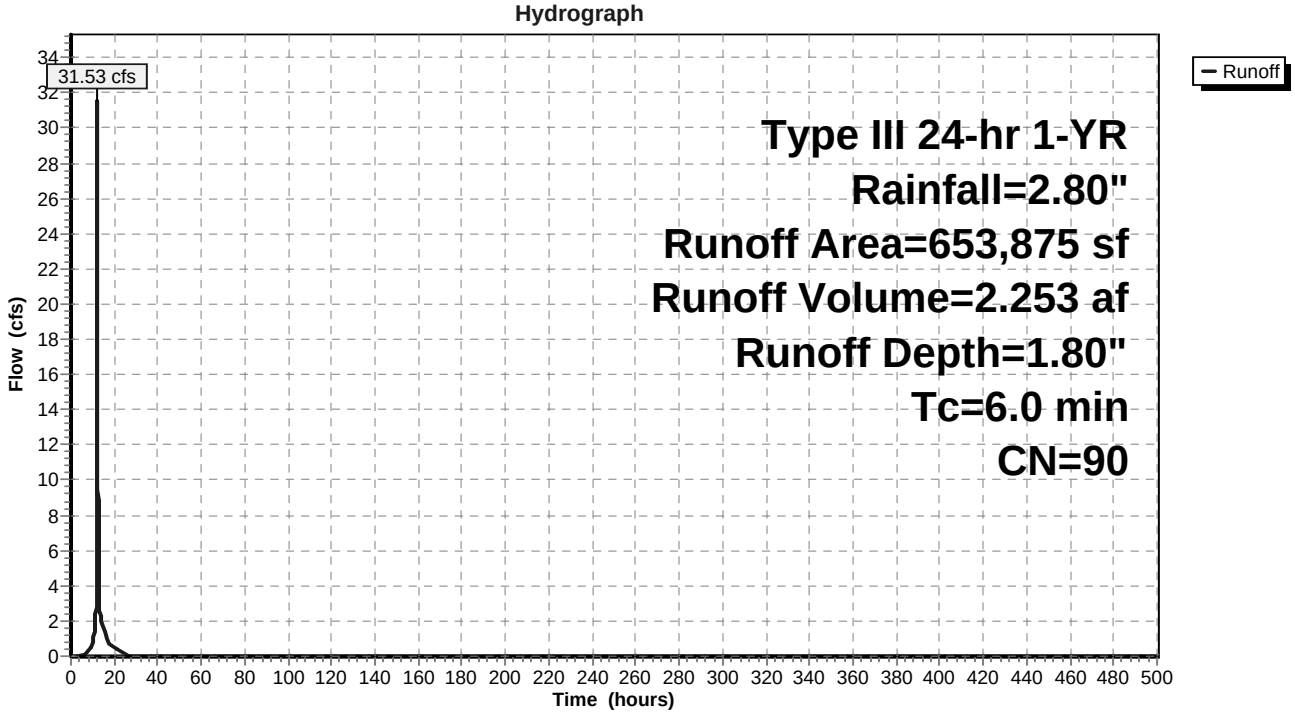
Runoff = 31.53 cfs @ 12.09 hrs, Volume= 2.253 af, Depth= 1.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
65,818	89	Gravel roads, HSG C
18,237	91	Gravel roads, HSG D
20,546	61	>75% Grass cover, Good, HSG B
240,237	85	Gravel roads, HSG B
20,235	74	>75% Grass cover, Good, HSG C
30,655	98	Water Surface, HSG B
143,453	98	Roofs, HSG A
102,225	98	Paved parking, HSG A
12,469	80	>75% Grass cover, Good, HSG D
653,875	90	Weighted Average
377,542		57.74% Pervious Area
276,333		42.26% Impervious Area

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

Subcatchment PS-2.2:



Summary for Subcatchment PS-2.4:

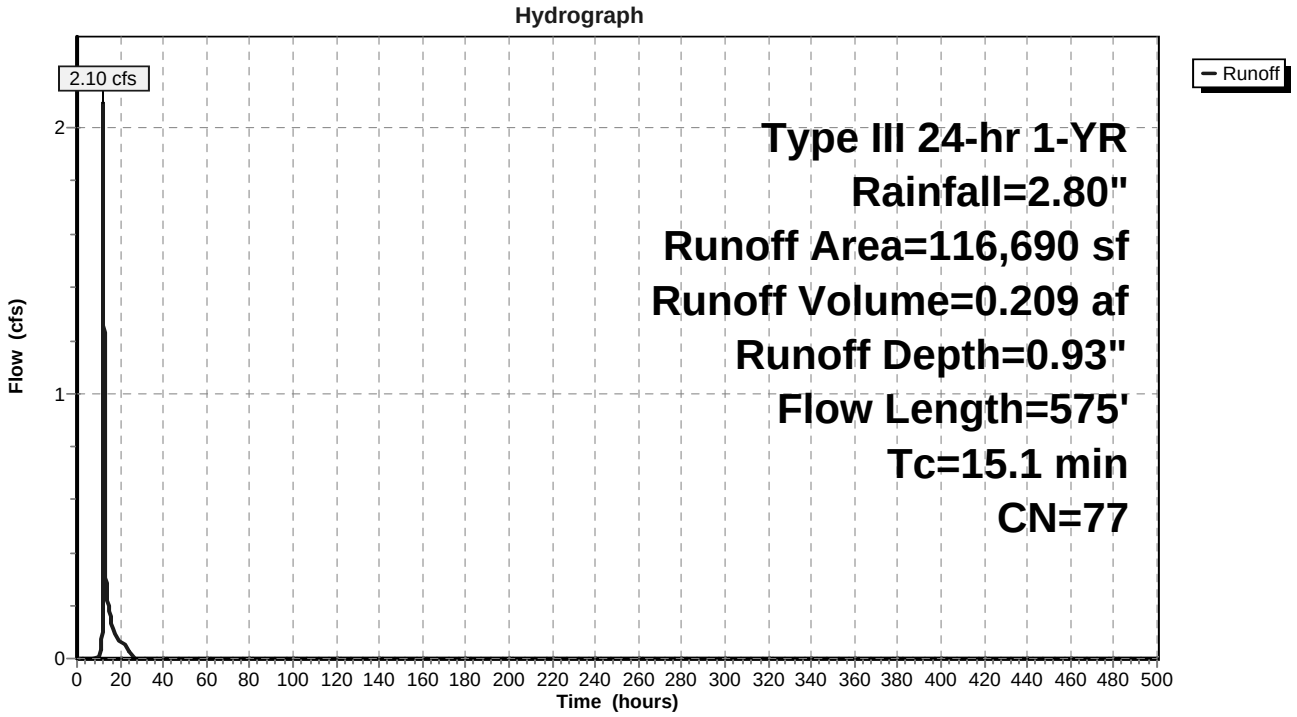
Runoff = 2.10 cfs @ 12.23 hrs, Volume= 0.209 af, Depth= 0.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
86,696	73	Woods, Fair, HSG C
13,423	74	>75% Grass cover, Good, HSG C
16,571	98	Paved parking, HSG C
116,690	77	Weighted Average
100,119		85.80% Pervious Area
16,571		14.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.0200	1.04		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
10.9	80	0.0625	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
3.8	295	0.0661	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	180	0.0722	21.12	563.30	**Parabolic Channel,** W=10.00' D=4.00' Area=26.7 sf Perim=13.3' n= 0.030 Earth, grassed & winding
15.1	575	Total			

Subcatchment PS-2.4:



Summary for Subcatchment PS-3:

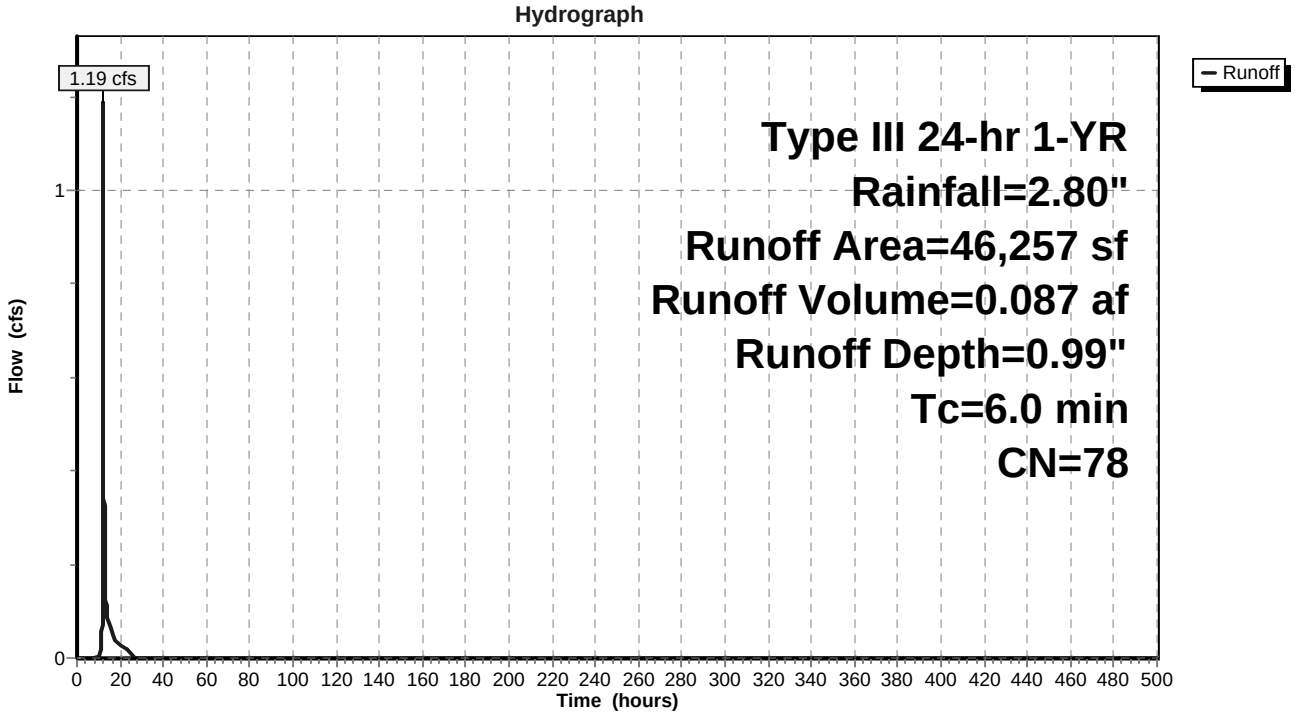
Runoff = 1.19 cfs @ 12.09 hrs, Volume= 0.087 af, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
35,199	74	>75% Grass cover, Good, HSG C
11,058	89	Gravel roads, HSG C
46,257	78	Weighted Average
46,257		100.00% Pervious Area

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

Subcatchment PS-3:



Summary for Subcatchment PS-4:

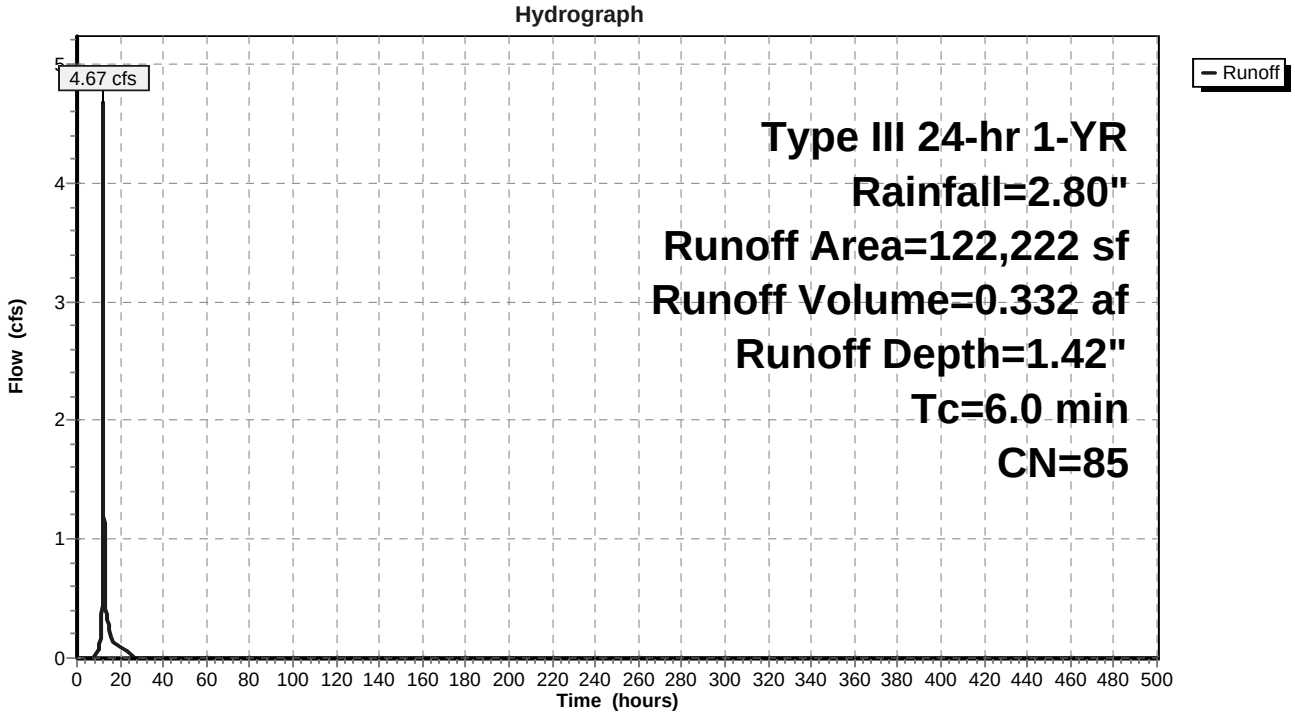
Runoff = 4.67 cfs @ 12.09 hrs, Volume= 0.332 af, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
34,079	74	>75% Grass cover, Good, HSG C
88,143	89	Gravel roads, HSG C
122,222	85	Weighted Average
122,222		100.00% Pervious Area

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

Subcatchment PS-4:



Summary for Subcatchment PS-5:

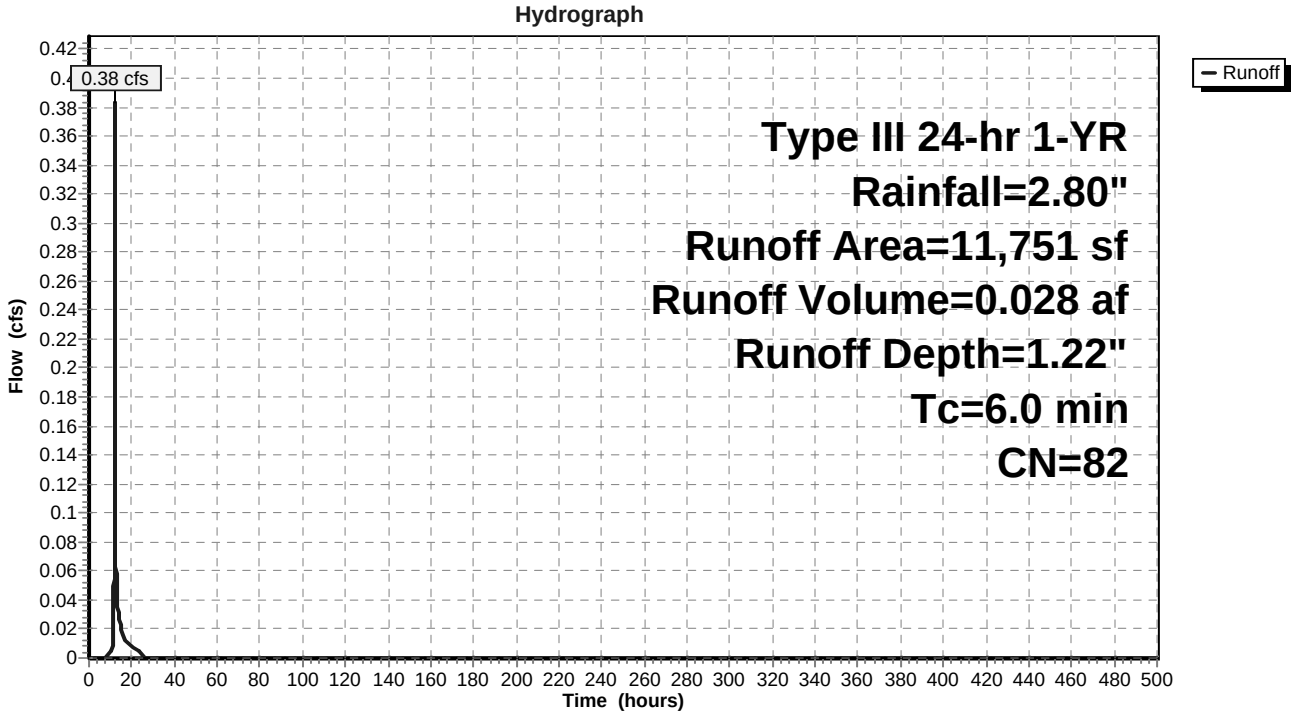
Runoff = 0.38 cfs @ 12.09 hrs, Volume= 0.028 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
5,254	74	>75% Grass cover, Good, HSG C
6,497	89	Gravel roads, HSG C
11,751	82	Weighted Average
11,751		100.00% Pervious Area

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

Subcatchment PS-5:



Summary for Subcatchment PS-6:

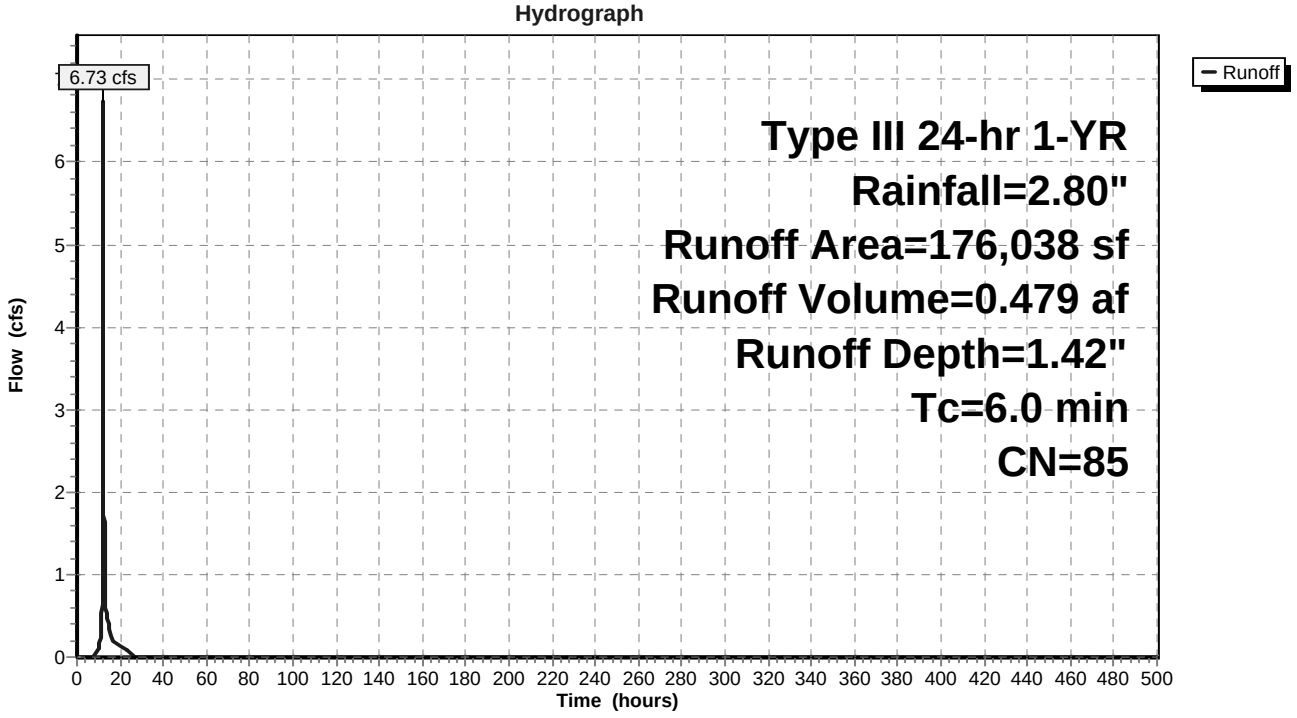
Runoff = 6.73 cfs @ 12.09 hrs, Volume= 0.479 af, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
70,850	89	Gravel roads, HSG C
50,165	74	>75% Grass cover, Good, HSG C
2,202	80	>75% Grass cover, Good, HSG D
52,821	91	Gravel roads, HSG D
176,038	85	Weighted Average
176,038		100.00% Pervious Area

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

Subcatchment PS-6:



Summary for Subcatchment PS-7:

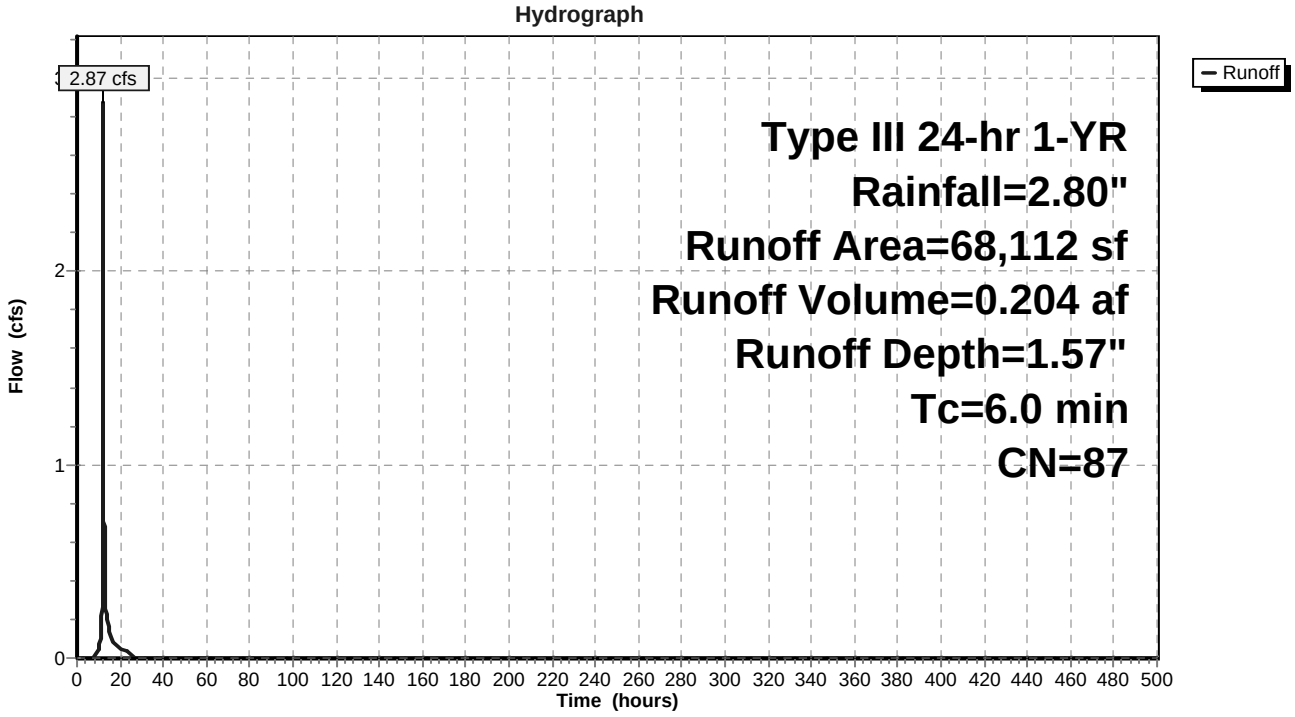
Runoff = 2.87 cfs @ 12.09 hrs, Volume= 0.204 af, Depth= 1.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
58,773	89	Gravel roads, HSG C
9,339	74	>75% Grass cover, Good, HSG C
68,112	87	Weighted Average
68,112		100.00% Pervious Area

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

Subcatchment PS-7:



Summary for Subcatchment PS-8:

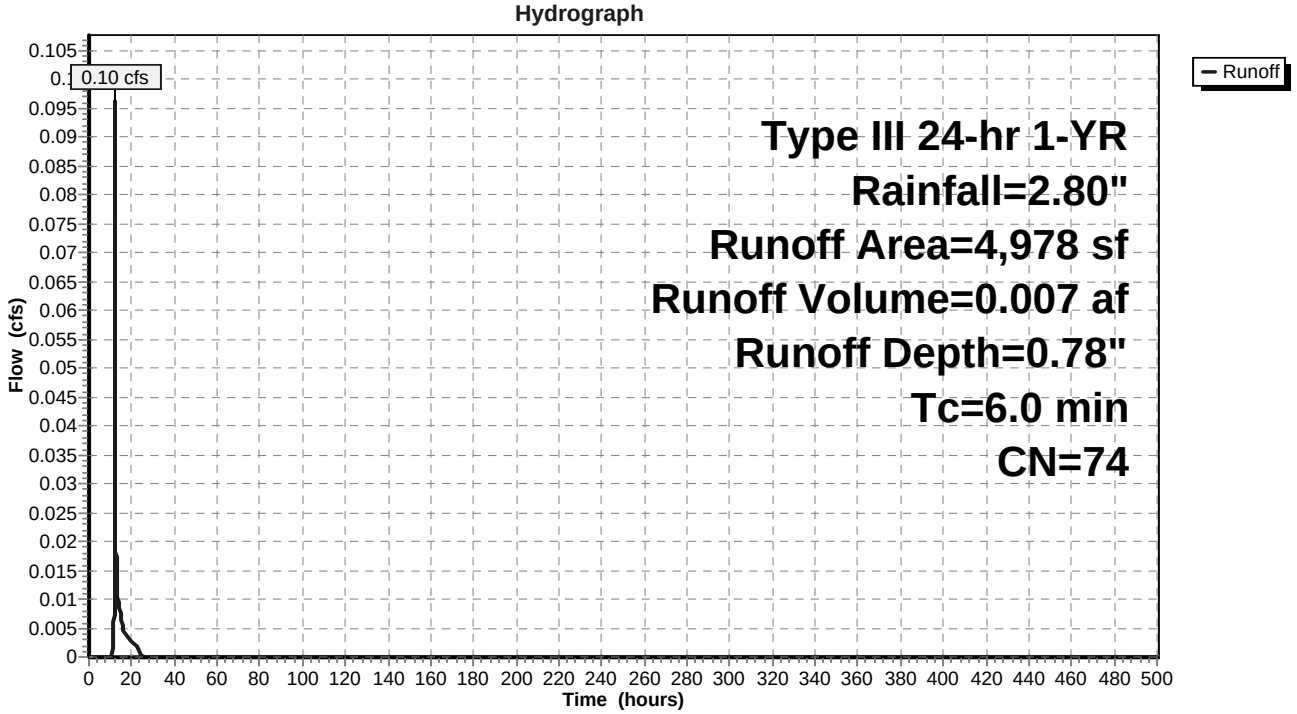
Runoff = 0.10 cfs @ 12.10 hrs, Volume= 0.007 af, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.80"

Area (sf)	CN	Description
4,978	74	>75% Grass cover, Good, HSG C
4,978		100.00% Pervious Area

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

Subcatchment PS-8:



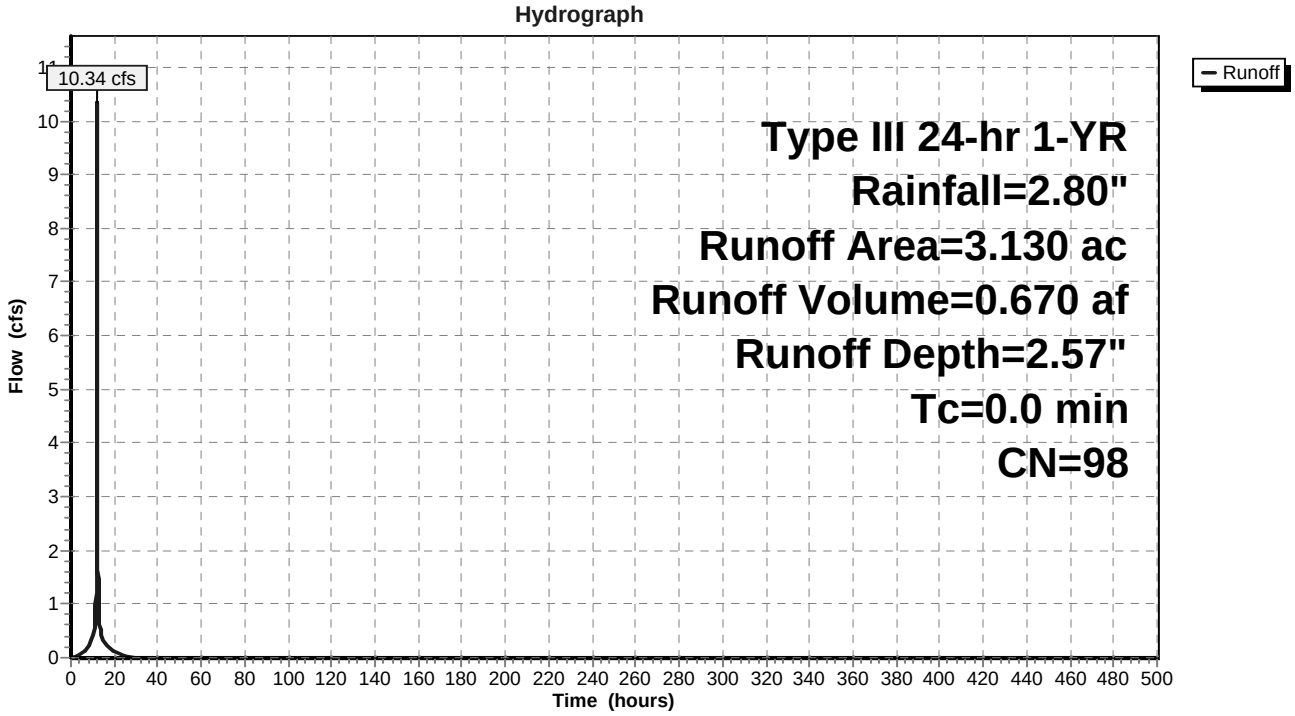
y for Subcatchment RRv: CAPTURED ROOFS & SURFACES REUSED WITH THE CRICKET VALLEY ENE

Runoff = 10.34 cfs @ 12.00 hrs, Volume= 0.670 af, Depth= 2.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-YR Rainfall=2.80"

Area (ac)	CN	Description
3.130	98	Paved parking, HSG A
3.130		100.00% Impervious Area

ubcatchment RRv: CAPTURED ROOFS & SURFACES REUSED WITH THE CRICKET VALLEY ENERGY PI

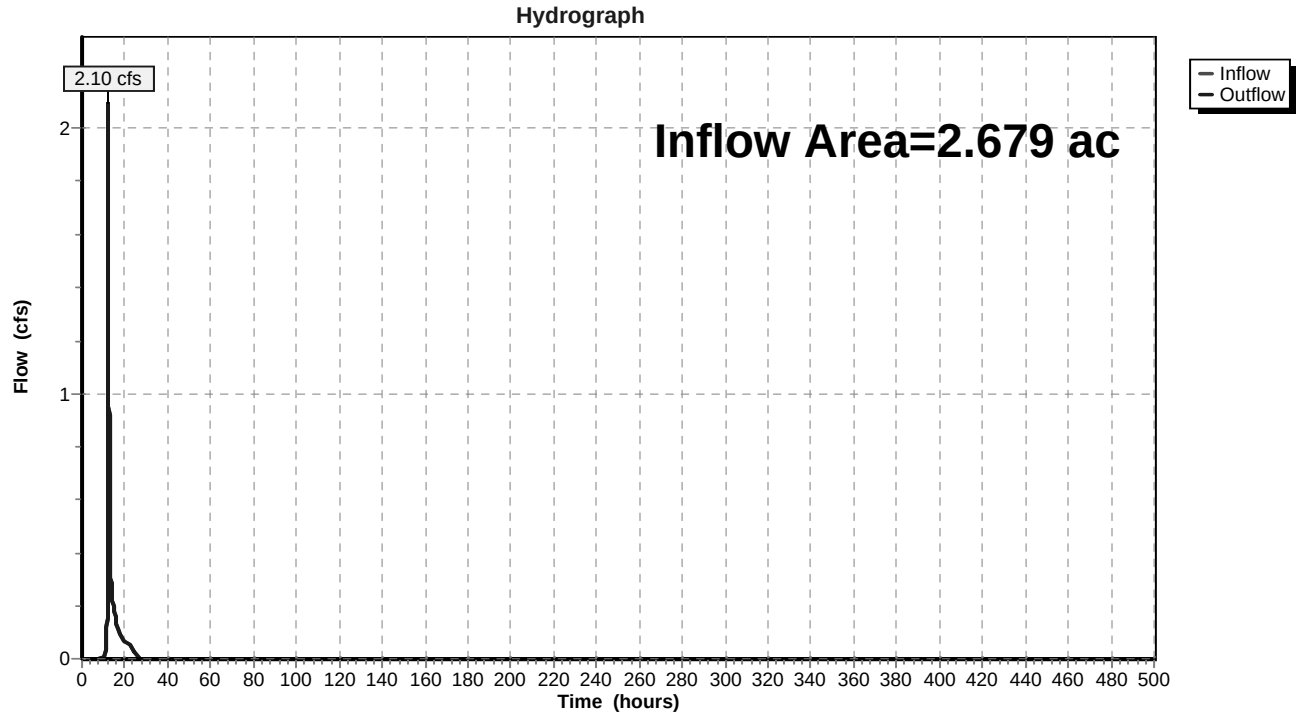


Summary for Reach 3R: Pipes

Inflow Area = 2.679 ac, 14.20% Impervious, Inflow Depth = 0.93" for 1-YR event
Inflow = 2.10 cfs @ 12.23 hrs, Volume= 0.209 af
Outflow = 2.10 cfs @ 12.23 hrs, Volume= 0.209 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Reach 3R: Pipes



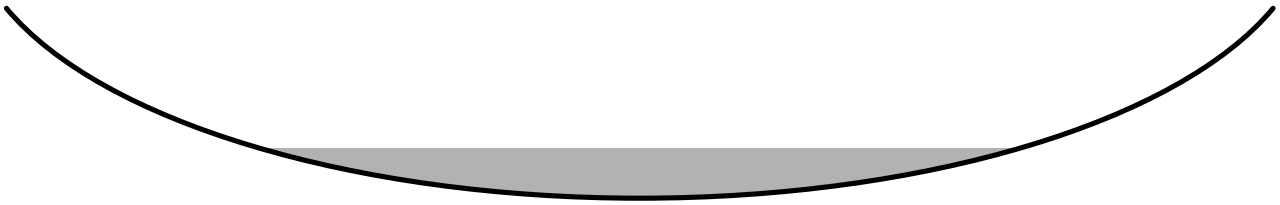
Summary for Reach 4R: WETLAND 'A'

Inflow Area = 1.678 ac, 0.00% Impervious, Inflow Depth = 1.51" for 1-YR event
Inflow = 0.29 cfs @ 13.02 hrs, Volume= 0.211 af
Outflow = 0.26 cfs @ 17.08 hrs, Volume= 0.211 af, Atten= 10%, Lag= 243.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.06 fps, Min. Travel Time= 91.9 min
Avg. Velocity = 0.01 fps, Avg. Travel Time= 400.2 min

Peak Storage= 1,444 cf @ 15.55 hrs, Average Depth at Peak Storage= 0.13'
Bank-Full Depth= 0.50', Capacity at Bank-Full= 4.71 cfs

100.00' x 0.50' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 320.0' Slope= 0.0063 '/'
Inlet Invert= 428.00', Outlet Invert= 426.00'



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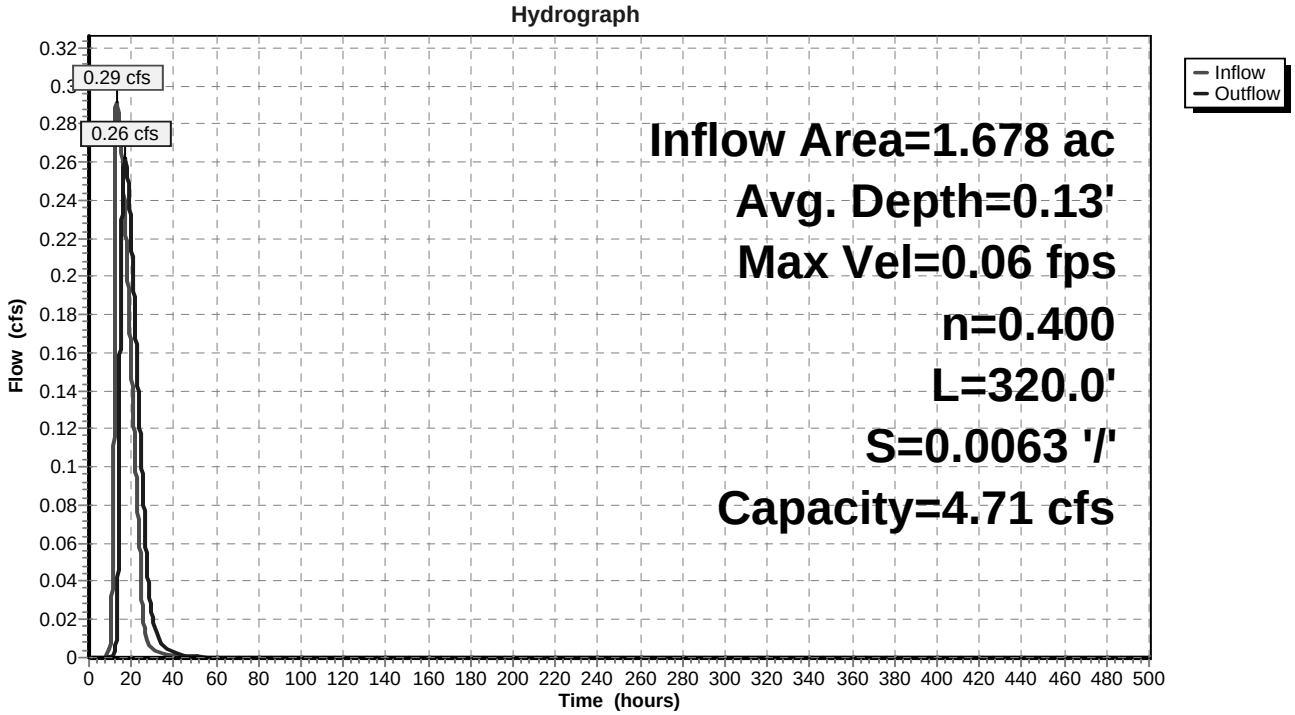
Reach 4R: WETLAND 'A'

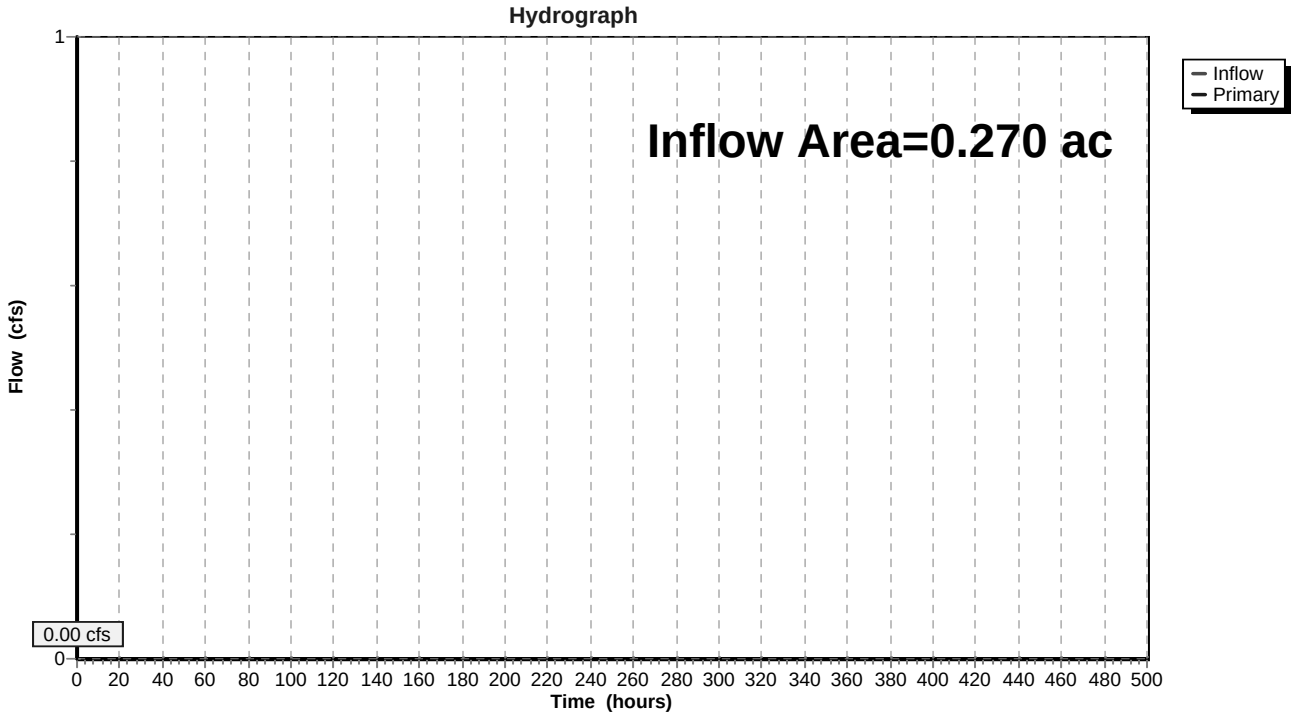


Summary for Pond 1P: WETLAND "A"

Inflow Area = 0.270 ac, 0.00% Impervious, Inflow Depth = 0.00" for 1-YR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Pond 1P: WETLAND "A"



Summary for Pond 2P: CATCH BASIN #7

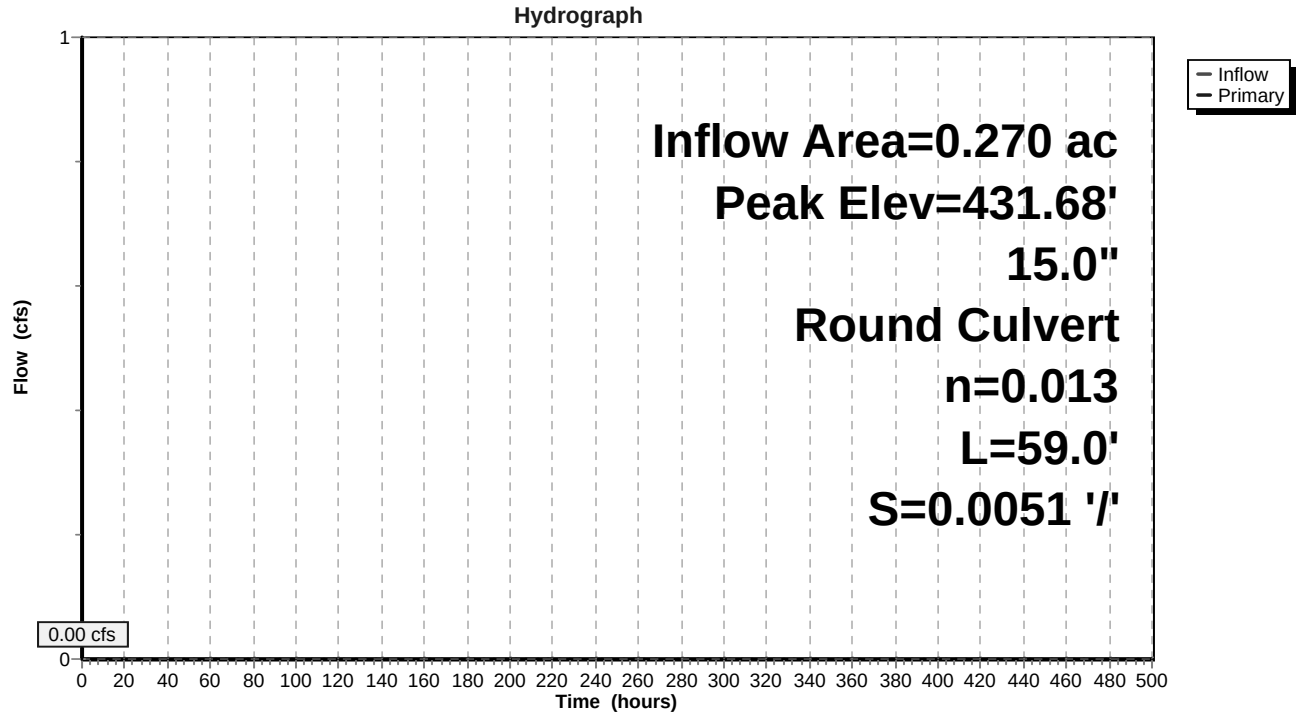
Inflow Area = 0.270 ac, 0.00% Impervious, Inflow Depth = 0.00" for 1-YR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 431.68' @ 0.00 hrs
Flood Elev= 435.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	431.68'	**15.0" Round Culvert** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 431.38' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=431.68' (Free Discharge)
1=Culvert (Controls 0.00 cfs)

Pond 2P: CATCH BASIN #7



Summary for Pond CB1: CATCH BASIN #1

Inflow Area = 1.564 ac, 0.00% Impervious, Inflow Depth = 1.57" for 1-YR event
Inflow = 2.87 cfs @ 12.09 hrs, Volume= 0.204 af
Outflow = 2.87 cfs @ 12.09 hrs, Volume= 0.204 af, Atten= 0%, Lag= 0.0 min
Primary = 2.87 cfs @ 12.09 hrs, Volume= 0.204 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 436.01' @ 12.09 hrs Surf.Area= 1 sf Storage= 0 cf
Flood Elev= 438.00' Surf.Area= 337 sf Storage= 337 cf

Plug-Flow detention time= 0.0 min calculated for 0.204 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (824.6 - 824.6)

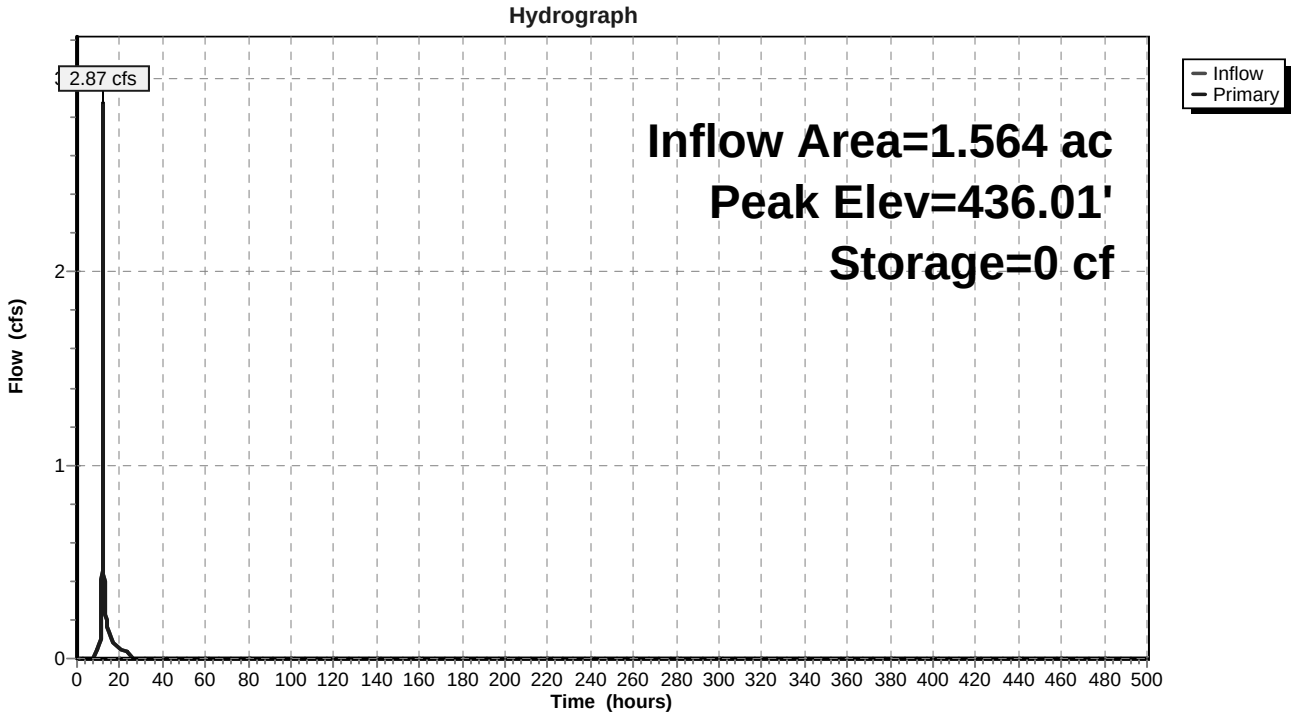
Volume	Invert	Avail.Storage	Storage Description
#1	436.00'	337 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
436.00	0	0	0
438.00	337	337	337

Device	Routing	Invert	Outlet Devices
#1	Primary	433.25'	**15.0" Round Culvert** L= 83.0' CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 430.00' S= 0.0392 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Primary	436.00'	**3.0" x 2.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=8.63 cfs @ 12.09 hrs HW=436.01' (Free Discharge)
└**1=Culvert** (Inlet Controls 8.63 cfs @ 7.03 fps)
└**2=Orifice/Grate** (Weir Controls 0.00 cfs @ 0.27 fps)

Pond CB1: CATCH BASIN #1

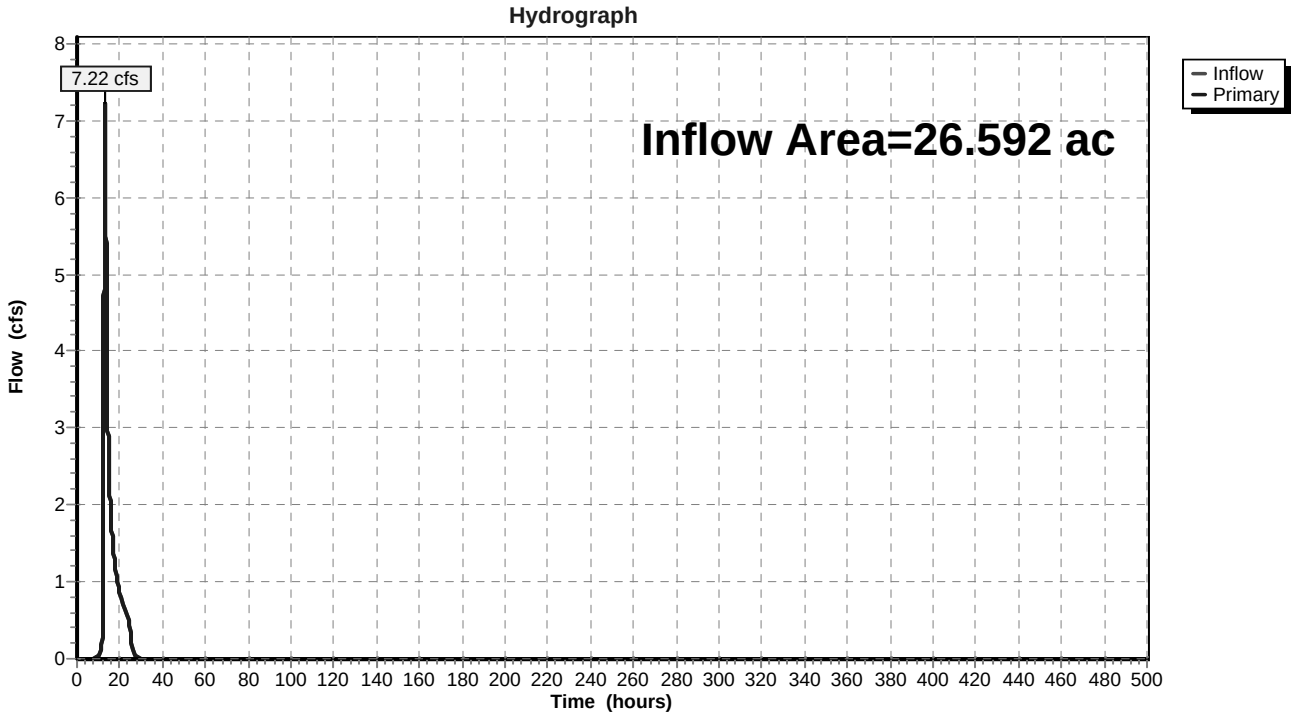


Summary for Pond DP1: DESIGN POINT 1 (3'x1' CONC. BOX CULVERT)

Inflow Area = 26.592 ac, 0.00% Impervious, Inflow Depth = 0.86" for 1-YR event
Inflow = 7.22 cfs @ 13.09 hrs, Volume= 1.905 af
Primary = 7.22 cfs @ 13.09 hrs, Volume= 1.905 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Pond DP1: DESIGN POINT 1 (3'x1' CONC. BOX CULVERT)



Summary for Pond P-1: Wet Pond

Inflow Area = 17.690 ac, 38.01% Impervious, Inflow Depth = 1.67" for 1-YR event
Inflow = 32.79 cfs @ 12.09 hrs, Volume= 2.462 af
Outflow = 0.73 cfs @ 17.90 hrs, Volume= 2.462 af, Atten= 98%, Lag= 348.4 min
Primary = 0.73 cfs @ 17.90 hrs, Volume= 2.462 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Starting Elev= 422.00' Surf.Area= 30,655 sf Storage= 75,367 cf
Peak Elev= 424.25' @ 17.90 hrs Surf.Area= 40,496 sf Storage= 155,117 cf (79,750 cf above start)
Flood Elev= 429.00' Surf.Area= 59,091 sf Storage= 390,986 cf (315,619 cf above start)

Plug-Flow detention time= 3,181.8 min calculated for 0.732 af (30% of inflow)
Center-of-Mass det. time= 1,470.5 min (2,287.5 - 817.0)

Volume	Invert	Avail.Storage	Storage Description
#1	418.00'	452,178 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

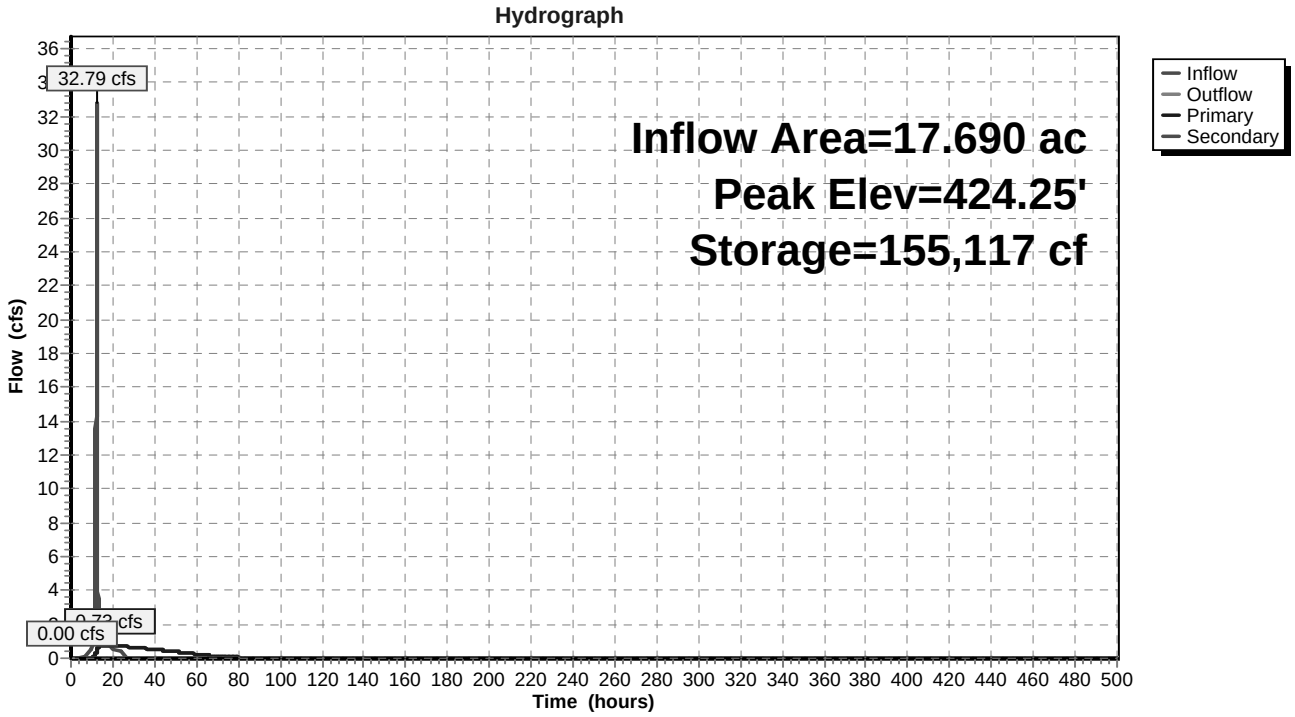
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
418.00	14,212	0	0
420.00	16,608	30,820	30,820
421.00	19,142	17,875	48,695
421.50	28,445	11,897	60,592
422.00	30,655	14,775	75,367
423.00	34,805	32,730	108,097
424.00	39,588	37,197	145,293
425.00	43,288	41,438	186,731
426.00	47,088	45,188	231,919
427.00	50,988	49,038	280,957
428.00	54,989	52,989	333,946
429.00	59,091	57,040	390,986
430.00	63,293	61,192	452,178

Device	Routing	Invert	Outlet Devices
#1	Primary	421.85'	**30.0" Round Culvert** L= 25.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 421.50' S= 0.0140 '/' Cc= 0.900 n= 0.013
#2	Device 1	422.00'	**4.4" Vert. Orifice/Grate** C= 0.600
#3	Device 1	424.24'	**6.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	426.50'	**2.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Secondary	429.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir X 0.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.73 cfs @ 17.90 hrs HW=424.25' (Free Discharge)
└─**1=Culvert** (Passes 0.73 cfs of 20.13 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.73 cfs @ 6.91 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.25 fps)
  └─**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=422.00' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-1: Wet Pond



Summary for Pond SD-1: SEDIMENT CONTROL & DETENTION FACILITY #1

Inflow Area = 1.062 ac, 0.00% Impervious, Inflow Depth = 0.99" for 1-YR event
Inflow = 1.19 cfs @ 12.09 hrs, Volume= 0.087 af
Outflow = 0.27 cfs @ 12.54 hrs, Volume= 0.087 af, Atten= 77%, Lag= 26.8 min
Primary = 0.27 cfs @ 12.54 hrs, Volume= 0.087 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 433.45' @ 12.54 hrs Surf.Area= 1,192 sf Storage= 1,122 cf
Flood Elev= 438.50' Surf.Area= 8,300 sf Storage= 21,624 cf

Plug-Flow detention time= 44.2 min calculated for 0.087 af (100% of inflow)
Center-of-Mass det. time= 44.2 min (901.0 - 856.8)

Volume	Invert	Avail.Storage	Storage Description
#1	432.00'	21,624 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

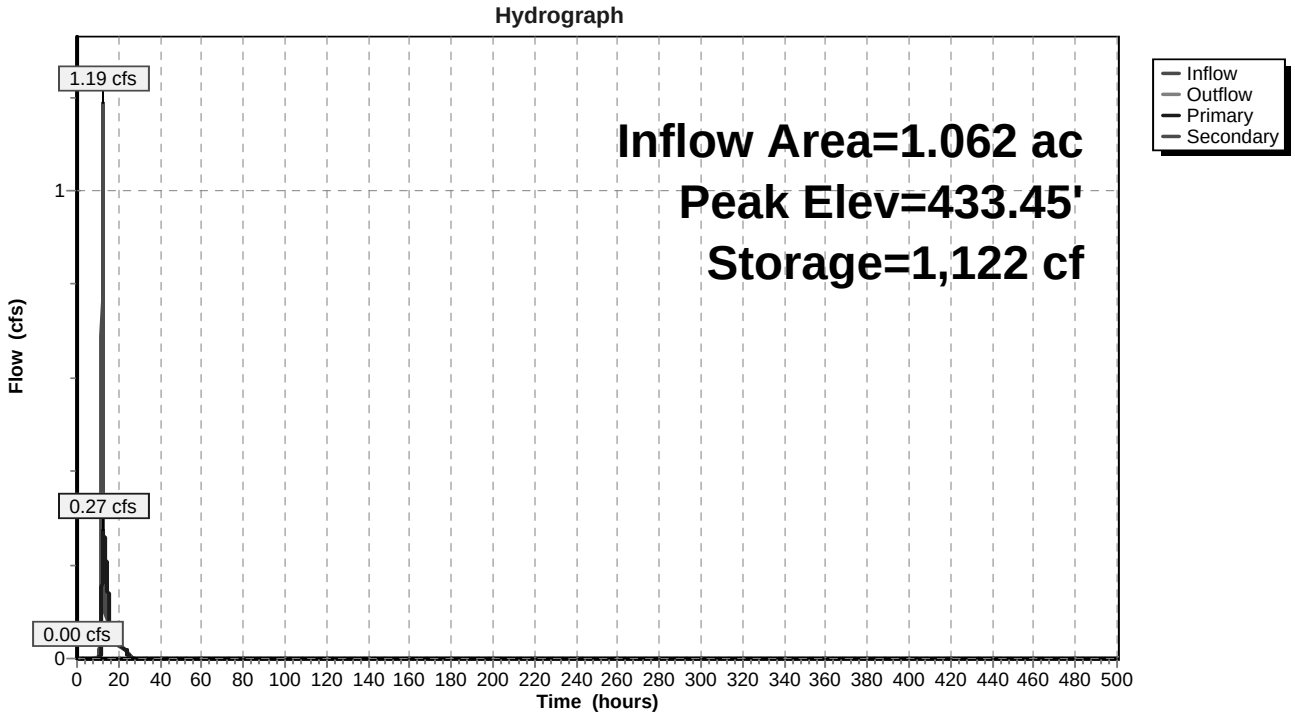
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
432.00	421	0	0
433.00	890	656	656
434.00	1,563	1,227	1,882
435.00	2,373	1,968	3,850
435.25	2,595	621	4,471
436.00	3,937	2,450	6,921
437.00	5,237	4,587	11,508
438.00	7,230	6,234	17,741
438.50	8,300	3,883	21,624

Device	Routing	Invert	Outlet Devices
#1	Primary	432.00'	**12.0" Round Culvert** L= 25.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 431.50' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	432.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	435.50'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Secondary	437.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.27 cfs @ 12.54 hrs HW=433.45' (Free Discharge)
└**1=Culvert** (Passes 0.27 cfs of 2.91 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.27 cfs @ 5.54 fps)
  └**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=432.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond SD-1: SEDIMENT CONTROL & DETENTION FACILITY #1



Summary for Pond SD-2: SEDIMENT CONTROL & DETENTION FACILITY #2

Inflow Area = 2.806 ac, 0.00% Impervious, Inflow Depth = 1.42" for 1-YR event
Inflow = 4.67 cfs @ 12.09 hrs, Volume= 0.332 af
Outflow = 0.37 cfs @ 13.58 hrs, Volume= 0.332 af, Atten= 92%, Lag= 89.4 min
Primary = 0.37 cfs @ 13.58 hrs, Volume= 0.332 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 431.57' @ 13.58 hrs Surf.Area= 3,680 sf Storage= 7,007 cf
Flood Elev= 436.00' Surf.Area= 11,601 sf Storage= 34,126 cf

Plug-Flow detention time= 235.1 min calculated for 0.332 af (100% of inflow)
Center-of-Mass det. time= 235.1 min (1,067.3 - 832.2)

Volume	Invert	Avail.Storage	Storage Description
#1	429.00'	34,126 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

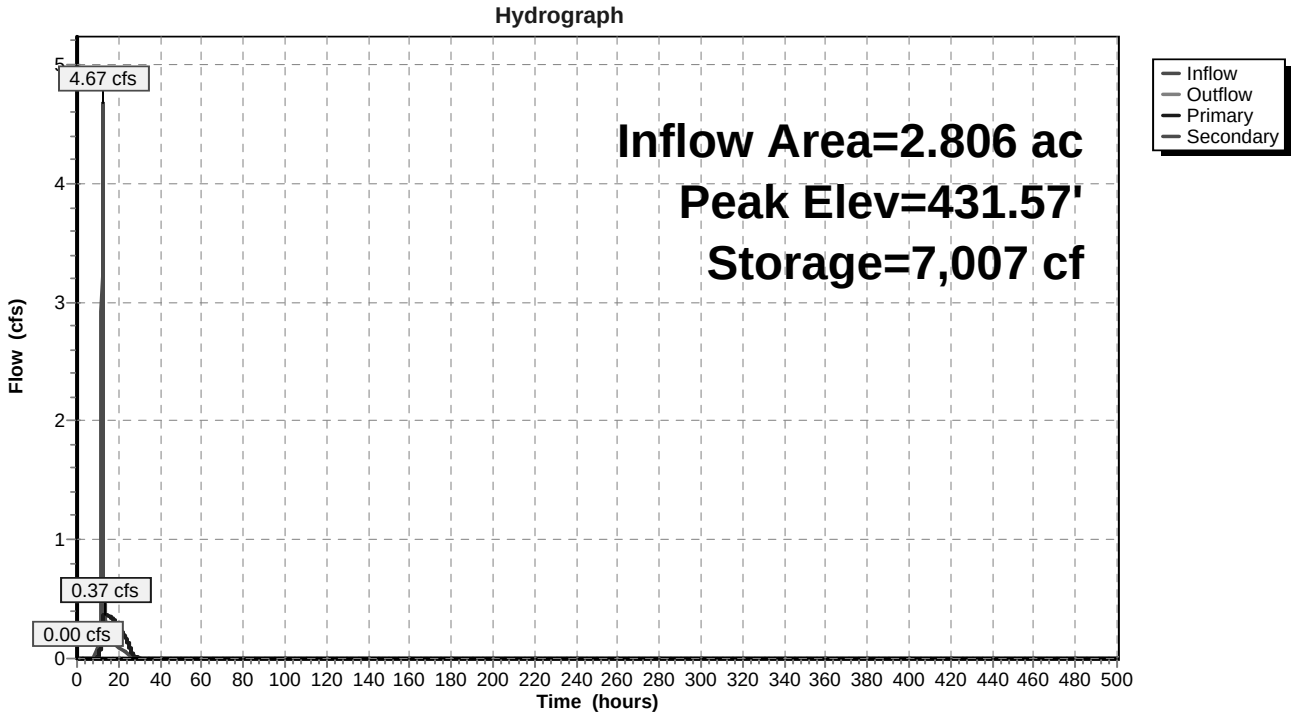
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
429.00	1,850	0	0
430.00	2,508	2,179	2,179
431.00	3,233	2,871	5,050
432.00	4,022	3,628	8,677
432.25	4,246	1,034	9,711
433.00	5,982	3,836	13,546
433.25	5,118	1,388	14,934
434.00	7,617	4,776	19,709
435.00	10,277	8,947	28,656
435.50	11,601	5,470	34,126

Device	Routing	Invert	Outlet Devices
#1	Primary	429.00'	**12.0" Round Culvert** L= 34.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 428.66' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	429.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	432.75'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Secondary	434.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.37 cfs @ 13.58 hrs HW=431.57' (Free Discharge)
└**1=Culvert** (Passes 0.37 cfs of 4.29 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.37 cfs @ 7.52 fps)
└**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=429.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond SD-2: SEDIMENT CONTROL & DETENTION FACILITY #2



Summary for Pond SD-3: PIPE OUTLET SEDIMENT FACILITY #3

Inflow Area = 0.270 ac, 0.00% Impervious, Inflow Depth = 1.22" for 1-YR event
Inflow = 0.38 cfs @ 12.09 hrs, Volume= 0.028 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 433.50' @ 24.34 hrs Surf.Area= 1,090 sf Storage= 1,198 cf
Flood Elev= 436.50' Surf.Area= 3,246 sf Storage= 7,431 cf

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= (not calculated: no outflow)

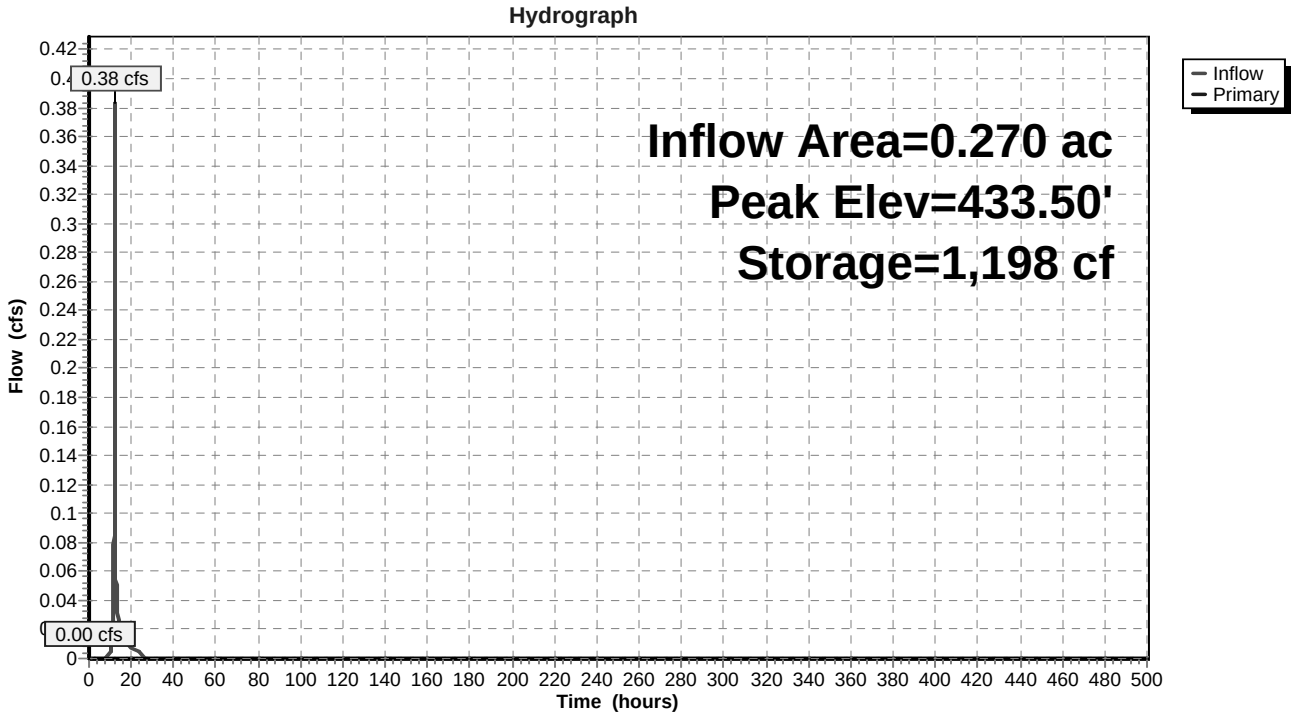
Volume	Invert	Avail.Storage	Storage Description
#1	432.00'	7,431 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
432.00	615	0	0
433.00	827	721	721
434.00	1,356	1,092	1,813
435.00	2,023	1,690	3,502
436.00	2,808	2,416	5,918
436.50	3,246	1,514	7,431

Device	Routing	Invert	Outlet Devices
#1	Primary	432.00'	**12.0" Round Culvert** L= 64.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 431.68' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	433.50'	**15.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=432.00' (Free Discharge)
↑—**1=Culvert** (Controls 0.00 cfs)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Pond SD-3: PIPE OUTLET SEDIMENT FACILITY #3



Summary for Pond SD-4: SEDIMENT CONTROL & DETENTION FACILITY #4

Inflow Area = 1.678 ac, 0.00% Impervious, Inflow Depth = 1.51" for 1-YR event
Inflow = 2.97 cfs @ 12.09 hrs, Volume= 0.211 af
Outflow = 0.29 cfs @ 13.02 hrs, Volume= 0.211 af, Atten= 90%, Lag= 55.8 min
Primary = 0.29 cfs @ 13.02 hrs, Volume= 0.211 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 432.64' @ 13.02 hrs Surf.Area= 2,987 sf Storage= 4,288 cf
Flood Elev= 436.75' Surf.Area= 5,708 sf Storage= 22,681 cf

Plug-Flow detention time= 192.2 min calculated for 0.211 af (100% of inflow)
Center-of-Mass det. time= 192.2 min (1,018.5 - 826.3)

Volume	Invert	Avail.Storage	Storage Description
#1	431.00'	22,681 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

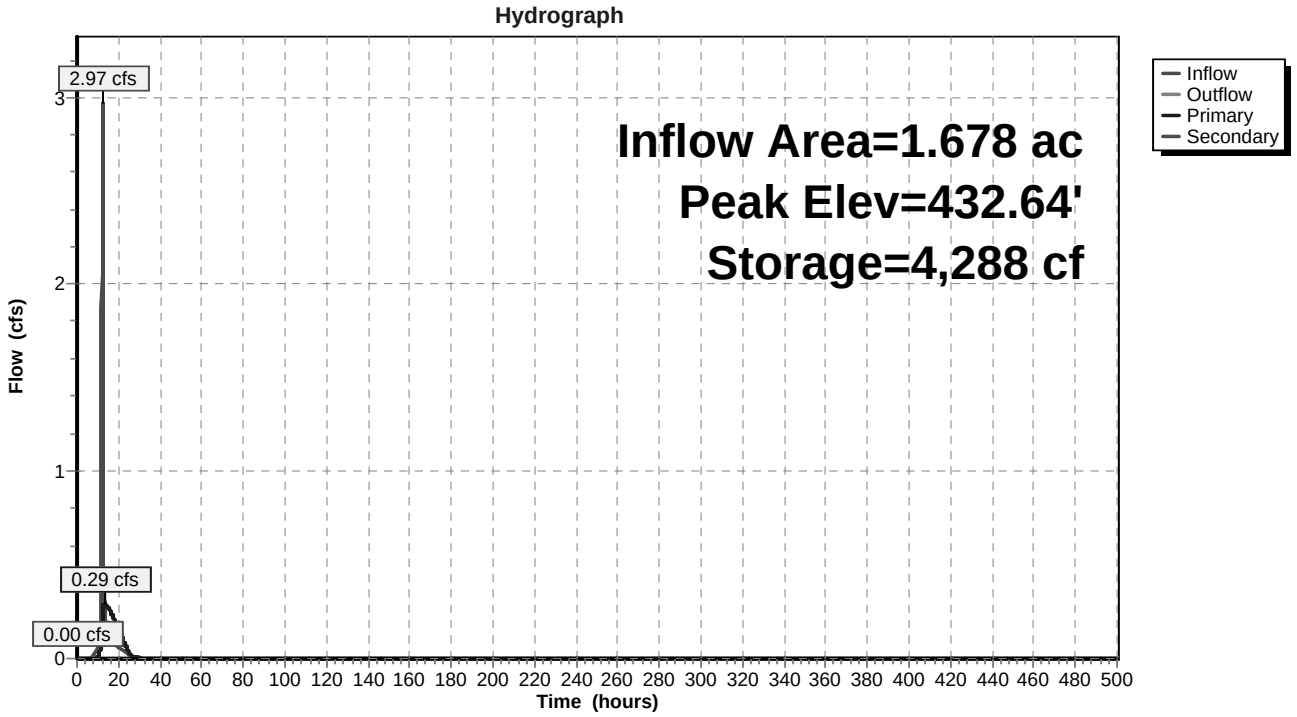
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
431.00	2,238	0	0
432.00	2,683	2,461	2,461
433.00	3,154	2,919	5,379
433.50	3,400	1,639	7,018
434.00	4,213	1,903	8,921
435.00	4,792	4,503	13,423
436.00	5,396	5,094	18,517
436.75	5,708	4,164	22,681

Device	Routing	Invert	Outlet Devices
#1	Primary	431.00'	**12.0" Round Culvert** L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 430.50' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	431.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	435.00'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Secondary	435.75'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.29 cfs @ 13.02 hrs HW=432.64' (Free Discharge)
└**1=Culvert** (Passes 0.29 cfs of 3.19 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.29 cfs @ 5.94 fps)
└**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=431.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond SD-4: SEDIMENT CONTROL & DETENTION FACILITY #4



Summary for Pond SD-5: SEDIMENT CONTROL FACILITY #5

Inflow Area = 4.041 ac, 0.00% Impervious, Inflow Depth = 1.42" for 1-YR event
Inflow = 6.73 cfs @ 12.09 hrs, Volume= 0.479 af
Outflow = 4.19 cfs @ 12.19 hrs, Volume= 0.479 af, Atten= 38%, Lag= 6.2 min
Primary = 4.19 cfs @ 12.19 hrs, Volume= 0.479 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Starting Elev= 421.75' Surf.Area= 7,651 sf Storage= 24,405 cf
Peak Elev= 422.22' @ 12.19 hrs Surf.Area= 8,172 sf Storage= 28,109 cf (3,704 cf above start)
Flood Elev= 424.00' Surf.Area= 10,196 sf Storage= 44,463 cf (20,058 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 26.9 min (859.1 - 832.2)

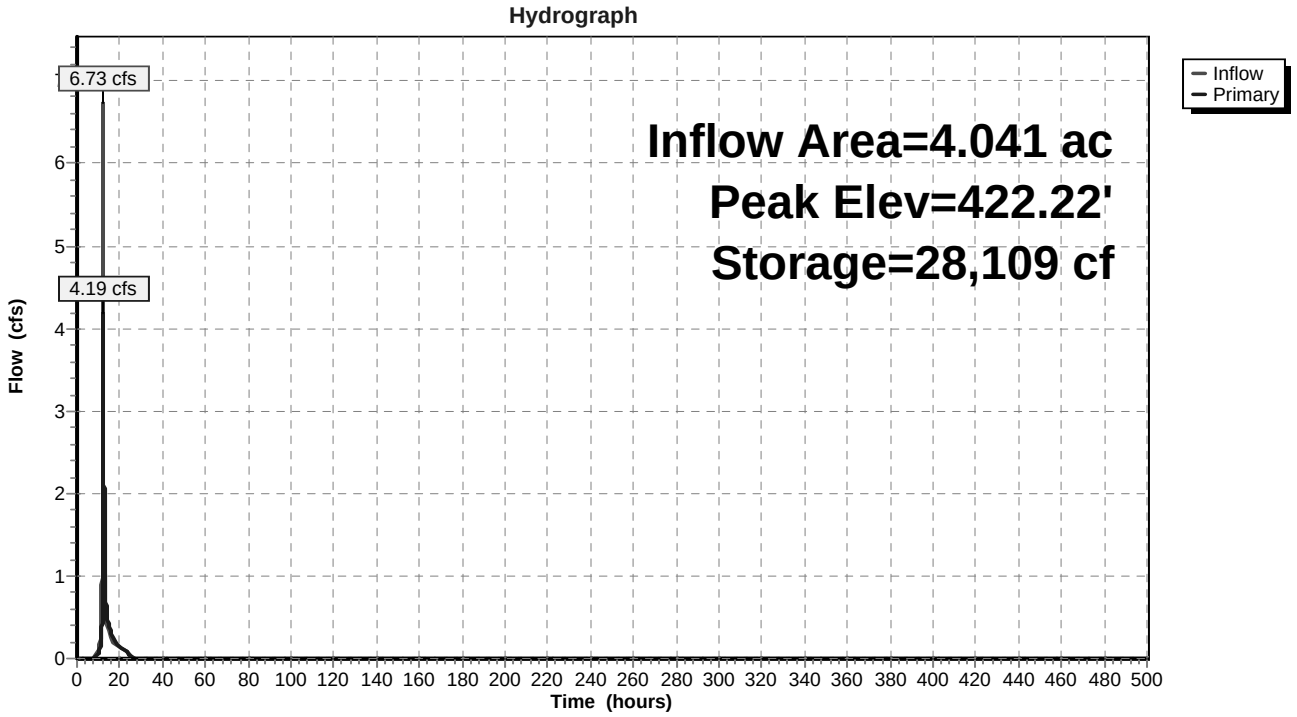
Volume	Invert	Avail.Storage	Storage Description
#1	417.00'	44,463 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
417.00	2,729	0	0
418.00	3,711	3,220	3,220
419.00	4,722	4,217	7,437
420.00	5,763	5,243	12,679
420.75	6,561	4,622	17,301
421.00	6,831	1,674	18,975
421.75	7,651	5,431	24,405
422.00	7,927	1,947	26,353
423.00	9,049	8,488	34,841
424.00	10,196	9,623	44,463

Device	Routing	Invert	Outlet Devices
#1	Primary	421.75'	**5.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=4.18 cfs @ 12.19 hrs HW=422.22' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 4.18 cfs @ 1.78 fps)

Pond SD-5: SEDIMENT CONTROL FACILITY #5

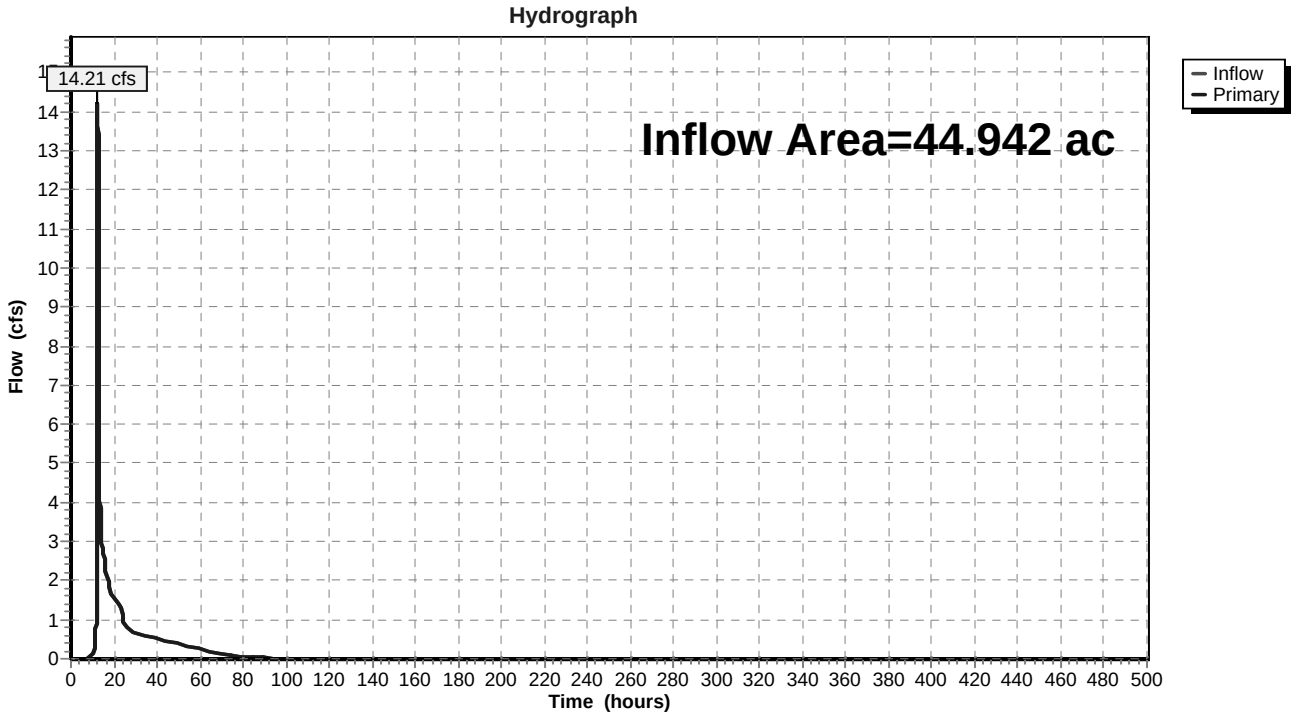


Summary for Pond zDP2: DESIGN POINT 2 (36" RCP CULVERT)

Inflow Area = 44.942 ac, 15.87% Impervious, Inflow Depth = 1.24" for 1-YR event
Inflow = 14.21 cfs @ 12.43 hrs, Volume= 4.627 af
Primary = 14.21 cfs @ 12.43 hrs, Volume= 4.627 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Pond zDP2: DESIGN POINT 2 (36" RCP CULVERT)



Summary for Subcatchment PS-1:

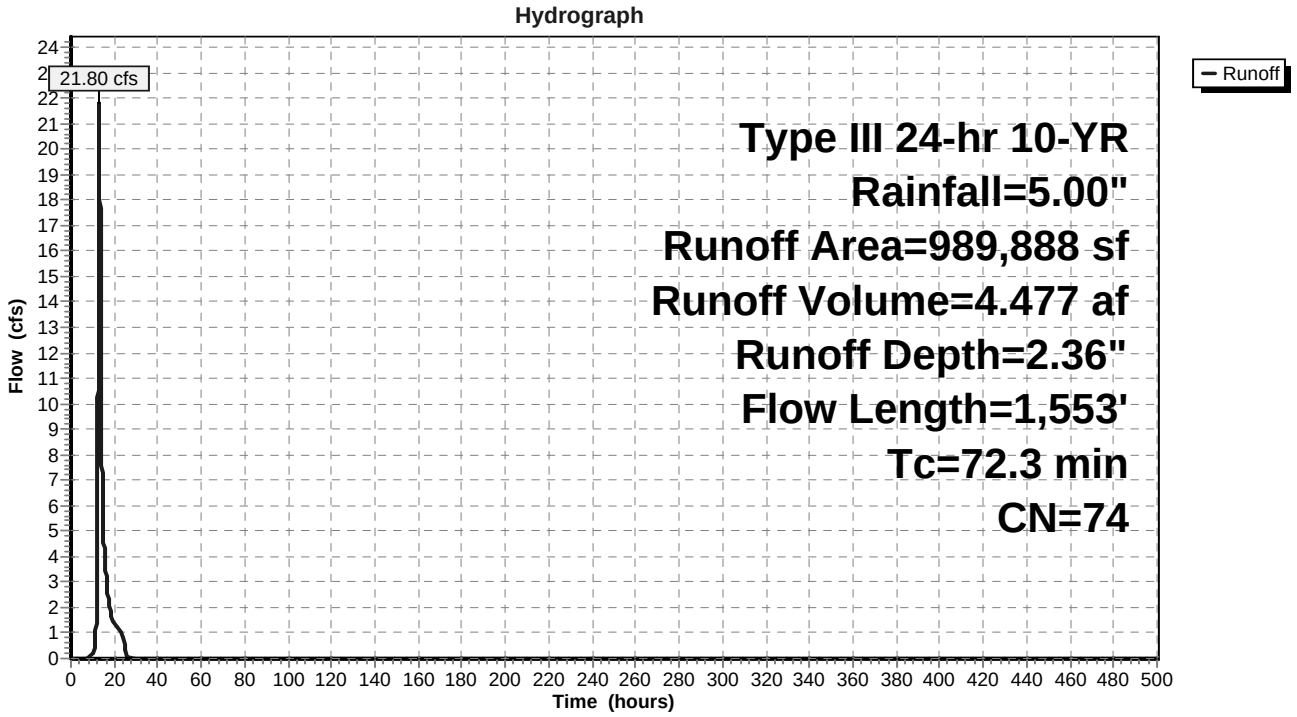
Runoff = 21.80 cfs @ 13.01 hrs, Volume= 4.477 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.00"

Area (sf)	CN	Description
17,027	70	Brush, Fair, HSG C
749,116	73	Woods, Fair, HSG C
123,257	79	Woods, Fair, HSG D
59,089	77	Brush, Fair, HSG D
41,399	74	>75% Grass cover, Good, HSG C
989,888	74	Weighted Average
989,888		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
47.2	100	0.0100	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.2	80	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.1	593	0.0780	1.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	780	0.0030	0.82		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
72.3	1,553	Total			

Subcatchment PS-1:



Summary for Subcatchment PS-2:

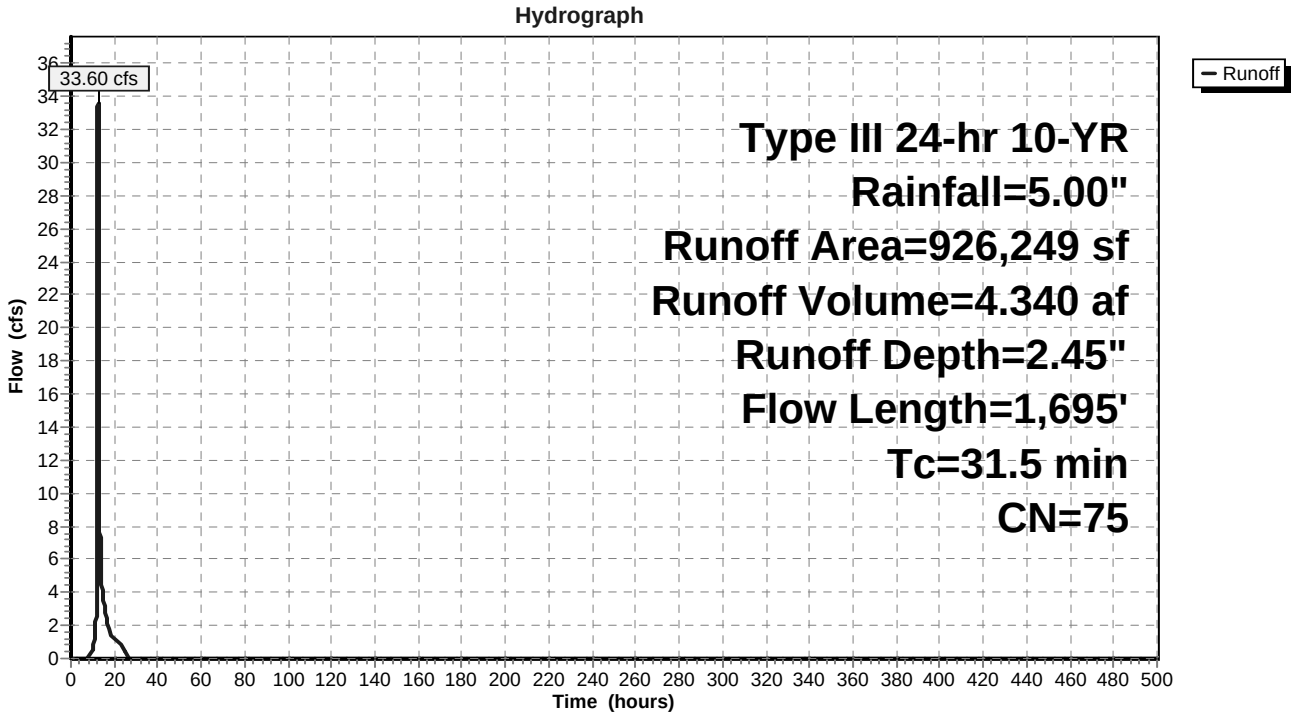
Runoff = 33.60 cfs @ 12.43 hrs, Volume= 4.340 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.00"

	Area (sf)	CN	Description
	60,690	89	Gravel roads, HSG C
	1,678	70	Brush, Fair, HSG C
	692,579	73	Woods, Fair, HSG C
*	17,769	98	Paved parking and buildings HSG C
	26,415	79	Woods, Fair, HSG D
	14,855	91	Gravel roads, HSG D
	29,874	61	>75% Grass cover, Good, HSG B
	79,067	74	>75% Grass cover, Good, HSG C
	2,391	80	>75% Grass cover, Good, HSG D
	931	56	Brush, Fair, HSG B
	926,249	75	Weighted Average
	908,480		98.08% Pervious Area
	17,769		1.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.0	100	0.0600	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.5	235	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	42	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	151	0.1300	5.41		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
2.2	330	0.0270	2.46		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.8	360	0.0200	3.34	2.62	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
1.4	477	0.0125	5.75	115.01	**Channel Flow,** Area= 20.0 sf Perim= 15.0' r= 1.33' n= 0.035 Earth, dense weeds
31.5	1,695	Total			

Subcatchment PS-2:



Summary for Subcatchment PS-2.2:

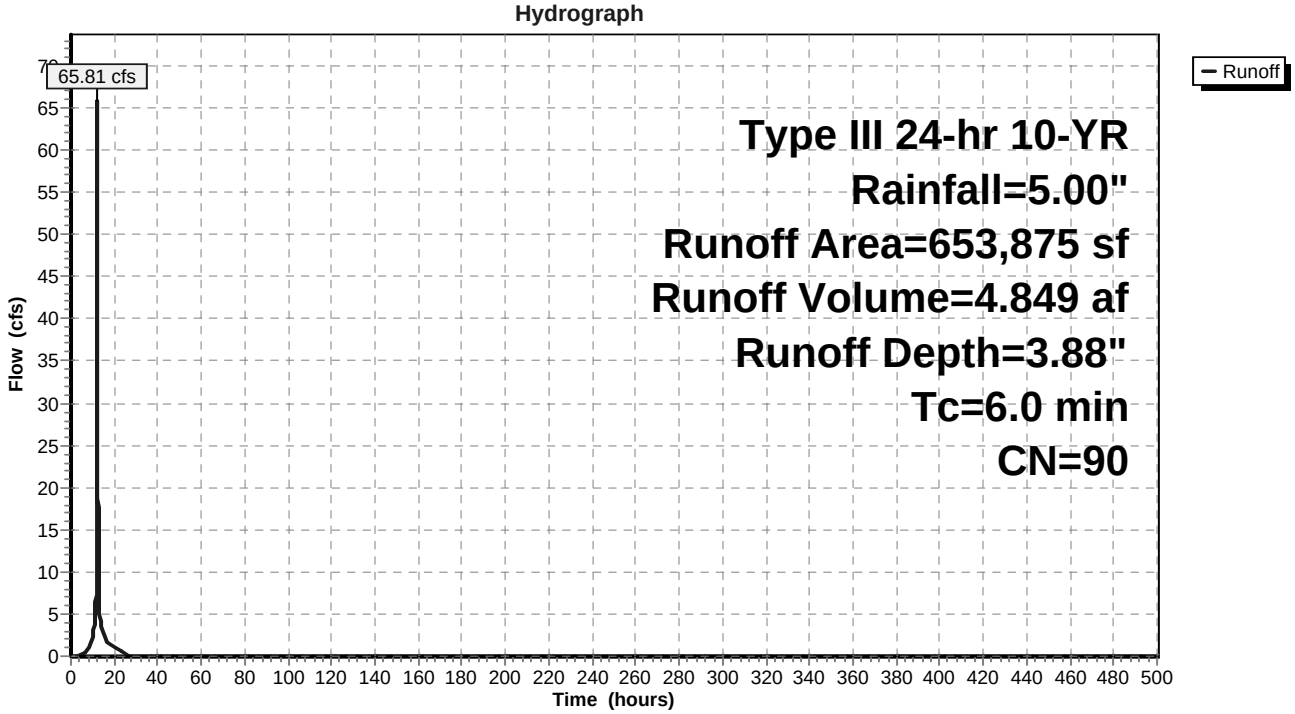
Runoff = 65.81 cfs @ 12.09 hrs, Volume= 4.849 af, Depth= 3.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.00"

Area (sf)	CN	Description
65,818	89	Gravel roads, HSG C
18,237	91	Gravel roads, HSG D
20,546	61	>75% Grass cover, Good, HSG B
240,237	85	Gravel roads, HSG B
20,235	74	>75% Grass cover, Good, HSG C
30,655	98	Water Surface, HSG B
143,453	98	Roofs, HSG A
102,225	98	Paved parking, HSG A
12,469	80	>75% Grass cover, Good, HSG D
653,875	90	Weighted Average
377,542		57.74% Pervious Area
276,333		42.26% Impervious Area

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

Subcatchment PS-2.2:



Summary for Subcatchment PS-2.4:

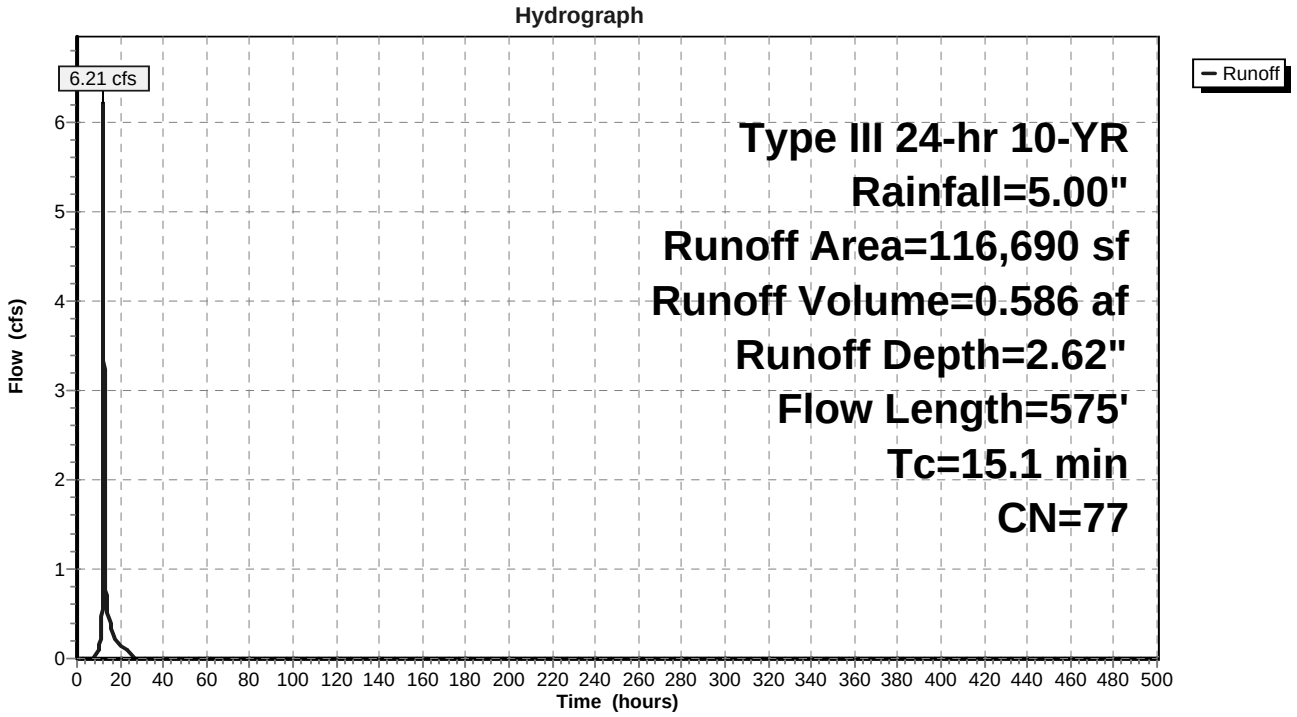
Runoff = 6.21 cfs @ 12.21 hrs, Volume= 0.586 af, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.00"

Area (sf)	CN	Description
86,696	73	Woods, Fair, HSG C
13,423	74	>75% Grass cover, Good, HSG C
16,571	98	Paved parking, HSG C
116,690	77	Weighted Average
100,119		85.80% Pervious Area
16,571		14.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.0200	1.04		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
10.9	80	0.0625	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
3.8	295	0.0661	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	180	0.0722	21.12	563.30	**Parabolic Channel,** W=10.00' D=4.00' Area=26.7 sf Perim=13.3' n= 0.030 Earth, grassed & winding
15.1	575	Total			

Subcatchment PS-2.4:



Summary for Subcatchment PS-3:

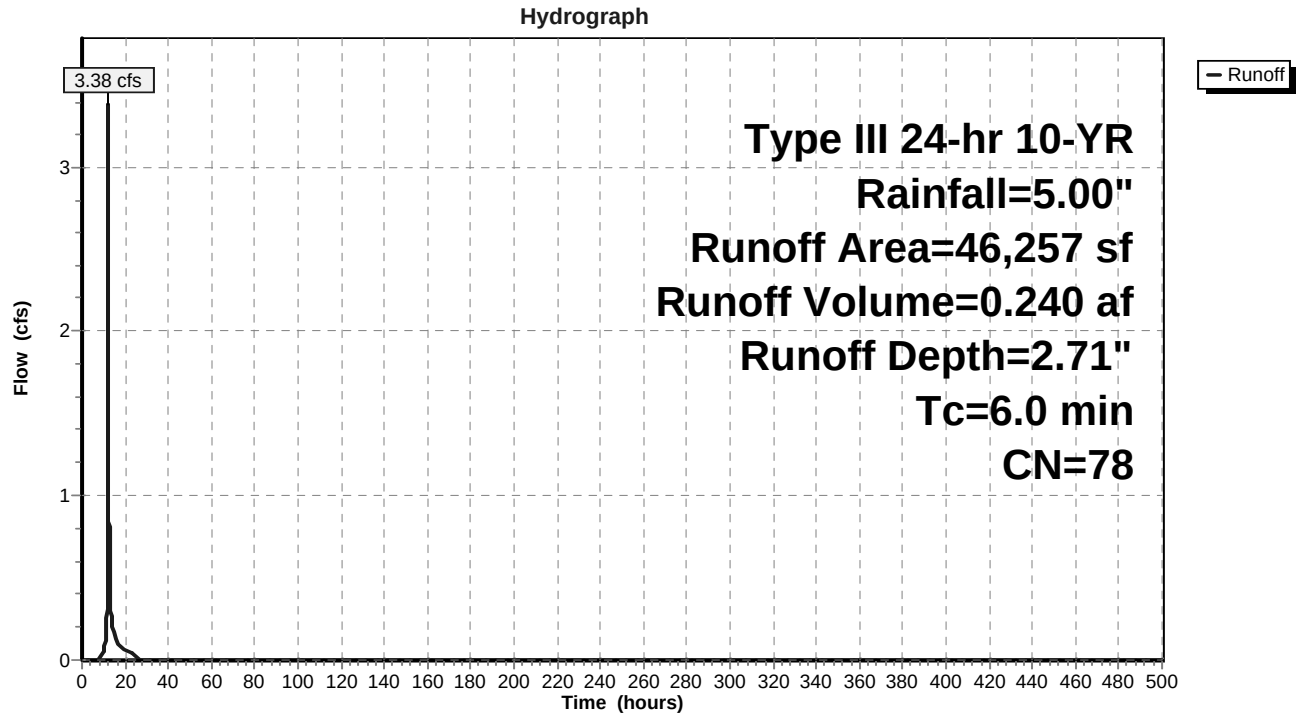
Runoff = 3.38 cfs @ 12.09 hrs, Volume= 0.240 af, Depth= 2.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.00"

Area (sf)	CN	Description
35,199	74	>75% Grass cover, Good, HSG C
11,058	89	Gravel roads, HSG C
46,257	78	Weighted Average
46,257		100.00% Pervious Area

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

Subcatchment PS-3:



Summary for Subcatchment PS-4:

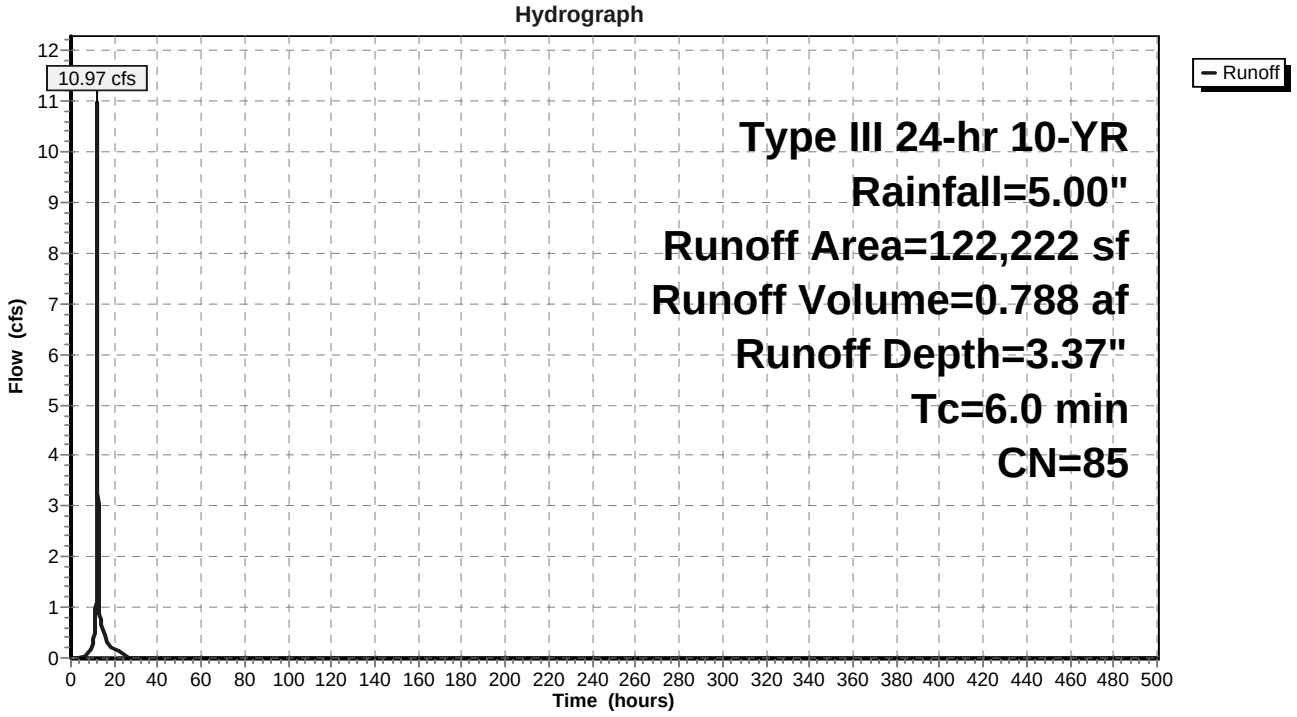
Runoff = 10.97 cfs @ 12.09 hrs, Volume= 0.788 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.00"

Area (sf)	CN	Description
34,079	74	>75% Grass cover, Good, HSG C
88,143	89	Gravel roads, HSG C
122,222	85	Weighted Average
122,222		100.00% Pervious Area

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

Subcatchment PS-4:



Summary for Subcatchment PS-5:

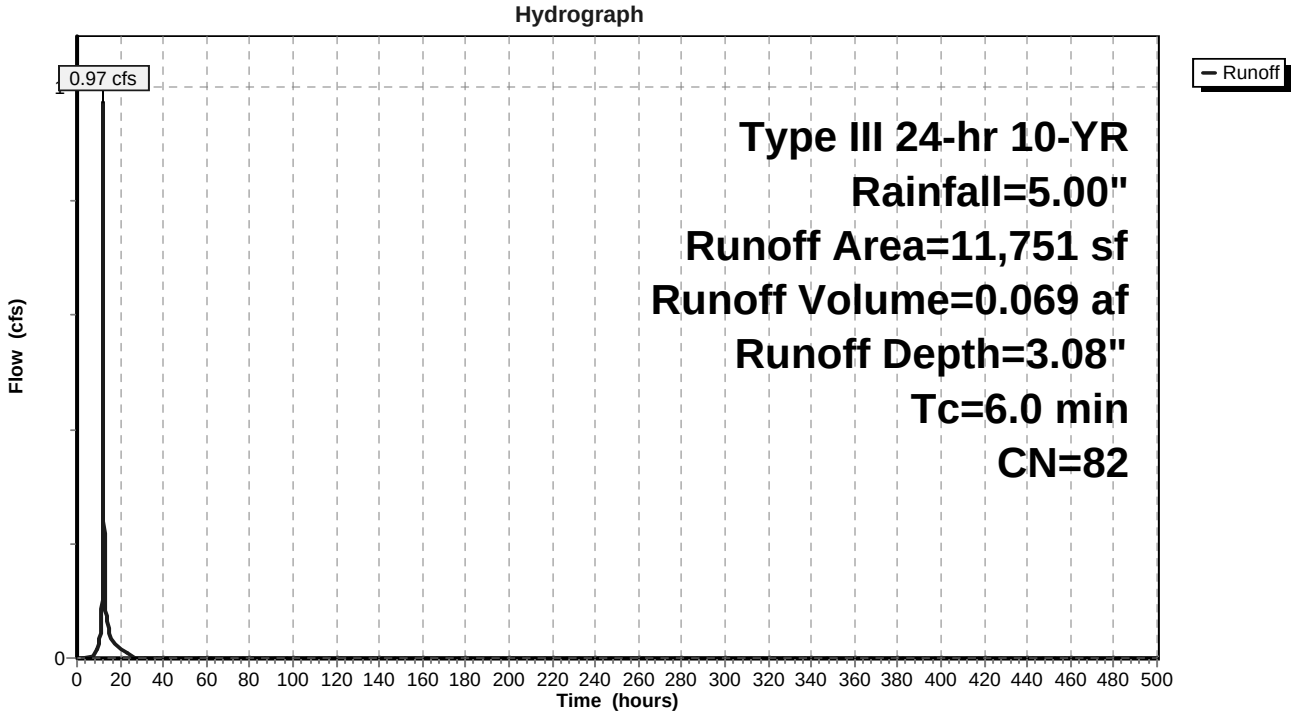
Runoff = 0.97 cfs @ 12.09 hrs, Volume= 0.069 af, Depth= 3.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.00"

Area (sf)	CN	Description
5,254	74	>75% Grass cover, Good, HSG C
6,497	89	Gravel roads, HSG C
11,751	82	Weighted Average
11,751		100.00% Pervious Area

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

Subcatchment PS-5:



Summary for Subcatchment PS-6:

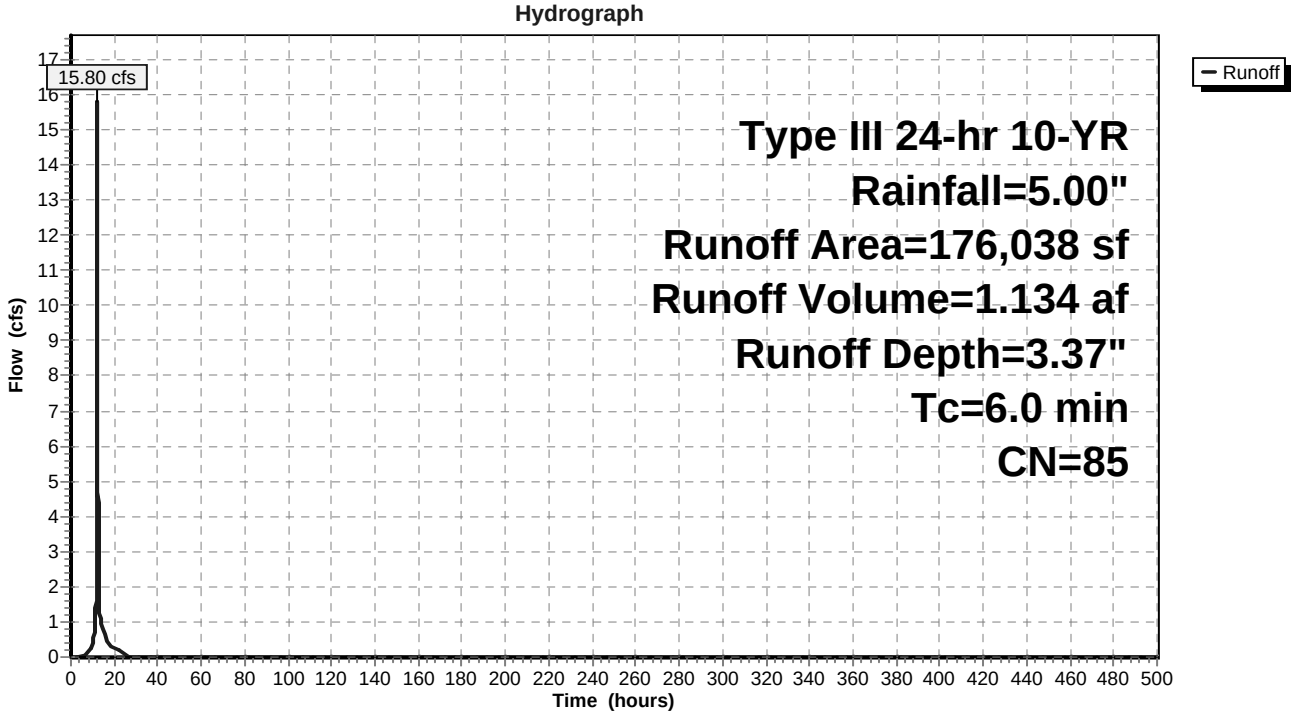
Runoff = 15.80 cfs @ 12.09 hrs, Volume= 1.134 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.00"

Area (sf)	CN	Description
70,850	89	Gravel roads, HSG C
50,165	74	>75% Grass cover, Good, HSG C
2,202	80	>75% Grass cover, Good, HSG D
52,821	91	Gravel roads, HSG D
176,038	85	Weighted Average
176,038		100.00% Pervious Area

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

Subcatchment PS-6:



Summary for Subcatchment PS-7:

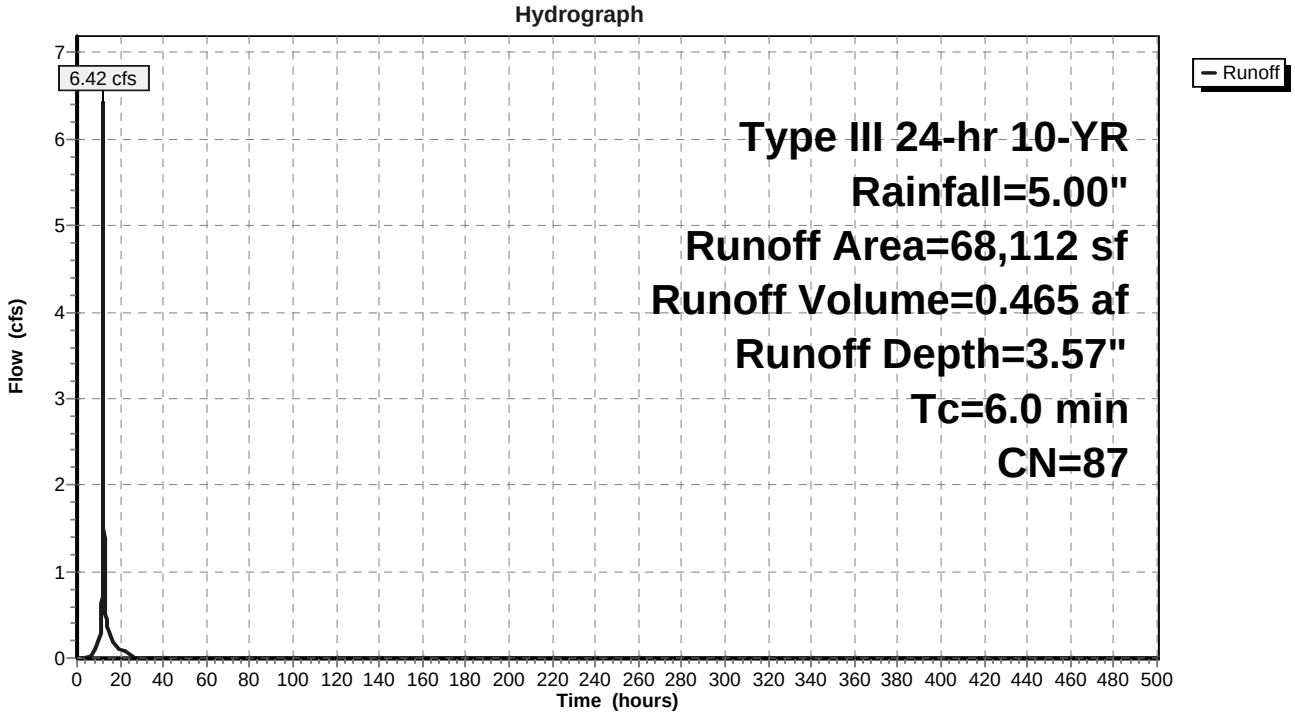
Runoff = 6.42 cfs @ 12.09 hrs, Volume= 0.465 af, Depth= 3.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.00"

Area (sf)	CN	Description
58,773	89	Gravel roads, HSG C
9,339	74	>75% Grass cover, Good, HSG C
68,112	87	Weighted Average
68,112		100.00% Pervious Area

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

Subcatchment PS-7:



Summary for Subcatchment PS-8:

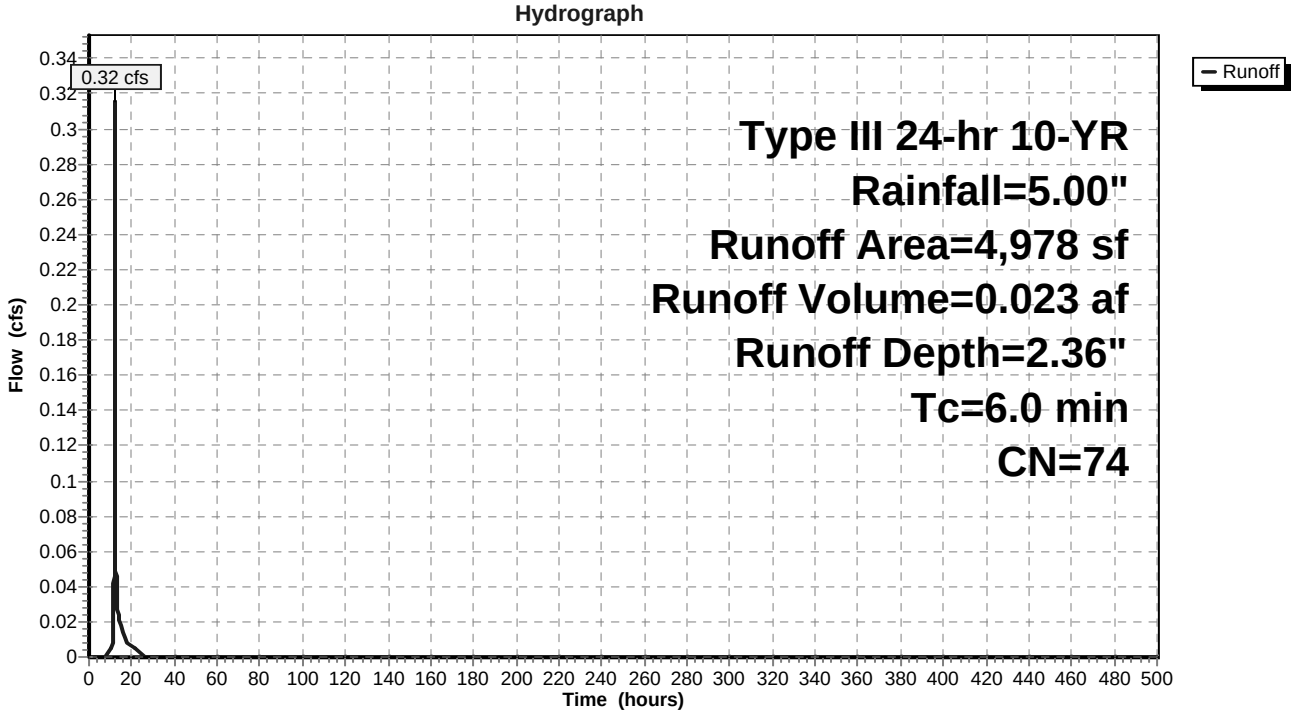
Runoff = 0.32 cfs @ 12.09 hrs, Volume= 0.023 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.00"

Area (sf)	CN	Description
4,978	74	>75% Grass cover, Good, HSG C
4,978		100.00% Pervious Area

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

Subcatchment PS-8:



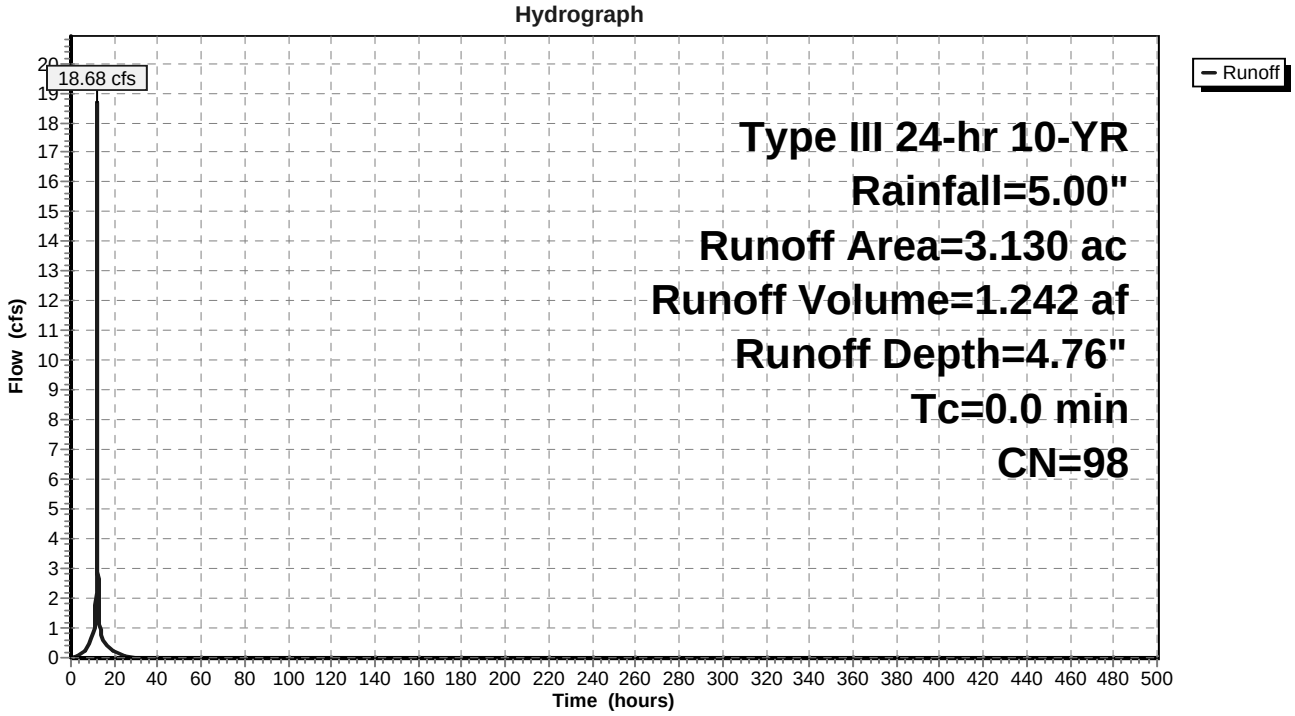
y for Subcatchment RRv: CAPTURED ROOFS & SURFACES REUSED WITH THE CRICKET VALLEY ENE

Runoff = 18.68 cfs @ 12.00 hrs, Volume= 1.242 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=5.00"

Area (ac)	CN	Description
3.130	98	Paved parking, HSG A
3.130		100.00% Impervious Area

ubcatchment RRv: CAPTURED ROOFS & SURFACES REUSED WITH THE CRICKET VALLEY ENERGY PI

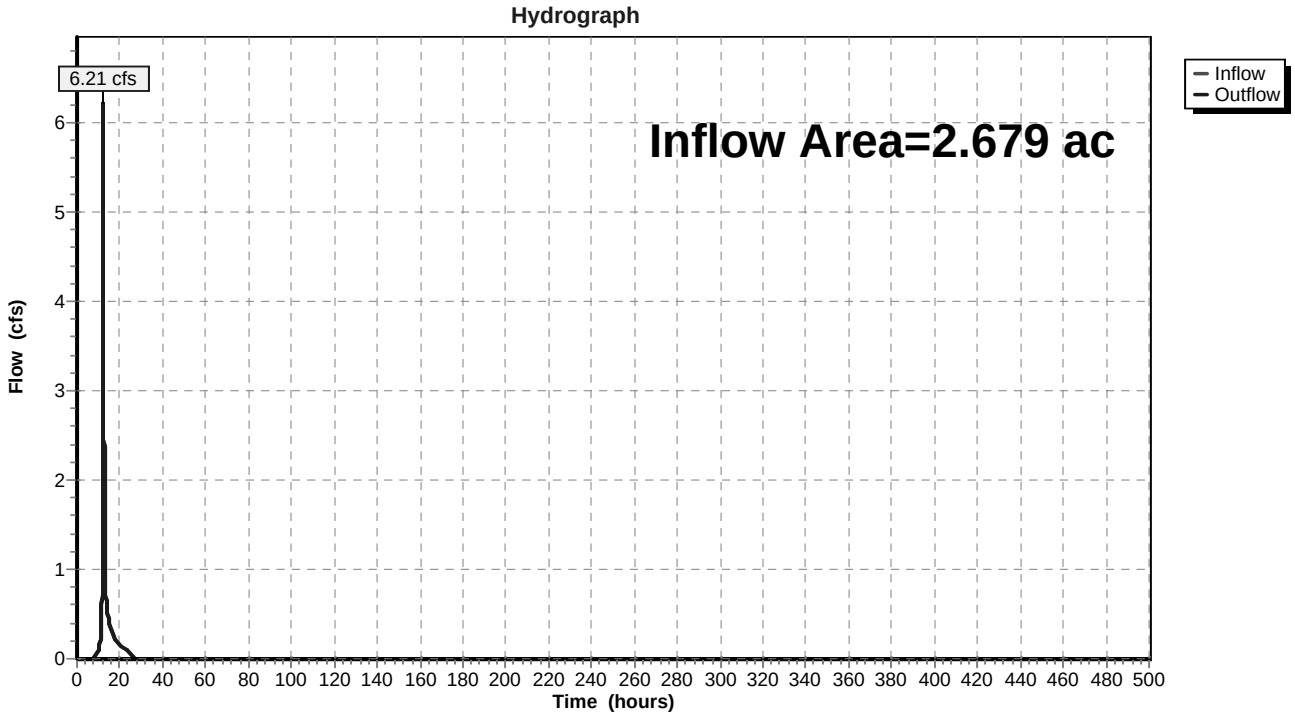


Summary for Reach 3R: Pipes

Inflow Area = 2.679 ac, 14.20% Impervious, Inflow Depth = 2.62" for 10-YR event
Inflow = 6.21 cfs @ 12.21 hrs, Volume= 0.586 af
Outflow = 6.21 cfs @ 12.21 hrs, Volume= 0.586 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Reach 3R: Pipes



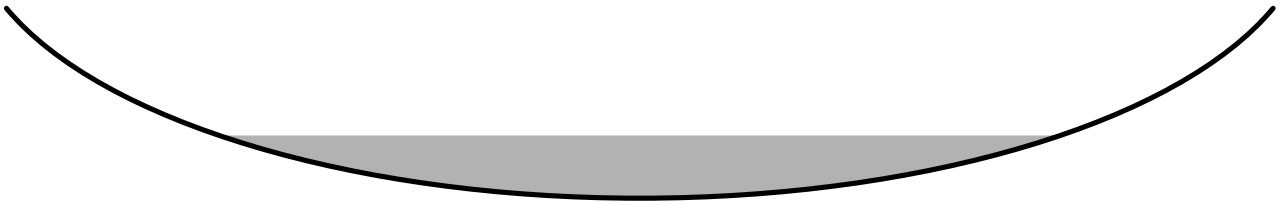
Summary for Reach 4R: WETLAND 'A'

Inflow Area = 1.678 ac, 0.00% Impervious, Inflow Depth = 3.49" for 10-YR event
Inflow = 0.44 cfs @ 13.75 hrs, Volume= 0.487 af
Outflow = 0.42 cfs @ 17.19 hrs, Volume= 0.487 af, Atten= 3%, Lag= 206.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.07 fps, Min. Travel Time= 79.2 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 326.5 min

Peak Storage= 2,015 cf @ 15.87 hrs, Average Depth at Peak Storage= 0.16'
Bank-Full Depth= 0.50', Capacity at Bank-Full= 4.71 cfs

100.00' x 0.50' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 320.0' Slope= 0.0063 '/'
Inlet Invert= 428.00', Outlet Invert= 426.00'



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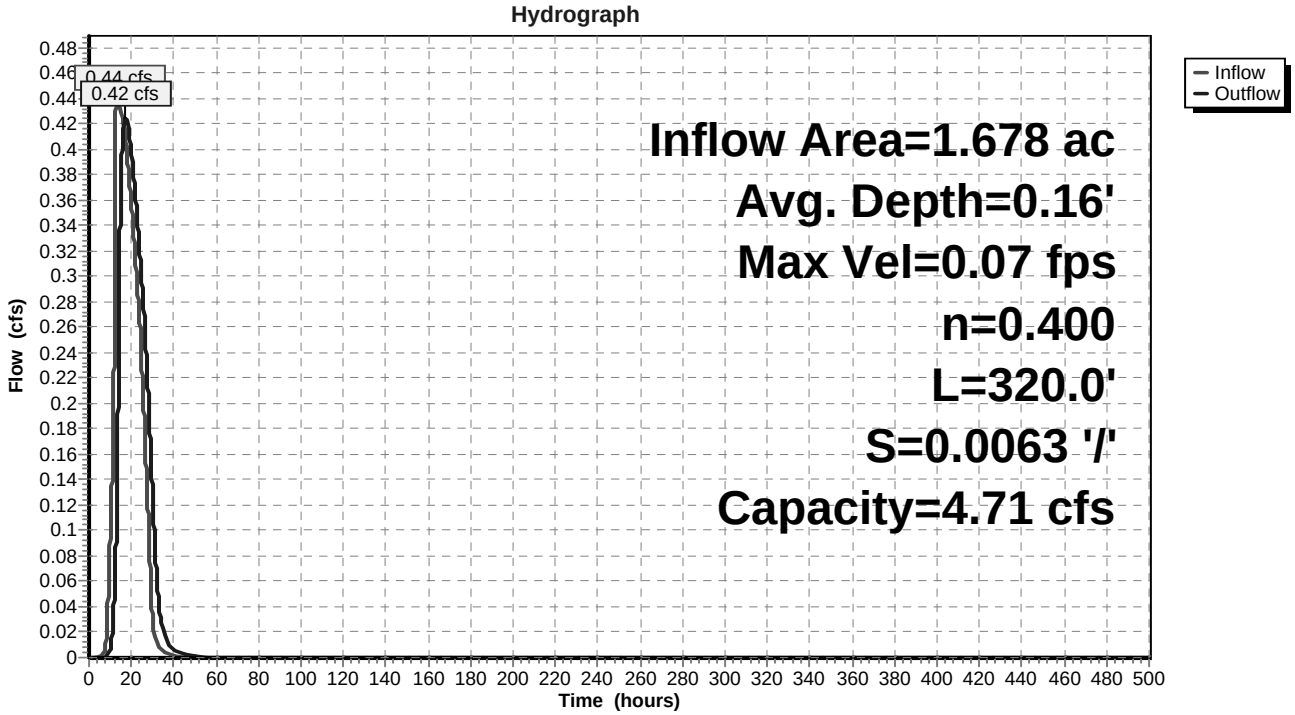
Reach 4R: WETLAND 'A'

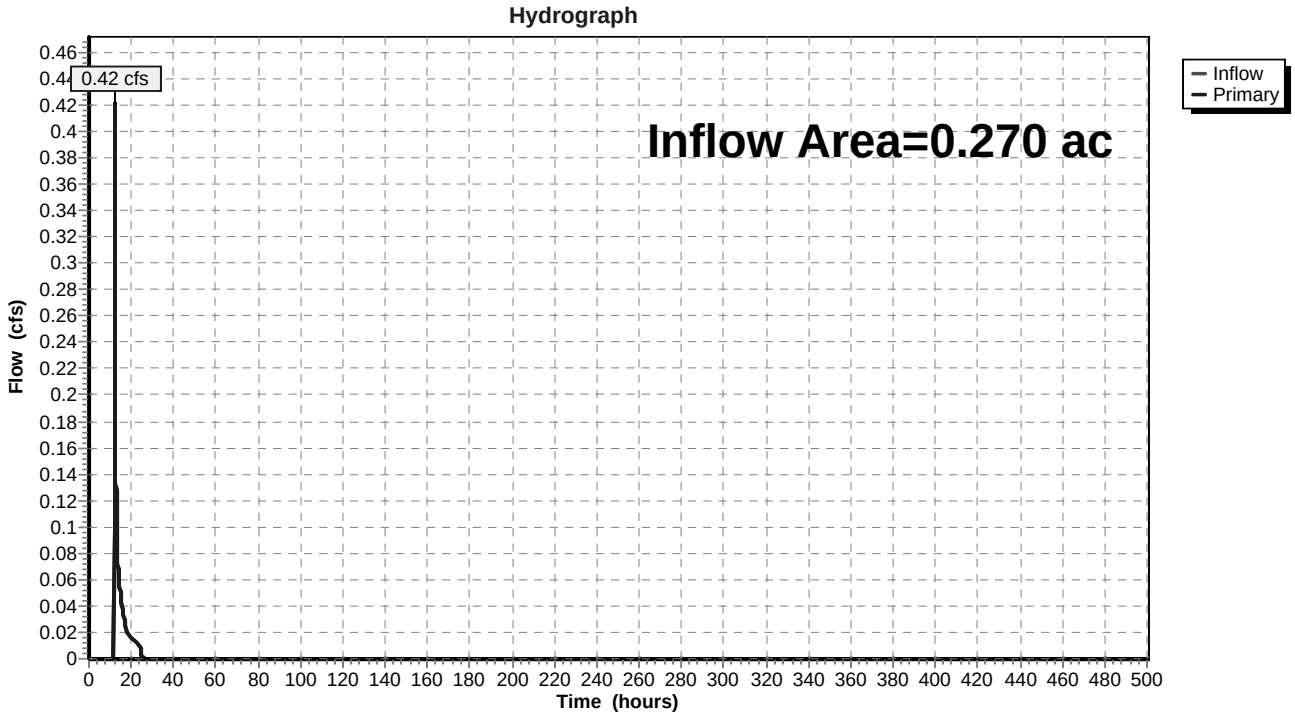


Summary for Pond 1P: WETLAND "A"

Inflow Area = 0.270 ac, 0.00% Impervious, Inflow Depth = 1.85" for 10-YR event
Inflow = 0.42 cfs @ 12.29 hrs, Volume= 0.042 af
Primary = 0.42 cfs @ 12.29 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Pond 1P: WETLAND "A"



Summary for Pond 2P: CATCH BASIN #7

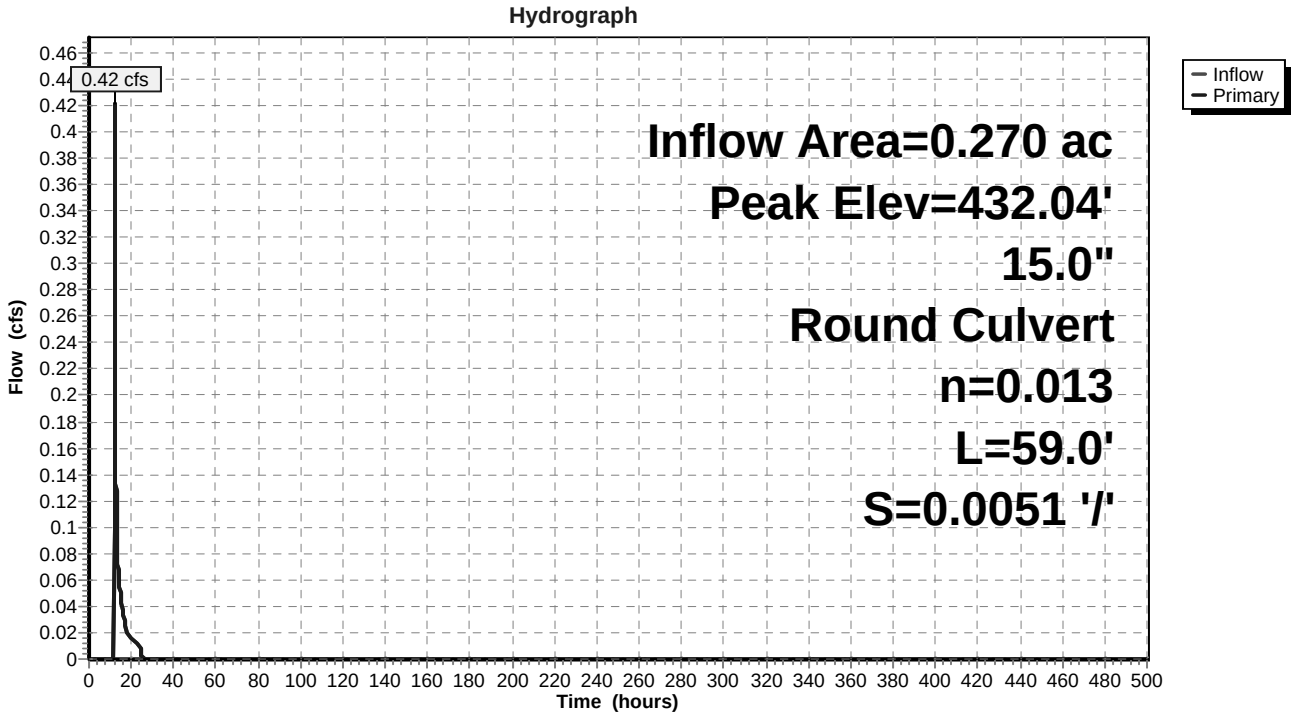
Inflow Area = 0.270 ac, 0.00% Impervious, Inflow Depth = 1.85" for 10-YR event
Inflow = 0.42 cfs @ 12.29 hrs, Volume= 0.042 af
Outflow = 0.42 cfs @ 12.29 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min
Primary = 0.42 cfs @ 12.29 hrs, Volume= 0.042 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 432.04' @ 12.29 hrs
Flood Elev= 435.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	431.68'	**15.0" Round Culvert** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 431.38' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.42 cfs @ 12.29 hrs HW=432.04' (Free Discharge)
1=Culvert (Barrel Controls 0.42 cfs @ 2.18 fps)

Pond 2P: CATCH BASIN #7



Summary for Pond CB1: CATCH BASIN #1

Inflow Area = 1.564 ac, 0.00% Impervious, Inflow Depth = 3.57" for 10-YR event
Inflow = 6.42 cfs @ 12.09 hrs, Volume= 0.465 af
Outflow = 6.42 cfs @ 12.09 hrs, Volume= 0.465 af, Atten= 0%, Lag= 0.0 min
Primary = 6.42 cfs @ 12.09 hrs, Volume= 0.465 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 436.01' @ 12.09 hrs Surf.Area= 2 sf Storage= 0 cf
Flood Elev= 438.00' Surf.Area= 337 sf Storage= 337 cf

Plug-Flow detention time= 0.0 min calculated for 0.465 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (801.2 - 801.2)

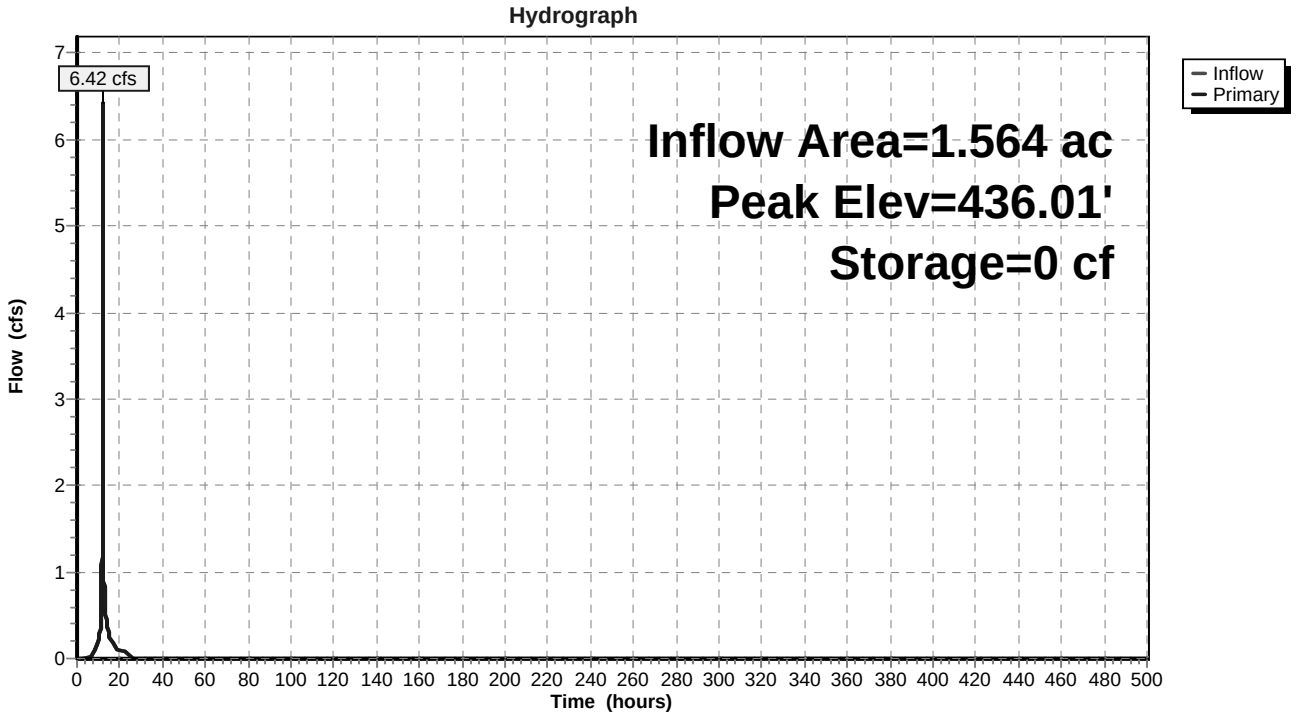
Volume	Invert	Avail.Storage	Storage Description
#1	436.00'	337 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
436.00	0	0	0
438.00	337	337	337

Device	Routing	Invert	Outlet Devices
#1	Primary	433.25'	**15.0" Round Culvert** L= 83.0' CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 430.00' S= 0.0392 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Primary	436.00'	**3.0" x 2.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=8.65 cfs @ 12.09 hrs HW=436.01' (Free Discharge)
└─**1=Culvert** (Inlet Controls 8.64 cfs @ 7.04 fps)
└─**2=Orifice/Grate** (Weir Controls 0.01 cfs @ 0.40 fps)

Pond CB1: CATCH BASIN #1

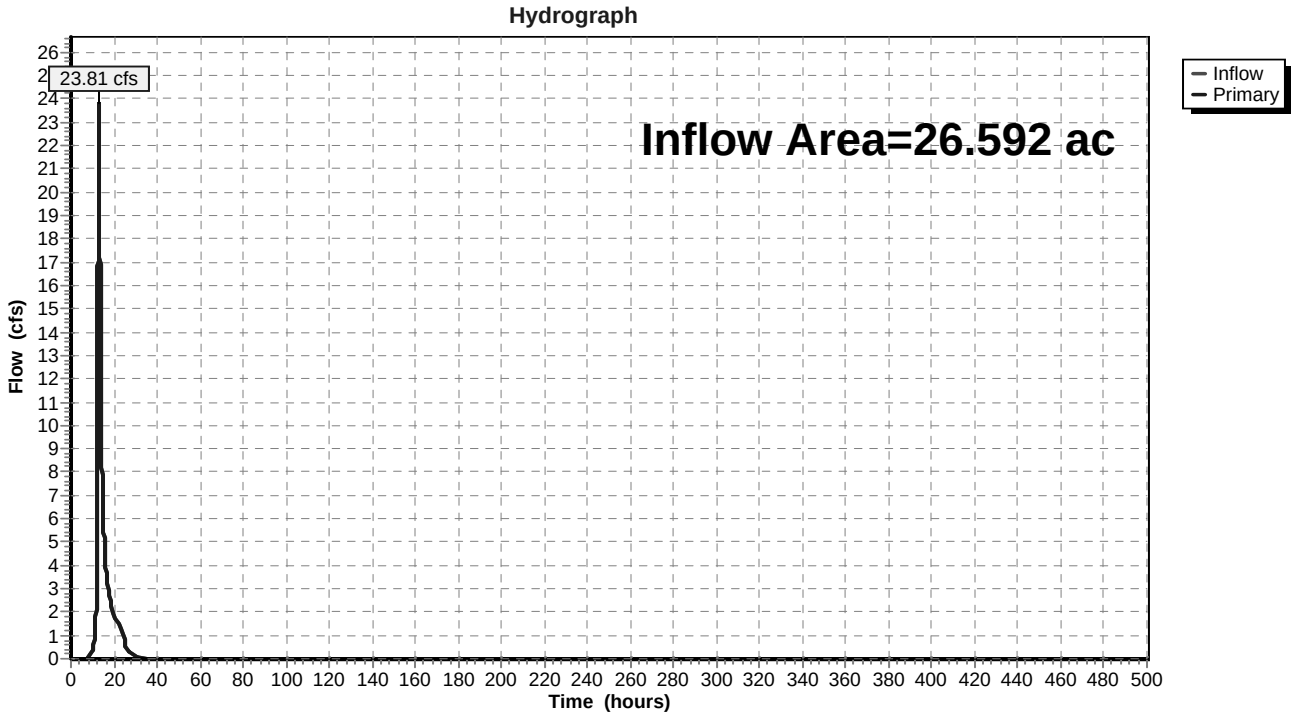


Summary for Pond DP1: DESIGN POINT 1 (3'x1' CONC. BOX CULVERT)

Inflow Area = 26.592 ac, 0.00% Impervious, Inflow Depth = 2.48" for 10-YR event
Inflow = 23.81 cfs @ 12.94 hrs, Volume= 5.505 af
Primary = 23.81 cfs @ 12.94 hrs, Volume= 5.505 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Pond DP1: DESIGN POINT 1 (3'x1' CONC. BOX CULVERT)



Summary for Pond P-1: Wet Pond

Inflow Area = 17.690 ac, 38.01% Impervious, Inflow Depth = 3.69" for 10-YR event
Inflow = 69.93 cfs @ 12.09 hrs, Volume= 5.434 af
Outflow = 2.27 cfs @ 16.00 hrs, Volume= 5.434 af, Atten= 97%, Lag= 234.9 min
Primary = 2.27 cfs @ 16.00 hrs, Volume= 5.434 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Starting Elev= 422.00' Surf.Area= 30,655 sf Storage= 75,367 cf
Peak Elev= 426.23' @ 16.00 hrs Surf.Area= 47,978 sf Storage= 242,770 cf (167,403 cf above start)
Flood Elev= 429.00' Surf.Area= 59,091 sf Storage= 390,986 cf (315,619 cf above start)

Plug-Flow detention time= 1,913.1 min calculated for 3.704 af (68% of inflow)
Center-of-Mass det. time= 1,298.6 min (2,094.5 - 795.8)

Volume	Invert	Avail.Storage	Storage Description
#1	418.00'	452,178 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

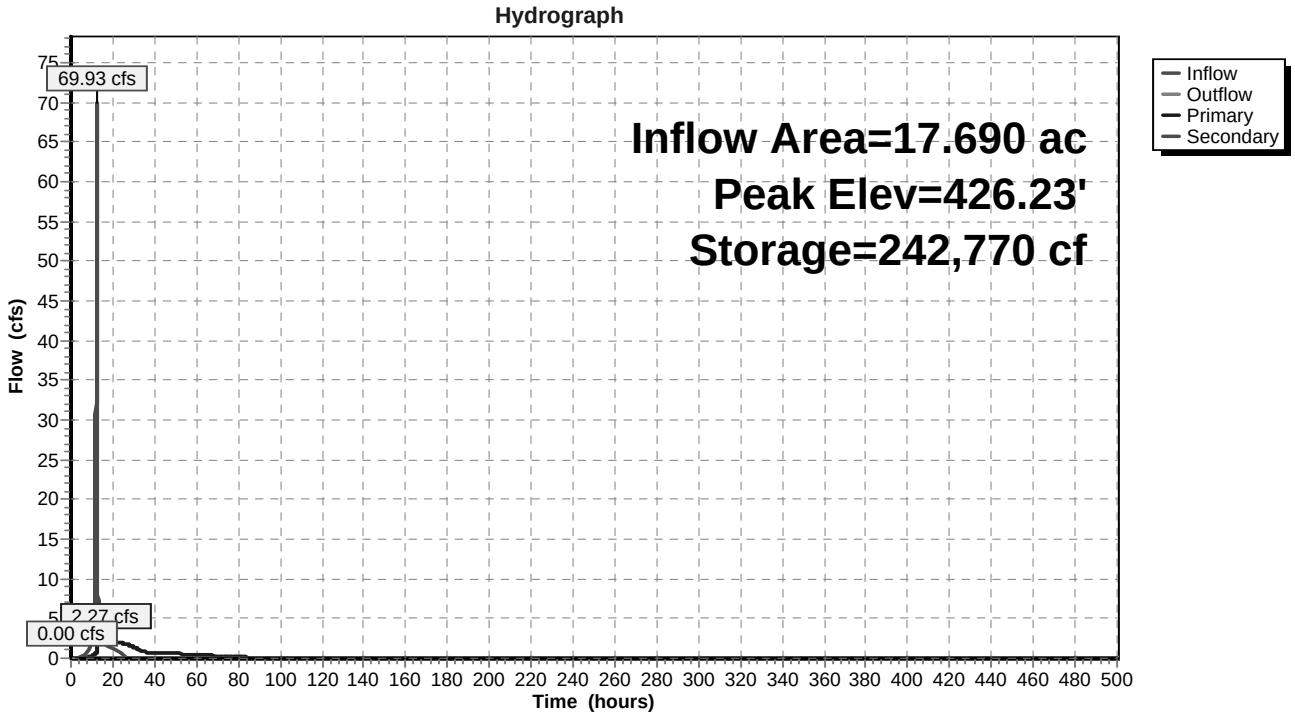
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
418.00	14,212	0	0
420.00	16,608	30,820	30,820
421.00	19,142	17,875	48,695
421.50	28,445	11,897	60,592
422.00	30,655	14,775	75,367
423.00	34,805	32,730	108,097
424.00	39,588	37,197	145,293
425.00	43,288	41,438	186,731
426.00	47,088	45,188	231,919
427.00	50,988	49,038	280,957
428.00	54,989	52,989	333,946
429.00	59,091	57,040	390,986
430.00	63,293	61,192	452,178

Device	Routing	Invert	Outlet Devices
#1	Primary	421.85'	**30.0" Round Culvert** L= 25.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 421.50' S= 0.0140 '/' Cc= 0.900 n= 0.013
#2	Device 1	422.00'	**4.4" Vert. Orifice/Grate** C= 0.600
#3	Device 1	424.24'	**6.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	426.50'	**2.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Secondary	429.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir X 0.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=2.27 cfs @ 16.00 hrs HW=426.23' (Free Discharge)
└─**1=Culvert** (Passes 2.27 cfs of 33.00 cfs potential flow)
  └─**2=Orifice/Grate** (Orifice Controls 1.02 cfs @ 9.68 fps)
  └─**3=Orifice/Grate** (Orifice Controls 1.25 cfs @ 6.35 fps)
  └─**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=422.00' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-1: Wet Pond



Summary for Pond SD-1: SEDIMENT CONTROL & DETENTION FACILITY #1

Inflow Area = 1.062 ac, 0.00% Impervious, Inflow Depth = 2.71" for 10-YR event
Inflow = 3.38 cfs @ 12.09 hrs, Volume= 0.240 af
Outflow = 0.41 cfs @ 12.81 hrs, Volume= 0.240 af, Atten= 88%, Lag= 43.2 min
Primary = 0.41 cfs @ 12.81 hrs, Volume= 0.240 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 435.12' @ 12.81 hrs Surf.Area= 2,477 sf Storage= 4,135 cf
Flood Elev= 438.50' Surf.Area= 8,300 sf Storage= 21,624 cf

Plug-Flow detention time= 102.1 min calculated for 0.240 af (100% of inflow)
Center-of-Mass det. time= 102.1 min (929.2 - 827.1)

Volume	Invert	Avail.Storage	Storage Description
#1	432.00'	21,624 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

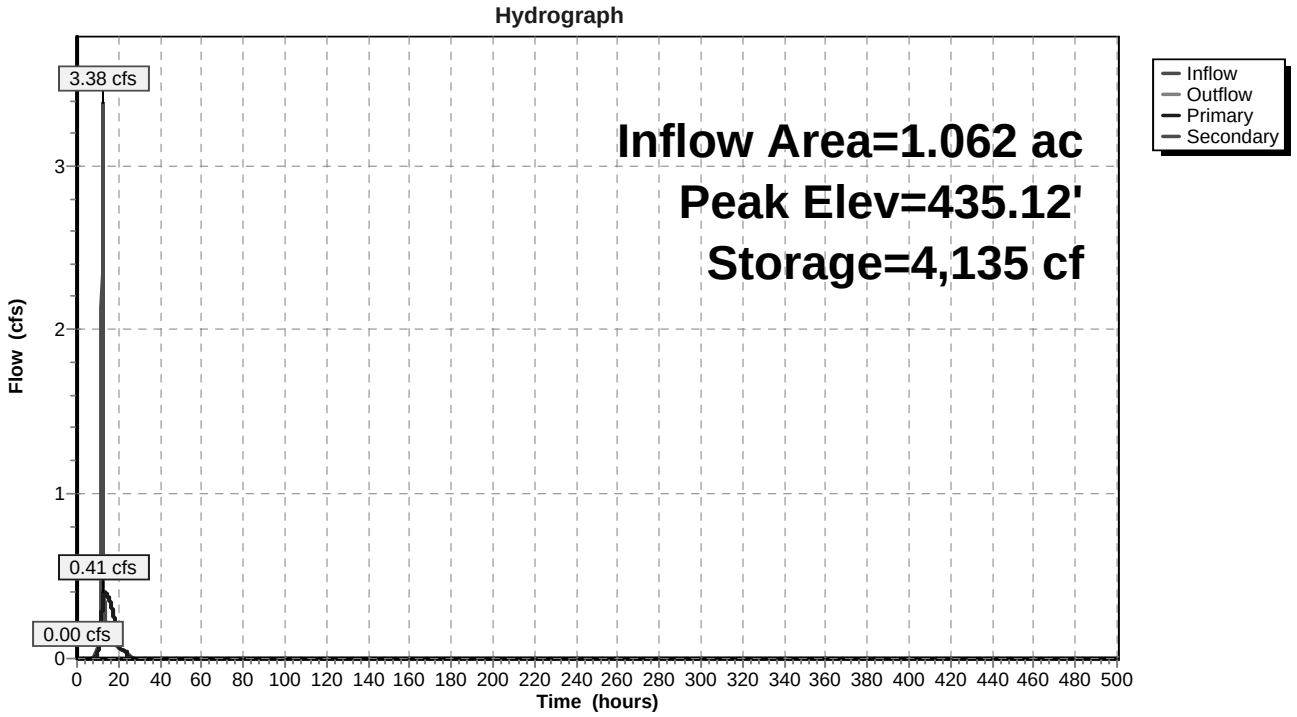
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
432.00	421	0	0
433.00	890	656	656
434.00	1,563	1,227	1,882
435.00	2,373	1,968	3,850
435.25	2,595	621	4,471
436.00	3,937	2,450	6,921
437.00	5,237	4,587	11,508
438.00	7,230	6,234	17,741
438.50	8,300	3,883	21,624

Device	Routing	Invert	Outlet Devices
#1	Primary	432.00'	**12.0" Round Culvert** L= 25.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 431.50' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	432.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	435.50'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Secondary	437.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.41 cfs @ 12.81 hrs HW=435.12' (Free Discharge)
└**1=Culvert** (Passes 0.41 cfs of 4.83 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.41 cfs @ 8.33 fps)
  └**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=432.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond SD-1: SEDIMENT CONTROL & DETENTION FACILITY #1



Summary for Pond SD-2: SEDIMENT CONTROL & DETENTION FACILITY #2

Inflow Area = 2.806 ac, 0.00% Impervious, Inflow Depth = 3.37" for 10-YR event
Inflow = 10.97 cfs @ 12.09 hrs, Volume= 0.788 af
Outflow = 2.87 cfs @ 12.46 hrs, Volume= 0.788 af, Atten= 74%, Lag= 22.5 min
Primary = 2.87 cfs @ 12.46 hrs, Volume= 0.788 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 433.28' @ 12.46 hrs Surf.Area= 5,214 sf Storage= 15,083 cf
Flood Elev= 436.00' Surf.Area= 11,601 sf Storage= 34,126 cf

Plug-Flow detention time= 262.2 min calculated for 0.787 af (100% of inflow)
Center-of-Mass det. time= 262.2 min (1,069.8 - 807.5)

Volume	Invert	Avail.Storage	Storage Description
#1	429.00'	34,126 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

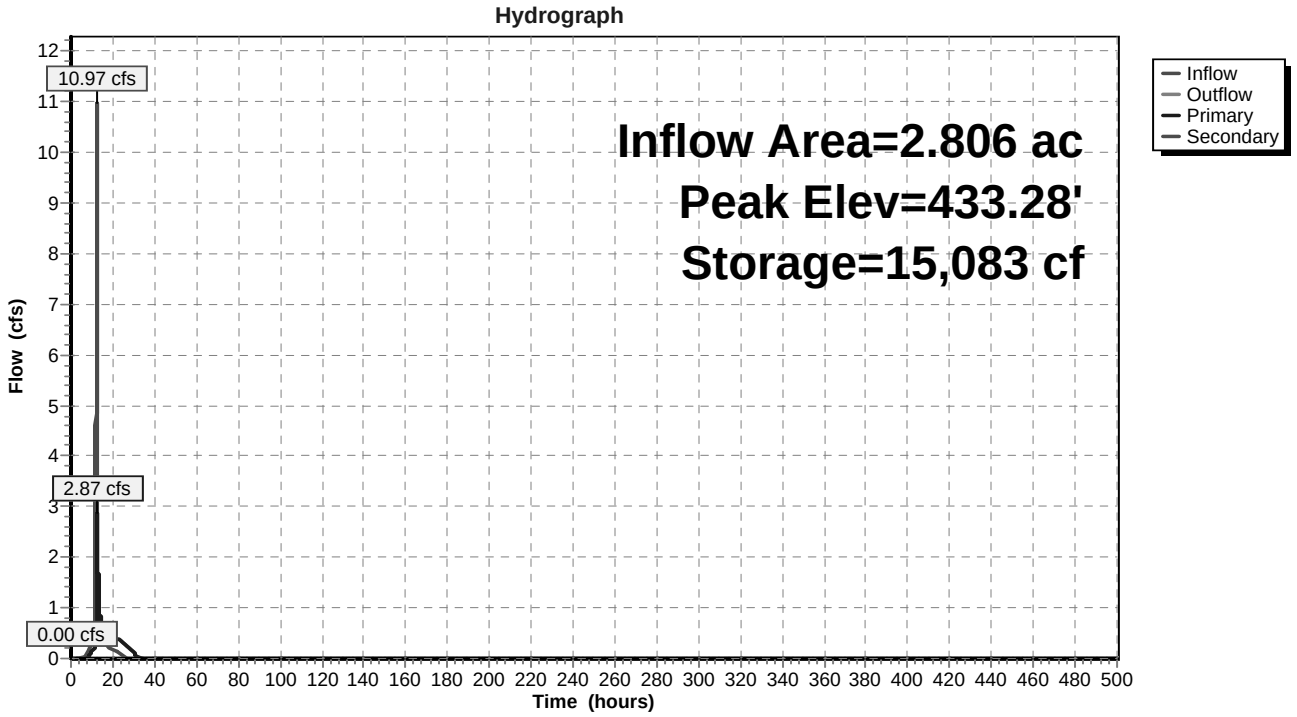
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
429.00	1,850	0	0
430.00	2,508	2,179	2,179
431.00	3,233	2,871	5,050
432.00	4,022	3,628	8,677
432.25	4,246	1,034	9,711
433.00	5,982	3,836	13,546
433.25	5,118	1,388	14,934
434.00	7,617	4,776	19,709
435.00	10,277	8,947	28,656
435.50	11,601	5,470	34,126

Device	Routing	Invert	Outlet Devices
#1	Primary	429.00'	**12.0" Round Culvert** L= 34.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 428.66' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	429.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	432.75'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Secondary	434.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=2.86 cfs @ 12.46 hrs HW=433.28' (Free Discharge)
└**1=Culvert** (Passes 2.86 cfs of 5.80 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.48 cfs @ 9.81 fps)
└**3=Sharp-Crested Rectangular Weir** (Weir Controls 2.38 cfs @ 2.38 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=429.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond SD-2: SEDIMENT CONTROL & DETENTION FACILITY #2



Summary for Pond SD-3: PIPE OUTLET SEDIMENT FACILITY #3

Inflow Area = 0.270 ac, 0.00% Impervious, Inflow Depth = 3.08" for 10-YR event
Inflow = 0.97 cfs @ 12.09 hrs, Volume= 0.069 af
Outflow = 0.42 cfs @ 12.29 hrs, Volume= 0.042 af, Atten= 57%, Lag= 12.4 min
Primary = 0.42 cfs @ 12.29 hrs, Volume= 0.042 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 433.60' @ 12.29 hrs Surf.Area= 1,145 sf Storage= 1,314 cf
Flood Elev= 436.50' Surf.Area= 3,246 sf Storage= 7,431 cf

Plug-Flow detention time= 193.7 min calculated for 0.042 af (60% of inflow)
Center-of-Mass det. time= 87.8 min (904.0 - 816.3)

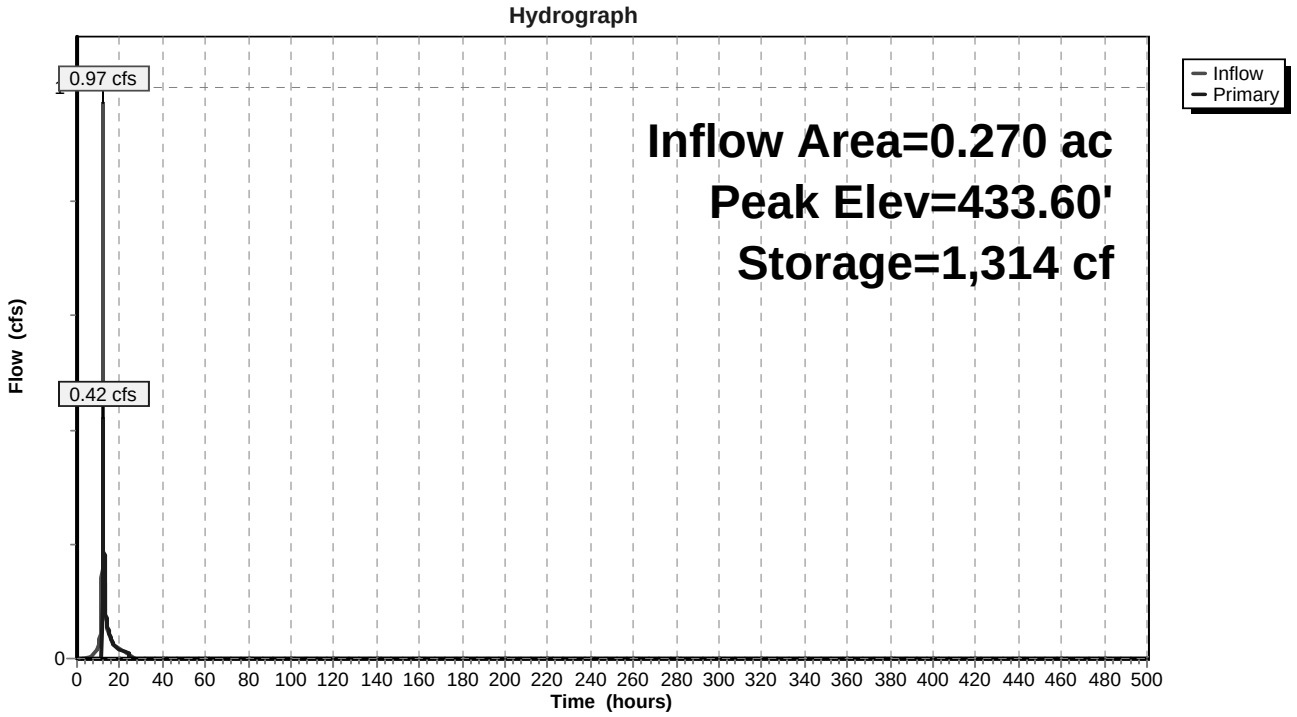
Volume	Invert	Avail.Storage	Storage Description
#1	432.00'	7,431 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
432.00	615	0	0
433.00	827	721	721
434.00	1,356	1,092	1,813
435.00	2,023	1,690	3,502
436.00	2,808	2,416	5,918
436.50	3,246	1,514	7,431

Device	Routing	Invert	Outlet Devices
#1	Primary	432.00'	**12.0" Round Culvert** L= 64.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 431.68' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	433.50'	**15.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.41 cfs @ 12.29 hrs HW=433.60' (Free Discharge)
↑—**1=Culvert** (Passes 0.41 cfs of 3.06 cfs potential flow)
↑—**2=Orifice/Grate** (Weir Controls 0.41 cfs @ 1.04 fps)

Pond SD-3: PIPE OUTLET SEDIMENT FACILITY #3



Summary for Pond SD-4: SEDIMENT CONTROL & DETENTION FACILITY #4

Inflow Area = 1.678 ac, 0.00% Impervious, Inflow Depth = 3.49" for 10-YR event
Inflow = 6.74 cfs @ 12.09 hrs, Volume= 0.487 af
Outflow = 0.44 cfs @ 13.75 hrs, Volume= 0.487 af, Atten= 94%, Lag= 100.1 min
Primary = 0.44 cfs @ 13.75 hrs, Volume= 0.487 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 434.54' @ 13.75 hrs Surf.Area= 4,525 sf Storage= 11,272 cf
Flood Elev= 436.75' Surf.Area= 5,708 sf Storage= 22,681 cf

Plug-Flow detention time= 311.2 min calculated for 0.487 af (100% of inflow)
Center-of-Mass det. time= 311.3 min (1,114.2 - 802.9)

Volume	Invert	Avail.Storage	Storage Description
#1	431.00'	22,681 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

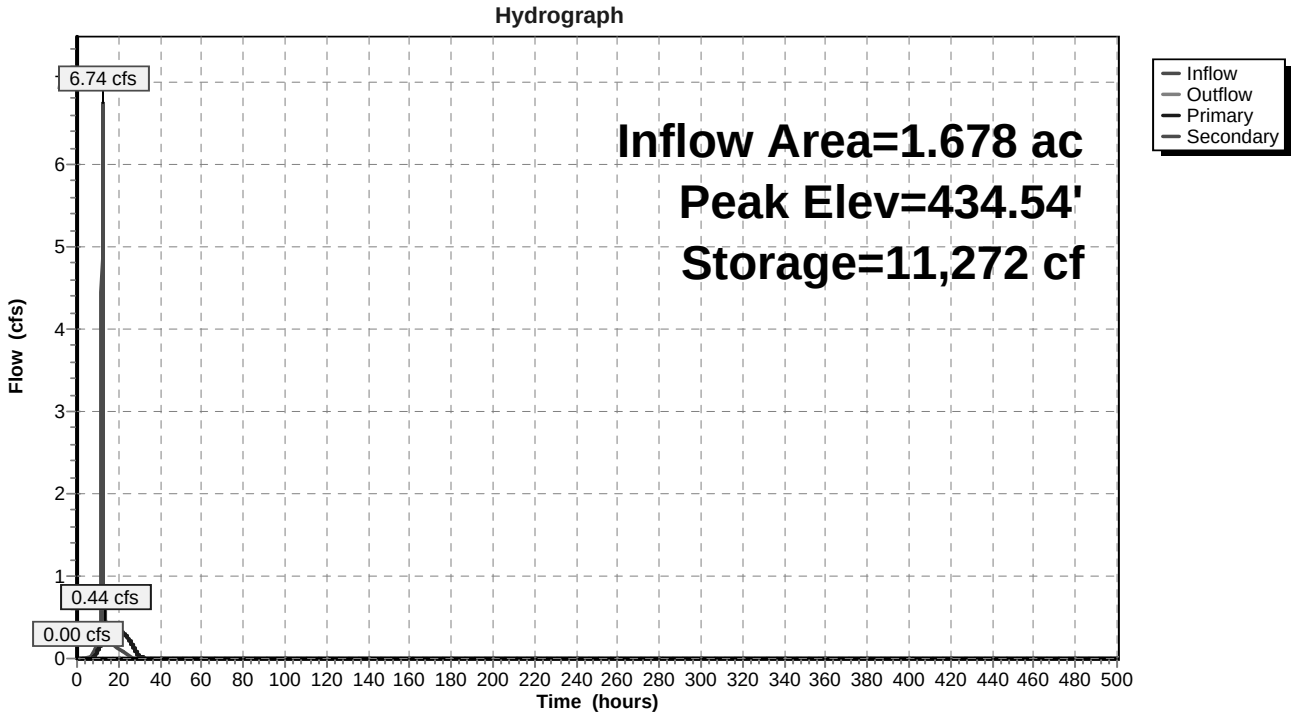
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
431.00	2,238	0	0
432.00	2,683	2,461	2,461
433.00	3,154	2,919	5,379
433.50	3,400	1,639	7,018
434.00	4,213	1,903	8,921
435.00	4,792	4,503	13,423
436.00	5,396	5,094	18,517
436.75	5,708	4,164	22,681

Device	Routing	Invert	Outlet Devices
#1	Primary	431.00'	**12.0" Round Culvert** L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 430.50' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	431.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	435.00'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Secondary	435.75'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.44 cfs @ 13.75 hrs HW=434.54' (Free Discharge)
└**1=Culvert** (Passes 0.44 cfs of 5.20 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.44 cfs @ 8.90 fps)
└**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=431.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond SD-4: SEDIMENT CONTROL & DETENTION FACILITY #4



Summary for Pond SD-5: SEDIMENT CONTROL FACILITY #5

Inflow Area = 4.041 ac, 0.00% Impervious, Inflow Depth = 3.37" for 10-YR event
Inflow = 15.80 cfs @ 12.09 hrs, Volume= 1.134 af
Outflow = 11.17 cfs @ 12.17 hrs, Volume= 1.134 af, Atten= 29%, Lag= 4.7 min
Primary = 11.17 cfs @ 12.17 hrs, Volume= 1.134 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Starting Elev= 421.75' Surf.Area= 7,651 sf Storage= 24,405 cf
Peak Elev= 422.63' @ 12.17 hrs Surf.Area= 8,638 sf Storage= 31,603 cf (7,198 cf above start)
Flood Elev= 424.00' Surf.Area= 10,196 sf Storage= 44,463 cf (20,058 cf above start)

Plug-Flow detention time= 250.5 min calculated for 0.574 af (51% of inflow)
Center-of-Mass det. time= 21.3 min (828.9 - 807.5)

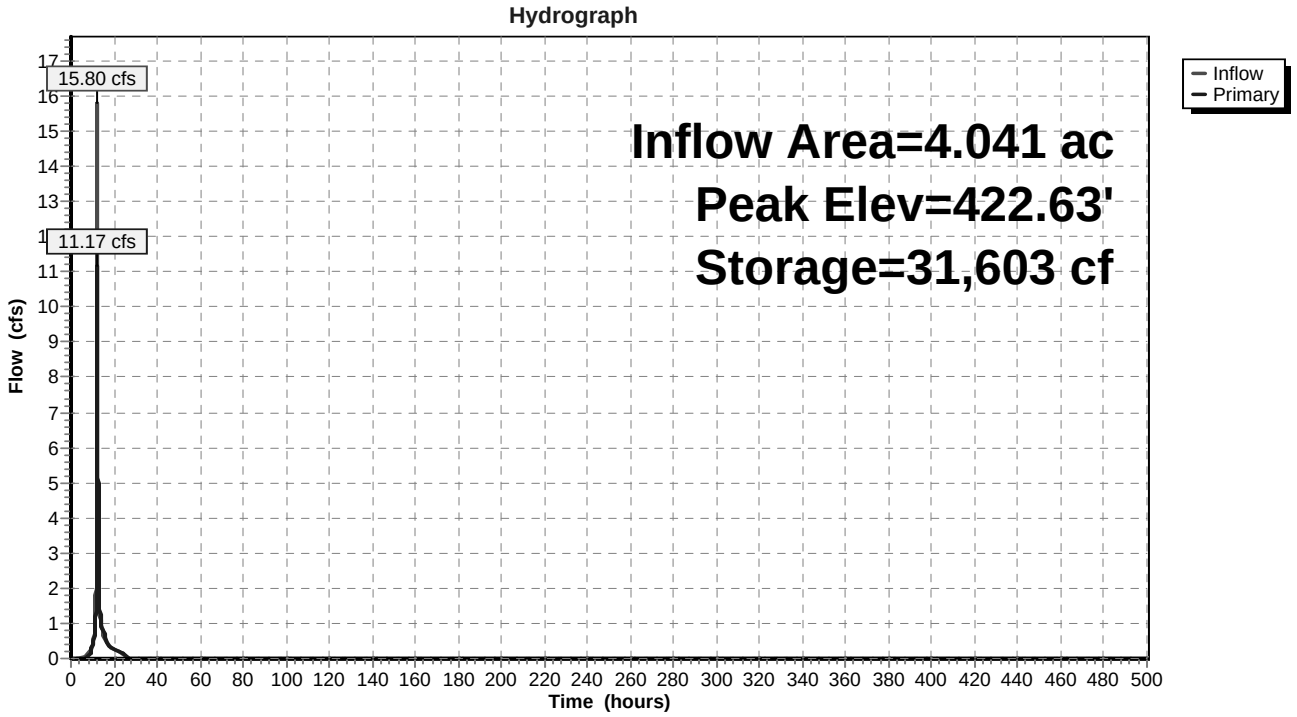
Volume	Invert	Avail.Storage	Storage Description
#1	417.00'	44,463 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
417.00	2,729	0	0
418.00	3,711	3,220	3,220
419.00	4,722	4,217	7,437
420.00	5,763	5,243	12,679
420.75	6,561	4,622	17,301
421.00	6,831	1,674	18,975
421.75	7,651	5,431	24,405
422.00	7,927	1,947	26,353
423.00	9,049	8,488	34,841
424.00	10,196	9,623	44,463

Device	Routing	Invert	Outlet Devices
#1	Primary	421.75'	**5.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=11.15 cfs @ 12.17 hrs HW=422.63' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 11.15 cfs @ 2.52 fps)

Pond SD-5: SEDIMENT CONTROL FACILITY #5

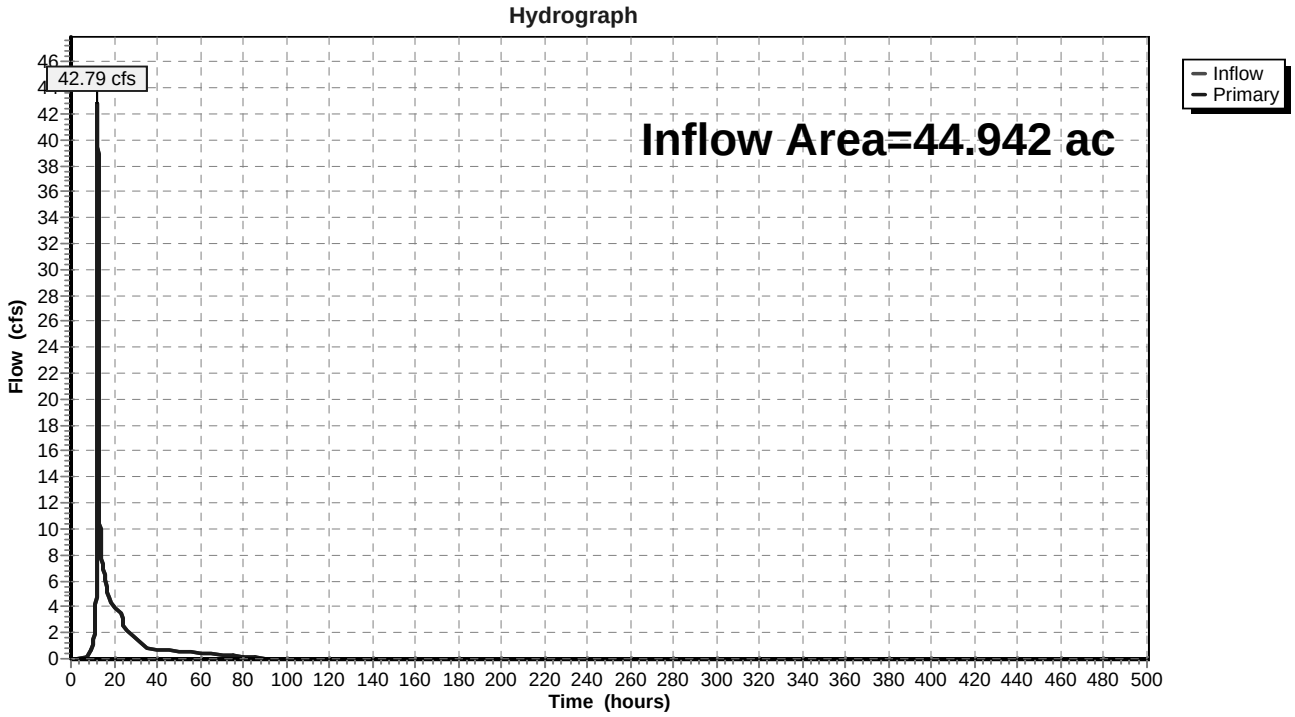


Summary for Pond zDP2: DESIGN POINT 2 (36" RCP CULVERT)

Inflow Area = 44.942 ac, 15.87% Impervious, Inflow Depth = 3.05" for 10-YR event
Inflow = 42.79 cfs @ 12.42 hrs, Volume= 11.438 af
Primary = 42.79 cfs @ 12.42 hrs, Volume= 11.438 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Pond zDP2: DESIGN POINT 2 (36" RCP CULVERT)



Summary for Subcatchment PS-1:

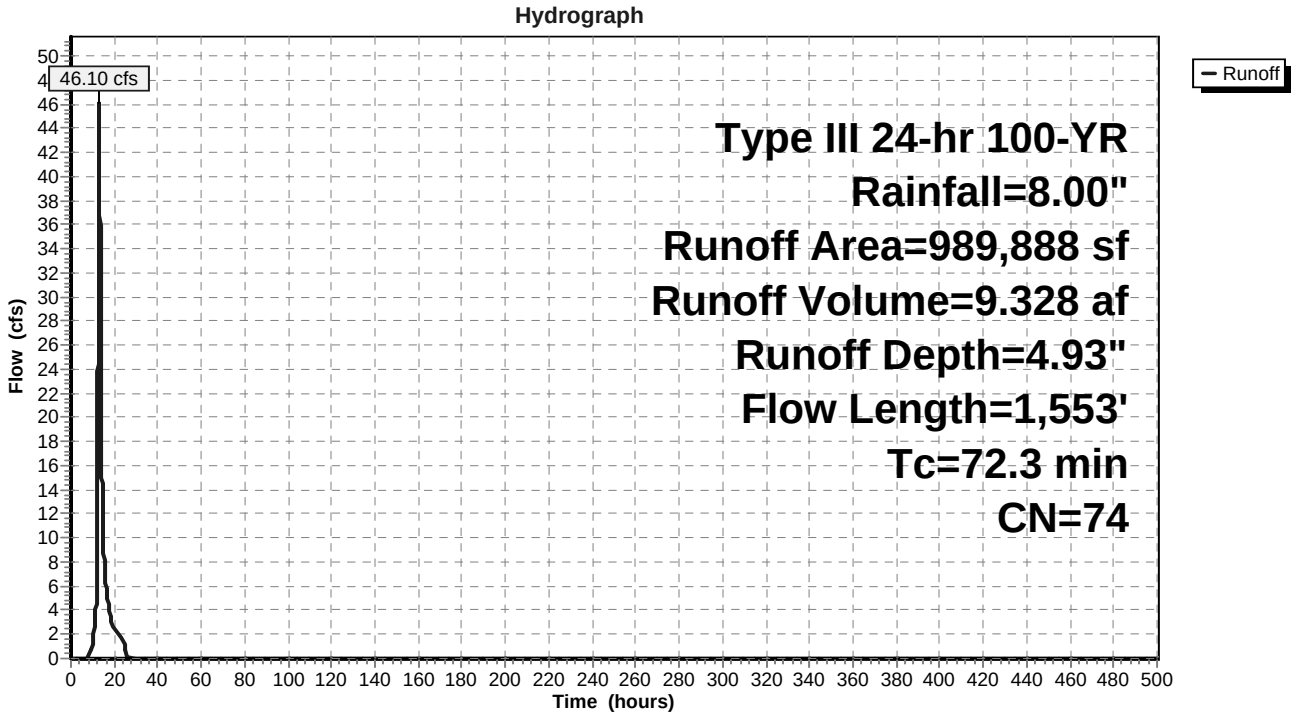
Runoff = 46.10 cfs @ 12.94 hrs, Volume= 9.328 af, Depth= 4.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.00"

Area (sf)	CN	Description
17,027	70	Brush, Fair, HSG C
749,116	73	Woods, Fair, HSG C
123,257	79	Woods, Fair, HSG D
59,089	77	Brush, Fair, HSG D
41,399	74	>75% Grass cover, Good, HSG C
989,888	74	Weighted Average
989,888		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
47.2	100	0.0100	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.2	80	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.1	593	0.0780	1.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
15.8	780	0.0030	0.82		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
72.3	1,553	Total			

Subcatchment PS-1:



Summary for Subcatchment PS-2:

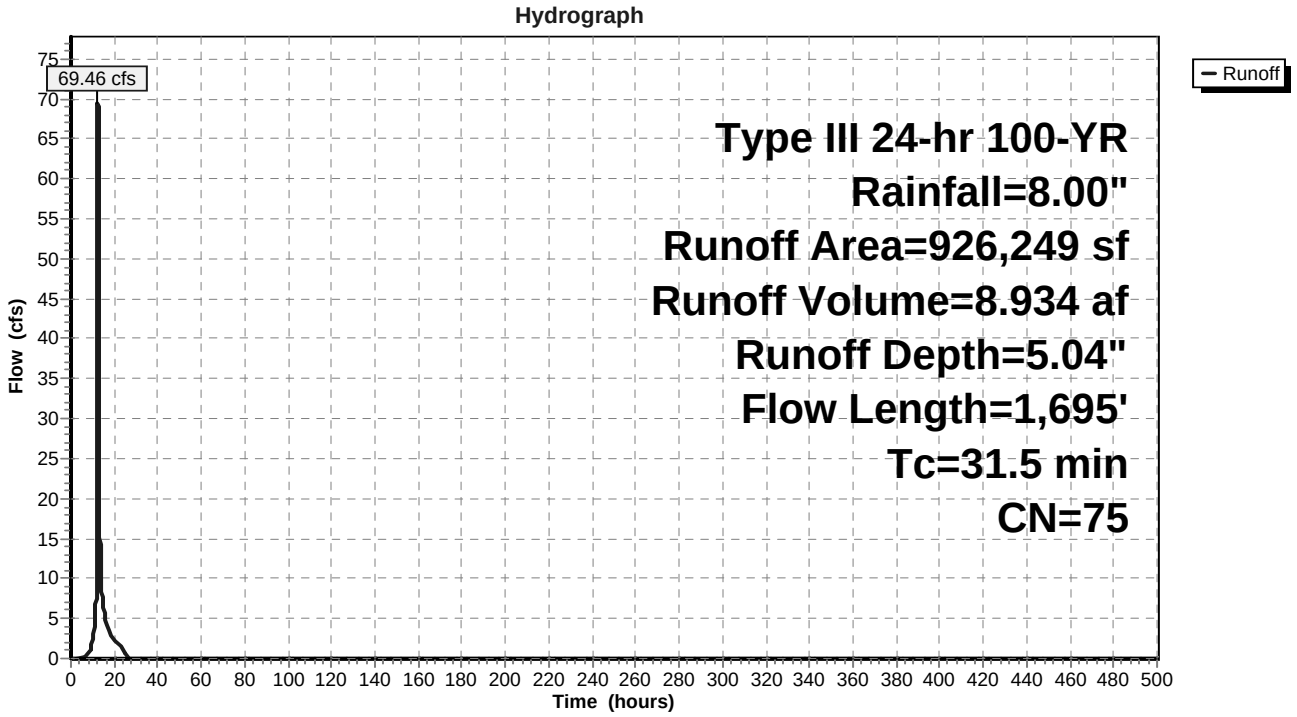
Runoff = 69.46 cfs @ 12.43 hrs, Volume= 8.934 af, Depth= 5.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.00"

	Area (sf)	CN	Description
	60,690	89	Gravel roads, HSG C
	1,678	70	Brush, Fair, HSG C
	692,579	73	Woods, Fair, HSG C
*	17,769	98	Paved parking and buildings HSG C
	26,415	79	Woods, Fair, HSG D
	14,855	91	Gravel roads, HSG D
	29,874	61	>75% Grass cover, Good, HSG B
	79,067	74	>75% Grass cover, Good, HSG C
	2,391	80	>75% Grass cover, Good, HSG D
	931	56	Brush, Fair, HSG B
	926,249	75	Weighted Average
	908,480		98.08% Pervious Area
	17,769		1.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.0	100	0.0600	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.50"
2.5	235	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	42	0.0800	5.74		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	151	0.1300	5.41		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
2.2	330	0.0270	2.46		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.8	360	0.0200	3.34	2.62	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
1.4	477	0.0125	5.75	115.01	**Channel Flow,** Area= 20.0 sf Perim= 15.0' r= 1.33' n= 0.035 Earth, dense weeds
31.5	1,695	Total			

Subcatchment PS-2:



Summary for Subcatchment PS-2.2:

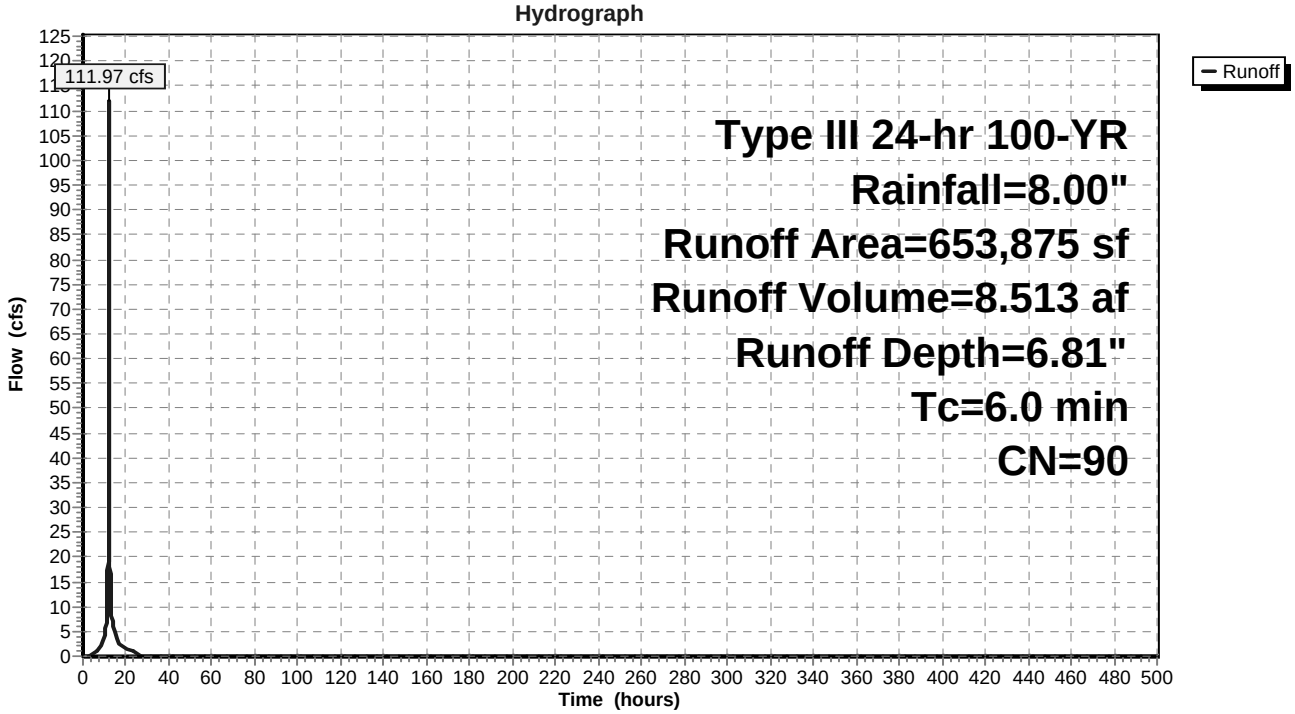
Runoff = 111.97 cfs @ 12.08 hrs, Volume= 8.513 af, Depth= 6.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.00"

Area (sf)	CN	Description
65,818	89	Gravel roads, HSG C
18,237	91	Gravel roads, HSG D
20,546	61	>75% Grass cover, Good, HSG B
240,237	85	Gravel roads, HSG B
20,235	74	>75% Grass cover, Good, HSG C
30,655	98	Water Surface, HSG B
143,453	98	Roofs, HSG A
102,225	98	Paved parking, HSG A
12,469	80	>75% Grass cover, Good, HSG D
653,875	90	Weighted Average
377,542		57.74% Pervious Area
276,333		42.26% Impervious Area

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

Subcatchment PS-2.2:



Summary for Subcatchment PS-2.4:

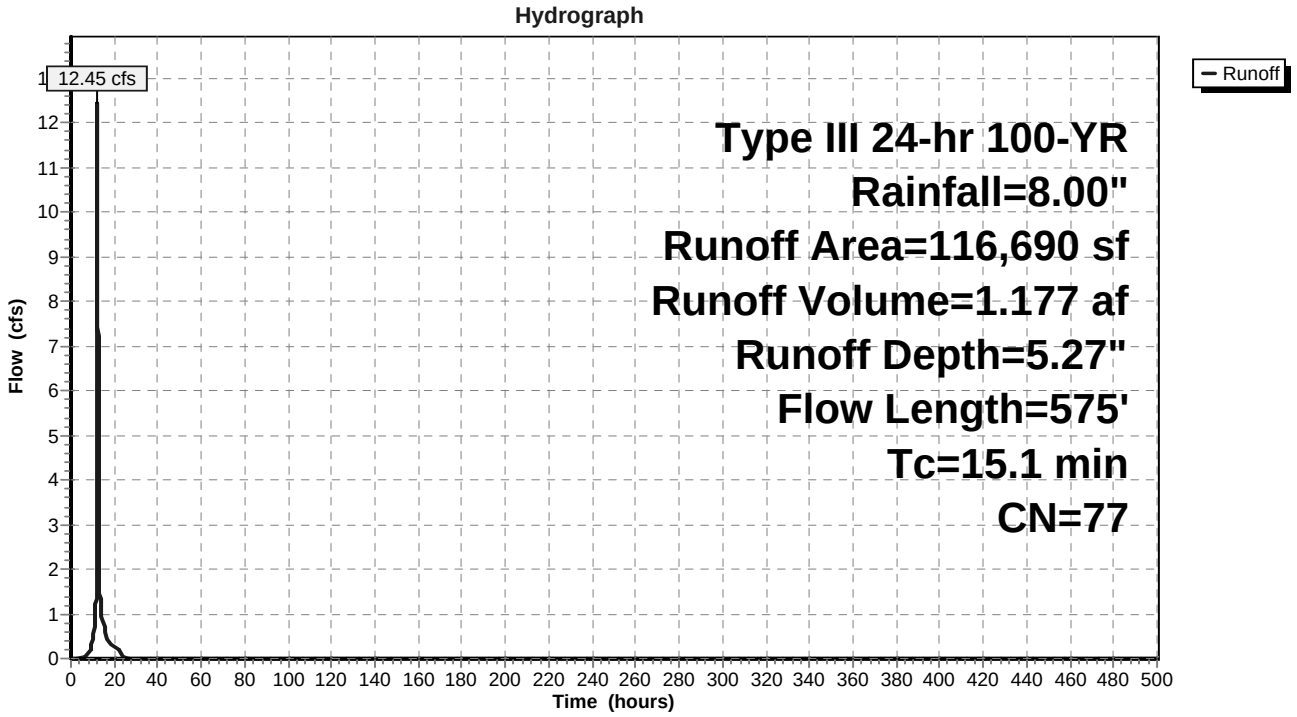
Runoff = 12.45 cfs @ 12.20 hrs, Volume= 1.177 af, Depth= 5.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.00"

Area (sf)	CN	Description
86,696	73	Woods, Fair, HSG C
13,423	74	>75% Grass cover, Good, HSG C
16,571	98	Paved parking, HSG C
116,690	77	Weighted Average
100,119		85.80% Pervious Area
16,571		14.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.0200	1.04		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
10.9	80	0.0625	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
3.8	295	0.0661	1.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	180	0.0722	21.12	563.30	**Parabolic Channel,** W=10.00' D=4.00' Area=26.7 sf Perim=13.3' n= 0.030 Earth, grassed & winding
15.1	575	Total			

Subcatchment PS-2.4:



Summary for Subcatchment PS-3:

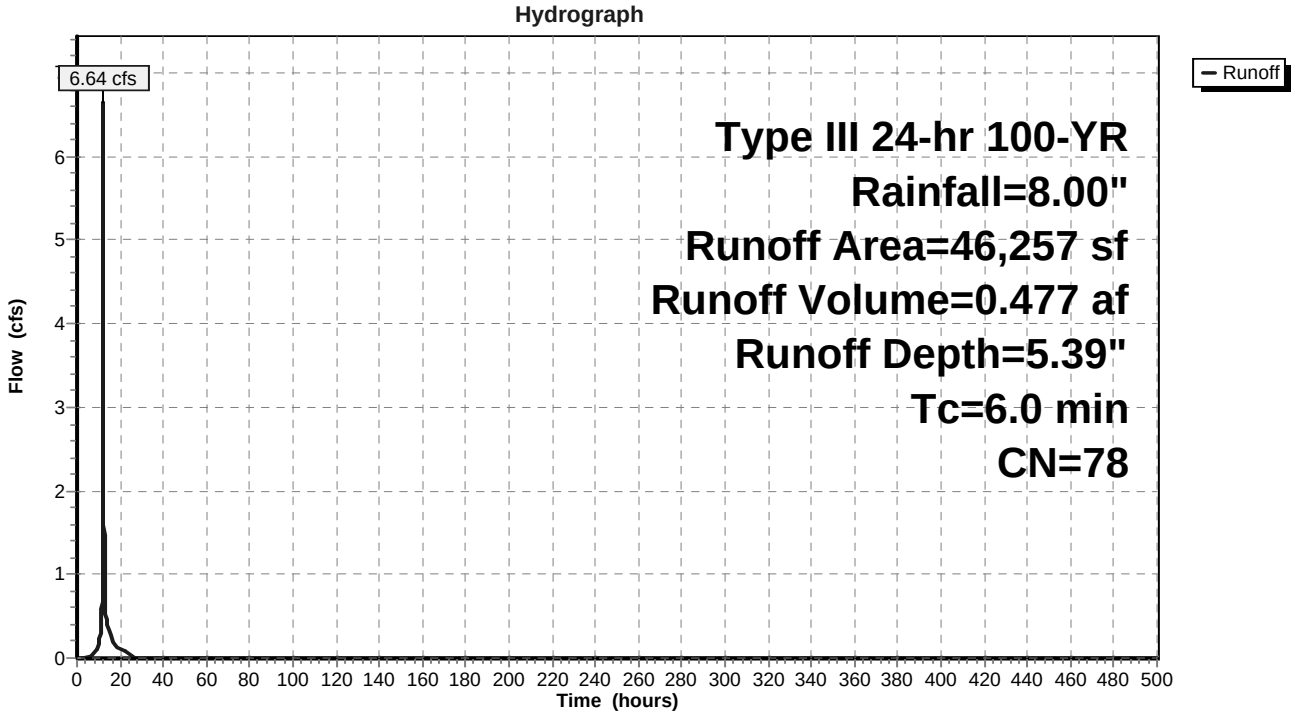
Runoff = 6.64 cfs @ 12.09 hrs, Volume= 0.477 af, Depth= 5.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.00"

Area (sf)	CN	Description
35,199	74	>75% Grass cover, Good, HSG C
11,058	89	Gravel roads, HSG C
46,257	78	Weighted Average
46,257		100.00% Pervious Area

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

Subcatchment PS-3:



Summary for Subcatchment PS-4:

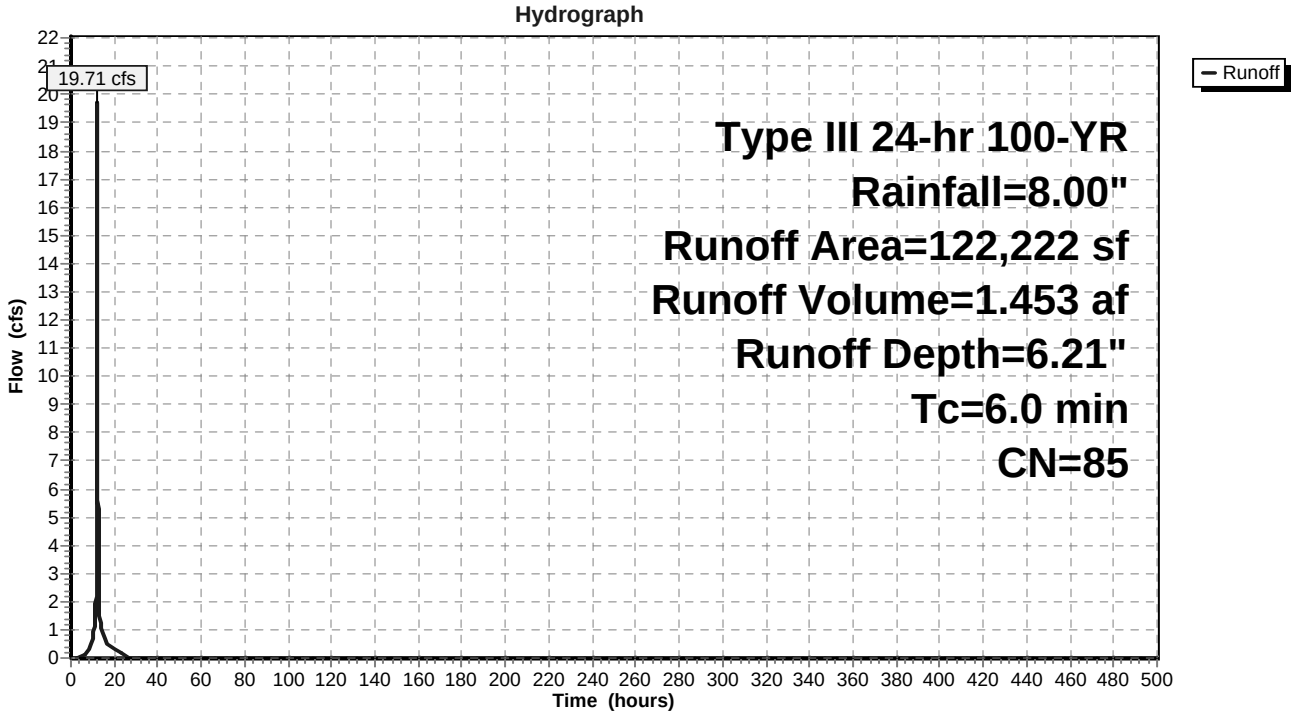
Runoff = 19.71 cfs @ 12.09 hrs, Volume= 1.453 af, Depth= 6.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.00"

Area (sf)	CN	Description
34,079	74	>75% Grass cover, Good, HSG C
88,143	89	Gravel roads, HSG C
122,222	85	Weighted Average
122,222		100.00% Pervious Area

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

Subcatchment PS-4:



Summary for Subcatchment PS-5:

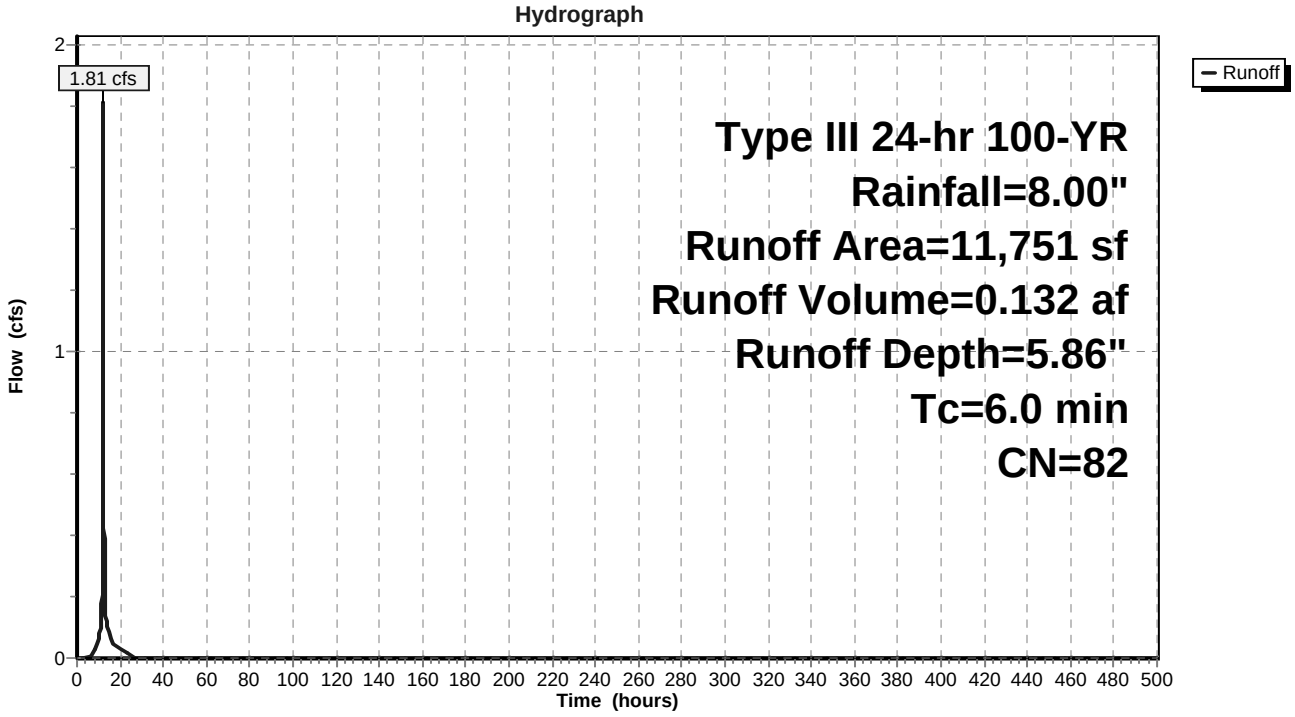
Runoff = 1.81 cfs @ 12.09 hrs, Volume= 0.132 af, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.00"

Area (sf)	CN	Description
5,254	74	>75% Grass cover, Good, HSG C
6,497	89	Gravel roads, HSG C
11,751	82	Weighted Average
11,751		100.00% Pervious Area

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

Subcatchment PS-5:



Summary for Subcatchment PS-6:

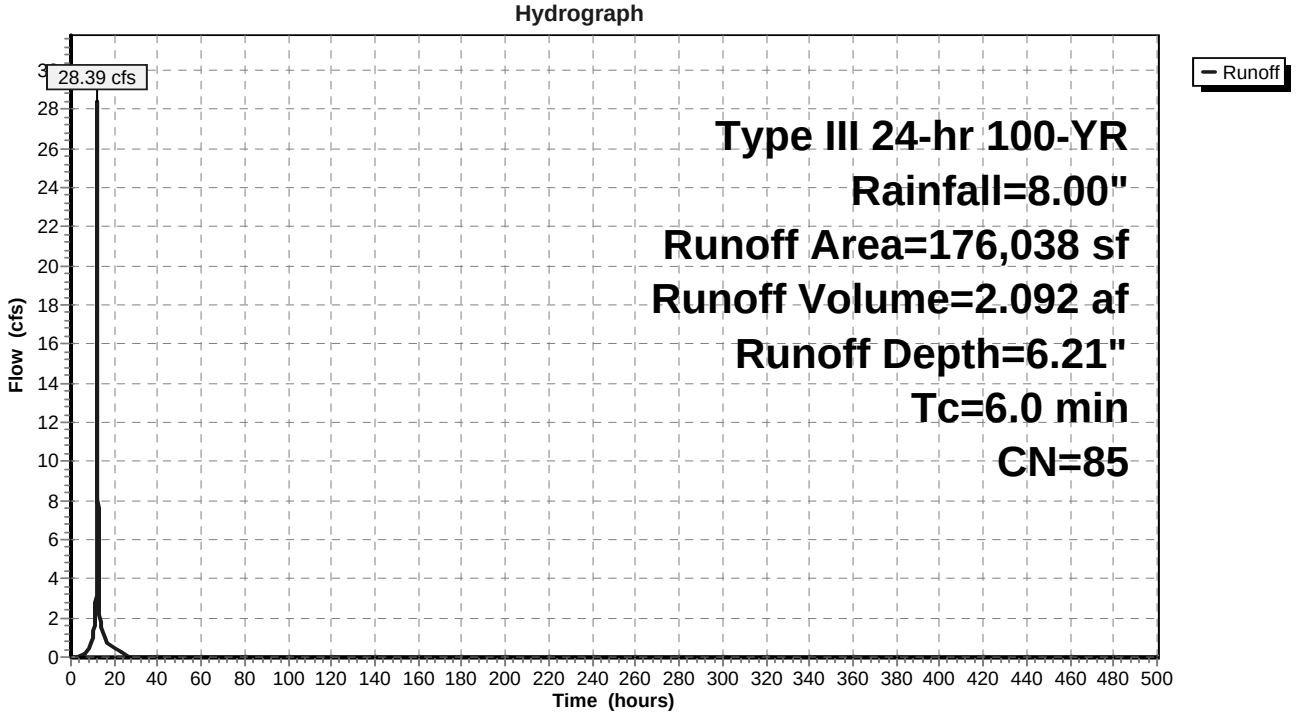
Runoff = 28.39 cfs @ 12.09 hrs, Volume= 2.092 af, Depth= 6.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.00"

Area (sf)	CN	Description
70,850	89	Gravel roads, HSG C
50,165	74	>75% Grass cover, Good, HSG C
2,202	80	>75% Grass cover, Good, HSG D
52,821	91	Gravel roads, HSG D
176,038	85	Weighted Average
176,038		100.00% Pervious Area

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

Subcatchment PS-6:



Summary for Subcatchment PS-7:

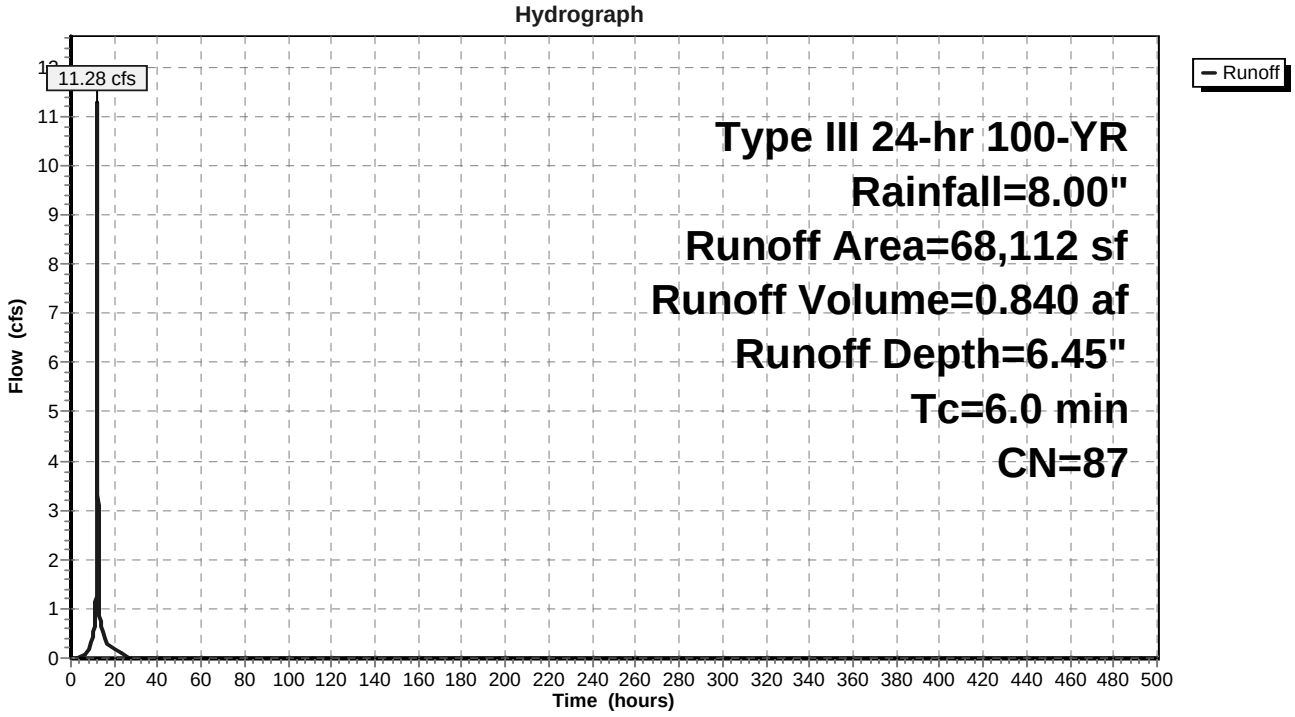
Runoff = 11.28 cfs @ 12.08 hrs, Volume= 0.840 af, Depth= 6.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.00"

Area (sf)	CN	Description
58,773	89	Gravel roads, HSG C
9,339	74	>75% Grass cover, Good, HSG C
68,112	87	Weighted Average
68,112		100.00% Pervious Area

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

Subcatchment PS-7:



Summary for Subcatchment PS-8:

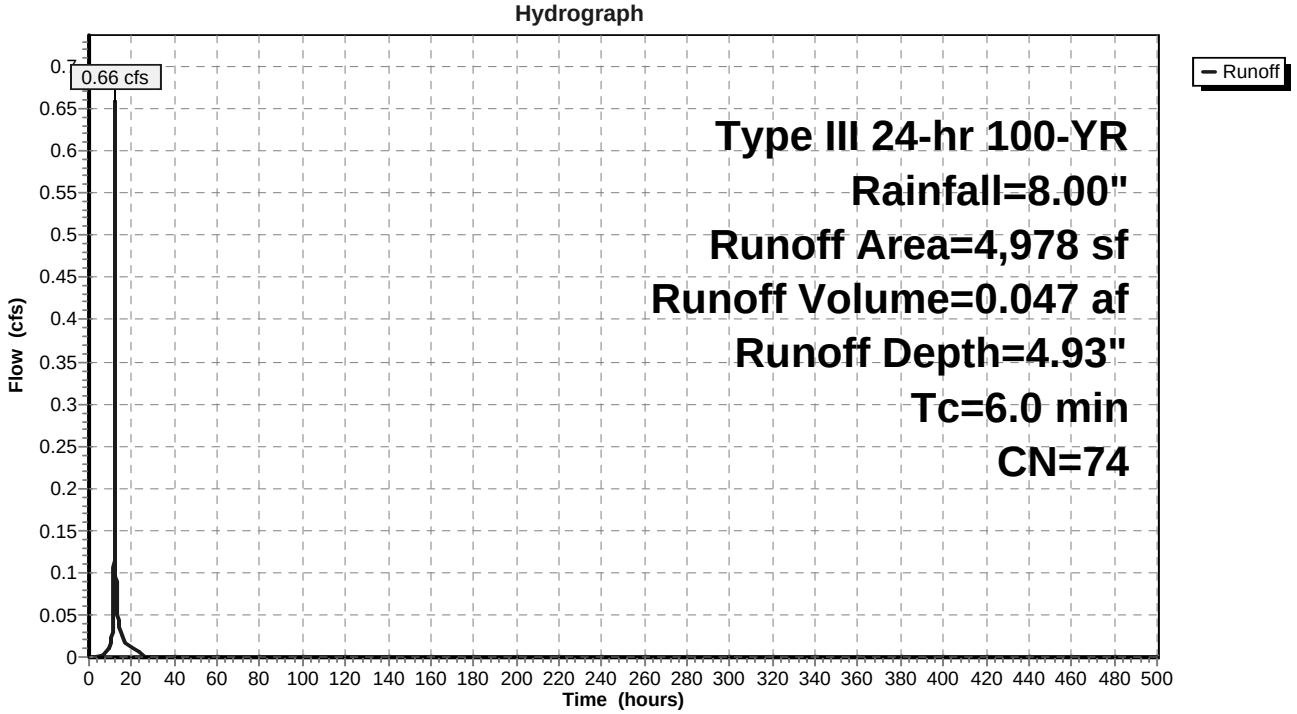
Runoff = 0.66 cfs @ 12.09 hrs, Volume= 0.047 af, Depth= 4.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.00"

Area (sf)	CN	Description
4,978	74	>75% Grass cover, Good, HSG C
4,978		100.00% Pervious Area

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

Subcatchment PS-8:



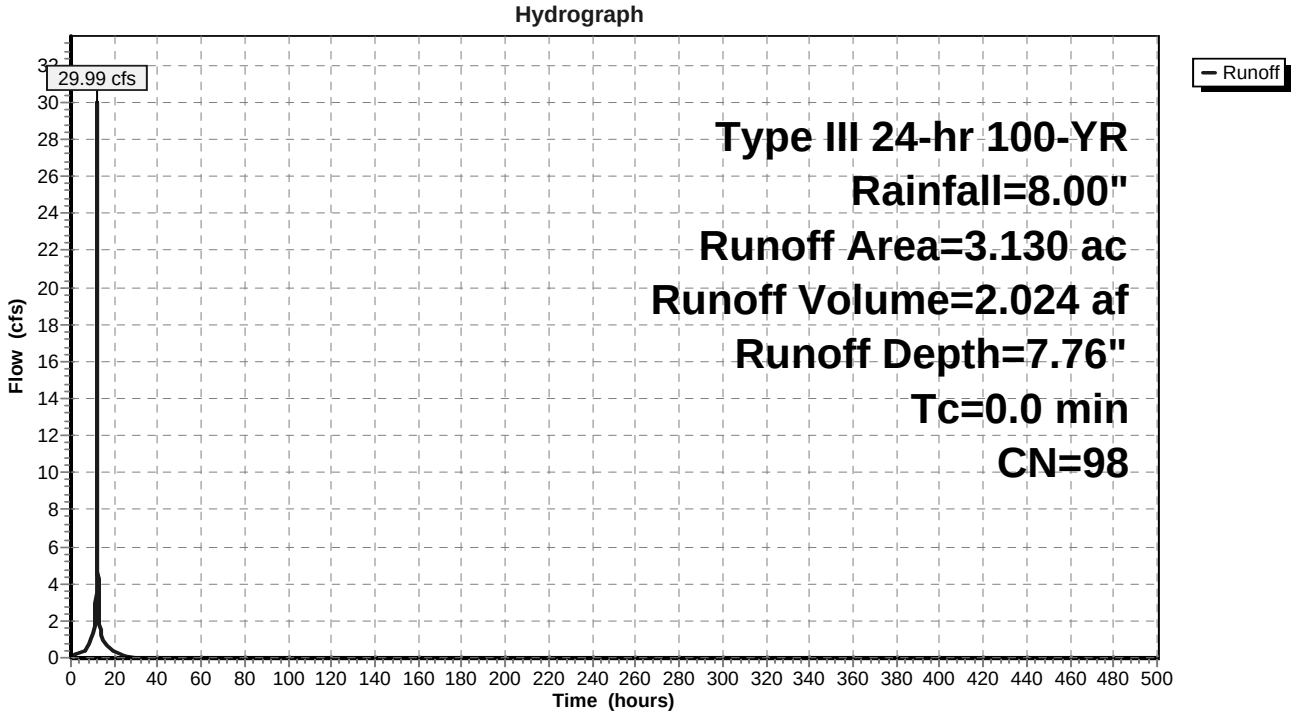
y for Subcatchment RRv: CAPTURED ROOFS & SURFACES REUSED WITH THE CRICKET VALLEY ENE

Runoff = 29.99 cfs @ 12.00 hrs, Volume= 2.024 af, Depth= 7.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-YR Rainfall=8.00"

Area (ac)	CN	Description
3.130	98	Paved parking, HSG A
3.130		100.00% Impervious Area

ubcatchment RRv: CAPTURED ROOFS & SURFACES REUSED WITH THE CRICKET VALLEY ENERGY PI

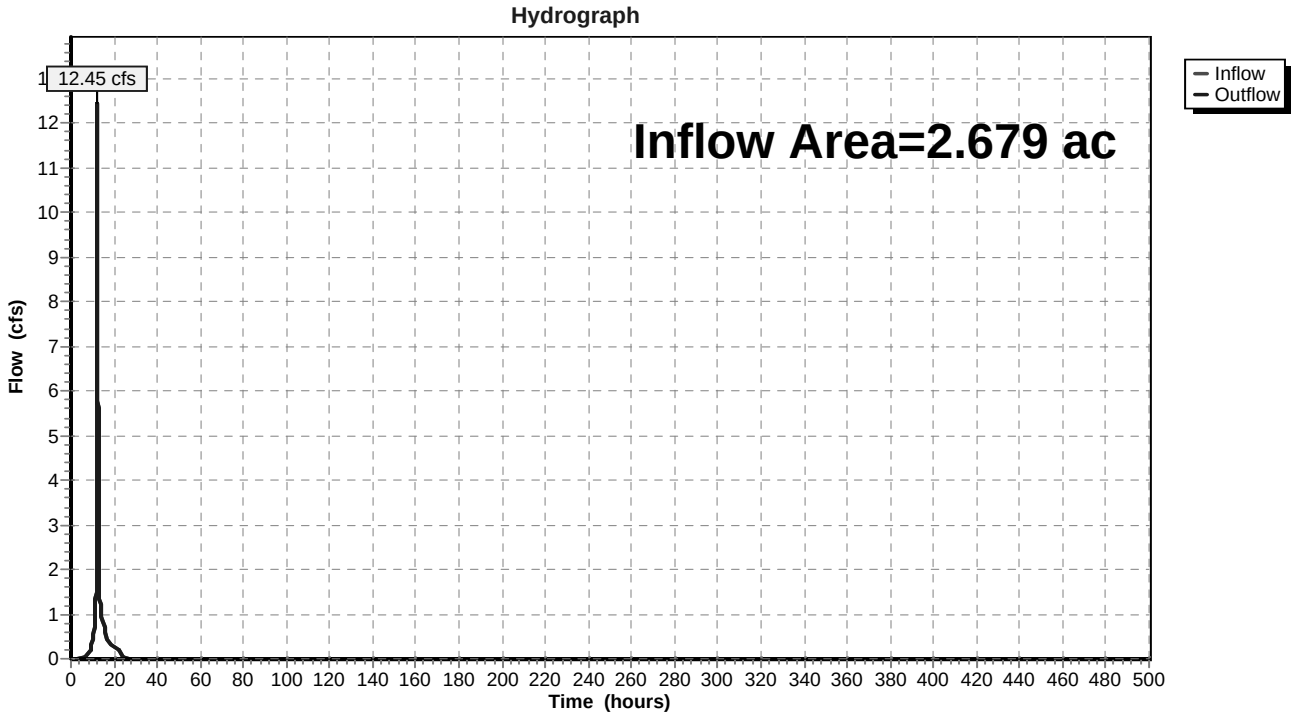


Summary for Reach 3R: Pipes

Inflow Area = 2.679 ac, 14.20% Impervious, Inflow Depth = 5.27" for 100-YR event
Inflow = 12.45 cfs @ 12.20 hrs, Volume= 1.177 af
Outflow = 12.45 cfs @ 12.20 hrs, Volume= 1.177 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Reach 3R: Pipes



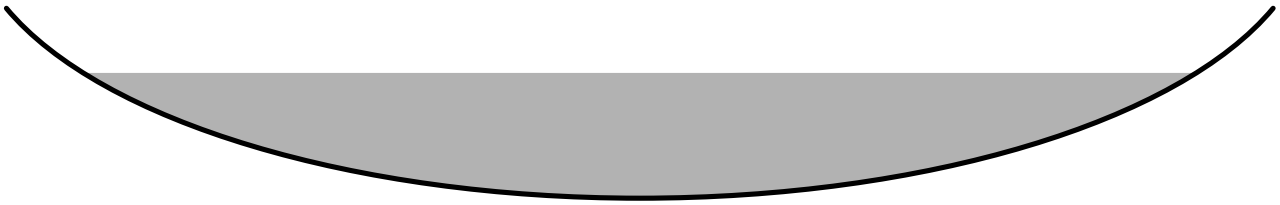
Summary for Reach 4R: WETLAND 'A'

Inflow Area = 1.678 ac, 0.00% Impervious, Inflow Depth = 6.35" for 100-YR event
Inflow = 3.80 cfs @ 12.39 hrs, Volume= 0.887 af
Outflow = 1.90 cfs @ 13.68 hrs, Volume= 0.887 af, Atten= 50%, Lag= 77.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.11 fps, Min. Travel Time= 49.9 min
Avg. Velocity = 0.02 fps, Avg. Travel Time= 285.1 min

Peak Storage= 5,700 cf @ 12.85 hrs, Average Depth at Peak Storage= 0.33'
Bank-Full Depth= 0.50', Capacity at Bank-Full= 4.71 cfs

100.00' x 0.50' deep Parabolic Channel, n= 0.400 Sheet flow: Woods+light brush
Length= 320.0' Slope= 0.0063 '/'
Inlet Invert= 428.00', Outlet Invert= 426.00'



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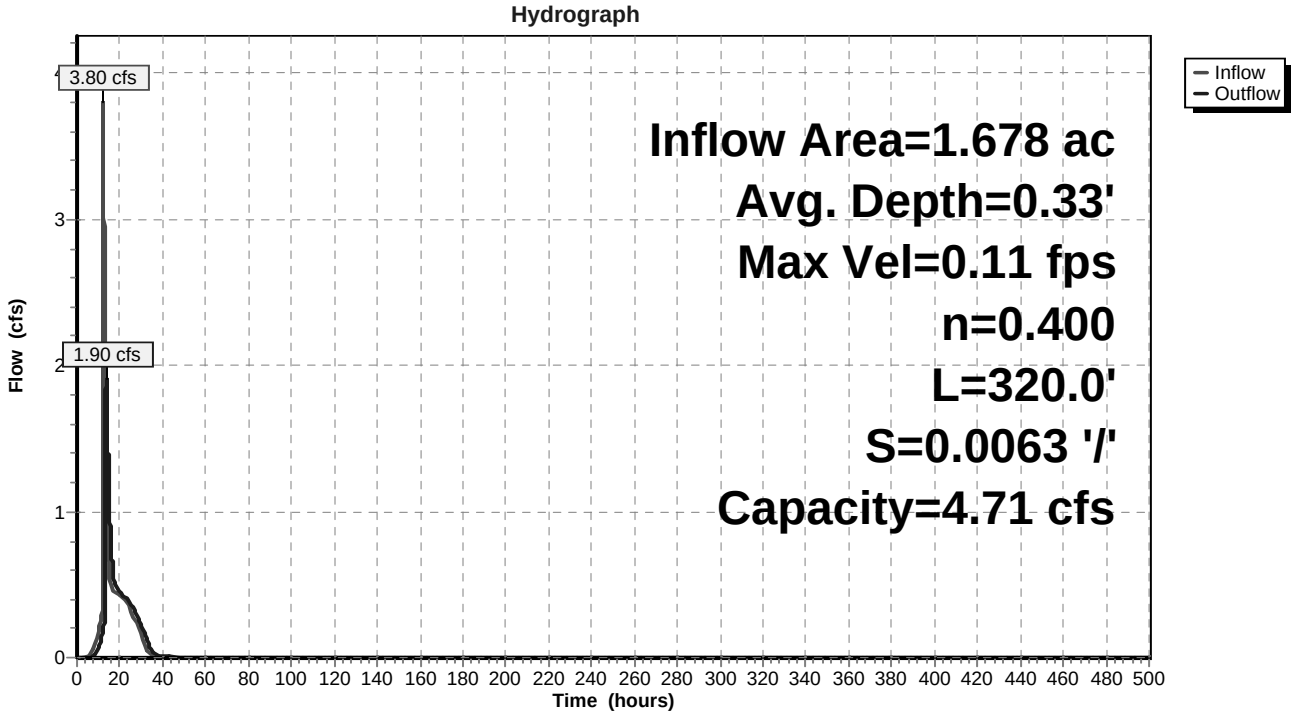
Reach 4R: WETLAND 'A'

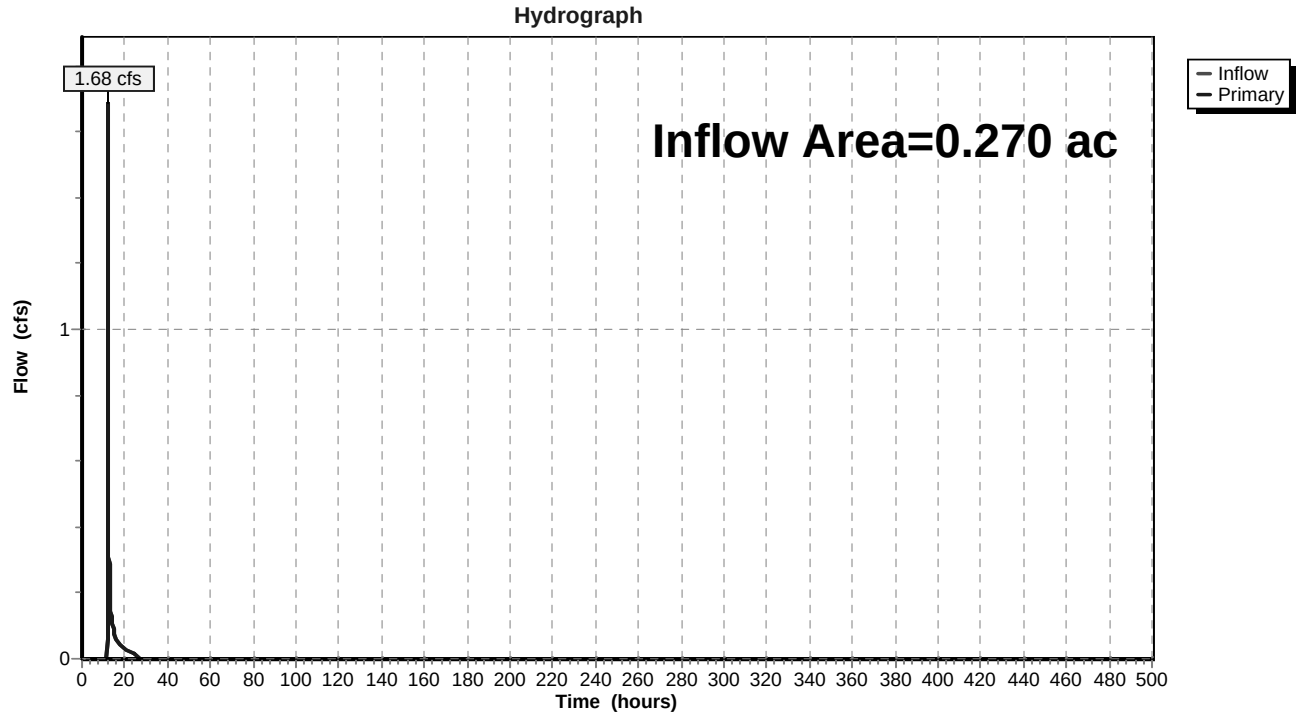


Summary for Pond 1P: WETLAND "A"

Inflow Area = 0.270 ac, 0.00% Impervious, Inflow Depth = 4.63" for 100-YR event
Inflow = 1.68 cfs @ 12.12 hrs, Volume= 0.104 af
Primary = 1.68 cfs @ 12.12 hrs, Volume= 0.104 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Pond 1P: WETLAND "A"



Summary for Pond 2P: CATCH BASIN #7

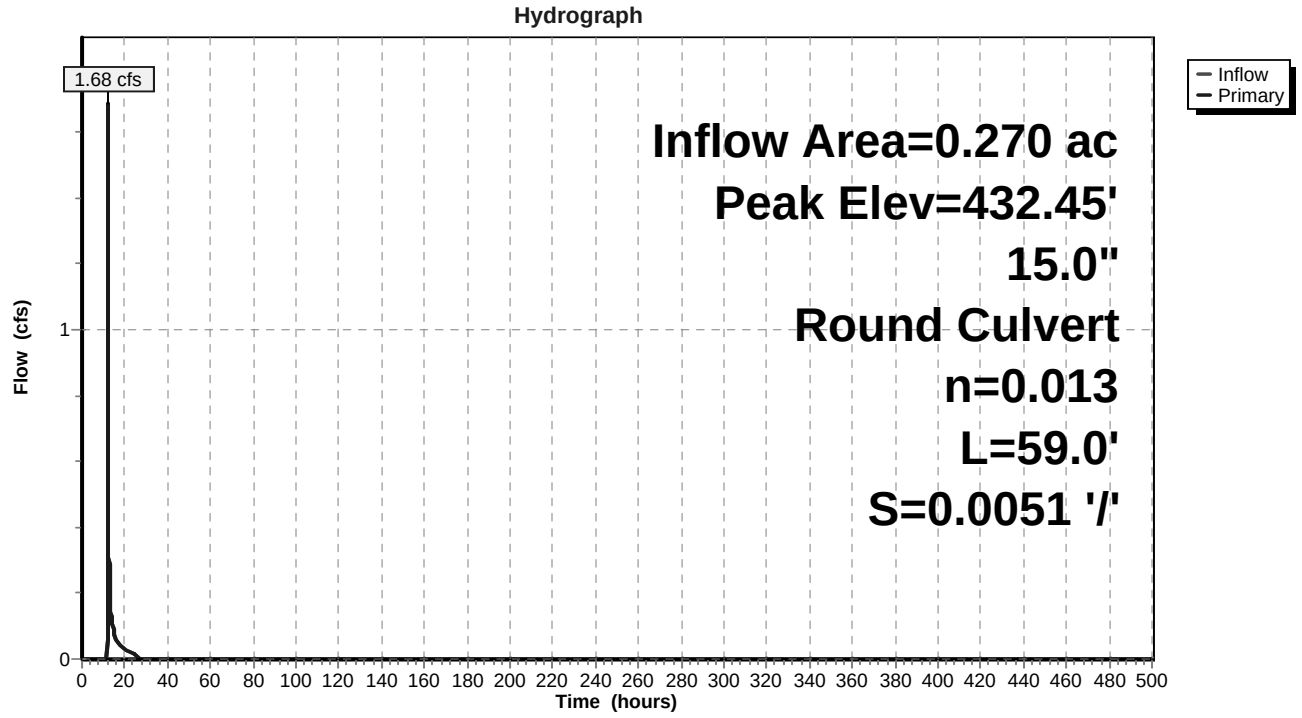
Inflow Area = 0.270 ac, 0.00% Impervious, Inflow Depth = 4.63" for 100-YR event
Inflow = 1.68 cfs @ 12.12 hrs, Volume= 0.104 af
Outflow = 1.68 cfs @ 12.12 hrs, Volume= 0.104 af, Atten= 0%, Lag= 0.0 min
Primary = 1.68 cfs @ 12.12 hrs, Volume= 0.104 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 432.45' @ 12.12 hrs
Flood Elev= 435.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	431.68'	**15.0" Round Culvert** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 431.38' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=1.68 cfs @ 12.12 hrs HW=432.45' (Free Discharge)
1=Culvert (Barrel Controls 1.68 cfs @ 3.06 fps)

Pond 2P: CATCH BASIN #7



Summary for Pond CB1: CATCH BASIN #1

Inflow Area = 1.564 ac, 0.00% Impervious, Inflow Depth = 6.45" for 100-YR event
Inflow = 11.28 cfs @ 12.08 hrs, Volume= 0.840 af
Outflow = 10.96 cfs @ 12.10 hrs, Volume= 0.840 af, Atten= 3%, Lag= 1.1 min
Primary = 10.96 cfs @ 12.10 hrs, Volume= 0.840 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 437.15' @ 12.10 hrs Surf.Area= 194 sf Storage= 112 cf
Flood Elev= 438.00' Surf.Area= 337 sf Storage= 337 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.1 min (785.0 - 785.0)

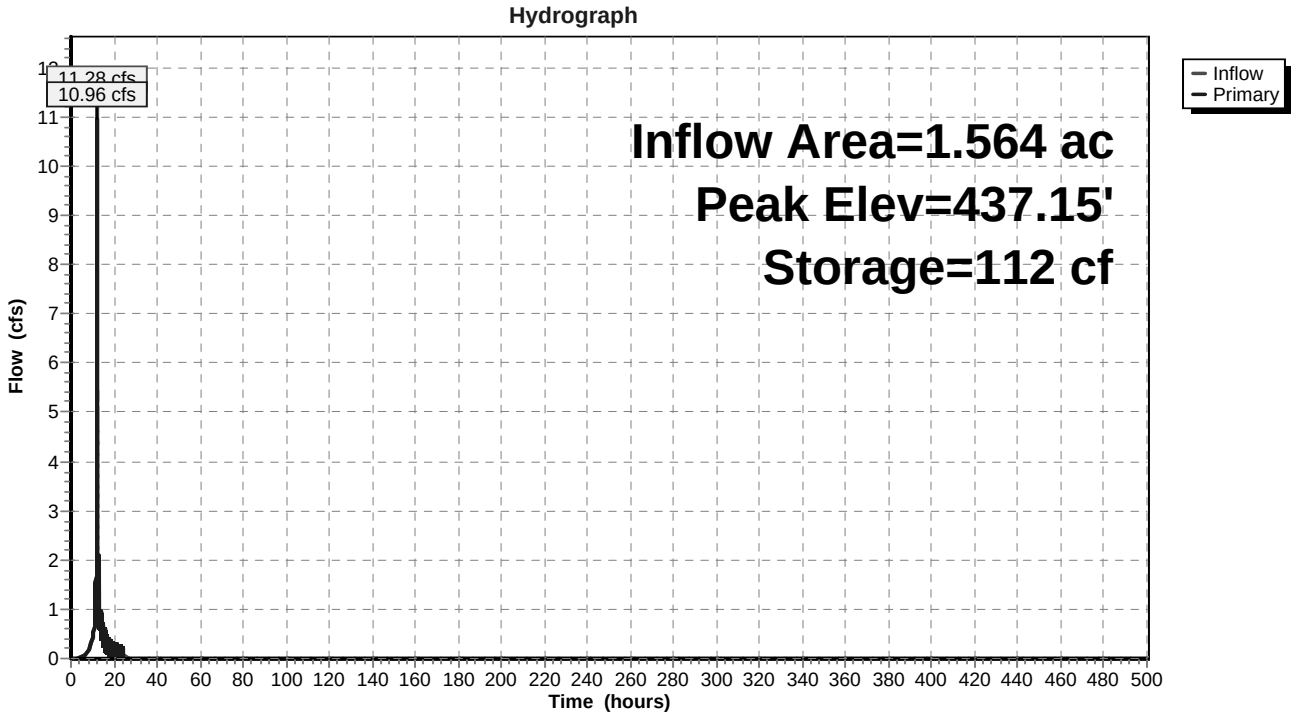
Volume	Invert	Avail.Storage	Storage Description
#1	436.00'	337 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
436.00	0	0	0
438.00	337	337	337

Device	Routing	Invert	Outlet Devices
#1	Primary	433.25'	**15.0" Round Culvert** L= 83.0' CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 430.00' S= 0.0392 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Primary	436.00'	**3.0" x 2.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=10.95 cfs @ 12.10 hrs HW=437.14' (Free Discharge)
└─**1=Culvert** (Inlet Controls 10.68 cfs @ 8.71 fps)
└─**2=Orifice/Grate** (Orifice Controls 0.27 cfs @ 5.15 fps)

Pond CB1: CATCH BASIN #1

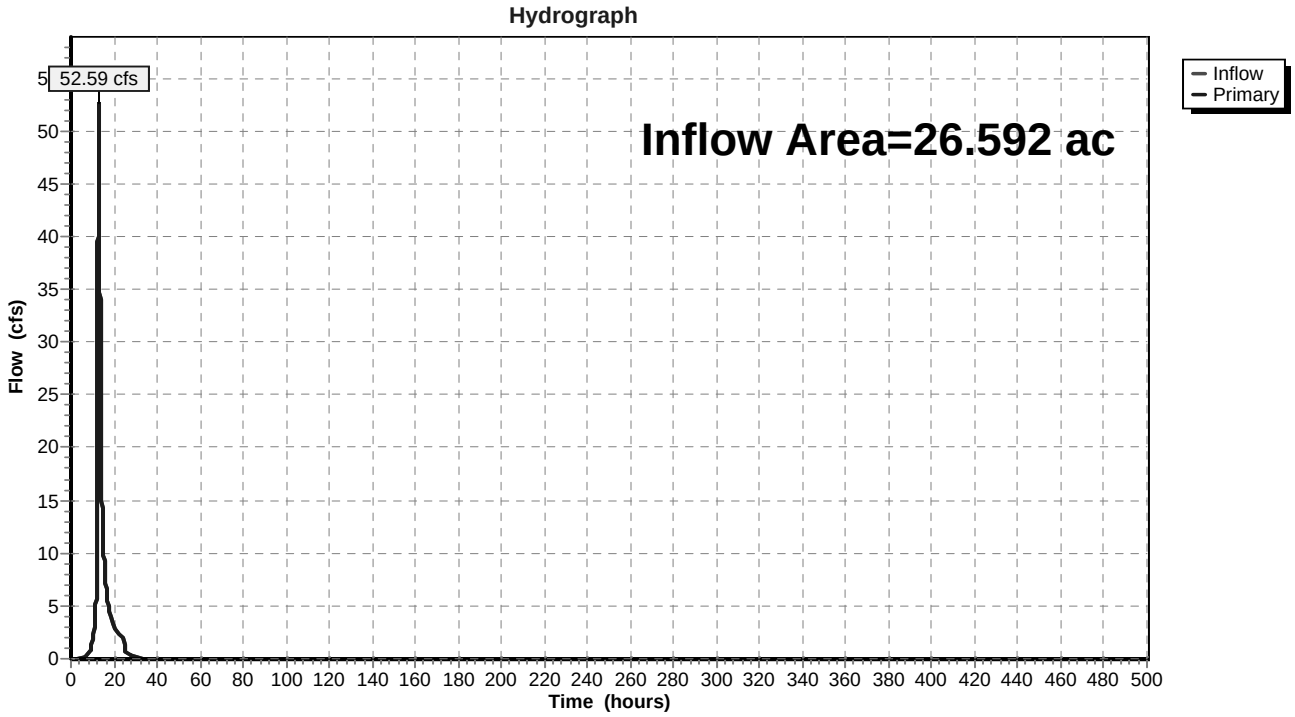


Summary for Pond DP1: DESIGN POINT 1 (3'x1' CONC. BOX CULVERT)

Inflow Area = 26.592 ac, 0.00% Impervious, Inflow Depth = 5.08" for 100-YR event
Inflow = 52.59 cfs @ 12.90 hrs, Volume= 11.258 af
Primary = 52.59 cfs @ 12.90 hrs, Volume= 11.258 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Pond DP1: DESIGN POINT 1 (3'x1' CONC. BOX CULVERT)



Summary for Pond P-1: Wet Pond

Inflow Area = 17.690 ac, 38.01% Impervious, Inflow Depth = 6.57" for 100-YR event
Inflow = 120.54 cfs @ 12.09 hrs, Volume= 9.691 af
Outflow = 14.05 cfs @ 12.81 hrs, Volume= 9.691 af, Atten= 88%, Lag= 43.4 min
Primary = 14.05 cfs @ 12.81 hrs, Volume= 9.691 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Starting Elev= 422.00' Surf.Area= 30,655 sf Storage= 75,367 cf
Peak Elev= 427.82' @ 12.81 hrs Surf.Area= 54,277 sf Storage= 324,228 cf (248,861 cf above start)
Flood Elev= 429.00' Surf.Area= 59,091 sf Storage= 390,986 cf (315,619 cf above start)

Plug-Flow detention time= 1,193.9 min calculated for 7.960 af (82% of inflow)
Center-of-Mass det. time= 918.3 min (1,699.3 - 781.0)

Volume	Invert	Avail.Storage	Storage Description
#1	418.00'	452,178 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

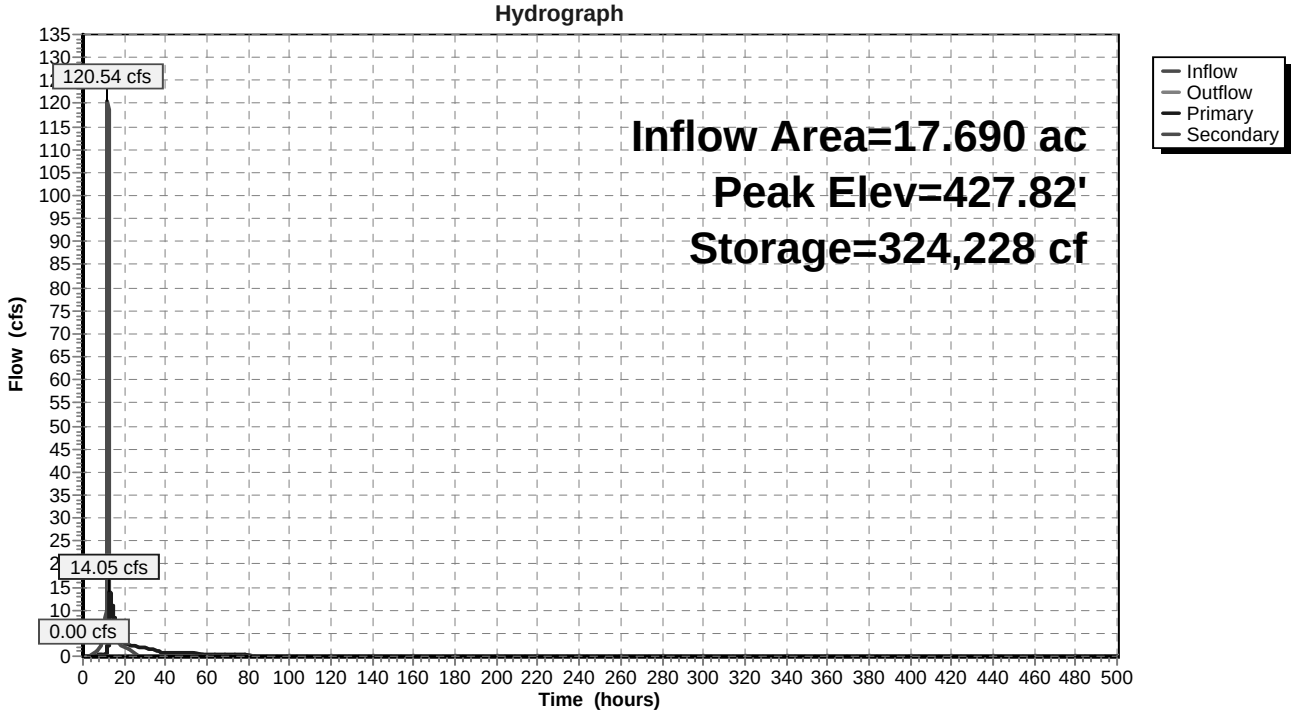
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
418.00	14,212	0	0
420.00	16,608	30,820	30,820
421.00	19,142	17,875	48,695
421.50	28,445	11,897	60,592
422.00	30,655	14,775	75,367
423.00	34,805	32,730	108,097
424.00	39,588	37,197	145,293
425.00	43,288	41,438	186,731
426.00	47,088	45,188	231,919
427.00	50,988	49,038	280,957
428.00	54,989	52,989	333,946
429.00	59,091	57,040	390,986
430.00	63,293	61,192	452,178

Device	Routing	Invert	Outlet Devices
#1	Primary	421.85'	**30.0" Round Culvert** L= 25.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 421.50' S= 0.0140 '/' Cc= 0.900 n= 0.013
#2	Device 1	422.00'	**4.4" Vert. Orifice/Grate** C= 0.600
#3	Device 1	424.24'	**6.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	426.50'	**2.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Secondary	429.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir X 0.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=14.05 cfs @ 12.81 hrs HW=427.82' (Free Discharge)
└─**1=Culvert** (Passes 14.05 cfs of 40.55 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.21 cfs @ 11.43 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 1.73 cfs @ 8.79 fps)
  └─**4=Sharp-Crested Rectangular Weir** (Weir Controls 11.11 cfs @ 3.76 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=422.00' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-1: Wet Pond



Summary for Pond SD-1: SEDIMENT CONTROL & DETENTION FACILITY #1

Inflow Area = 1.062 ac, 0.00% Impervious, Inflow Depth = 5.39" for 100-YR event
Inflow = 6.64 cfs @ 12.09 hrs, Volume= 0.477 af
Outflow = 2.59 cfs @ 12.33 hrs, Volume= 0.477 af, Atten= 61%, Lag= 14.5 min
Primary = 2.59 cfs @ 12.33 hrs, Volume= 0.477 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 435.99' @ 12.33 hrs Surf.Area= 3,918 sf Storage= 6,878 cf
Flood Elev= 438.50' Surf.Area= 8,300 sf Storage= 21,624 cf

Plug-Flow detention time= 103.3 min calculated for 0.477 af (100% of inflow)
Center-of-Mass det. time= 103.3 min (910.8 - 807.5)

Volume	Invert	Avail.Storage	Storage Description
#1	432.00'	21,624 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

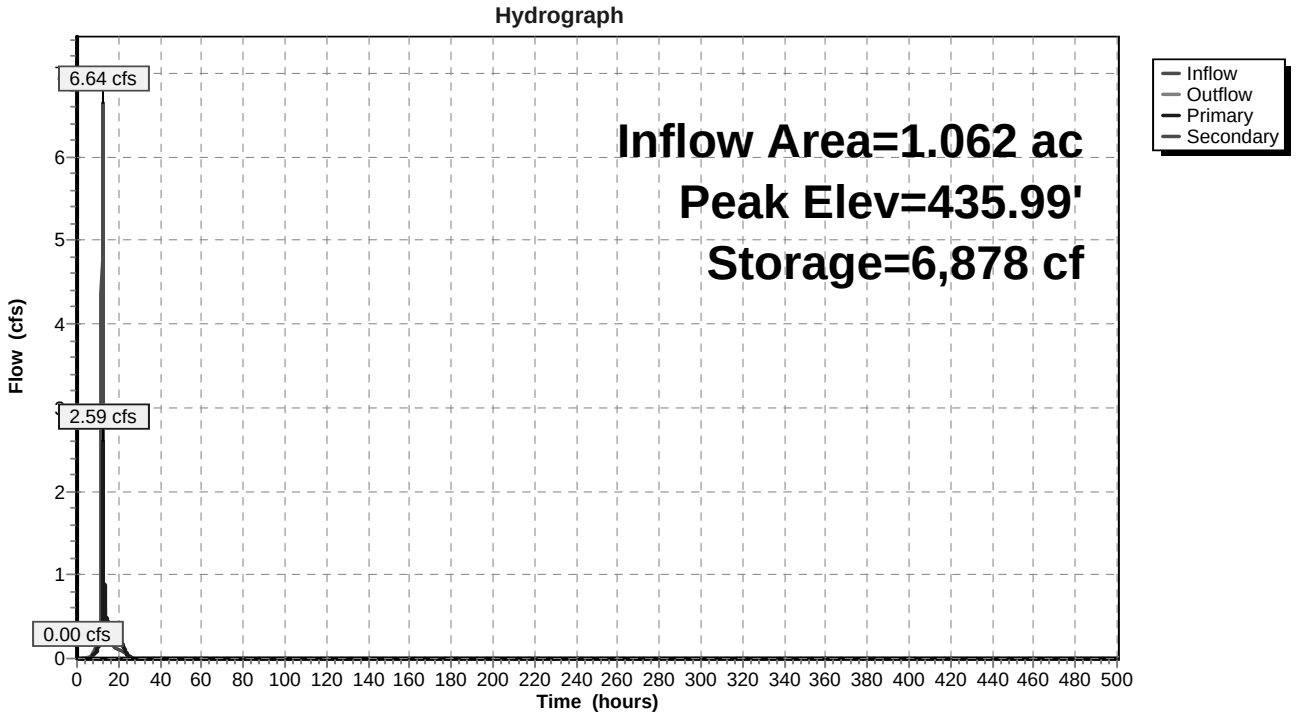
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
432.00	421	0	0
433.00	890	656	656
434.00	1,563	1,227	1,882
435.00	2,373	1,968	3,850
435.25	2,595	621	4,471
436.00	3,937	2,450	6,921
437.00	5,237	4,587	11,508
438.00	7,230	6,234	17,741
438.50	8,300	3,883	21,624

Device	Routing	Invert	Outlet Devices
#1	Primary	432.00'	**12.0" Round Culvert** L= 25.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 431.50' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	432.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	435.50'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Secondary	437.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=2.59 cfs @ 12.33 hrs HW=435.99' (Free Discharge)
└**1=Culvert** (Passes 2.59 cfs of 5.58 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.46 cfs @ 9.46 fps)
  └**3=Sharp-Crested Rectangular Weir** (Weir Controls 2.13 cfs @ 2.29 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=432.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond SD-1: SEDIMENT CONTROL & DETENTION FACILITY #1



Summary for Pond SD-2: SEDIMENT CONTROL & DETENTION FACILITY #2

Inflow Area = 2.806 ac, 0.00% Impervious, Inflow Depth = 6.21" for 100-YR event
Inflow = 19.71 cfs @ 12.09 hrs, Volume= 1.453 af
Outflow = 6.66 cfs @ 12.37 hrs, Volume= 1.453 af, Atten= 66%, Lag= 17.0 min
Primary = 6.66 cfs @ 12.37 hrs, Volume= 1.453 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 434.48' @ 12.37 hrs Surf.Area= 8,897 sf Storage= 23,683 cf
Flood Elev= 436.00' Surf.Area= 11,601 sf Storage= 34,126 cf

Plug-Flow detention time= 188.3 min calculated for 1.453 af (100% of inflow)
Center-of-Mass det. time= 188.3 min (978.7 - 790.5)

Volume	Invert	Avail.Storage	Storage Description
#1	429.00'	34,126 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

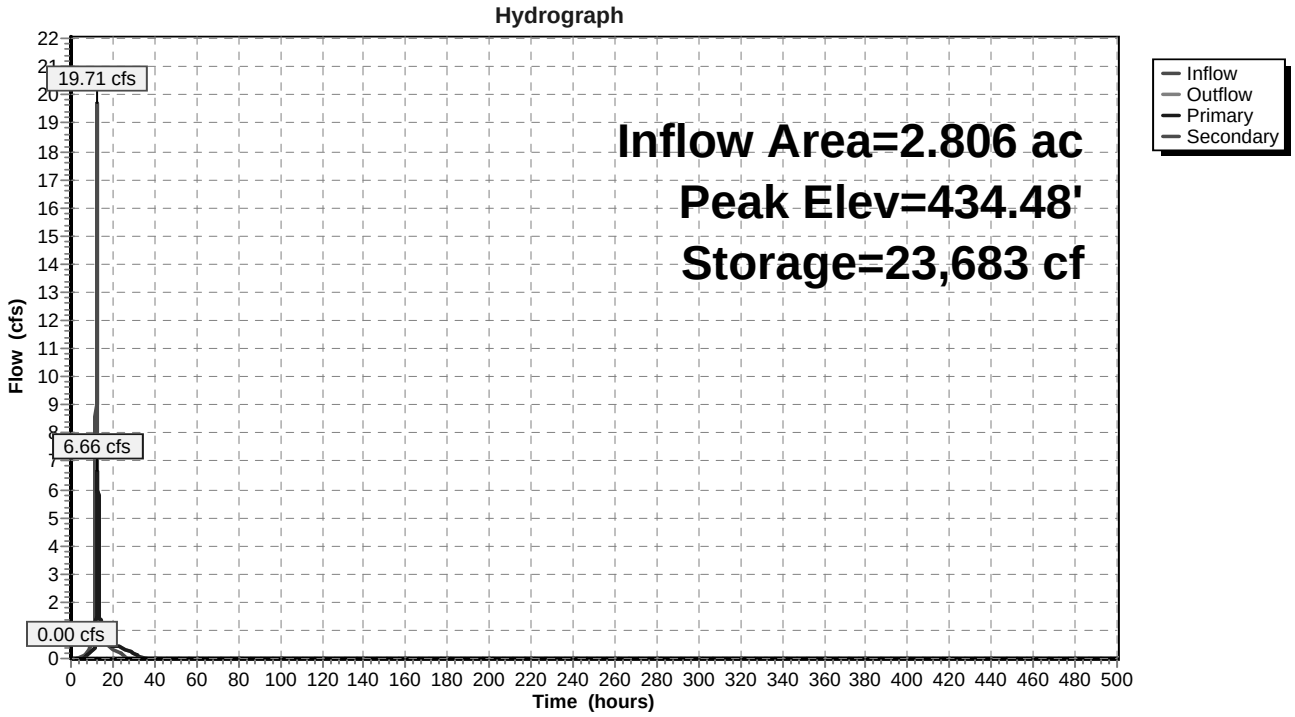
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
429.00	1,850	0	0
430.00	2,508	2,179	2,179
431.00	3,233	2,871	5,050
432.00	4,022	3,628	8,677
432.25	4,246	1,034	9,711
433.00	5,982	3,836	13,546
433.25	5,118	1,388	14,934
434.00	7,617	4,776	19,709
435.00	10,277	8,947	28,656
435.50	11,601	5,470	34,126

Device	Routing	Invert	Outlet Devices
#1	Primary	429.00'	**12.0" Round Culvert** L= 34.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 428.66' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	429.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	432.75'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Secondary	434.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=6.66 cfs @ 12.37 hrs HW=434.48' (Free Discharge)
└**1=Culvert** (Inlet Controls 6.66 cfs @ 8.48 fps)
└**2=Orifice/Grate** (Passes < 0.55 cfs potential flow)
└**3=Sharp-Crested Rectangular Weir** (Passes < 12.32 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=429.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond SD-2: SEDIMENT CONTROL & DETENTION FACILITY #2



Summary for Pond SD-3: PIPE OUTLET SEDIMENT FACILITY #3

Inflow Area = 0.270 ac, 0.00% Impervious, Inflow Depth = 5.86" for 100-YR event
Inflow = 1.81 cfs @ 12.09 hrs, Volume= 0.132 af
Outflow = 1.68 cfs @ 12.12 hrs, Volume= 0.104 af, Atten= 7%, Lag= 1.9 min
Primary = 1.68 cfs @ 12.12 hrs, Volume= 0.104 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 433.76' @ 12.12 hrs Surf.Area= 1,228 sf Storage= 1,500 cf
Flood Elev= 436.50' Surf.Area= 3,246 sf Storage= 7,431 cf

Plug-Flow detention time= 126.9 min calculated for 0.104 af (79% of inflow)
Center-of-Mass det. time= 49.3 min (847.4 - 798.1)

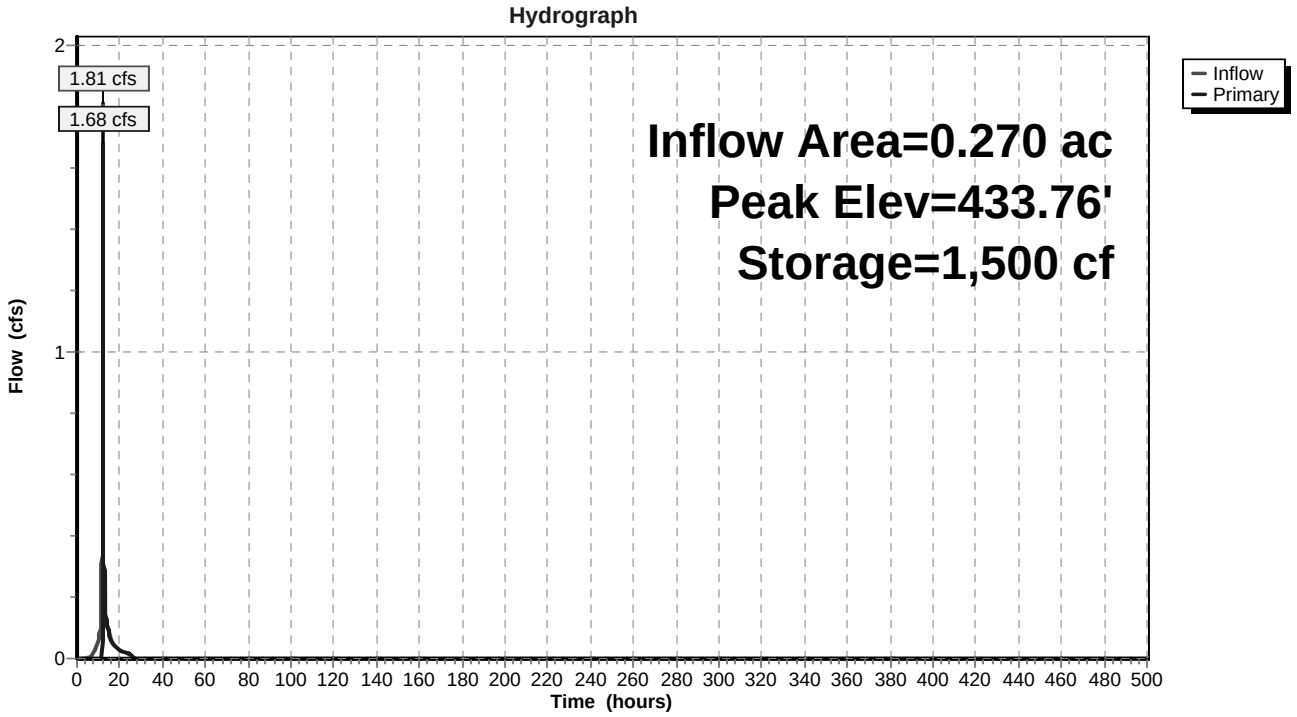
Volume	Invert	Avail.Storage	Storage Description
#1	432.00'	7,431 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
432.00	615	0	0
433.00	827	721	721
434.00	1,356	1,092	1,813
435.00	2,023	1,690	3,502
436.00	2,808	2,416	5,918
436.50	3,246	1,514	7,431

Device	Routing	Invert	Outlet Devices
#1	Primary	432.00'	**12.0" Round Culvert** L= 64.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 431.68' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	433.50'	**15.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.68 cfs @ 12.12 hrs HW=433.76' (Free Discharge)
↑—**1=Culvert** (Passes 1.68 cfs of 3.31 cfs potential flow)
↑—**2=Orifice/Grate** (Weir Controls 1.68 cfs @ 1.66 fps)

Pond SD-3: PIPE OUTLET SEDIMENT FACILITY #3



Summary for Pond SD-4: SEDIMENT CONTROL & DETENTION FACILITY #4

Inflow Area = 1.678 ac, 0.00% Impervious, Inflow Depth = 6.35" for 100-YR event
Inflow = 11.61 cfs @ 12.10 hrs, Volume= 0.887 af
Outflow = 3.80 cfs @ 12.39 hrs, Volume= 0.887 af, Atten= 67%, Lag= 17.1 min
Primary = 3.80 cfs @ 12.39 hrs, Volume= 0.887 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 435.66' @ 12.39 hrs Surf.Area= 5,192 sf Storage= 16,732 cf
Flood Elev= 436.75' Surf.Area= 5,708 sf Storage= 22,681 cf

Plug-Flow detention time= 270.5 min calculated for 0.887 af (100% of inflow)
Center-of-Mass det. time= 270.4 min (1,057.1 - 786.7)

Volume	Invert	Avail.Storage	Storage Description
#1	431.00'	22,681 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

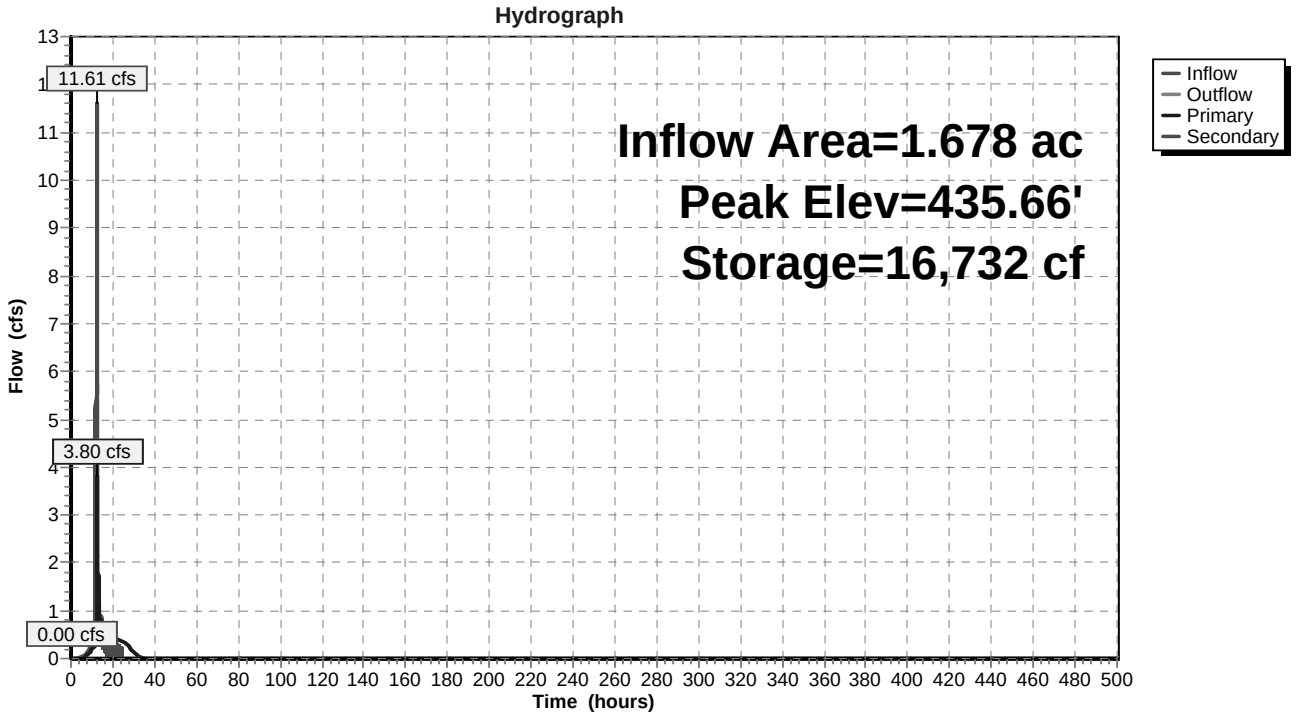
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
431.00	2,238	0	0
432.00	2,683	2,461	2,461
433.00	3,154	2,919	5,379
433.50	3,400	1,639	7,018
434.00	4,213	1,903	8,921
435.00	4,792	4,503	13,423
436.00	5,396	5,094	18,517
436.75	5,708	4,164	22,681

Device	Routing	Invert	Outlet Devices
#1	Primary	431.00'	**12.0" Round Culvert** L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 430.50' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	431.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	435.00'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#4	Secondary	435.75'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=3.80 cfs @ 12.39 hrs HW=435.66' (Free Discharge)
└**1=Culvert** (Passes 3.80 cfs of 6.09 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.50 cfs @ 10.26 fps)
└**3=Sharp-Crested Rectangular Weir** (Weir Controls 3.29 cfs @ 2.66 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=431.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond SD-4: SEDIMENT CONTROL & DETENTION FACILITY #4



Summary for Pond SD-5: SEDIMENT CONTROL FACILITY #5

Inflow Area = 4.041 ac, 0.00% Impervious, Inflow Depth = 6.21" for 100-YR event
Inflow = 28.39 cfs @ 12.09 hrs, Volume= 2.092 af
Outflow = 21.16 cfs @ 12.16 hrs, Volume= 2.092 af, Atten= 25%, Lag= 4.2 min
Primary = 21.16 cfs @ 12.16 hrs, Volume= 2.092 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Starting Elev= 421.75' Surf.Area= 7,651 sf Storage= 24,405 cf
Peak Elev= 423.11' @ 12.16 hrs Surf.Area= 9,173 sf Storage= 35,824 cf (11,418 cf above start)
Flood Elev= 424.00' Surf.Area= 10,196 sf Storage= 44,463 cf (20,058 cf above start)

Plug-Flow detention time= 162.3 min calculated for 1.532 af (73% of inflow)
Center-of-Mass det. time= 18.0 min (808.5 - 790.5)

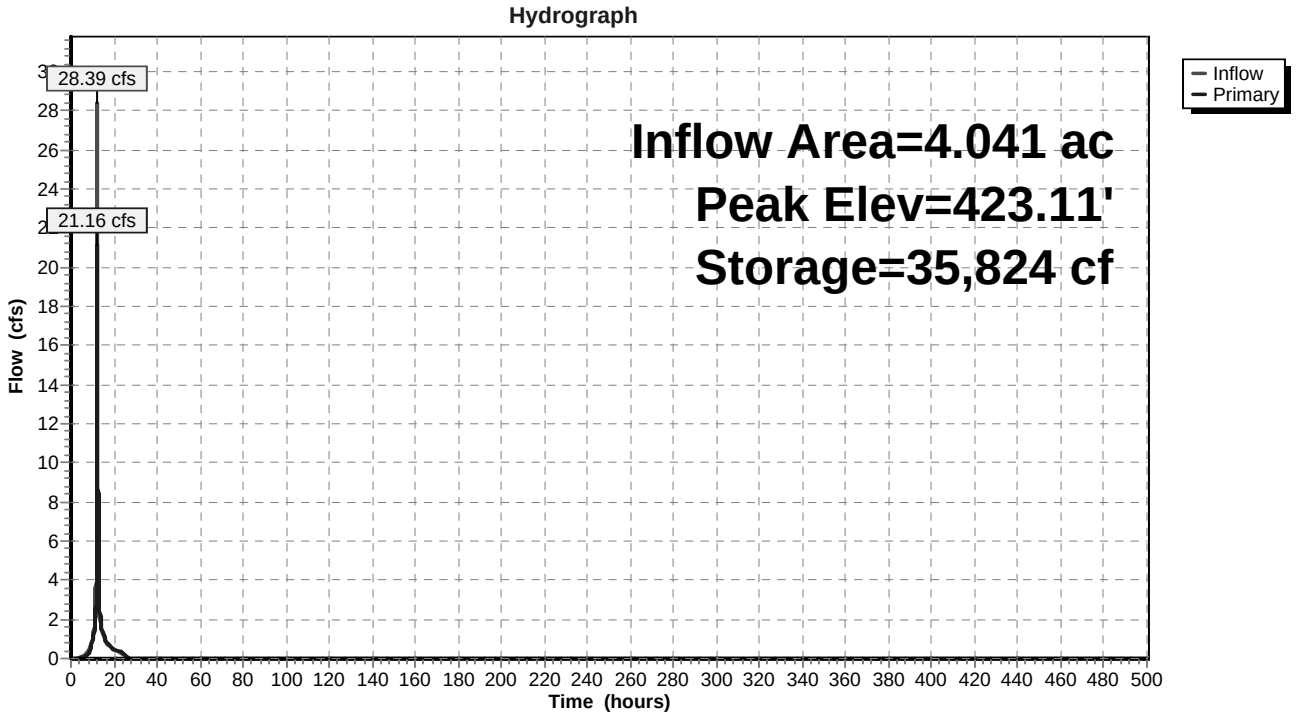
Volume	Invert	Avail.Storage	Storage Description
#1	417.00'	44,463 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
417.00	2,729	0	0
418.00	3,711	3,220	3,220
419.00	4,722	4,217	7,437
420.00	5,763	5,243	12,679
420.75	6,561	4,622	17,301
421.00	6,831	1,674	18,975
421.75	7,651	5,431	24,405
422.00	7,927	1,947	26,353
423.00	9,049	8,488	34,841
424.00	10,196	9,623	44,463

Device	Routing	Invert	Outlet Devices
#1	Primary	421.75'	**5.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=21.14 cfs @ 12.16 hrs HW=423.11' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 21.14 cfs @ 3.12 fps)

Pond SD-5: SEDIMENT CONTROL FACILITY #5

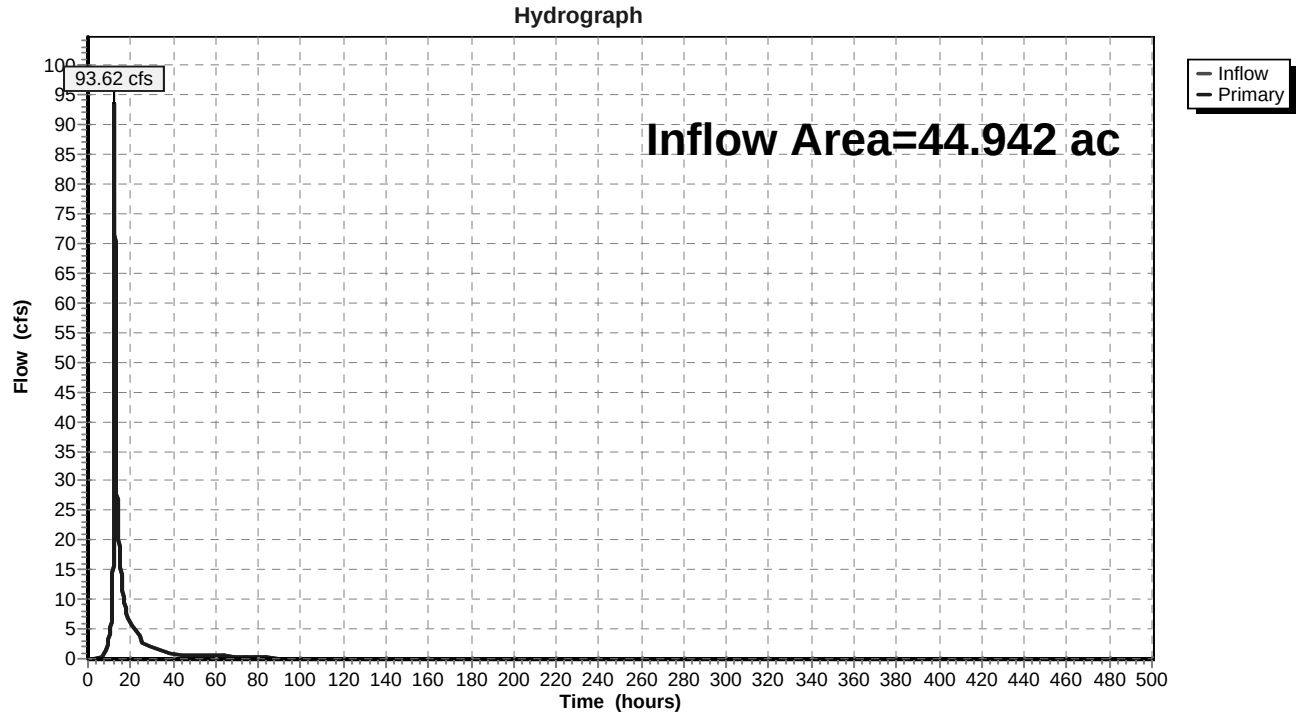


Summary for Pond zDP2: DESIGN POINT 2 (36" RCP CULVERT)

Inflow Area = 44.942 ac, 15.87% Impervious, Inflow Depth = 5.80" for 100-YR event
Inflow = 93.62 cfs @ 12.42 hrs, Volume= 21.708 af
Primary = 93.62 cfs @ 12.42 hrs, Volume= 21.708 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs

Pond zDP2: DESIGN POINT 2 (36" RCP CULVERT)



Appendix E:
Preliminary Design Calculations

Sediment Trap Design

Job:	Advanced Power-Cricket Valley Energy Rasco Site		
Job No.:	81001.01		
Description:	Erosion Control - Sediment Basin/Trap Calculations		
Prep. By:	MMF	Date:	
Check By:	CPL	Date:	

• As per the New York Standards and Specifications For Erosion and Sediment Control, August 2005, the volume of a volume of a sediment trap/basin shall be at least 3,600 cubic feet per acre of drainage area.
• Sediment shall be removed and the trap restored to the original dimensions when the sediment has accumulated to 1/2 of the design depth of the sediment trap/basin.
• All embankments for sediment basins shall not exceed 5 feet in height as measured at the low point of the original ground along the centerline of the embankment. Embankments shall have a minimum 4 foot wide top and side slopes of 2:1 or flatter.

Pipe Outlet Sediment Traps
• Maximum drainage area for pipe outlet sediment trap is 5 acres.
• Top of embankment shall be 1.5 feet higher than crest of riser.
• Top 2/3 shall be perforated, except top six inches shall have no perforations.
• Storage volume available for a pipe outlet sediment trap is the volume available below the top of riser outlet.

Rip-Rap Outlet Sediment Traps
• Maximum drainage area for rip-rap outlet sediment basin is 15 acres.
• Storage volume available for a rip-rap outlet sediment trap is the volume available behind the outlet structure up to an elevation of 1 foot below the level of the weir crest.

Weir Dimensions - Per Page 5A.37 of NY Guidelines		
Contributing Drainage Area (ac)	**Depth of Channel (ft)**	**Length of Weir (ft)**
0	1.5	4
1	1.5	4
2	1.5	5
3	1.5	6
4	1.5	10
5	1.5	12
6	1.5	14
7	1.5	16
8	2	10
9	2	10
10	2	12
11	2	14
12	2	14
13	2	16
14	2	16
15	2	18

SEDIMENT CONTROL FACILITIES						
SEDIMENT TRAP	**TYPE OF FACILITY**	**PROVIDE DETENTION**	**AREA (sf)**	**AREA (AC)**	**VOLUME REQUIRED (cf)**	**CLEANOUT VOLUME (cf)**
1	Rip-Rap/Pipe	YES	46,023	1.06	3,816	1,908
2	Rip-Rap/Pipe	YES	117,278	2.69	9,684	4,842
3	Pipe	YES	11,960	0.27	972	486
4	Rip-Rap/Pipe	YES	72,572	1.67	6,012	3,006
5	Rip-Rap	NO	174,414	4.00	14,400	7,200

Rip-rap/Pipe Facilities are designed using the standards and guidelines set forth in the New York State Erosion & Sediment Control Manual. Storage volume available for rip-rap/pipe outlet facilities is measured as the volume provided behind the interior rip-rap/stone overflow weir within the facility. These facilities utilize outlet control structures to attenuate peak runoff rates while providing adequate sediment storage per NYS Standards.

Sediment Control & Detention Facility #1 (Rip-Rap/Pipe Outlet Sediment Trap)

- As per the table on page 5A.35 of the New York Guidelines for Urban Erosion and Sediment Control, a contributing drainage area of 1.06 acres requires the following:

- Length of Weir (ft) = 5
- Depth of Channel (ft) = 1.5
- Weir Crest Elev. = 436.25
- Top of Channel Elevation = Weir Crest Elevation + Depth of Channel = 437.75
- Freeboard (ft) = 0.5 x Depth of Channel = 0.75
- Top of Berm (ft) = Freeboard + Top of Channel Elevation = 438.5

A 10-foot wide emergency overflow weir is used in this facility at elevation 437.50 and the 100-year surface water elevation is below the emergency weir.

Areas

Contour	Area (sf)	Cumulative Volume (cf)
432	421	0
433	890	656
434	1,563	1,882
435	2,373	3,850
435.25	2,595	4,471
436	3,937	6,921
437	5,237	11,508
438	7,230	17,741
438.5	8,300	21,624

Elevation at Storage Limit (one foot below weir elevation) = 435.25

Storage Limit (cf) = 4,471 > 3,816

This is the volume behind the rip-rap/stone overflow weir within the facility

Cleanout Volume (cf) = 1,908

Cleanout Elevation = 433.80

Sediment Control & Detention Facility #2 (Rip-Rap/Pipe Outlet Sediment Trap)

- As per the table on page 5A.35 of the New York Guidelines for Urban Erosion and Sediment Control, a contributing drainage area of 2.69 acres requires the following:

- Length of Weir (ft) = 6
- Depth of Channel (ft) = 1.5
- Weir Crest Elev. = 433.25
- Top of Channel Elevation = Weir Crest Elevation + Depth of Channel = 434.75
- Freeboard (ft) = 0.5 x Depth of Channel = 0.75
- Top of Berm (ft) = Freeboard + Top of Channel Elevation = 435.5

A 10-foot wide emergency overflow weir is used in this facility at elevation 434.50 and the 100-year surface water elevation is below the emergency weir.

Areas

Contour	Area (sf)	Cumulative Volume (cf)
429	1,850	0
430	2,508	2,179
431	3,233	5,050
432	4,022	8,677
432.25	4,246	9,711
433	5,982	13,546
433.25	5,118	14,934
434	7,617	19,709
435	10,277	28,656
435.5	11,601	34,126

Elevation at Storage Limit (one foot below weir elevation) = 432.25

Storage Limit (cf) = 9,711 > 9,684

This is the volume behind the rip-rap/stone overflow weir within the facility

Cleanout Volume (cf) = 4,842

Cleanout Elevation = 430.90

Sediment Control & Detention Facility #3 (Pipe Outlet Sediment Trap)

- As per the table on page 5A.35 of the New York Guidelines for Urban Erosion and Sediment Control, a contributing drainage area of 0.27 acres requires the following:

- Barrel Diameter (in) = 12
- Riser Diameter (in) = 15

12" Pipe outlet inv = 432.00

- Top of Riser = 435
- Freeboard (ft) above top of riser = 1.5
- Top of Berm (ft) = Freeboard + Top of Channel Elevation = 436.5

Areas

Contour	Area (sf)	Cumulative Volume (cf)
432	442	0
433	827	635
433.5	1,074	1,110
434	1,356	1,717
435	2,023	3,407
436	2,808	5,822
436.5	3,246	7,336

Elevation at Storage Limit (one foot below weir elevation) = 433.50

Storage Limit (cf) = 1,110 > 972

Cleanout Volume (cf) = 486

Cleanout Elevation = 432.94

Sediment Control & Detention Facility #4 (Rip-Rap/Pipe Outlet Sediment Trap)

- As per the table on page 5A.35 of the New York Guidelines for Urban Erosion and Sediment Control, a contributing drainage area of 1.67 acres requires the following:

- Length of Weir (ft) = 5
- Depth of Channel (ft) = 1.5
- Weir Crest Elev. = 434.5
- Top of Channel Elevation = Weir Crest Elevation + Depth of Channel = 436
- Freeboard (ft) = 0.5 x Depth of Channel = 0.75
- Top of Berm (ft) = Freeboard + Top of Channel Elevation = 436.75

A 10-foot wide emergency overflow weir is used in this facility at elevation 435.75 and the 100-year surface water elevation is below the emergency weir.

Areas

Contour	Area (sf)	Cumulative Volume (cf)
431	2,238	0
432	2,683	2,461
433	3,154	5,379
433.5	3,400	7,018
434	4,213	8,921
435	4,792	13,423
436	5,396	18,517
436.75	5,708	22,681

Elevation at Storage Limit (one foot below weir elevation) = 433.5

Storage Limit (cf) = 7,018 > 6,012

This is the volume behind the rip-rap/stone overflow weir within the facility

Cleanout Volume (cf) = 3,006

Cleanout Elevation = 432.24

Proposed Rip-Rap Outlet Sediment Trap # 5

- As per the table on page 5A.35 of the New York Guidelines for Urban Erosion and Sediment Control, a contributing drainage area of 4.00 acres requires the following:

- Length of Weir (ft) = 10
- Depth of Channel (ft) = 1.5
- Weir Crest Elev. = 421.75
- Top of Channel Elevation = Weir Crest Elevation + Depth of Channel = 423.25
- Freeboard (ft) = 0.5 x Depth of Channel = 0.75
- Top of Berm (ft) = Freeboard + Top of Channel Elevation = 424

Areas

Contour	Area (sf)	Cumulative Volume (cf)
417	3,825	0
418	4,591	4,208
419	5,381	9,194
420	6,197	14,983
420.75	6,825	19,866
421	7,038	21,599
421.75	7,685	27,120
422	7,904	29,069
423	8,794	37,418
424	9,711	46,670

Elevation at Storage Limit (one foot below weir elevation) = 420.75
Storage Limit (cf) = 19,866 > 14,400
Cleanout Volume (cf) = 7,200
Cleanout Elevation = 418.80

Appendix F:
State Historic Preservation Office (SHPO) Correspondence

Appendix G:
NYSDEC Forms

Notice of Intent
(Sample Form)

0669273036

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR _____
(for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-10-001

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

-IMPORTANT-
RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)

Owner/Operator Contact Person Last Name (NOT CONSULTANT)

Owner/Operator Contact Person First Name

Owner/Operator Mailing Address

City

State Zip -

Phone (Owner/Operator) - -

Fax (Owner/Operator) - -

Email (Owner/Operator)

FED TAX ID - (not required for individuals)

Project Site Information

Project/Site Name

Street Address (NOT P.O. BOX)

Side of Street
○ **North** ○ **South** ○ **East** ○ **West**

City/Town/Village (THAT ISSUES BUILDING PERMIT)

State N Y Zip - County DEC Region

Name of Nearest Cross Street

Distance to Nearest Cross Street (Feet)

Project In Relation to Cross Street
○ **North** ○ **South** ○ **East** ○ **West**

Tax Map Numbers
Section-Block-Parcel

Tax Map Numbers

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you **must** go to the NYSDEC Stormwater Interactive Map on the DEC website at:

www.dec.ny.gov/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site, go to the tool boxes on the top and choose "i"(identify). Then click on the center of your site and a new window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)

Y Coordinates (Northing) 4

2. What is the nature of this construction project?

○ **New Construction**

○ **Redevelopment with increase in imperviousness**

○ **Redevelopment with no increase in imperviousness**

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use

- ○ FOREST
- ○ PASTURE/OPEN LAND
- ○ CULTIVATED LAND
- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY
- ○ PARKING LOT
- ○ OTHER

Post-Development Future Land Use

- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION — Number of Lots
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ MUNICIPAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY (water, sewer, gas, etc.)
- ○ PARKING LOT
- ○ CLEARING/GRADING ONLY
- ○ DEMOLITION, NO REDEVELOPMENT
- ○ OTHER

4. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law ? ○ **Yes** ○ **No**

5. Is this a project which does not require coverage under the General Permit (e.g. Project done under an Individual SPDES Permit, or department approved remediation)? ○ **Yes** ○ **No**

6. Is this property owned by a state authority, state agency or local government? ○ **Yes** ○ **No**

7. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area. Round to the nearest tenth of an acre.

Total Site Acreage	**Acreage To Be Disturbed**	**Existing Impervious Area Within Disturbed**	**Future Impervious Area Within Disturbed**
.	.	.	.

8. Do you plan to disturb more than 5 acres of soil at any one time? ○ **Yes** ○ **No**

9. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	**B**	**C**	**D**
%	%	%	%

10. Is this a phased project? ○ Yes ○ No

11. Enter the planned start and end dates of the disturbance activities. **Start Date** ☐☐/☐☐/☐☐☐☐ - **End Date** ☐☐/☐☐/☐☐☐☐

12. Identify the nearest, natural, surface waterbody(ies) to which construction site runoff will discharge.

Name

12a. Type of waterbody identified in Question 12?

- ○ Wetland / State Jurisdiction On Site (Answer 12b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 12b)
- ○ Wetland / Federal Jurisdiction Off Site
- ○ Stream / Creek On Site
- ○ Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

12b. How was the wetland identified?

- ○ Regulatory Map
- ○ Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

13. Has the surface waterbody(ies) in question 12 been identified as a 303(d) segment in Appendix E of GP-0-10-001? ○ Yes ○ No

14. Is this project located in one of the Watersheds identified in Appendix C of GP-0-10-001? ○ Yes ○ No

15. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? **If no, skip question 16.** ○ Yes ○ No

16. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ **Yes** ○ **No**

If Yes, what is the acreage to be disturbed?

				.	
				.	

17. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ○ **Yes** ○ **No**

18. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ○ **Yes** ○ **No** ○ **Unknown**

(If No, skip question 19)

19. What is the name of the municipality/entity that owns the separate storm sewer system?

20. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ **Yes** ○ **No** ○ **Unknown**

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book) ? ○ **Yes** ○ **No**

22. Does this construction activity require the development of a SWPPP that includes Water Quality and Quantity Control components (Post-Construction Stormwater Management Practices) ○ **Yes** ○ **No**

(If No, skip questions 23 and 27-35)

23. Have the Water Quality and Quantity Control components of the SWPPP been developed in comformance with the current NYS Stormwater Management Design Manual ? ○ **Yes** ○ **No**

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ○ **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer

Contact Name (Last, Space, First)

Mailing Address

City

State Zip -

Phone - - Fax - -

Email

SWPPP Preparer Certification

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-0-10-001. 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.

First Name **MI**

Last Name

Signature

Date / /

25. Has a construction sequence schedule for the planned management practices been prepared? ○ Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ○ Check Dams
- ○ Construction Road Stabilization
- ○ Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ○ Silt Fence
- ○ Stabilized Construction Entrance
- ○ Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ○ Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ○ Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ○ Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ○ Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

Water Quality and Quantity Control

Important: **Completion of Questions 27-35 is not required if response to Question 22 is No.**

Post-Construction Stormwater Management Practices

27. Indicate **all** Stormwater Management Practice(s) that will be installed/constructed on this site:

Ponds
- ○ **Micropool Extended Detention (P-1)**
- ○ **Wet Pond (P-2)**
- ○ **Wet Extended Detention (P-3)**
- ○ **Multiple Pond System (P-4)**
- ○ **Pocket Pond (P-5)**

Filtering
- ○ **Surface Sand Filter (F-1)**
- ○ **Underground Sand Filter (F-2)**
- ○ **Perimeter Sand Filter (F-3)**
- ○ **Organic Filter (F-4)**
- ○ **Bioretention (F-5)**
- ○ **Other**

Alternative Practice
- ○ **Rain Garden**
- ○ **Cistern**
- ○ **Green Roof**
- ○ **Stormwater Planters**
- ○ **Permeable Paving (Modular Block)**

Wetlands
- ○ **Shallow Wetland (W-1)**
- ○ **Extended Detention Wetland (W-2)**
- ○ **Pond/Wetland System (W-3)**
- ○ **Pocket Wetland (W-4)**

Infiltration
- ○ **Infiltration Trench (I-1)**
- ○ **Infiltration Basin (I-2)**
- ○ **Dry Well (I-3)**
- ○ **Underground Infiltration System**

Open Channels
- ○ **Dry Swale (O-1)**
- ○ **Wet Swale (O-2)**

Verified Proprietary Practice
- ○ **Hydrodynamic**
- ○ **Wet Vault**
- ○ **Media Filter**

28. Describe other stormwater management practices not listed above or explain any deviations from the technical standards.

29. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ○ **Yes** ○ **No**

If Yes, Identify the entity responsible for the long term Operation and Maintenance

30. Provide the total water quality volume required and the total provided for the site.

WQv Required ☐☐☐.☐☐☐ **acre-feet**

WQv Provided ☐☐☐.☐☐☐ **acre-feet**

31. Provide the following Unified Stormwater Sizing Criteria for the site.

Total Channel Protection Storage Volume (CPv) - Extended detention of post-developed 1 year, 24 hour storm event

CPv Required ☐☐☐.☐☐☐ **acre-feet**

CPv Provided ☐☐☐.☐☐☐ **acre-feet**

31a. The need to provide for channel protection has been waived because:

○ **Site discharges directly to fourth order stream or larger**

Total Overbank Flood Control Criteria (Qp) - Peak discharge rate for the 10 year storm

Pre-Development ☐☐☐.☐☐☐ **CFS**

Post-development ☐☐☐.☐☐☐ **CFS**

Total Extreme Flood Control Criteria (Qf) - Peak discharge rate for the 100 year storm

Pre-Development ☐☐☐.☐☐☐ **CFS**

Post-development ☐☐☐.☐☐☐ **CFS**

31b. The need to provide for flood control has been waived because:

○ **Site discharges directly to fourth order stream or larger**

○ **Downstream analysis reveals that flood control is not required**

IMPORTANT: For questions 31 and 32, impervious area should be calculated considering the project site and all offsite areas that drain to the post-construction stormwater management practice(s). (Total Drainage Area = Project Site + Offsite areas)

32. Pre-Construction Impervious Area - As a percent of the Total Drainage Area enter the percentage of the existing impervious areas before construction begins. ☐☐☐%

33. Post-Construction Impervious Area - As a percent of the Total Drainage Area, enter the percentage of the future impervious areas that will be created/remain on the site after completion of construction. ☐☐☐%

34. Indicate the total number of post-construction stormwater management practices to be installed/constructed. ☐☐

35. Provide the total number of stormwater discharge points from the site. (include discharges to either surface waters or to separate storm sewer systems) ☐☐

36. Identify other DEC permits that are required for this project.

DEC Permits

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Other SPDES
- ○ Solid Waste
- ○ None
- ○ Other
- ○ Navigable Waters Protection / Article 15
- ○ Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ○ Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15

37. Does this project require a US Army Corps of Engineers Wetland Permit? ○ **Yes** ○ **No**
If Yes, Indicate Size of Impact. _____.__

38. Is this project subject to the requirements of a regulated, traditional land use control MS4? ○ **Yes** ○ **No**
(If No, skip question 39)

39. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ○ **Yes** ○ **No**

40. If this NOI is being submitted for the purpose of continuing coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. NYR_____

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name **MI**

Print Last Name

Owner/Operator Signature

Date __ / __ / ____

Notice of Termination
(Sample Form)

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person: | 4a.Telephone:

5. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. ☐ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP.
***Date final stabilization completed** (month/year): _____

9b. ☐ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. ☐ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? ☐ yes ☐ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? ☐ yes ☐ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? ☐ yes ☐ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

☐ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

☐ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

☐ For post-construction stormwater management practices that are privately owned, the deed of record has been modified to include a deed covenant that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

☐ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, college, university), or government agency or authority, policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? ☐ yes ☐ no
(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:
(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:

Title/Position:

Signature:	Date:

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

VII. Qualified Inspector Certification - Final Stabilization:

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

IX. Owner or Operator Certification

I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2010)

Appendix H:
Record of Stabilization and Construction Activity Dates
(Sample Form)

Site Stabilization & Construction Activities Dates

Cricket Valley Energy - On-Site Construction Laydown and Parking Area (Former Rasco Parcel)
NYS Route 22
Town of Dover, Dutchess County, New York

Note: This form shall be completed by the Contractor and shall remain as part of the Storm water Pollution Prevention Plan that is to remain at the project site for the duration of construction.

A record of dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be maintained until final site stabilization is achieved and the Notice of Termination is filed.

MAJOR GRADING ACTIVITIES:

Description of Activity:_____

Contractor:_____

Location:_____

Start Date:_____Finish Date:_____

Description of Activity:_____

Contractor:_____

Location:_____

Start Date:_____Finish Date:_____

Description of Activity:_____

Contractor:_____

Location:_____

Start Date:_____Finish Date:_____

Description of Activity:_____

Contractor:_____

Location:_____

Start Date:_____Finish Date:_____

Description of Activity:_____

Contractor:_____

Location:_____

Start Date:_____Finish Date:_____

SAMPLE

Appendix I:
SWPPP Inspection Report
(Sample Form)

Stormwater Pollution Prevention Plan
Inspection Report

Cricket Valley Energy –On-Site Construction Laydown and Parking Area (Former Rasco Parcel)
NYS Route 22
Town of Dover, Dutchess County, New York

A Qualified Inspector[1] shall prepare an inspection report subsequent to each and every inspection, as required in Part IV.C of the SPDES General Permit GP-0-10-001. All sections of this report are to be completed.

1. Inspection Information

Inspection number: _____

Date and Time of Inspection: _____

Weather Conditions: _____

Soil Conditions (e.g. dry, wet, saturated): _____

2. Inspector Information

Trained Inspector[1]

Printed Name: _____ Date: _____

Signature: _____

Qualified Inspector[1]

Printed Name _____ Date: _____

Signature: _____

3. On the included site plan, provide a sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection. Provide additional descriptions below if necessary.

_____

_____

_____

_____

[1] A Qualified Inspector means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), licensed Landscape Architect, or other Department endorsed individual(s). It also means someone working under the direct supervision of the licensed Professional Engineer or licensed Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control (herein referred to as "Trained Inspector."). Training in the principles and practices of erosion and sediment control means that an individual performing a site inspection has received four (4) hours of training, endorsed by the Department, from a Soil and Water Conservation District, CPESC, Inc. or other Department endorsed entity in proper erosion and sediment control principles no later than two (2) years from the date GP-0-08-001 was issued. After receiving the initial training, an individual working under the direct supervision of the licensed Professional Engineer or licensed Landscape Architect shall receive four (4) hours of training every three (3) years. 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.

4. **In the following table, provide a description of the condition of the runoff at all points of discharge from the construction site, including conveyance systems (pipes, culverts, ditches, etc.) and overland flow. Identify any discharges of sediment from the construction site. Use additional sheets if necessary.**

Description of Discharge Point	Condition of Runoff	Sediment Discharge Noted
		yes / no Estimated Quantity:
		yes / no Estimated Quantity:
		yes / no Estimated Quantity:
		yes / no Estimated Quantity:

5. **For all discharge points where sediment discharge has been noted in the above table, provide detailed corrective actions that are required. Use additional sheets if necessary.**

6. In the following table, provide checkmarks in the appropriate columns to indicate the condition of all erosion and sediment control practices at the site.

Erosion & Sediment Control Practice	Not Applicable	Functioning as designed	Needs repair or maintenance	Not installed properly
Stabilized construction entrance				
Temporary parking areas				
Construction vehicle wash areas				
Silt fence				
Temporary swales and berms				
Stone check dams				
Slope protection measures				
Dewatering operations				
Sediment traps				
Inlet protection measures				
Soil stockpiles				
Dust control measures				
Other:				
Other:				

7. For all erosion and sediment control practices identified in the above table as "needs repair or maintenance" or "not installed properly", provide detailed corrective actions that are required. Use additional sheets if necessary.

8. In the following table, indicate the current phase of construction of all post-construction stormwater management practices and identify all construction that is not in conformance with the SWPPP and technical standards.

SWM Practice	Current Phase of Construction	Items not in conformance with the SWPPP

9. For all post-construction stormwater management practices which are identified in the above table as including "items not in conformance with the SWPPP", provide detailed corrective action(s) that are required to correct the deficiencies. Use additional sheets if necessary.

Appendix J:
Contractor’s Certification Form

Stormwater Pollution Prevention Plan
Contractor or Subcontractor Certification Statement

Cricket Valley Energy – On-Site Construction Laydown and Parking Area (Former Rasco Parcel)
NYS Route 22
Town of Dover, Dutchess County, New York

Each Contractor and Subcontractor that will be responsible for installing, constructing, repairing, inspecting and/or maintaining the erosion and sediment control practices and post-construction stormwater management control practices included in the SWPPP is required to complete and sign this Certification Statement before commencing any construction activity at the site. The completed Certification Statement(s) shall be maintained at the construction site in the Site Log Book.

Contracting Firm Information

Name: _____

Address: _____

_____

Telephone & Fax: _____

Contractor's Responsibilities Regarding SWPPP Implementation

_____

_____

Trained Contractor(s)[1] Responsible for SWPPP Implementation (Provide name, title, and date of last training**)**

_____

_____

Contractor or Subcontractor Certification[2]

I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name: _____

Title/Position: _____

Signature: _____ Date: _____

[1] "Trained Contractor" means an employee from a contracting (construction) company that has received four (4) hours of training, which has been endorsed by the Department, from a Soil and Water Conservation District, CPESC, Inc. or other Department endorsed entity, in proper erosion and sediment control principles. 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 that meets the "qualified inspector" qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), 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). The "Trained Contractor" will be responsible for the day to day implementation of the SWPPP.

[2] Signatory Requirements:

a. For a corporation, this form shall be signed by (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principle 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, this form shall be signed by a general partner or the proprietor, respectively.

c. For a municipality, State, Federal, or other public agency, this form 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).

Appendix K:
Post-Construction Inspections and Maintenance

POST CONSTRUCTION INSPECTIONS AND MAINTENANCE

1. SITE COVER

a. Inspections

Site cover and associated structures and embankments should be inspected periodically for the first few months following construction and then on a biannual basis. Site inspections should also be performed following all major (i.e., intense storms, thunder storms, cloud burst, etc.) storm events. Items to check for include (but are not limited to):

i. Differential settlement of embankments, cracking or erosion.

ii. Lack of vigor and density of grass turf.

iii. Accumulation of sediments or litter on lawn areas.

b. Mowing

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.

c. Debris and Litter Removal

Accumulation of litter and debris should be removed during each mowing operation.