Preliminary Stormwater Pollution Prevention Plan

Issued for SEQRA Review

Cricket Valley Energy
Remote Laydown Site

Muncey Parcel Lease
Town of Dover
Dutchess County, New York

February 24, 2012

THE Chazen COMPANIES®

Engineers / Surveyors
Planners
Environmental Scientists
Landscape Architects

Prepared for:
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1.0 INTRODUCTION

This Preliminary Stormwater Pollution Prevention Plan (SWPPP) has been prepared for major construction activities associated with the temporary use of property known as the Remote Laydown Site for off-site construction laydown and overflow parking needed to support 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 to be constructed by Cricket Valley Energy Center, LLC. This preliminary SWPPP 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 this site will be temporary in nature and restored following 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 storm water 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 during the preparation of the Final SWPPP to be used during construction. 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 located along NYS 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 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 off-site construction parking and equipment/material laydown area. This area will be used temporarily to accommodate construction worker parking and laydown during construction of the natural gas-fired, combined-cycle electric generating facility. The off-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 off-site construction parking and equipment laydown area will be located approximately 2.5 miles north of the Project Site on a portion of a 172.3 acre tax parcel currently owned by James Muncey and identified as tax parcel 7062-00-534700 in the Town of Dover. The portion of the parcel to be leased is 39.0 acres. The Remote Laydown Site consists of active agricultural fields historically associated with a farming operation. Adjacent to the Remote Laydown Site, are a former farm-related house and outbuildings, and undeveloped land to the south of the field.

The site work necessary for preparing the Remote Laydown Area consists of removing the top-soil and stock piling it on-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 overflow parking to accommodate up to 200 cars will be required. Temporary yard lighting for parking and the equipment laydown area would be strung with wooden poles. Geo-tech fabric would be laid down with gravel on-top. A temporary access road to accommodate construction vehicles will need to be constructed from NYS Route 22. Following three years of construction, the site would be restored to original conditions.

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 should consist of soil restoration (NYSSWDM section 5.1.6) and re-vegetation.

Since the Remote Laydown 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 off-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 development 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 pre-development peak rates 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 (Application/Checklist)

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 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 roof, 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 on the ground during the use of the Remote Laydown Site. Temporary covers consisting of plywood or tarps will cover the laydown 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 laydown 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 Remote Laydown Site; and to minimize the impact to the quality and quantity of runoff exiting the site following restoration. The preliminary SWPPP and accompanying plans 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 temporary use of the Remote Laydown Site 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 Remote Laydown Site 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 Remote Laydown Site site consists of active agricultural fields historically associated with a farming operation. Adjacent to the Remote Laydown Site, are a former farm-related house and associated farming buildings, including a farmhouse, barn, silo, metal storage shed/lean-to, and a guesthouse, as well as several concrete pads and foundations indicating previous structures. It is centrally located within a parcel bordering NYS Route 22 to the west and Old State Route 22 to the east. The laydown site is also bounded to the south by undeveloped partially wooded property and tributary stream with adjacent wetlands, beyond which is Sherman Hill Road, along which are a few residences and the Sherman Hills residential development. The Project Development Area slopes from approximately 400 feet above mean sea level (MSL) to 385 feet MSL where surface runoff ultimately reaches a tributary stream which traverses predominantly west to east.

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 CuA, CuC, Pg, Su, and Wy series soil types within the area involved with the temporary use. 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)
CuA, CuC - Copake gravely silt loam, nearly level, 0 to 2 percent slopes & complex 5 to 16 percent	B	0.6 – 6.0	0.24	> 6.0	> 60
Pg – Pawling Silt Loam	C	0.6 – 2.0	0.49	> 6.0	10 - 20
Su - Sun silt loam, 0 to 3 percent slopes	D	0.6 – 2.0 & <0.2 (with depth)	0.28	+1.5 – 2.0	> 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 Remote Laydown 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 A Soils: Soils having a high infiltration rate and low runoff potential when thoroughly wet. These soils consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a moderate rate of water transmission.

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

- Type C Soils: Soils having a low infiltration rate when thoroughly wet and 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 2.

2.3 Watershed Designation

Because the laydown site is not located in a restricted watershed identified in Appendix C of GP-0-10-001, enhanced phosphorous removal standards not are 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-development storm water management measures listed herein.

2.4 Receiving Water Bodies

Runoff from the Remote Laydown Site will be discharged to a tributary stream with adjacent forested wetlands, and eventually conveyed to the Ten Mile River.

The tributary stream and Ten Mile 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 Remote Laydown 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 on September 27, 28 and October 3, 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). On-site wetlands are as follows:

- Wetland LS-A consists of 9.89 acres and is presumed to be USACE jurisdictional.
- Wetland LS-B consists of 1.00 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 DEIS and FEIS, ARCADIS has performed studies relative to natural resources for this off-site laydown and parking area. Details of the specific characteristics of the land and natural resources investigated were recorded in FEIS Section 3 – Natural Resources, 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) State listed threatened timber rattlesnake.

4) The New England cottontail, which is a candidate species that is 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 off-site laydown site is currently an active agricultural field, planted in corn at the time of ARCADIS survey. Based on the survey results, none of the wetlands were considered suitable bog turtle habitat.

2) Habitat suitability for the Indiana Bat at the off-site construction laydown and parking area was deemed 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 south has the highest potential of suitable habitat characteristics which yields a slightly higher probability or expectation that they use or occupy for summer roosting or as a maternity habitat. Since trees within these areas are not being disturbed Indiana bat will not be impacted.

3) The off-site laydown site is currently an active agricultural field planted in corn which presents no suitable habitat for the New England Cottontail species. However, lands south of the field consisting of wetlands, old overgrown field, tree/shrub/thicket rows and mixed hardwood forest offer suitable habitat for the cottontail. Since the temporary off-site laydown and parking area will not disturb any suitable habitat and the original agricultural field will be restored upon construction completion, this project poses no adverse impact on the New England Cottontail species.

4) In December 2010, a timber rattlesnake habitat assessment of the Remote Laydown Site was performed. The assessment confirmed that no denning or basking/gestating habitat occurs on the Remote Laydown Site and is not considered to represent a critical foraging habitat for timber rattlesnakes. However the assessment noted that because there are known den sites within 1.5 miles of the Remote Laydown Site, there is potential for their occurrence. Mitigation measures will include educating construction crews on timber rattlesnake identification and providing contact information for the NYSDEC Region Wildlife office and an area nuisance timber rattlesnake responder, and installing temporary barriers made of cloth mesh around the construction area, designed to discourage snakes from entering the Remote Laydown Site.

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 located within an archeologically sensitive area. A printout of the historic places screening map is presented in Appendix B, as Figure 3.

A Phase 1B Archaeological Survey was performed by City/Scape: Cultural Resource Consultants on the Remote Laydown Site, between December 15 – December 20 of 2010 and then after a weather suspension it continued on April 15, 2011 until completed. City/Scapes Phase 1B report explains that a limited number of historic cultural artifacts were recovered across the field but none that resembled an historic locus. Based on their findings, they consider the site to have no evidence of prehistoric or historic sites within the Cricket Valley Energy Remote Laydown Site and no additional archaeological work is required.

David P. Mackey, Historic Preservation Program Analyst, of the NYS Office of Parks, Recreation and Historic Preservation completed a review of the Phase 1B report provided by City/Scape. On July 6, 2011, David P. Mackey issued a letter that based upon their review of the

Phase 1B report, the Remote Laydown Site will have no effect upon cultural resources in or eligible for inclusion in the National Registers of Historic Places. All SHPO correspondence is attached in Appendix F.

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, gravel parking lots and laydown areas, temporary lighting, temporary fencing and toilet trailers 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 Remote Laydown Site consists of removing the top-soil and stock piling it on-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 200 cars will be provided. 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. A temporary access road to accommodate construction vehicles will need to be constructed 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 that will remain on-site throughout construction. 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. Permanent traffic corridors should be established 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 throughout 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 construction 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.

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 Check Dams

Stone check dams shall be installed within temporary diversion swales to reduce the velocity of storm water 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.

4.1.7 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)
1A	Rip-Rap/Pipe Outlet Trap	3.38	12,169	12,896
1B	Rip-Rap/Pipe Outlet Trap	6.69	24,074	24,916
2A	Rip-Rap/Pipe Outlet Trap	1.42	5,112	5,768
2B	Rip-Rap Outlet Trap	10.91	39,261	48,203
3	Rip-Rap Outlet Trap	4.71	16,961	23,239

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

4.1.8 Temporary Diversion Swales

Temporary diversion swales shall 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.

4.1.9 Dewatering Operations

Dewatering shall be used to intercept sediment-laden storm water 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

Re-establishment of crop cover shall be coordinated with land owner. If season, does not allow for placement of crop cover, a meadow seed mix shall be provided over the land in accordance with the contract documents.

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.

4.3 Other Pollutant Controls

Control of sediments has been described previously. Other aspects of this 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 storm water. 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-storm water 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 can be stockpiled on-site and up slope from adequate sedimentation controls during construction. If there is any excess material once construction is complete, it shall be hauled and stored at an off-site location to be coordinated with the Owner. The topsoil from this site shall be stripped and stockpiled 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 shall be protected by a temporary perimeter berm and shall be identified on the plans accompanying the Final SWPPP.

4.4.3 Detergents

The use of detergents for large-scale washing is prohibited (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 or the designated "laydown" area. The staging area shall be located in an area that minimizes the impacts of the construction materials effecting storm water quality.

Chemicals, paints, solvents, and other toxic material must be stored in waterproof containers. Except during application, the contents must be kept 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 TEMPORARY STORM WATER CONTROL AND POST CONSTRUCTION RESTORATION

Based upon verbal correspondence with NYSDEC on February 2 and 3, 2012, the storm water management measures for the Remote Laydown Site 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. During the use of the Remote Laydown Site, only temporary erosion and sediment control measures will be required. 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 Sediment & Detention Control Facilities

The sediment and sediment/detention control facilities provided on the Remote Laydown Site 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 for the approval and permitting processes.

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

5.2 Storm Water 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:

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 recommend to avoid clogging, but do not provide 24-hours of extended detention.

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.

    - Design Point #1 achieves 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.

    - Design Point #1 achieves this criterion.

5.2.2 Methodology

In order to demonstrate where detention storage requirements are being met, a hydrologic and hydraulic analysis of the pre- and construction phase conditions was 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 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.

Preliminary storm water management facilities, with the exception of the storm sewer system, were designed and evaluated in accordance with the NYS Stormwater Management Design Manual and local regulatory requirements. 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)
Sediment & Detention Control Facilities	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 108 acres and contains the 38.8 acre Remote Laydown Site. The overall watershed was broken down into smaller watersheds, or subcatchments, to allow for analysis of runoff condition at critical locations throughout the study area. Each of these locations was defined as a Design Point (DP)

in order to compare the effects resulting from the sediment and detention facilities proposed as part of the project. Descriptions of each of the selected design points are provided below.

- Design Point 1: Existing Culvert Crossing under Old State Route 22.

5.2.4 Pre-development Watershed Conditions

After a preliminary analysis of the existing conditions map as well as other state supplemental topography and aerial photography, it was found that the contributing pre-development watershed area can be comprised of one large subcatchment, labeled in the Pre-Development Stormwater Modeling Calculations as ES1.

Subcatchment ES1 is mostly covered by active corn field with scattered brush & wooded areas along NYS Route 22, along the southern boundary, along Old State Route 22 as well. A farm house and auxiliary buildings can be found at the southeast corner of the watershed boundary. The southern watershed boundary is the centerline of an existing stream surrounded by presumed to be USACE jurisdictional wetland LS-A that spans the boundary east to west and has been overgrown with scattered vegetation. The inlet to the culvert under Old State Route 22 serves as Design Point #1 for this Subcatchment as all areas within the Subcatchment drain to this point.

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 Remote Laydown Site will be covered predominantly by gravel, soil stockpiles, temporary trailers, existing corn fields, woods, brush 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-1A, PS-1B, PS-1C, PS-2, PS-3, PS-4, PS-5a, PS-5B, PS-6 and PS-7. The following subcatchments are tributary to these storm water/sediment management devices:

- Sediment Control & Detention Facility #1A (PS-3)
- Sediment Control & Detention Facility #1B (PS-3, PS-2)
- Sediment Control & Detention Facility #2A (PS-4)
- Sediment Control Facility #2B (PS-4, PS-6)

- Sediment Control Facility #3 (PS-7)

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 from the Remote Laydown Site will be controlled by three sediment control and stormwater detention facilities and two sediment control facilities (rip rap outlet sediment traps). 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 the design point and storm events evaluated herein. This comparison demonstrates that the peak rate of runoff will not be increased for the storm events at the design point.

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	40.04	33.85	119.11	116.86	240.50	238.13

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.

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 storm water 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 storm water 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 storm water 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.

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 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. Train/Educate all construction personnel on the site for Timber Rattle Snake identifications, avoidance, and contact information for reporting,

7. 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.

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

9. 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.

10. 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.

11. 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: 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 information to be entered once the Contractor has 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 storm water 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.

7.2 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.

8.0 CONCLUSION

This project 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 leased 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 will 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

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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 <u>not</u> subject to the requirements of a *regulated, traditional land use control MS4*:

i. Five (5) business days from the date the Department receives a complete 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 <u>not</u> 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. <u>General Requirements For Owners or Operators With Permit Coverage</u>

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. <u>Continuation of the Expired General Permit</u> - 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. <u>Enforcement</u> - 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. <u>Need to Halt or Reduce Activity Not a Defense</u> - 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. <u>Duty to Mitigate</u> - 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. <u>Duty to Provide Information</u> - 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. <u>Other Information</u> - 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

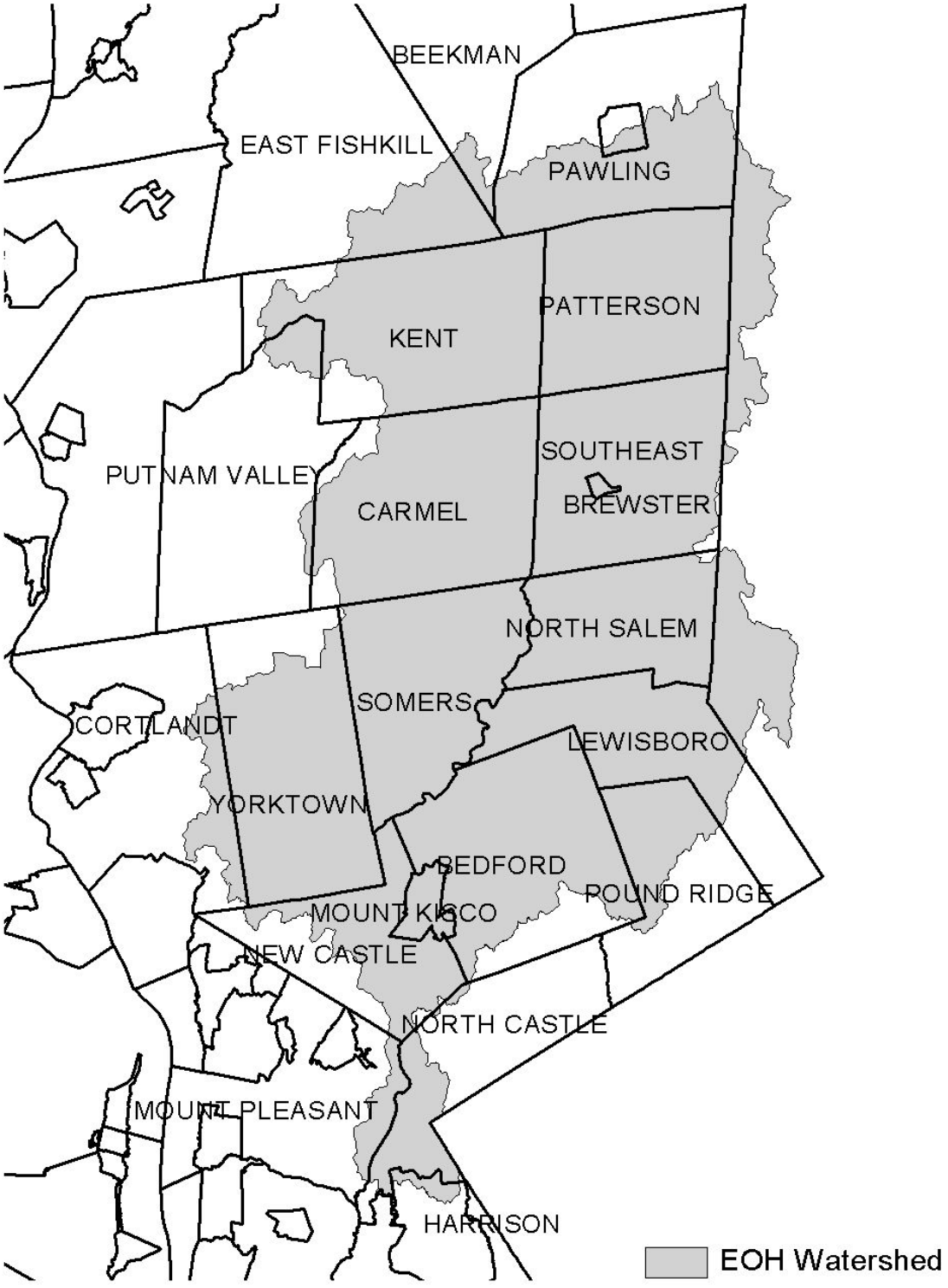
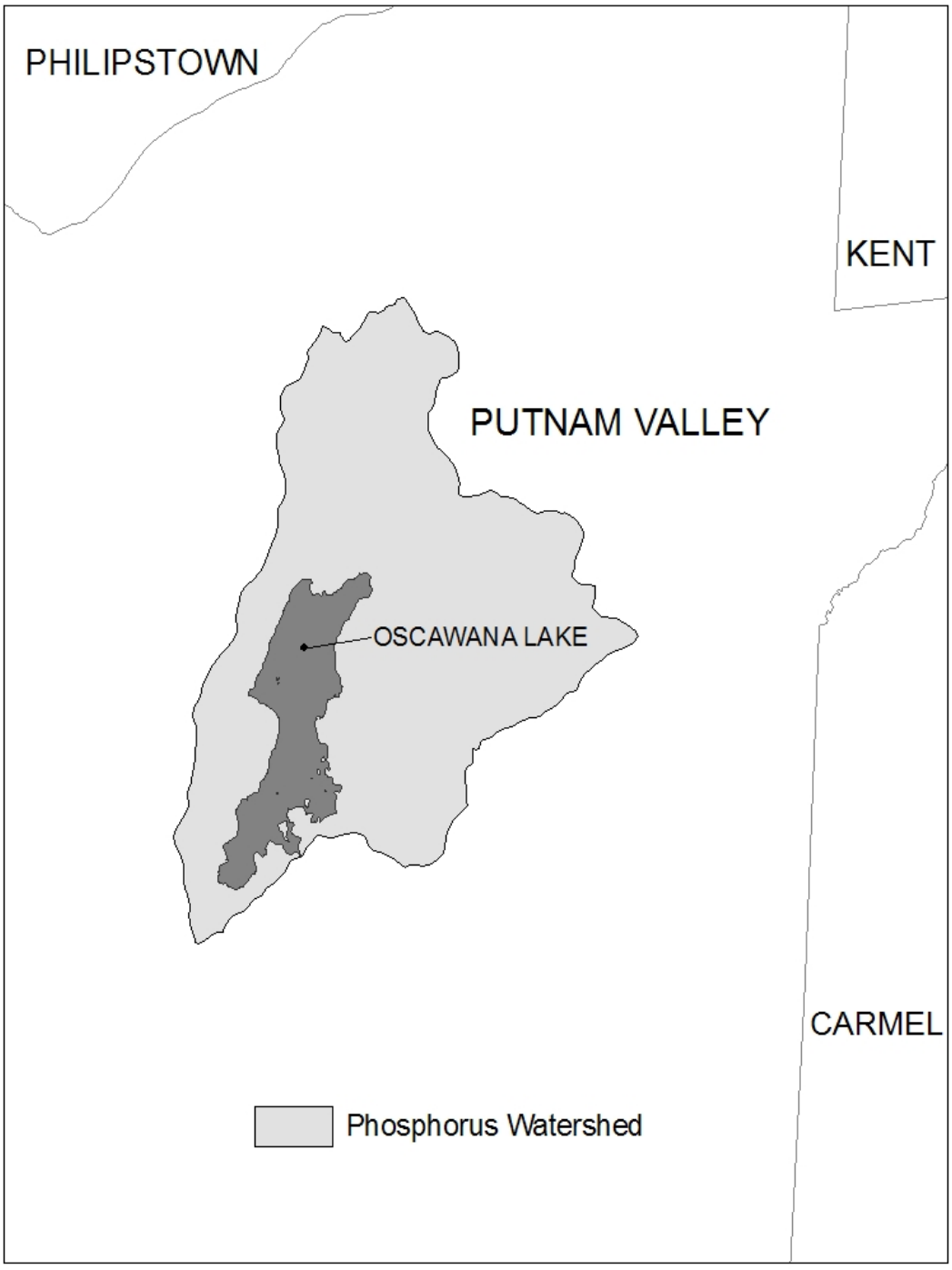


Figure 2 - Onondaga Lake Watershed

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.

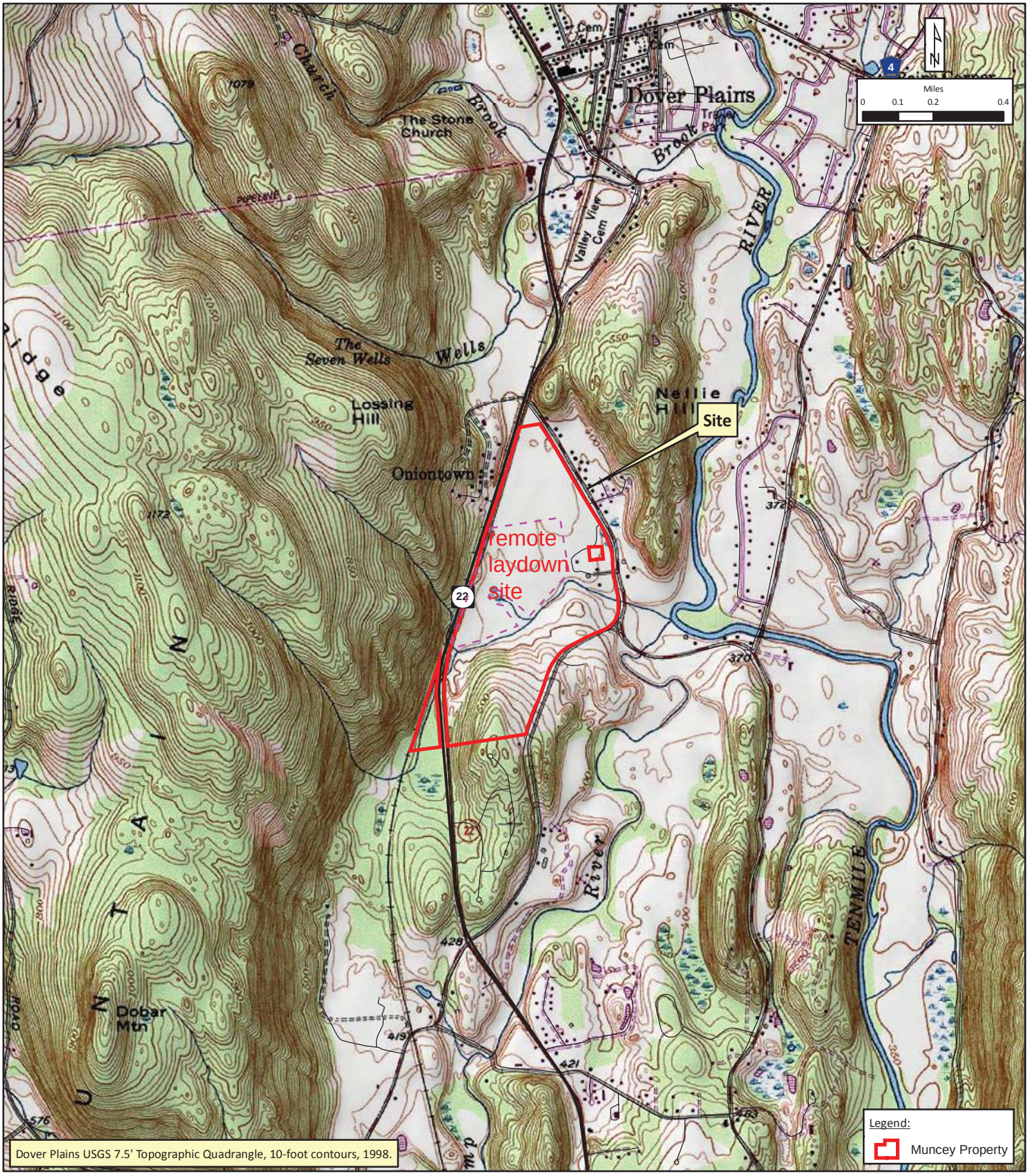
APPENDIX F

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: Remote Laydown Site (Muncey Property)

Location Map

State Route 22, Town of Dover, Dutchess County, New York

Drawn:	CLC
Date:	02/06/2012
Scale:	1:24,000
Project:	81001.01
Figure:	1

Map Document: (R:\8\81000-81999\81001_01_CricketValleyEnergy\GIS\maps\81001_01_Muncey_LocationMap_8x11.mxd)
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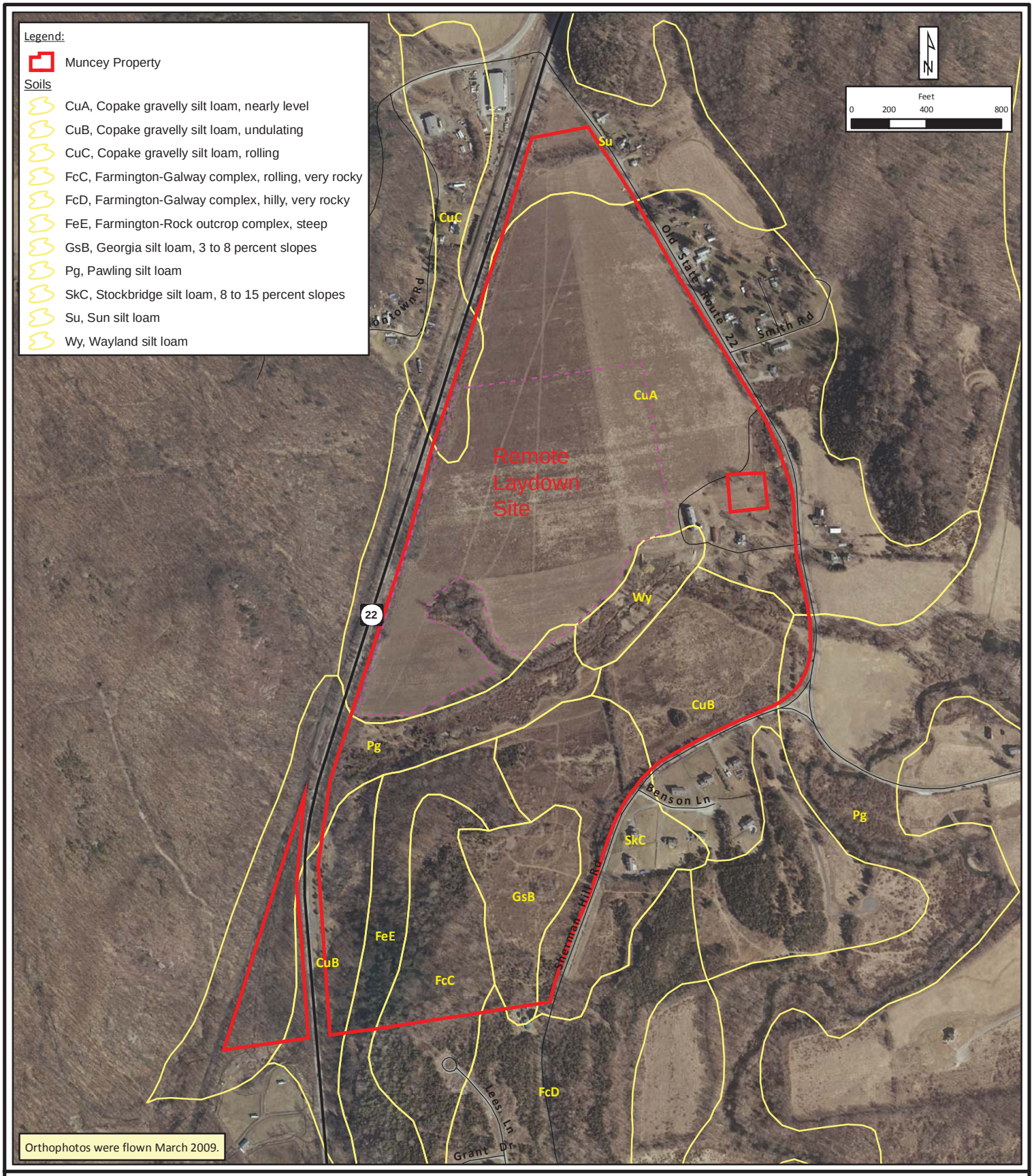
Figure 2:
Site Soils Map



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Cricket Valley Energy: Remote Laydown Site (Muncey Property)

Soils Map

State Route 22, Town of Dover, Dutchess County, New York

Drawn:	CLC
Date:	02/06/2012
Scale:	1:8,400
Project:	81001.01
Figure:	2

Map Document: (R:\8\81000-81999\81001_01_CricketValleyEnergy\GIS\maps\81001_01_Muncey_SoilsMap_8x11.mxd)
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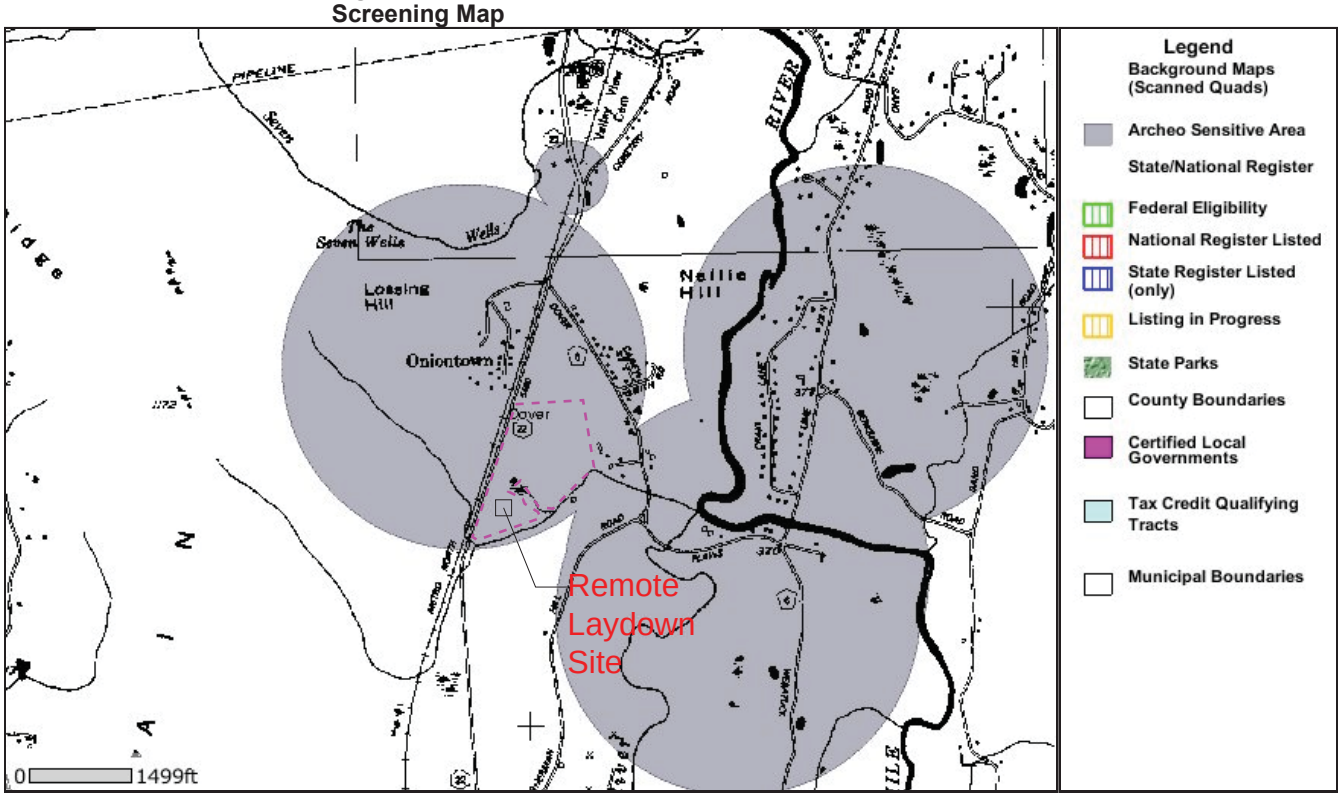
Figure 3:
Historic Places Screening Map

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

STORMWATER LEGEND

- EXISTING WATERSHED BOUNDARY
- TIME OF CONCENTRATION / FLOW PATH
- # XX.XX – SUBCATCHMENT # / SUBCATCHMENT TOTAL AREA (ACRES)
- # – DESIGN POINT

NEW YORK STATE ROUTE 22

EXISTING WATERSHED BOUNDARY (TYP)

APPROXIMATE EXISTING PROPERTY BOUNDARY

EXISTING CORN FIELDS

ES-1 107.36

TIME OF CONCENTRATION (FLOW PATH) (TYP)

DESIGN POINT #1 (EXISTING CULVERT UNDER OLD ROUTE 22) DP-1

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CHAZEN ENGINEERING, LAND SURVEYING & LANDSCAPE ARCHITECTURE CO., P.C.

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Dutchess County Office:
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Phone: (518) 812-0513

rev.	date	description

CRICKET VALLEY ENERGY
REMOTE LAYDOWN SITE

PRE-DEVELOPMENT WATERSHED DELINEATION MAP

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

drawn	MMF
checked	CL
date	02/24/12
scale	1"=100'
project no.	81001.01
sheet no.	FIG. 4

Drawing Name: S:\81\81000-81099\81001.01\ENG\DWG-MUNCEY\10-FIG-4_PRE-DEVELOP-MUNCEY.dwg
Xrefs Attached: XSTORM-MUNCEY_81001.01, XBASE-MUNCEY_81001-01, XTB_36x48-MUNCEY_81001-01
Date Printed: Mar 15, 2012, 2:51pm

Figure 5:
Construction Phase Watershed Delineation Map

ISSUED FOR PRELIMINARY USE ONLY

PROJECT NAME
CRICKET VALLEY ENERGY – REMOTE LAYDOWN SITE

DEVELOPER
CRICKET VALLEY ENERGY CENTER, LLC.

OWNER OF RECORD
JAMES MUNCEY
344 LAKE ELLIS RD
WINGDALE, NEW YORK 12594

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rev.	date	description
1	04/24/12	REVISED PER TOWN & CLIENT COMMENTS

CRICKET VALLEY ENERGY
REMOTE LAYDOWN SITE

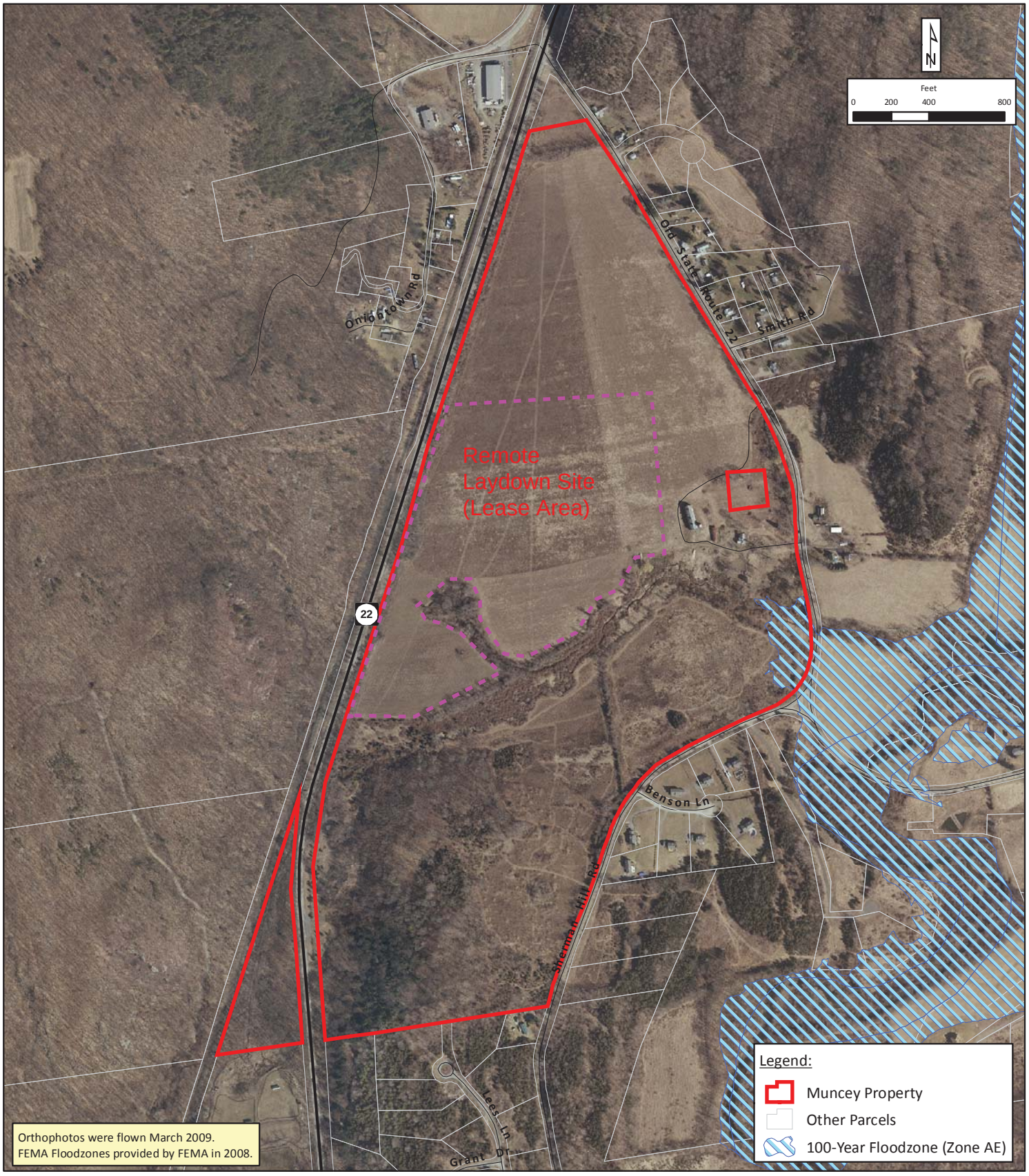
CONSTRUCTION PHASE WATERSHED DELINEATION MAP

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

drawn	checked
MMF	CL
date	scale
02/24/12	1"=100'
project no.	
81001.01	
sheet no.	
FIG. 5	

Drawing Name: S:\F\81000-81099\81001.01\ZNO\ZWG-MUNCEY\VG-FIG-5_POST-DEVELOP-MUNCEY.dwg
Xref's Attached: XSTORM-MUNCEY_81001.01; XBASE-MUNCEY_81001-01; XTB_36x48-MUNCEY_81001-01; XLAYOUT-MUNCEY_81001-01; XTOPO-MUNCEY_81001-01
Date Printed: Jun 05, 2012, 11:39am

Figure 6:
FEMA Floodzone Map



THE Chazen COMPANIES
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Cricket Valley Energy: Remote Laydown Site (Muncey Property)

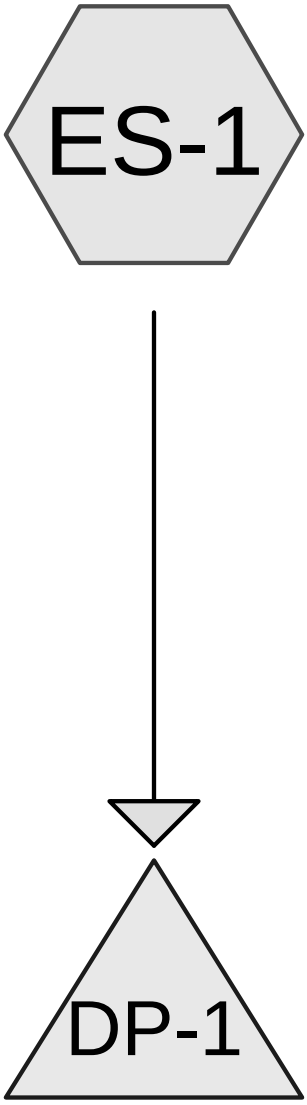
FEMA Floodzone Map

State Route 22, Town of Dover, Dutchess County, New York

Drawn:	CLC
Date:	02/24/2012
Scale:	1:8,400
Project:	81001.01
Figure:	6

Map Document: (R:\8\81000-81999\81001_01_CricketValleyEnergy\GIS\maps\81001_01_Muncey_FloodzoneMap_8x11.mxd)
2/24/2012 -- 8:19:19 AM

Appendix C:
Pre-Development Stormwater Modeling



DESIGN POINT #1 (Culvert under Old State Route 22)

Subcat Reach Pond Link

Drainage Diagram for 81001-01 CVE-Remote Laydown Site-Pre-Development
Prepared by THE CHAZEN COMPANIES, Printed 3/15/2012

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
297,349	56	Brush, Fair, HSG B (ES-1)
104,295	58	Woods/grass comb., Good, HSG B (ES-1)
215,841	69	50-75% Grass cover, Fair, HSG B (ES-1)
2,880	70	Brush, Fair, HSG C (ES-1)
354,994	72	Woods/grass comb., Good, HSG C (ES-1)
12,462	77	Brush, Fair, HSG D (ES-1)
3,025,182	78	Row crops, straight row, Good, HSG B (ES-1)
218,034	79	Woods/grass comb., Good, HSG D (ES-1)
68,807	84	50-75% Grass cover, Fair, HSG D (ES-1)
27,195	85	Row crops, straight row, Good, HSG C (ES-1)
216,676	89	Row crops, straight row, Good, HSG D (ES-1)
133,103	98	IMPERVIOUS (ES-1)
4,676,818		**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Goup	Subcatchment Numbers
0	HSG A	
3,642,667	HSG B	ES-1
385,069	HSG C	ES-1
515,979	HSG D	ES-1
133,103	Other	ES-1
4,676,818		**TOTAL AREA**

Summary for Subcatchment ES-1:

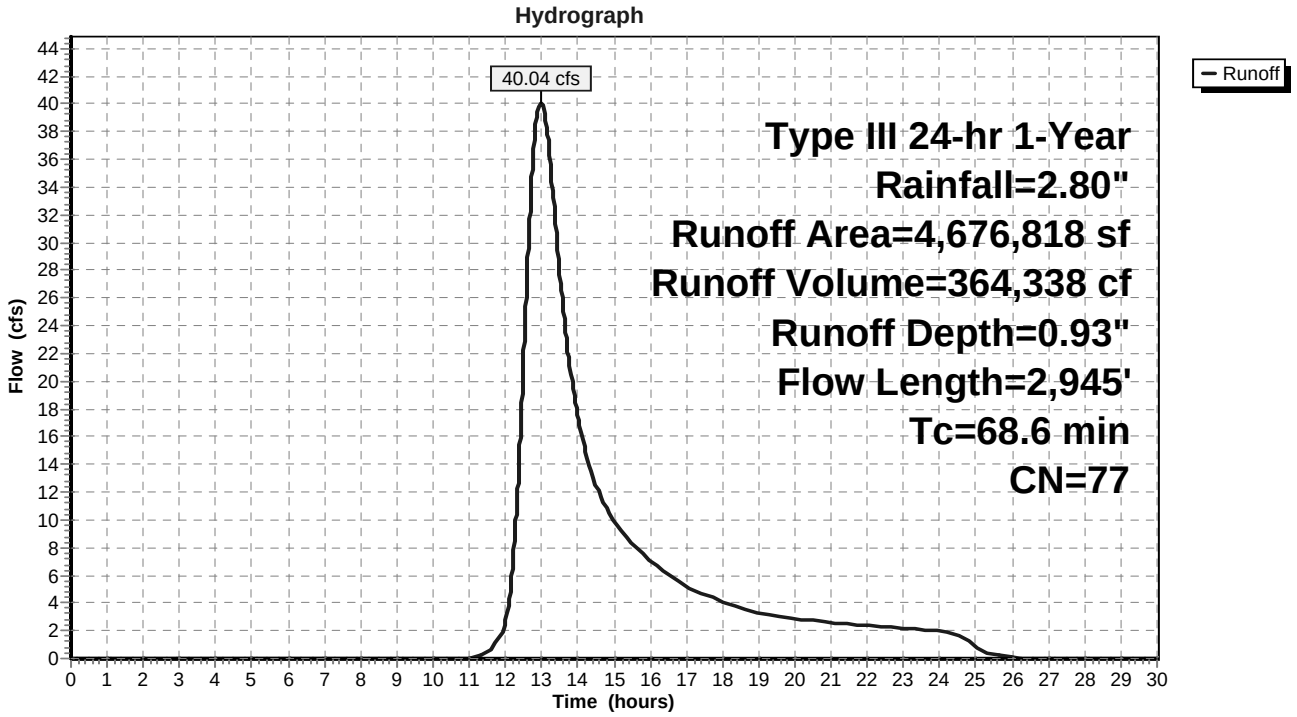
Runoff = 40.04 cfs @ 12.96 hrs, Volume= 364,338 cf, Depth= 0.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

	Area (sf)	CN	Description
*	133,103	98	IMPERVIOUS
	104,295	58	Woods/grass comb., Good, HSG B
	3,025,182	78	Row crops, straight row, Good, HSG B
	354,994	72	Woods/grass comb., Good, HSG C
	27,195	85	Row crops, straight row, Good, HSG C
	218,034	79	Woods/grass comb., Good, HSG D
	216,676	89	Row crops, straight row, Good, HSG D
	215,841	69	50-75% Grass cover, Fair, HSG B
	68,807	84	50-75% Grass cover, Fair, HSG D
	297,349	56	Brush, Fair, HSG B
	2,880	70	Brush, Fair, HSG C
	12,462	77	Brush, Fair, HSG D
	4,676,818	77	Weighted Average
	4,543,715		97.15% Pervious Area
	133,103		2.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	100	0.0080	0.14		**Sheet Flow, SHEET FLOW** Range n= 0.130 P2= 3.50"
32.2	1,557	0.0080	0.80		**Shallow Concentrated Flow, SHALLOW CONC FLOW** Cultivated Straight Rows Kv= 9.0 fps
19.5	733	0.0080	0.63		**Shallow Concentrated Flow, SHALLOW CONC FLOW** Short Grass Pasture Kv= 7.0 fps
0.2	30	0.0100	2.36	1.85	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
4.3	400	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	125	0.0141	7.46	335.70	**Channel Flow, CHANNEL FLOW** Area= 45.0 sf Perim= 25.0' r= 1.80' n= 0.035 Earth, dense weeds
68.6	2,945	Total			

Subcatchment ES-1:

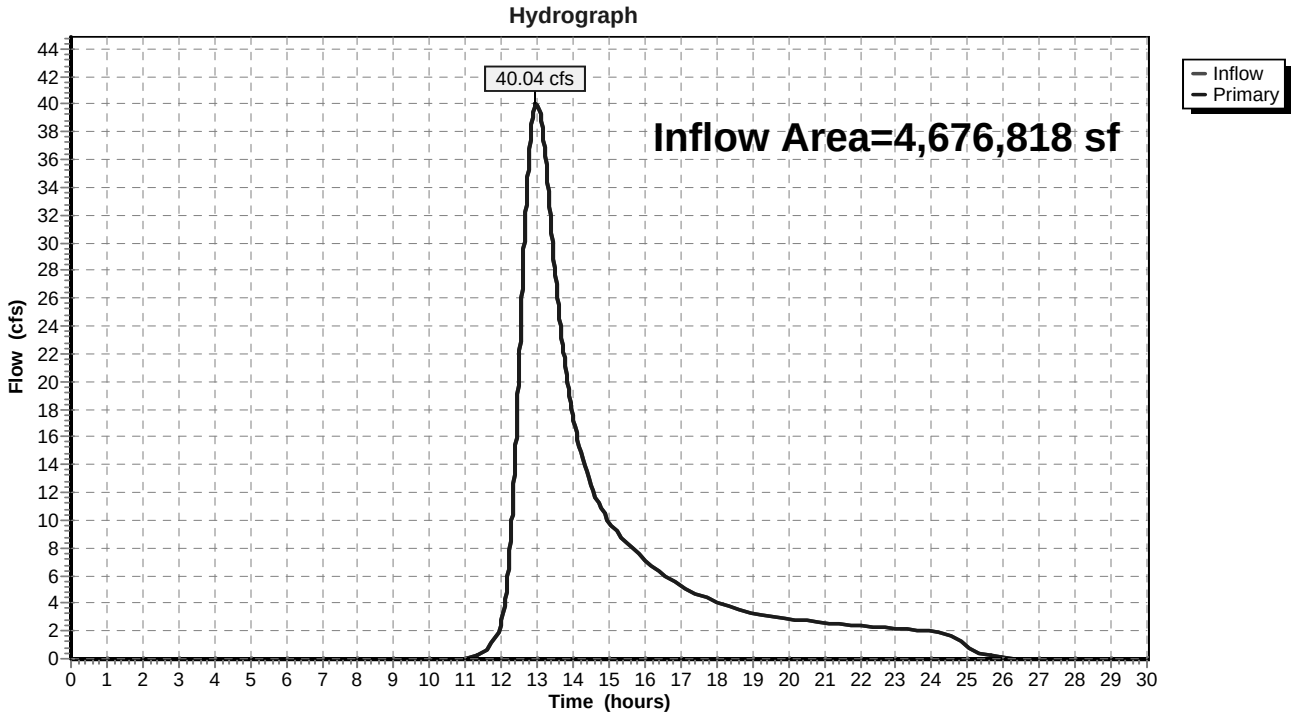


Summary for Pond DP-1: DESIGN POINT #1 (Culvert under Old State Route 22)

Inflow Area = 4,676,818 sf, 2.85% Impervious, Inflow Depth = 0.93" for 1-Year event
Inflow = 40.04 cfs @ 12.96 hrs, Volume= 364,338 cf
Primary = 40.04 cfs @ 12.96 hrs, Volume= 364,338 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond DP-1: DESIGN POINT #1 (Culvert under Old State Route 22)



Summary for Subcatchment ES-1:

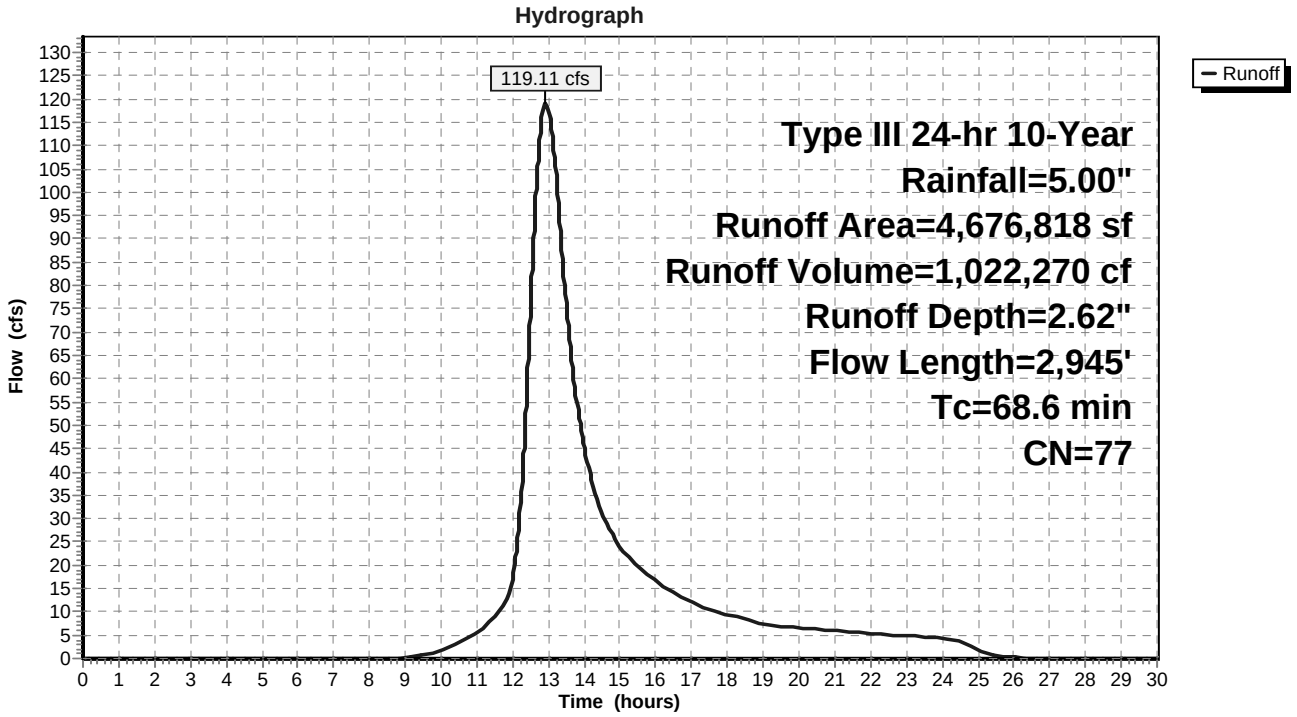
Runoff = 119.11 cfs @ 12.89 hrs, Volume= 1,022,270 cf, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

	Area (sf)	CN	Description
*	133,103	98	IMPERVIOUS
	104,295	58	Woods/grass comb., Good, HSG B
	3,025,182	78	Row crops, straight row, Good, HSG B
	354,994	72	Woods/grass comb., Good, HSG C
	27,195	85	Row crops, straight row, Good, HSG C
	218,034	79	Woods/grass comb., Good, HSG D
	216,676	89	Row crops, straight row, Good, HSG D
	215,841	69	50-75% Grass cover, Fair, HSG B
	68,807	84	50-75% Grass cover, Fair, HSG D
	297,349	56	Brush, Fair, HSG B
	2,880	70	Brush, Fair, HSG C
	12,462	77	Brush, Fair, HSG D
	4,676,818	77	Weighted Average
	4,543,715		97.15% Pervious Area
	133,103		2.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	100	0.0080	0.14		**Sheet Flow, SHEET FLOW** Range n= 0.130 P2= 3.50"
32.2	1,557	0.0080	0.80		**Shallow Concentrated Flow, SHALLOW CONC FLOW** Cultivated Straight Rows Kv= 9.0 fps
19.5	733	0.0080	0.63		**Shallow Concentrated Flow, SHALLOW CONC FLOW** Short Grass Pasture Kv= 7.0 fps
0.2	30	0.0100	2.36	1.85	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
4.3	400	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	125	0.0141	7.46	335.70	**Channel Flow, CHANNEL FLOW** Area= 45.0 sf Perim= 25.0' r= 1.80' n= 0.035 Earth, dense weeds
68.6	2,945	Total			

Subcatchment ES-1:

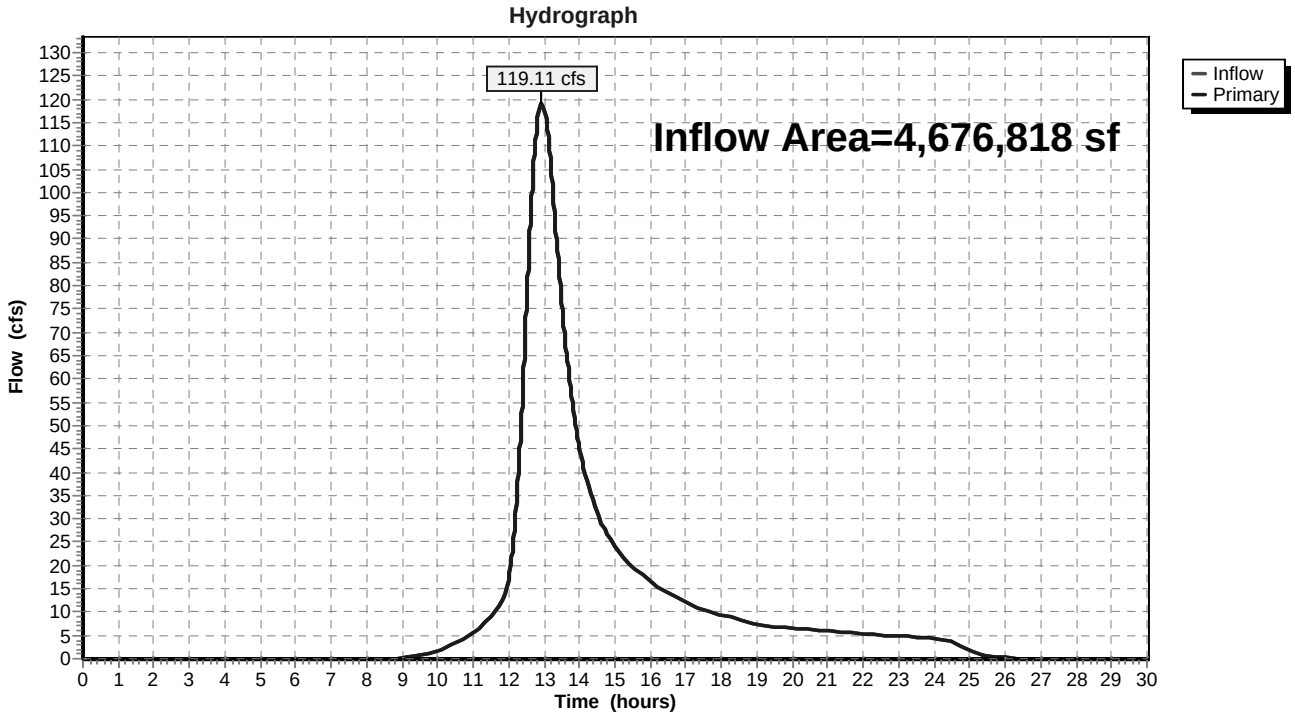


Summary for Pond DP-1: DESIGN POINT #1 (Culvert under Old State Route 22)

Inflow Area = 4,676,818 sf, 2.85% Impervious, Inflow Depth = 2.62" for 10-Year event
Inflow = 119.11 cfs @ 12.89 hrs, Volume= 1,022,270 cf
Primary = 119.11 cfs @ 12.89 hrs, Volume= 1,022,270 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond DP-1: DESIGN POINT #1 (Culvert under Old State Route 22)



Summary for Subcatchment ES-1:

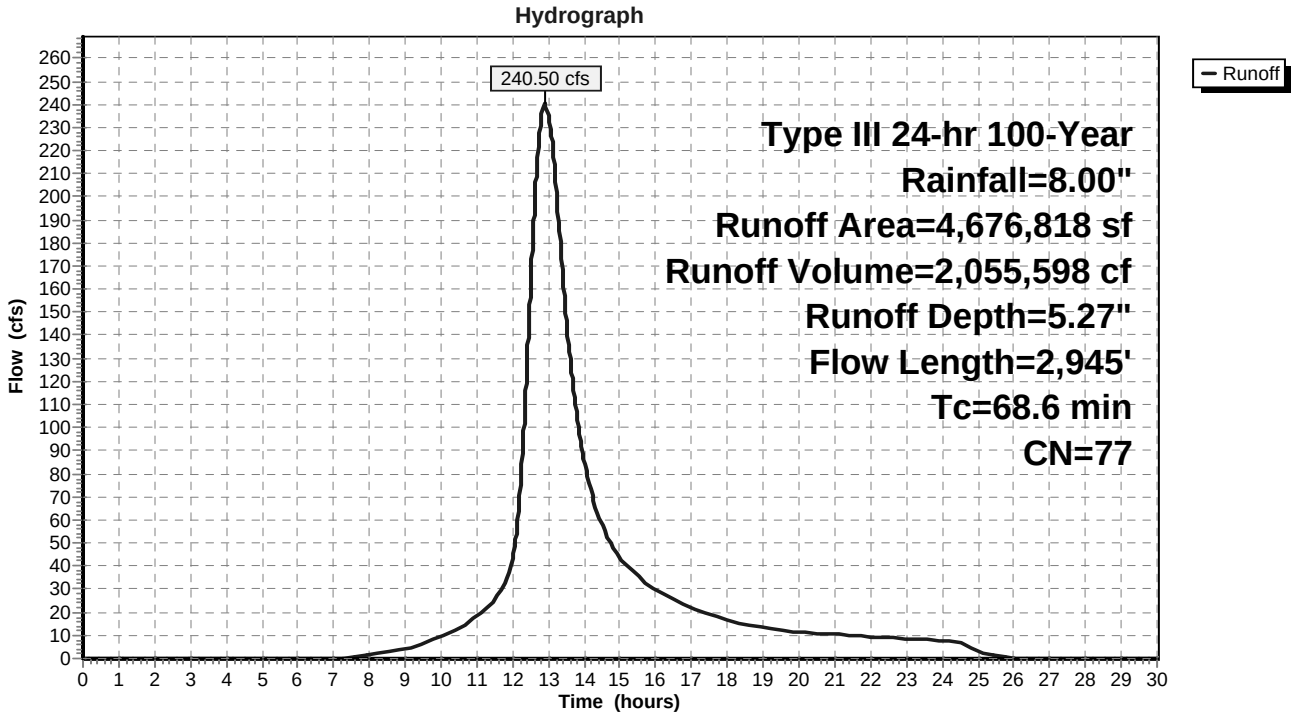
Runoff = 240.50 cfs @ 12.88 hrs, Volume= 2,055,598 cf, Depth= 5.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.00"

	Area (sf)	CN	Description
*	133,103	98	IMPERVIOUS
	104,295	58	Woods/grass comb., Good, HSG B
	3,025,182	78	Row crops, straight row, Good, HSG B
	354,994	72	Woods/grass comb., Good, HSG C
	27,195	85	Row crops, straight row, Good, HSG C
	218,034	79	Woods/grass comb., Good, HSG D
	216,676	89	Row crops, straight row, Good, HSG D
	215,841	69	50-75% Grass cover, Fair, HSG B
	68,807	84	50-75% Grass cover, Fair, HSG D
	297,349	56	Brush, Fair, HSG B
	2,880	70	Brush, Fair, HSG C
	12,462	77	Brush, Fair, HSG D
	4,676,818	77	Weighted Average
	4,543,715		97.15% Pervious Area
	133,103		2.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	100	0.0080	0.14		**Sheet Flow, SHEET FLOW** Range n= 0.130 P2= 3.50"
32.2	1,557	0.0080	0.80		**Shallow Concentrated Flow, SHALLOW CONC FLOW** Cultivated Straight Rows Kv= 9.0 fps
19.5	733	0.0080	0.63		**Shallow Concentrated Flow, SHALLOW CONC FLOW** Short Grass Pasture Kv= 7.0 fps
0.2	30	0.0100	2.36	1.85	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
4.3	400	0.0500	1.57		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.3	125	0.0141	7.46	335.70	**Channel Flow, CHANNEL FLOW** Area= 45.0 sf Perim= 25.0' r= 1.80' n= 0.035 Earth, dense weeds
68.6	2,945	Total			

Subcatchment ES-1:

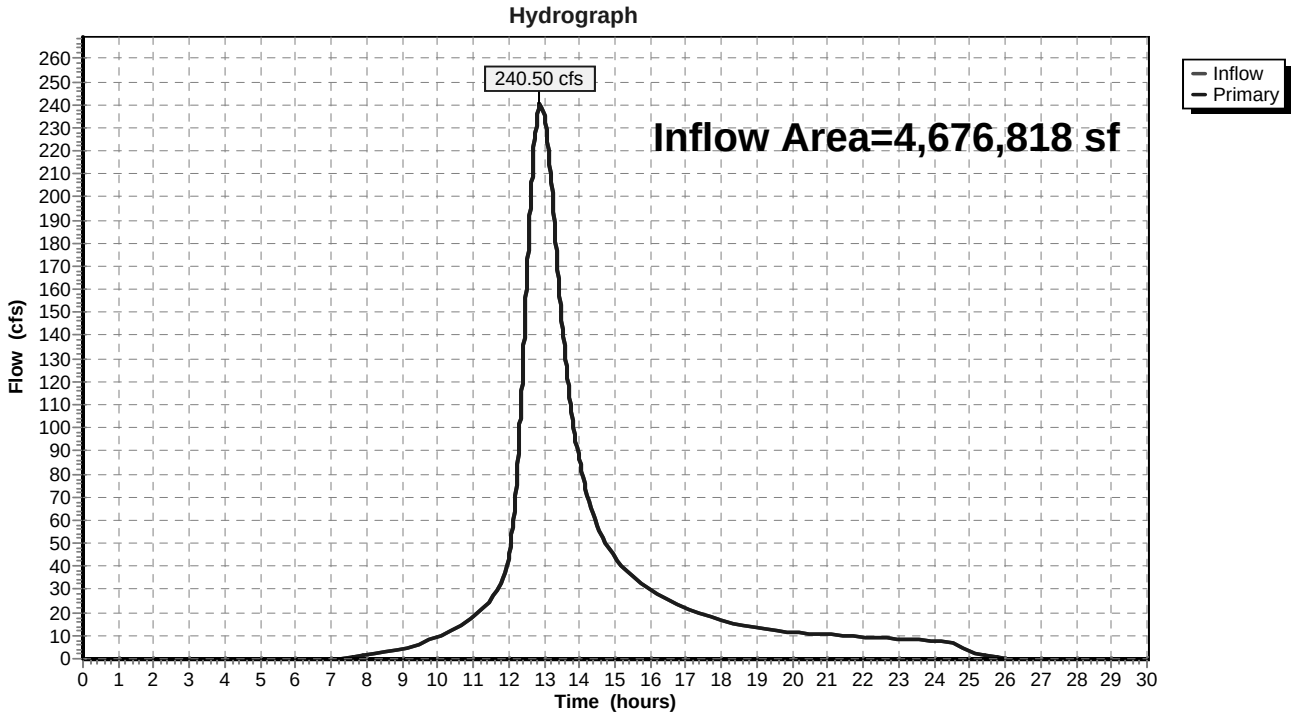


Summary for Pond DP-1: DESIGN POINT #1 (Culvert under Old State Route 22)

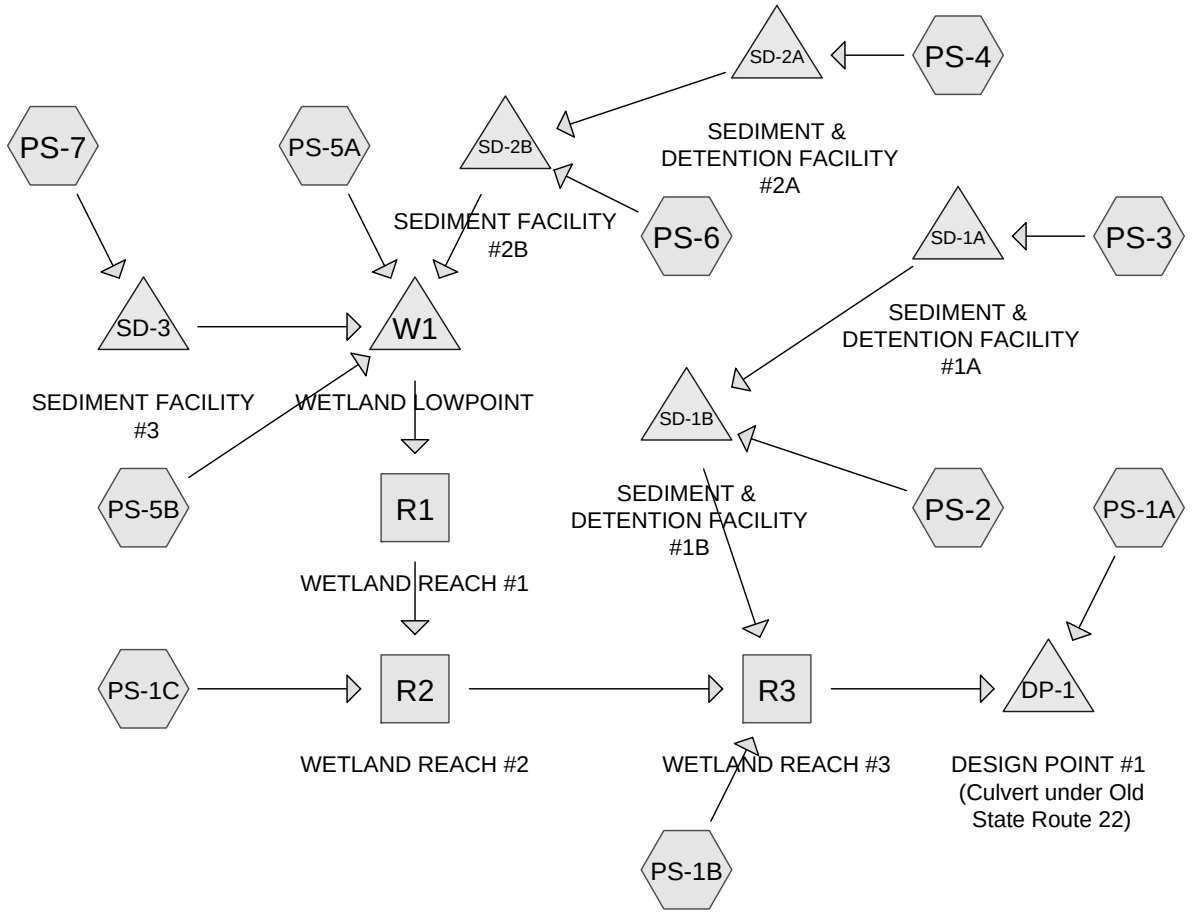
Inflow Area = 4,676,818 sf, 2.85% Impervious, Inflow Depth = 5.27" for 100-Year event
Inflow = 240.50 cfs @ 12.88 hrs, Volume= 2,055,598 cf
Primary = 240.50 cfs @ 12.88 hrs, Volume= 2,055,598 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond DP-1: DESIGN POINT #1 (Culvert under Old State Route 22)



Appendix D:
Construction Phase Stormwater Modeling



Subcat Reach Pond Link

Drainage Diagram for 81001-01 CVE-Remote Laydown Site-Construction Phase

Prepared by THE CHAZEN COMPANIES, Printed 3/15/2012

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
6.461	56	Brush, Fair, HSG B (PS-1A, PS-1C, PS-5B)
3.202	58	Woods/grass comb., Good, HSG B (PS-1A, PS-1C, PS-5A, PS-5B)
4.847	61	>75% Grass cover, Good, HSG B (PS-1B, PS-2, PS-3, PS-4, PS-6, PS-7)
10.906	69	50-75% Grass cover, Fair, HSG B (PS-1A, PS-1C, PS-5A, PS-5B)
0.066	70	Brush, Fair, HSG C (PS-1C)
6.776	72	Woods/grass comb., Good, HSG C (PS-1B, PS-1C)
0.231	74	>75% Grass cover, Good, HSG C (PS-2)
0.486	77	Brush, Fair, HSG D (PS-1A, PS-1C, PS-5A)
36.888	78	Row crops, straight row, Good, HSG B (PS-1A, PS-1B, PS-1C, PS-5A, PS-5B)
5.003	79	Woods/grass comb., Good, HSG D (PS-1A, PS-1B, PS-5A)
1.587	84	50-75% Grass cover, Fair, HSG D (PS-1A, PS-1B, PS-5A)
22.563	85	Gravel roads, HSG B (PS-2, PS-3, PS-4, PS-5A, PS-5B, PS-6, PS-7)
0.185	85	Row crops, straight row, Good, HSG C (PS-1B, PS-1C)
0.292	89	Gravel roads, HSG C (PS-6)
4.774	89	Row crops, straight row, Good, HSG D (PS-1A, PS-5A)
3.241	98	IMPERVIOUS (PS-1A, PS-1C, PS-5A, PS-5B)
0.032	98	Roofs, HSG B (PS-4, PS-6)
107.539		**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Goup	Subcatchment Numbers
0.000	HSG A	
84.899	HSG B	PS-1A, PS-1B, PS-1C, PS-2, PS-3, PS-4, PS-5A, PS-5B, PS-6, PS-7
7.550	HSG C	PS-1B, PS-1C, PS-2, PS-6
11.850	HSG D	PS-1A, PS-1B, PS-1C, PS-5A
3.241	Other	PS-1A, PS-1C, PS-5A, PS-5B
107.539		**TOTAL AREA**

Summary for Subcatchment PS-1A:

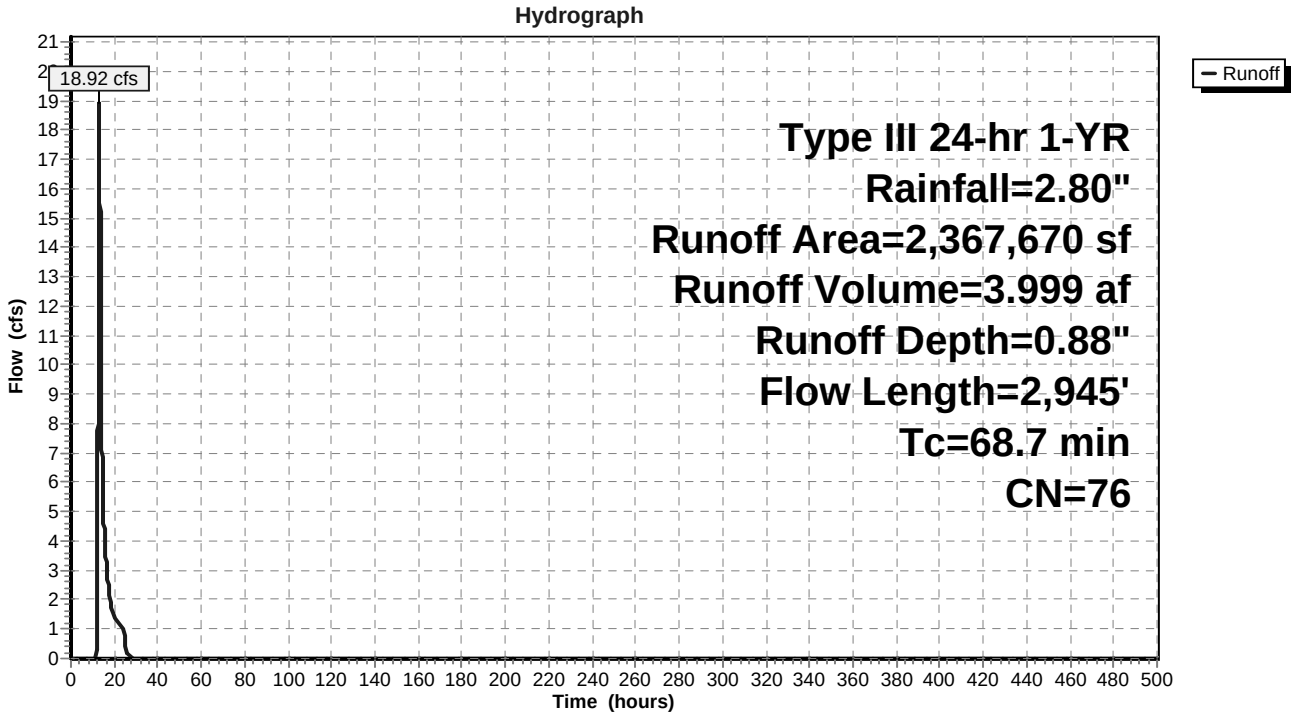
Runoff = 18.92 cfs @ 12.98 hrs, Volume= 3.999 af, Depth= 0.88"

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
*	87,517	98	IMPERVIOUS
	19,578	58	Woods/grass comb., Good, HSG B
	1,350,887	78	Row crops, straight row, Good, HSG B
	89,965	79	Woods/grass comb., Good, HSG D
	177,429	89	Row crops, straight row, Good, HSG D
	350,944	69	50-75% Grass cover, Fair, HSG B
	3,142	77	Brush, Fair, HSG D
	24,913	84	50-75% Grass cover, Fair, HSG D
	263,295	56	Brush, Fair, HSG B
	2,367,670	76	Weighted Average
	2,280,153		96.30% Pervious Area
	87,517		3.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	100	0.0080	0.14		**Sheet Flow, SHEET FLOW** Range n= 0.130 P2= 3.50"
32.2	1,557	0.0080	0.80		**Shallow Concentrated Flow, SHALLOW CONC FLOW** Cultivated Straight Rows Kv= 9.0 fps
19.5	733	0.0080	0.63		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	30	0.0100	2.36	1.85	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
4.3	400	0.0500	1.57		**Shallow Concentrated Flow, SHALLOW CONC FLOW** Short Grass Pasture Kv= 7.0 fps
0.4	125	0.0141	5.85	128.70	**Channel Flow, CHANNEL FLOW** Area= 22.0 sf Perim= 17.6' r= 1.25' n= 0.035 Earth, dense weeds
68.7	2,945	Total			

Subcatchment PS-1A:



Summary for Subcatchment PS-1B:

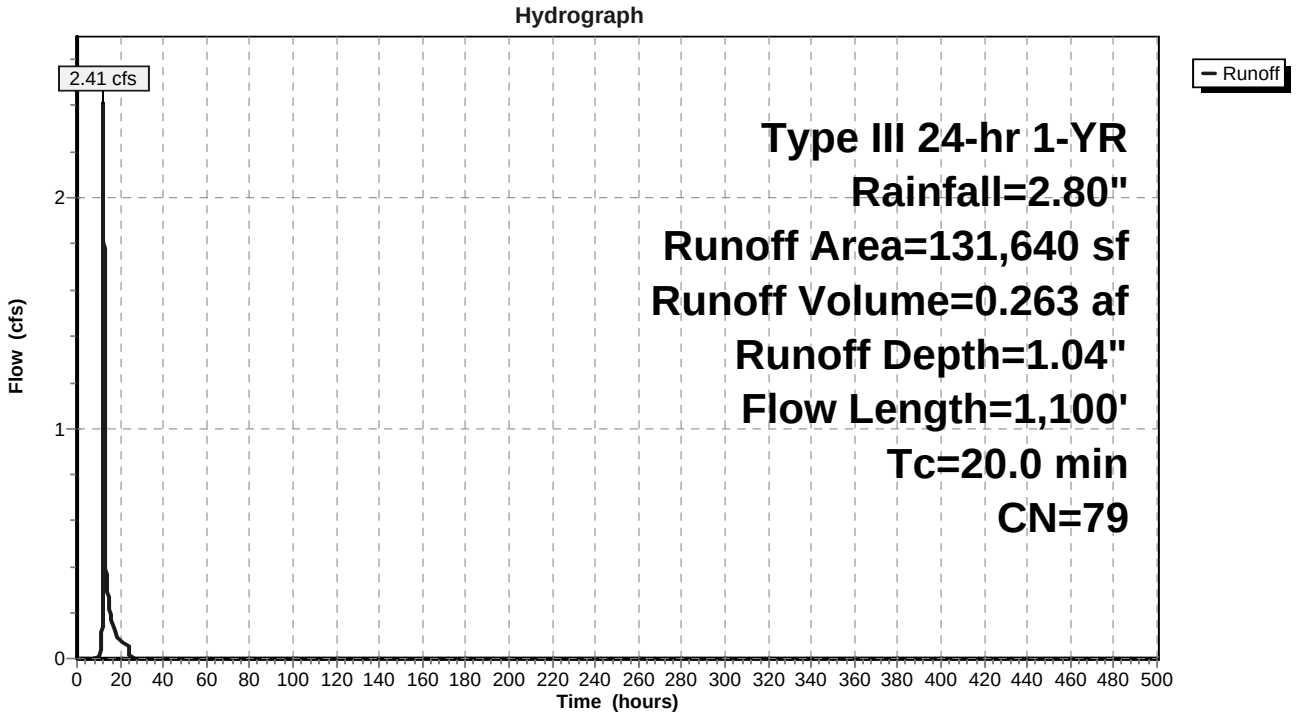
Runoff = 2.41 cfs @ 12.29 hrs, Volume= 0.263 af, Depth= 1.04"

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
1,293	78	Row crops, straight row, Good, HSG B
17,617	72	Woods/grass comb., Good, HSG C
4,269	85	Row crops, straight row, Good, HSG C
73,959	79	Woods/grass comb., Good, HSG D
33,254	84	50-75% Grass cover, Fair, HSG D
1,248	61	>75% Grass cover, Good, HSG B
131,640	79	Weighted Average
131,640		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	40	0.0200	0.17		**Sheet Flow,** Range n= 0.130 P2= 3.50"
10.3	60	0.0400	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
3.3	100	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.4	900	0.0100	6.28	282.71	**Channel Flow,** Area= 45.0 sf Perim= 25.0' r= 1.80' n= 0.035 Earth, dense weeds
20.0	1,100	Total			

Subcatchment PS-1B:



Summary for Subcatchment PS-1C:

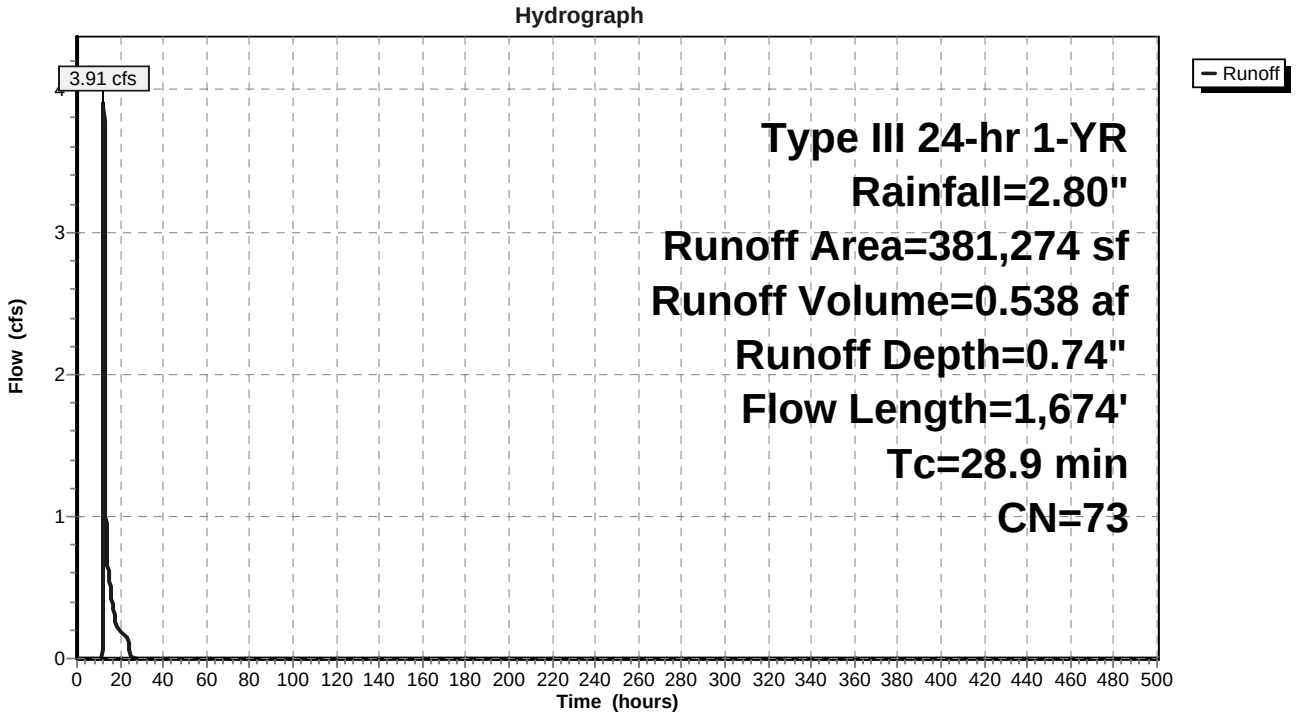
Runoff = 3.91 cfs @ 12.46 hrs, Volume= 0.538 af, Depth= 0.74"

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
*	7,027	98	IMPERVIOUS
	11,137	58	Woods/grass comb., Good, HSG B
	51,478	78	Row crops, straight row, Good, HSG B
	277,554	72	Woods/grass comb., Good, HSG C
	3,791	85	Row crops, straight row, Good, HSG C
	11,050	69	50-75% Grass cover, Fair, HSG B
	3,895	56	Brush, Fair, HSG B
	2,880	70	Brush, Fair, HSG C
	12,462	77	Brush, Fair, HSG D
	381,274	73	Weighted Average
	374,247		98.16% Pervious Area
	7,027		1.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
3.6	152	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.8	1,422	0.0100	4.93	108.39	**Channel Flow,** Area= 22.0 sf Perim= 17.6' r= 1.25' n= 0.035 Earth, dense weeds
28.9	1,674	Total			

Subcatchment PS-1C:



Summary for Subcatchment PS-2:

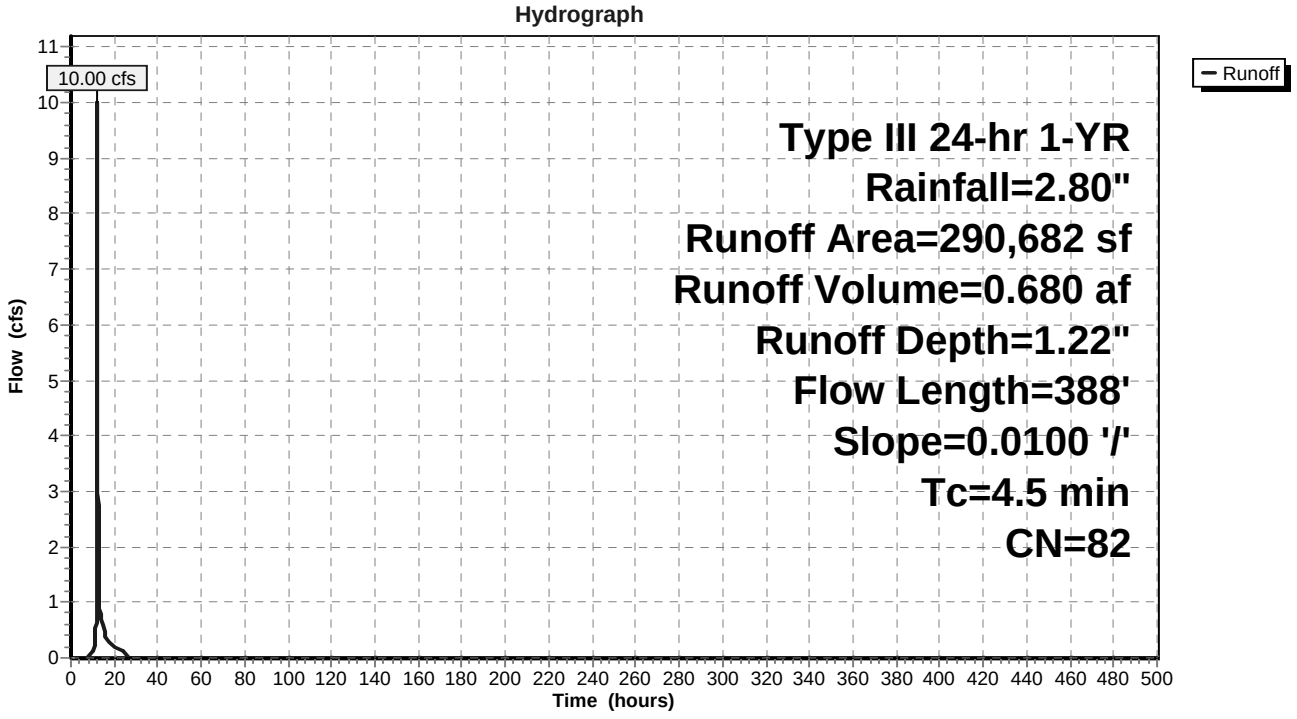
Runoff = 10.00 cfs @ 12.07 hrs, Volume= 0.680 af, Depth= 1.22"

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
245,669	85	Gravel roads, HSG B
34,957	61	>75% Grass cover, Good, HSG B
10,056	74	>75% Grass cover, Good, HSG C
290,682	82	Weighted Average
290,682		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0100	1.09		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
3.0	288	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
4.5	388	Total			

Subcatchment PS-2:



Summary for Subcatchment PS-3:

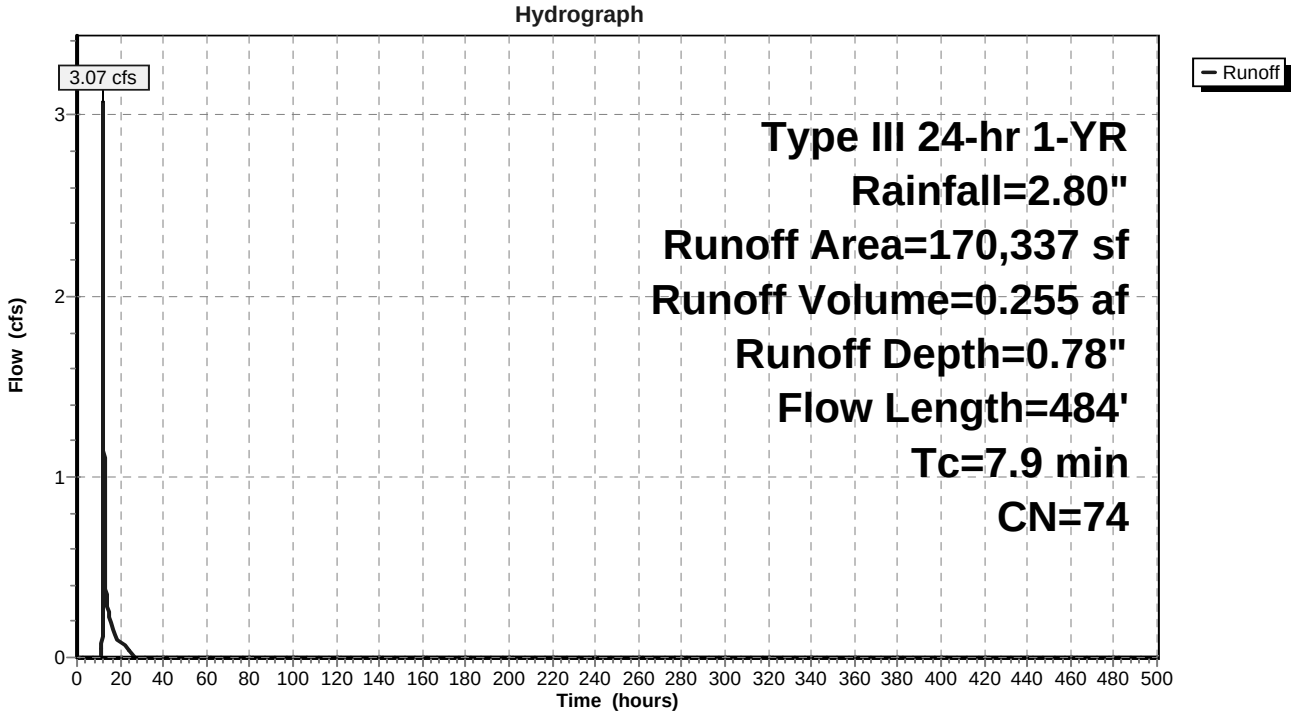
Runoff = 3.07 cfs @ 12.12 hrs, Volume= 0.255 af, Depth= 0.78"

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
94,634	85	Gravel roads, HSG B
75,703	61	>75% Grass cover, Good, HSG B
170,337	74	Weighted Average
170,337		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	100	0.0500	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
1.3	329	0.0100	4.12	41.16	**Channel Flow,** Area= 10.0 sf Perim= 13.2' r= 0.76' n= 0.030 Earth, grassed & winding
0.1	55	0.0200	7.44	9.14	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
7.9	484	Total			

Subcatchment PS-3:



Summary for Subcatchment PS-4:

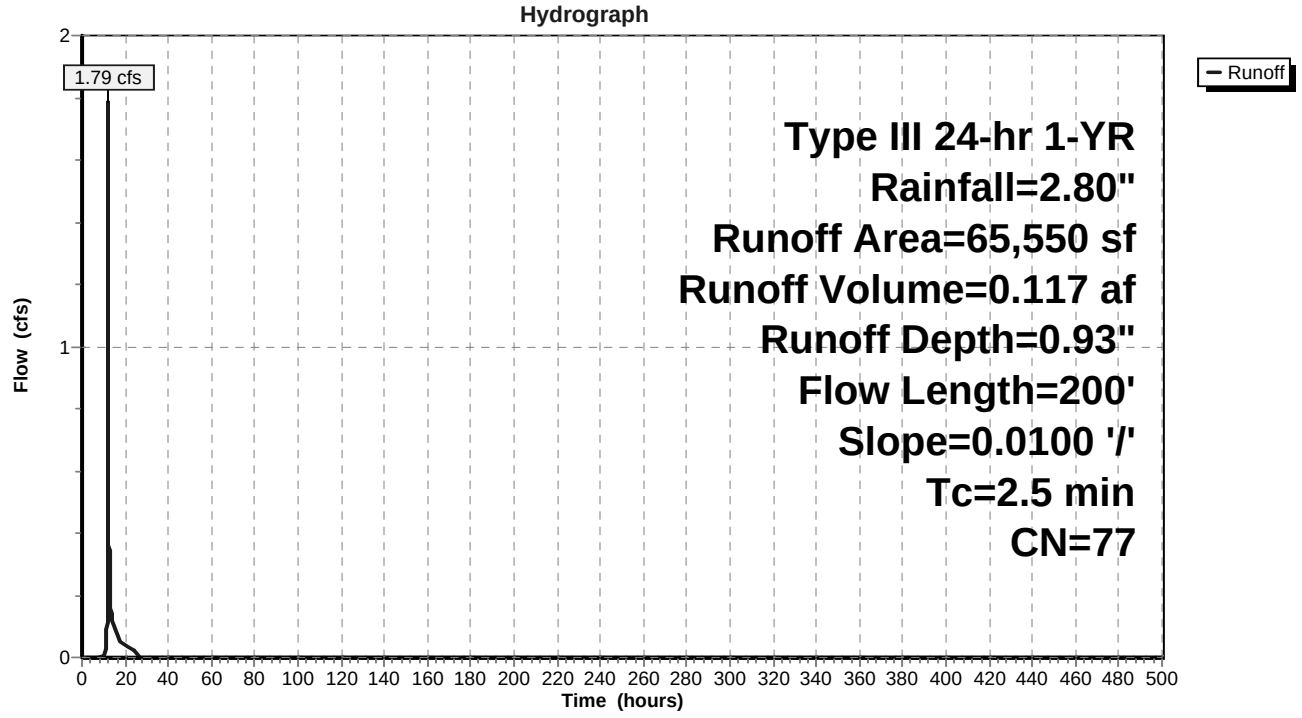
Runoff = 1.79 cfs @ 12.04 hrs, Volume= 0.117 af, Depth= 0.93"

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
43,709	85	Gravel roads, HSG B
21,141	61	>75% Grass cover, Good, HSG B
700	98	Roofs, HSG B
65,550	77	Weighted Average
64,850		98.93% Pervious Area
700		1.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0100	1.09		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
1.0	100	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.5	200	Total			

Subcatchment PS-4:



Summary for Subcatchment PS-5A:

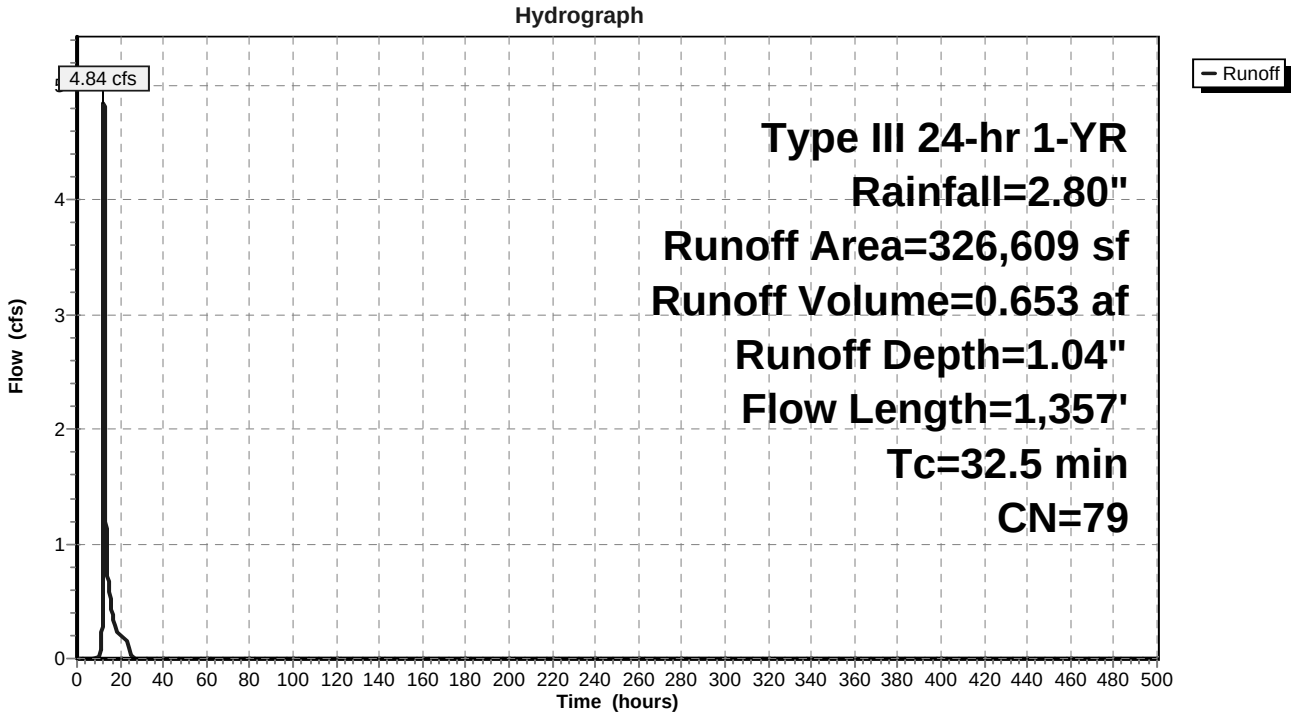
Runoff = 4.84 cfs @ 12.47 hrs, Volume= 0.653 af, Depth= 1.04"

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
*	24,513	98	IMPERVIOUS
	1,877	85	Gravel roads, HSG B
	9,892	58	Woods/grass comb., Good, HSG B
	144,880	78	Row crops, straight row, Good, HSG B
	54,018	79	Woods/grass comb., Good, HSG D
	30,521	89	Row crops, straight row, Good, HSG D
	44,405	69	50-75% Grass cover, Fair, HSG B
	10,952	84	50-75% Grass cover, Fair, HSG D
	5,551	77	Brush, Fair, HSG D
	326,609	79	Weighted Average
	302,096		92.49% Pervious Area
	24,513		7.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	24	0.0200	1.08		**Sheet Flow, SHEET FLOW** Smooth surfaces n= 0.011 P2= 3.50"
13.0	80	0.0400	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.6	67	0.0200	0.71		**Shallow Concentrated Flow, SHALLOW CONC FLOW** Woodland Kv= 5.0 fps
2.9	87	0.0100	0.50		**Shallow Concentrated Flow, SHALLOW CONC FLOW** Woodland Kv= 5.0 fps
11.3	612	0.0100	0.90		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
0.4	70	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
1.8	322	0.0050	3.00	22.47	**Parabolic Channel,** W=15.00' D=0.75' Area=7.5 sf Perim=15.1' n= 0.022 Earth, clean & straight
1.1	95	0.0010	1.43	1.13	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
32.5	1,357	Total			

Subcatchment PS-5A:



Summary for Subcatchment PS-5B:

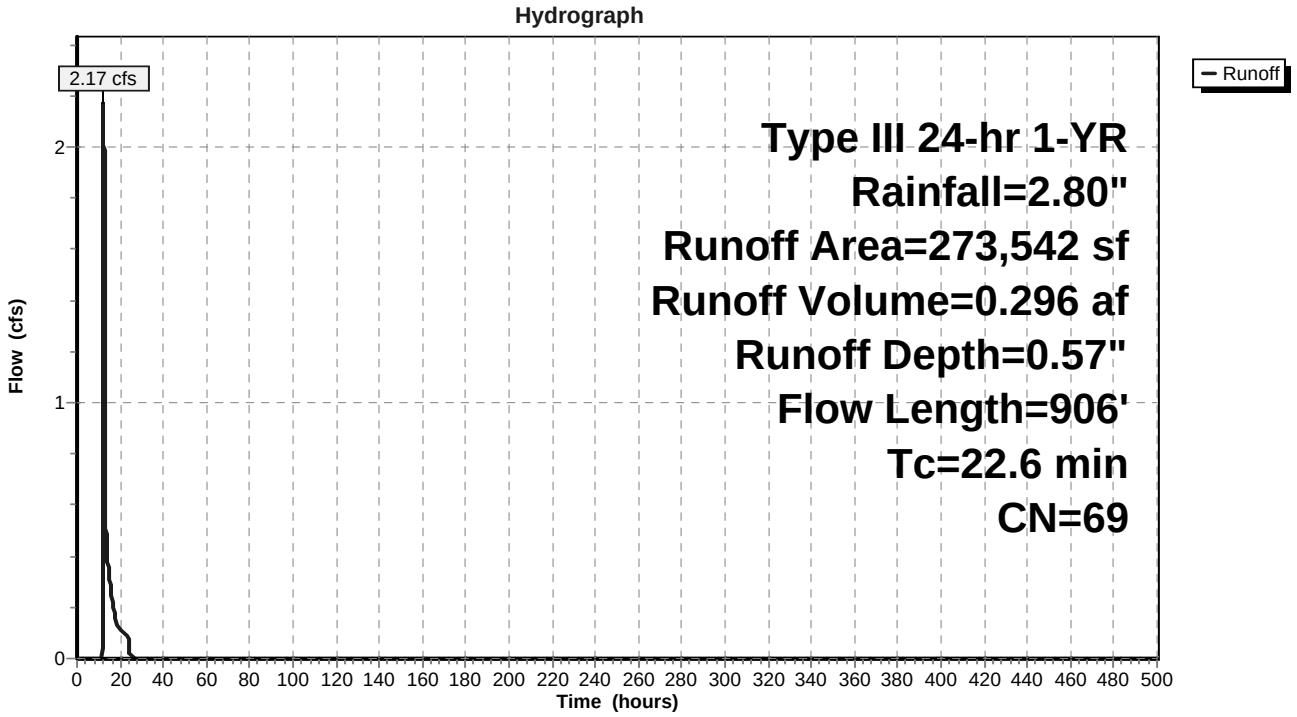
Runoff = 2.17 cfs @ 12.38 hrs, Volume= 0.296 af, Depth= 0.57"

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
*	22,101	98	IMPERVIOUS
	11,322	85	Gravel roads, HSG B
	98,889	58	Woods/grass comb., Good, HSG B
	58,296	78	Row crops, straight row, Good, HSG B
	68,671	69	50-75% Grass cover, Fair, HSG B
	14,263	56	Brush, Fair, HSG B
	273,542	69	Weighted Average
	251,441		91.92% Pervious Area
	22,101		8.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	30	0.0200	1.13		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
9.9	40	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
3.2	30	0.0200	0.16		**Sheet Flow,** Range n= 0.130 P2= 3.50"
0.8	60	0.0200	1.27		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
1.0	318	0.0100	5.22	36.55	**Channel Flow,** Area= 7.0 sf Perim= 10.3' r= 0.68' n= 0.022 Earth, clean & straight
4.5	243	0.0100	0.90		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
0.3	64	0.0050	3.72	4.57	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
0.8	71	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.7	50	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.6	906	Total			

Subcatchment PS-5B:



Summary for Subcatchment PS-6:

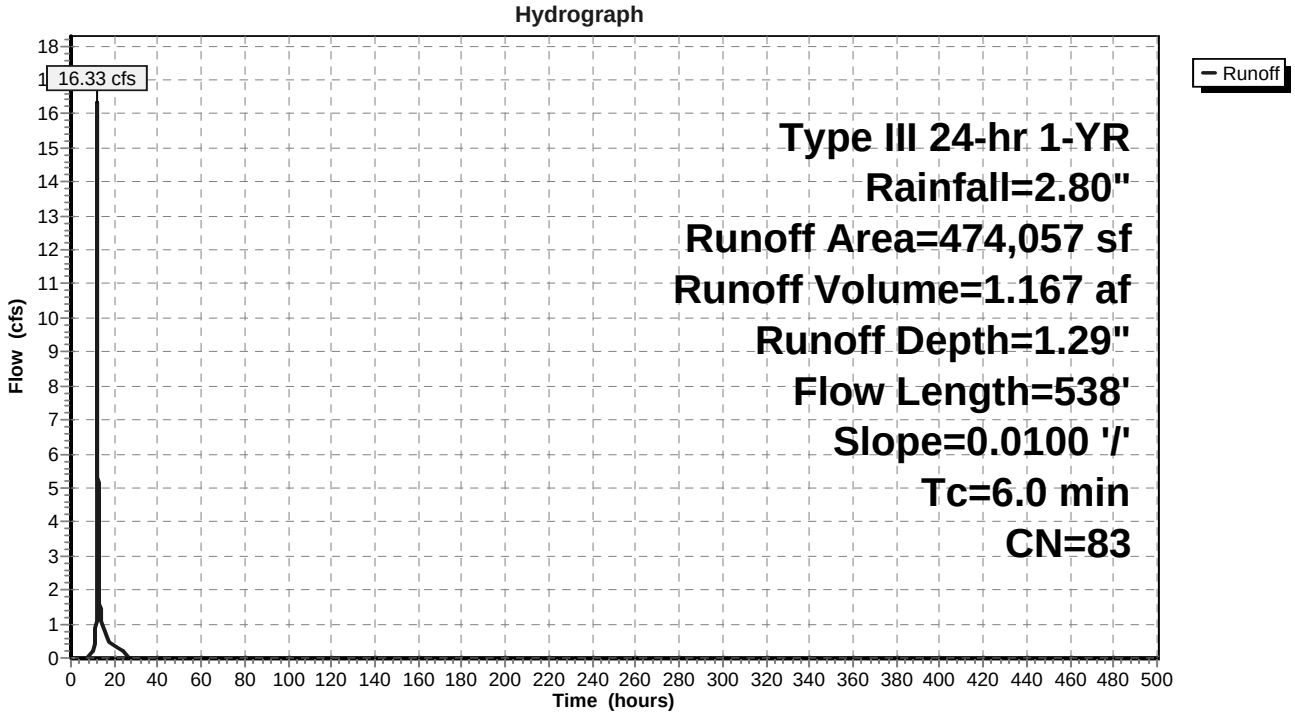
Runoff = 16.33 cfs @ 12.09 hrs, Volume= 1.167 af, Depth= 1.29"

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
416,388	85	Gravel roads, HSG B
12,723	89	Gravel roads, HSG C
44,246	61	>75% Grass cover, Good, HSG B
700	98	Roofs, HSG B
474,057	83	Weighted Average
473,357		99.85% Pervious Area
700		0.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0100	1.09		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
4.5	438	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
6.0	538	Total			

Subcatchment PS-6:



Summary for Subcatchment PS-7:

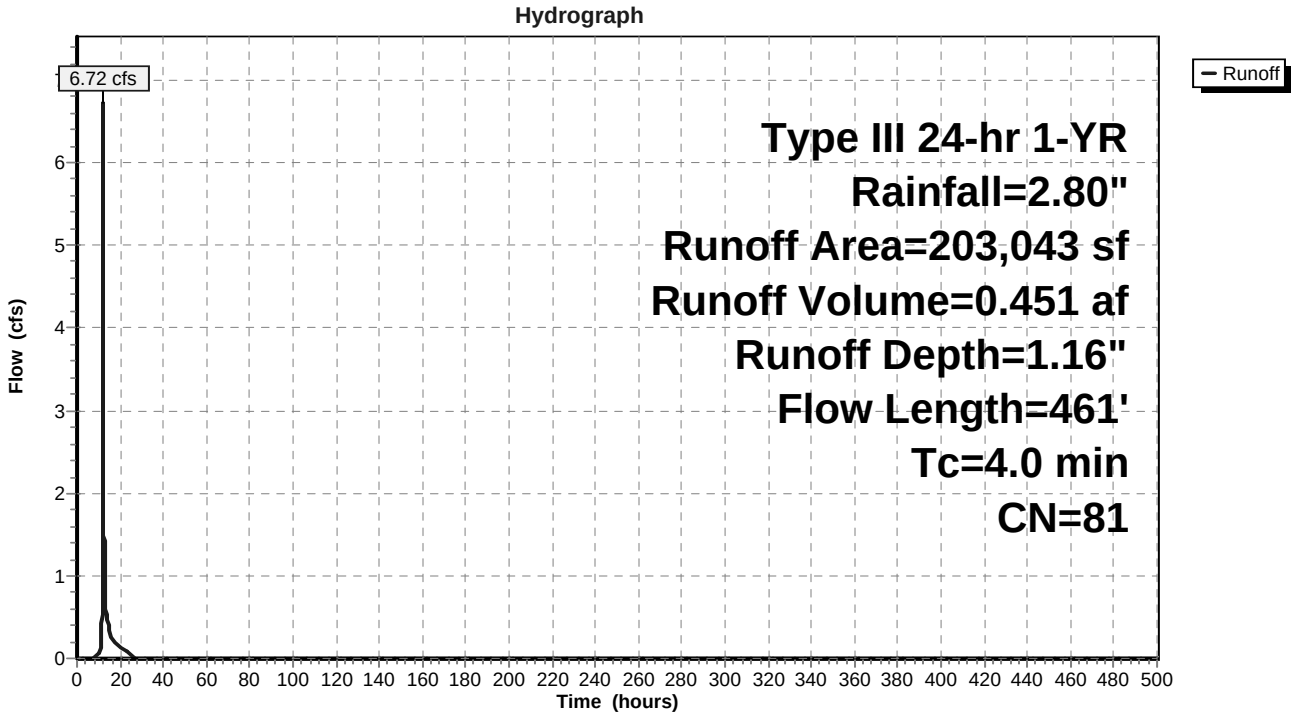
Runoff = 6.72 cfs @ 12.06 hrs, Volume= 0.451 af, Depth= 1.16"

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
169,224	85	Gravel roads, HSG B
33,819	61	>75% Grass cover, Good, HSG B
203,043	81	Weighted Average
203,043		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0170	1.35		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
2.8	361	0.0173	2.12		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
4.0	461	Total			

Subcatchment PS-7:



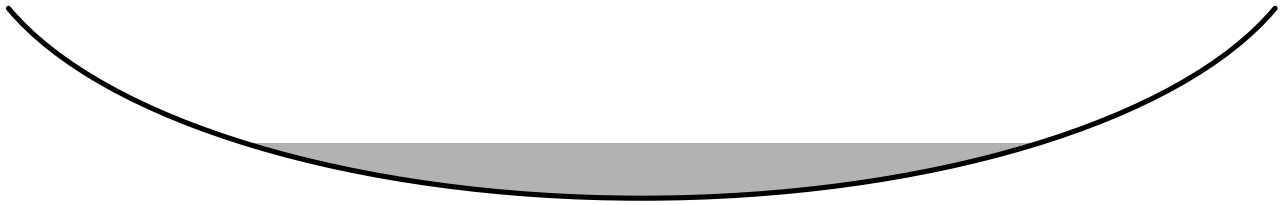
Summary for Reach R1: WETLAND REACH #1

Inflow Area = 30.826 ac, 3.58% Impervious, Inflow Depth = 0.79" for 1-YR event
Inflow = 32.19 cfs @ 12.43 hrs, Volume= 2.022 af
Outflow = 13.27 cfs @ 12.73 hrs, Volume= 2.022 af, Atten= 59%, Lag= 18.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.59 fps, Min. Travel Time= 6.3 min
Avg. Velocity = 0.27 fps, Avg. Travel Time= 37.2 min

Peak Storage= 5,003 cf @ 12.62 hrs, Average Depth at Peak Storage= 0.58'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 193.11 cfs

40.00' x 2.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 600.0' Slope= 0.0050 '/'
Inlet Invert= 381.00', Outlet Invert= 378.00'



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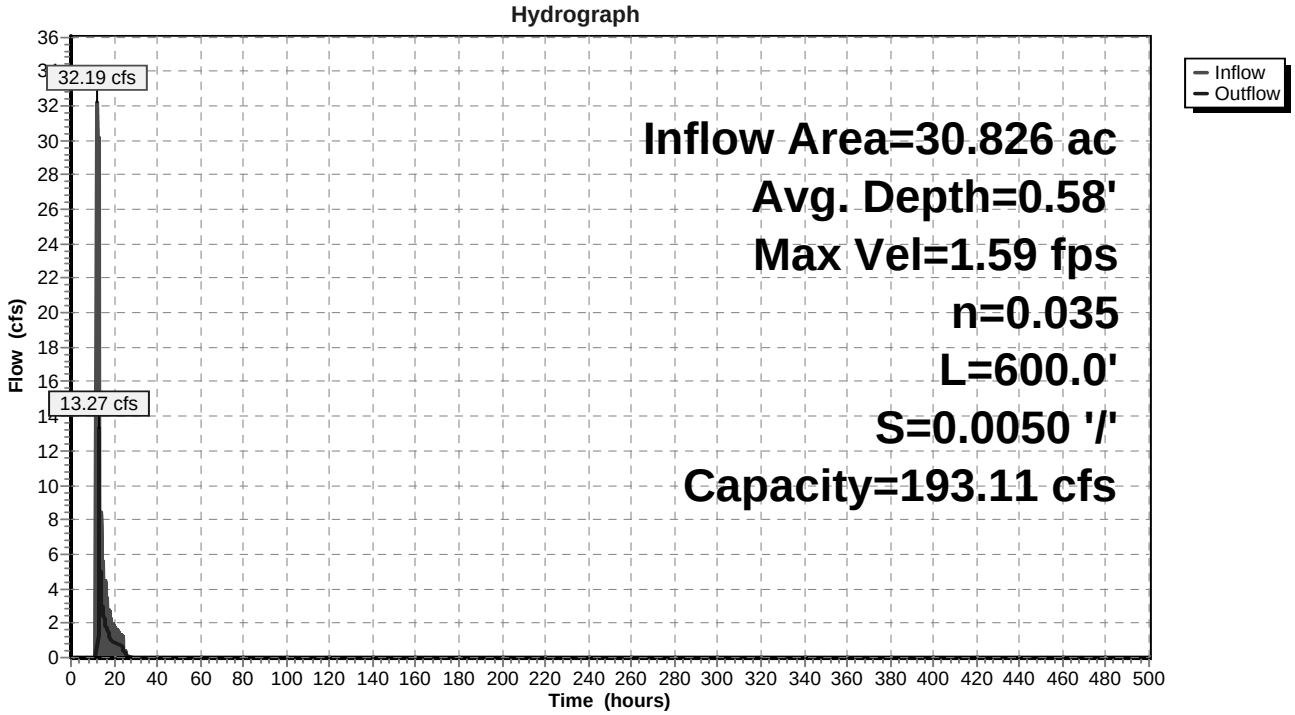
Reach R1: WETLAND REACH #1



Summary for Reach R2: WETLAND REACH #2

Inflow Area = 39.579 ac, 3.19% Impervious, Inflow Depth = 0.78" for 1-YR event
Inflow = 16.10 cfs @ 12.72 hrs, Volume= 2.559 af
Outflow = 15.09 cfs @ 12.89 hrs, Volume= 2.559 af, Atten= 6%, Lag= 10.4 min

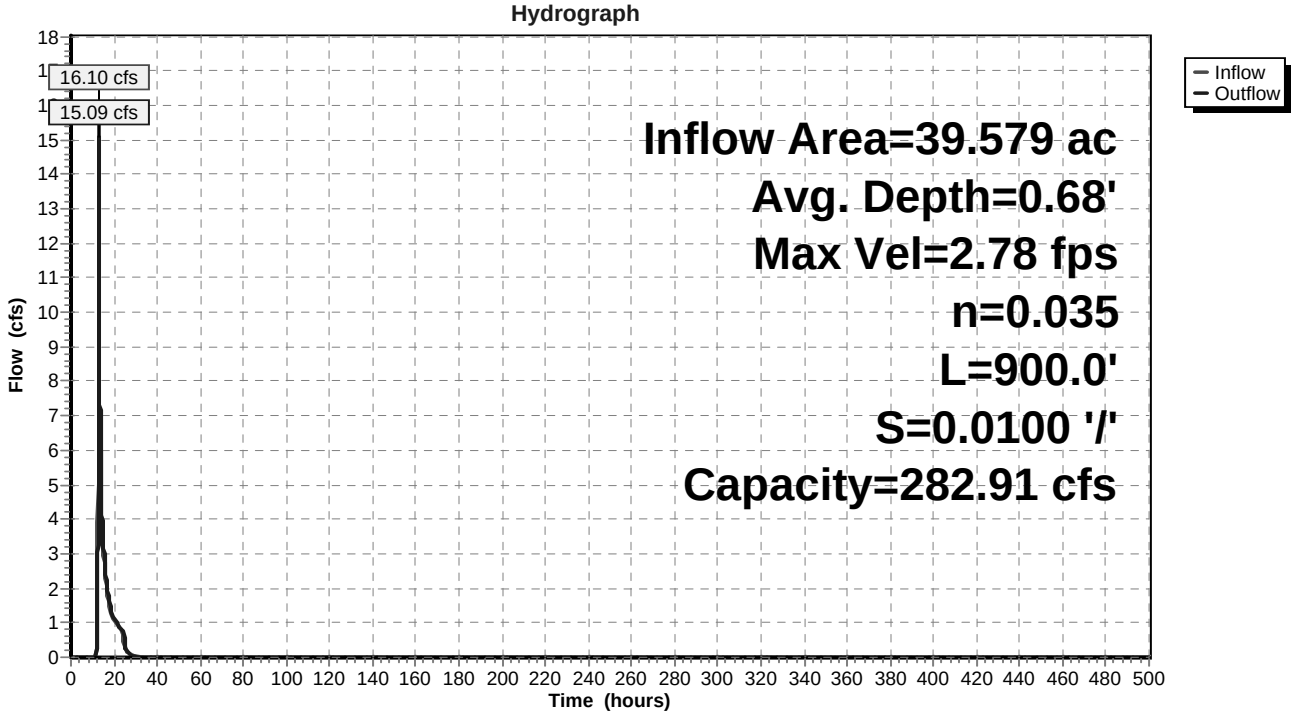
Routing by Stor-Ind+Trans method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.78 fps, Min. Travel Time= 5.4 min
Avg. Velocity = 0.57 fps, Avg. Travel Time= 26.4 min

Peak Storage= 4,892 cf @ 12.80 hrs, Average Depth at Peak Storage= 0.68'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 282.91 cfs

6.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 3.0 '/' Top Width= 24.00'
Length= 900.0' Slope= 0.0100 '/'
Inlet Invert= 378.00', Outlet Invert= 369.00'

‡

Reach R2: WETLAND REACH #2



Summary for Reach R3: WETLAND REACH #3

Inflow Area = 53.185 ac, 2.38% Impervious, Inflow Depth = 0.85" for 1-YR event
Inflow = 16.01 cfs @ 12.89 hrs, Volume= 3.758 af
Outflow = 15.09 cfs @ 13.08 hrs, Volume= 3.758 af, Atten= 6%, Lag= 11.6 min

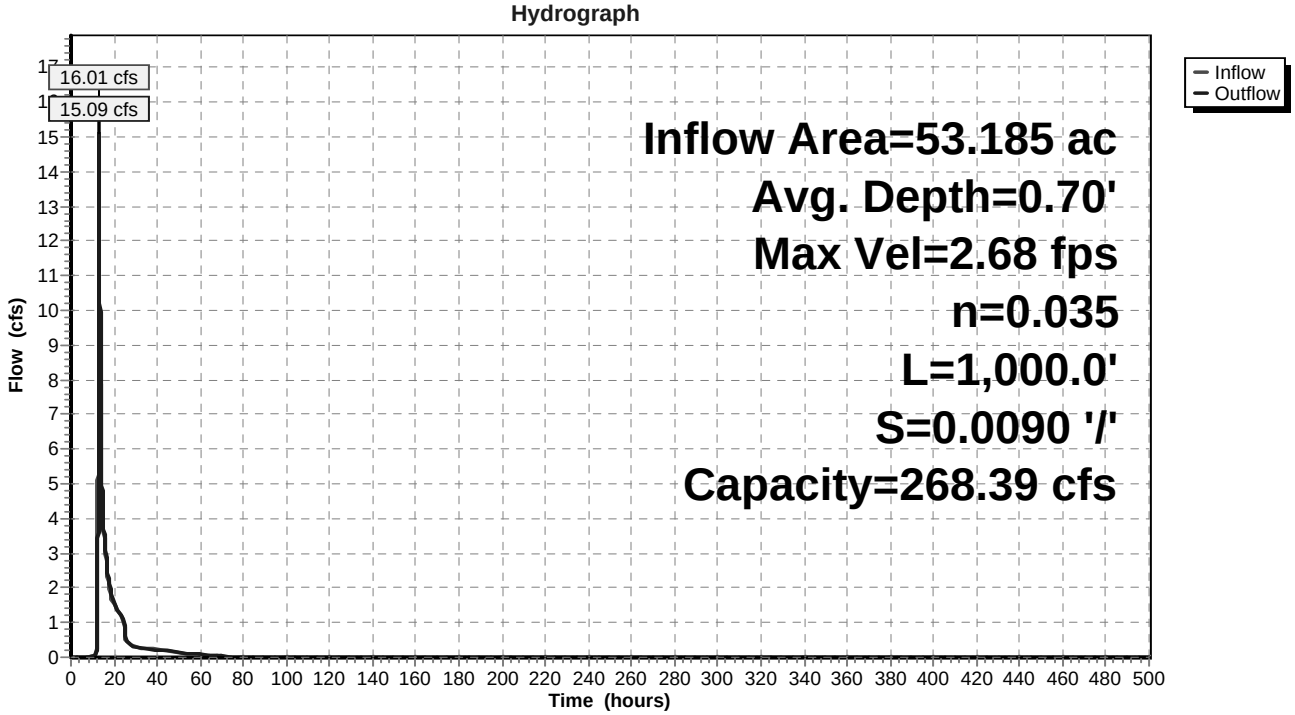
Routing by Stor-Ind+Trans method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.68 fps, Min. Travel Time= 6.2 min
Avg. Velocity = 0.47 fps, Avg. Travel Time= 35.4 min

Peak Storage= 5,637 cf @ 12.98 hrs, Average Depth at Peak Storage= 0.70'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 268.39 cfs

6.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 3.0 '/' Top Width= 24.00'
Length= 1,000.0' Slope= 0.0090 '/'
Inlet Invert= 369.00', Outlet Invert= 360.00'

‡

Reach R3: WETLAND REACH #3

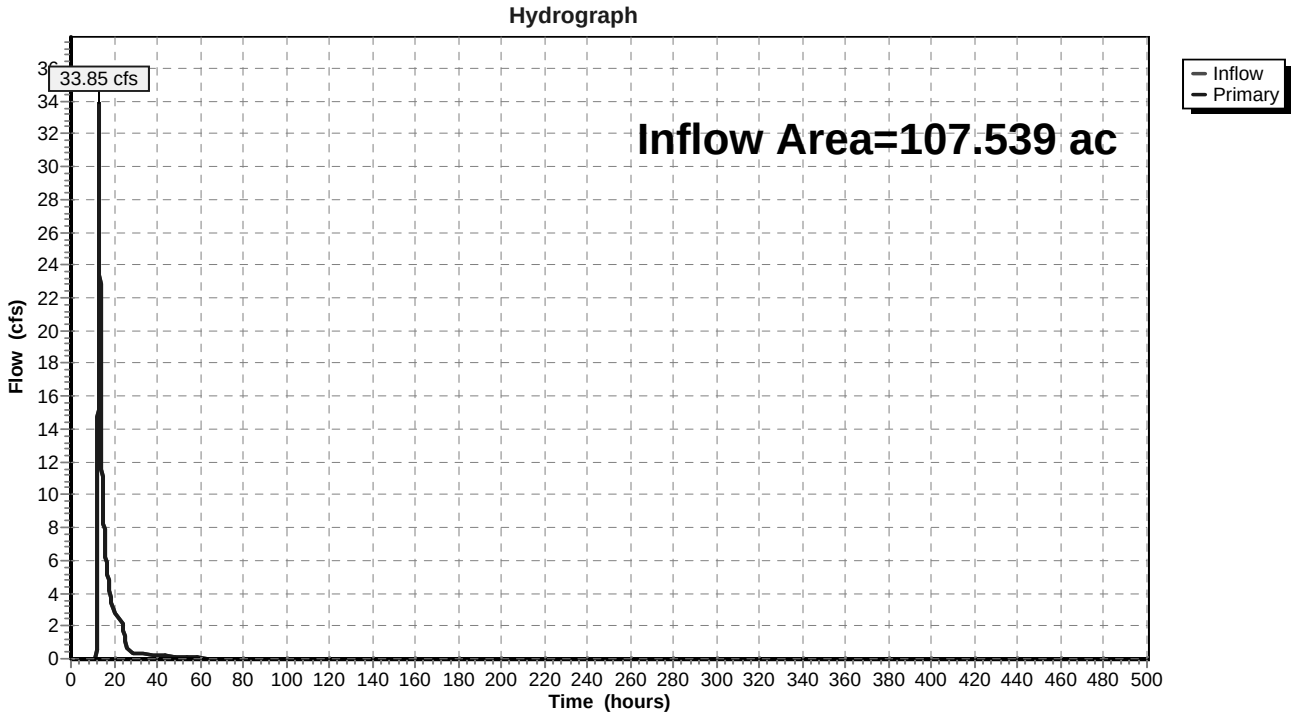


Summary for Pond DP-1: DESIGN POINT #1 (Culvert under Old State Route 22)

Inflow Area = 107.539 ac, 3.04% Impervious, Inflow Depth = 0.87" for 1-YR event
Inflow = 33.85 cfs @ 13.06 hrs, Volume= 7.757 af
Primary = 33.85 cfs @ 13.06 hrs, Volume= 7.757 af, Atten= 0%, Lag= 0.0 min

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

Pond DP-1: DESIGN POINT #1 (Culvert under Old State Route 22)



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

Inflow Area = 3.910 ac, 0.00% Impervious, Inflow Depth = 0.78" for 1-YR event
Inflow = 3.07 cfs @ 12.12 hrs, Volume= 0.255 af
Outflow = 0.22 cfs @ 15.23 hrs, Volume= 0.255 af, Atten= 93%, Lag= 186.2 min
Primary = 0.22 cfs @ 15.23 hrs, Volume= 0.255 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 380.98' @ 15.23 hrs Surf.Area= 7,370 sf Storage= 5,504 cf
Flood Elev= 385.00' Surf.Area= 30,192 sf Storage= 73,624 cf

Plug-Flow detention time= 353.4 min calculated for 0.255 af (100% of inflow)
Center-of-Mass det. time= 353.3 min (1,226.0 - 872.7)

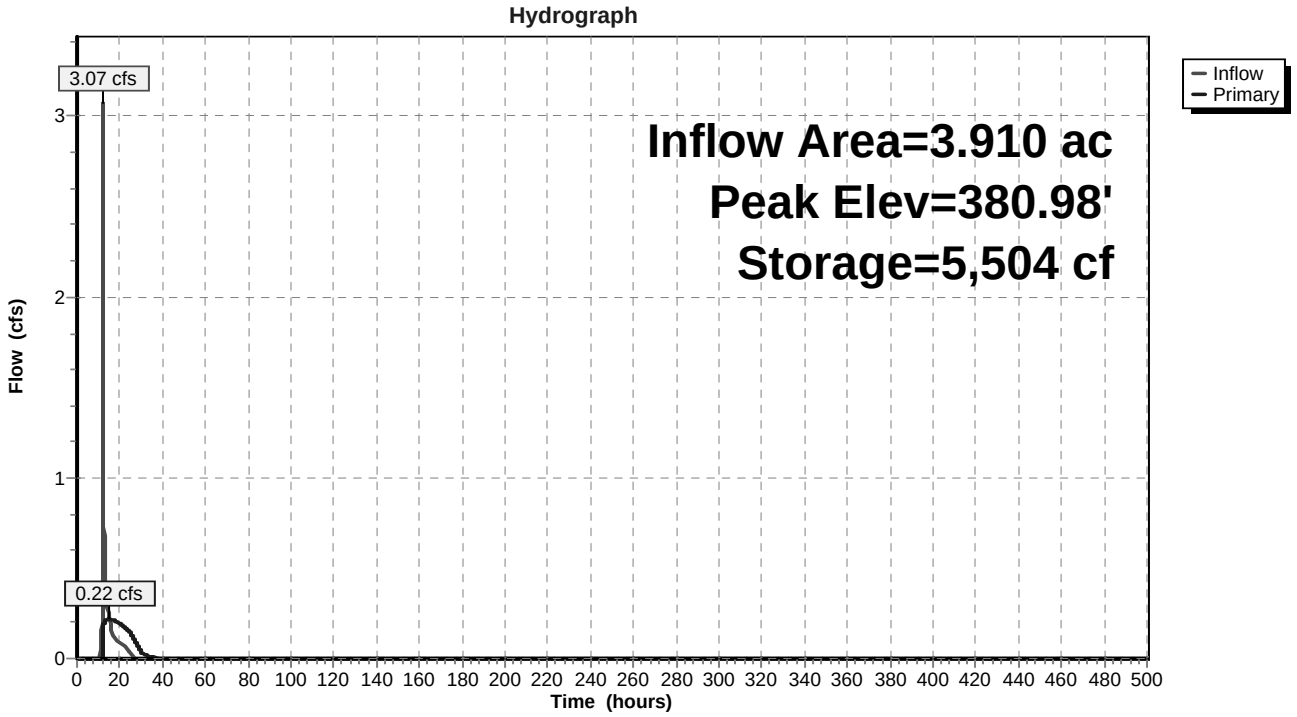
Volume	Invert	Avail.Storage	Storage Description
#1	380.00'	73,624 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
380.00	3,851	0	0
381.00	7,438	5,645	5,645
381.75	11,899	7,251	12,896
382.00	13,599	3,187	16,083
383.00	16,396	14,998	31,081
384.00	19,249	17,823	48,903
385.00	30,192	24,721	73,624

Device	Routing	Invert	Outlet Devices
#1	Primary	380.00'	**12.0" Round Culvert** L= 275.0' CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 378.63' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	380.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	383.50'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.22 cfs @ 15.23 hrs HW=380.98' (Free Discharge)
└**1=Culvert** (Passes 0.22 cfs of 2.20 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.22 cfs @ 4.45 fps)
└**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

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



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

Inflow Area = 10.584 ac, 0.00% Impervious, Inflow Depth = 1.06" for 1-YR event
Inflow = 10.09 cfs @ 12.07 hrs, Volume= 0.936 af
Outflow = 0.31 cfs @ 22.96 hrs, Volume= 0.936 af, Atten= 97%, Lag= 653.6 min
Primary = 0.31 cfs @ 22.96 hrs, Volume= 0.936 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 379.79' @ 22.96 hrs Surf.Area= 16,082 sf Storage= 25,583 cf
Flood Elev= 383.00' Surf.Area= 24,052 sf Storage= 92,340 cf

Plug-Flow detention time= 1,150.3 min calculated for 0.936 af (100% of inflow)
Center-of-Mass det. time= 1,150.6 min (2,097.1 - 946.5)

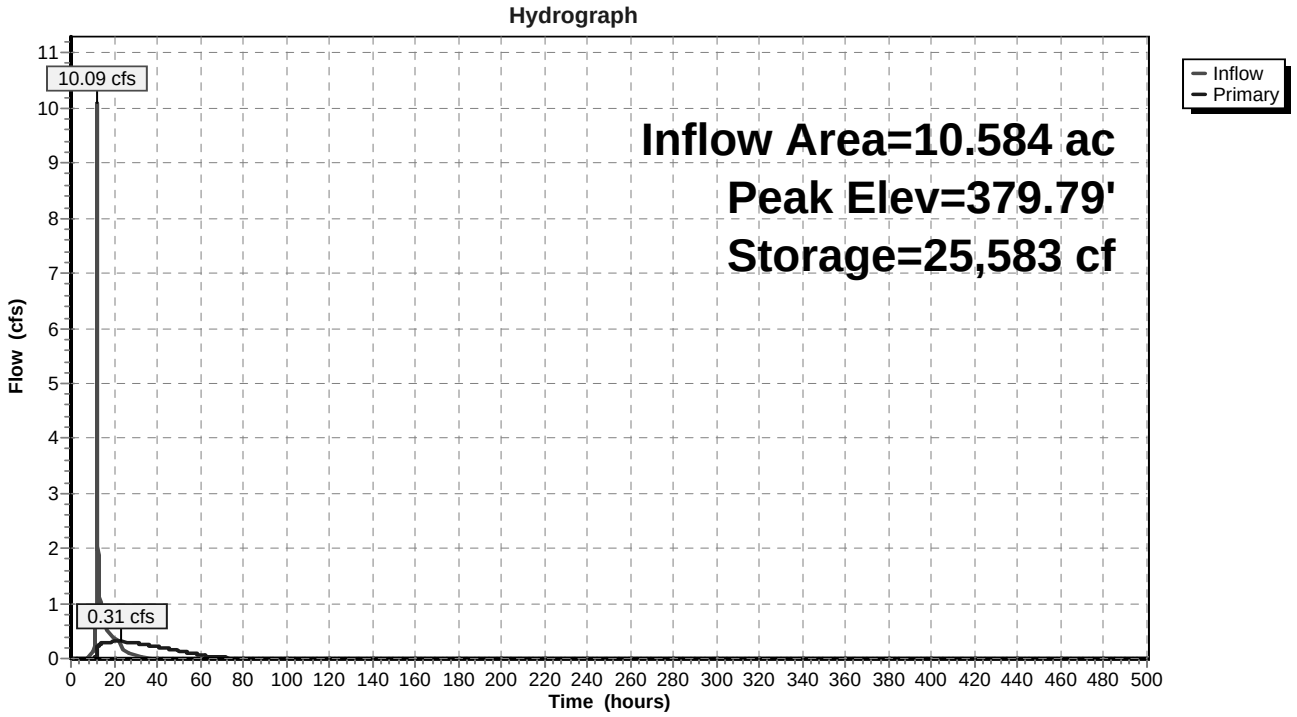
Volume	Invert	Avail.Storage	Storage Description
#1	378.00'	92,340 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
378.00	12,840	0	0
379.00	14,426	13,633	13,633
379.75	15,661	11,283	24,916
380.00	18,166	4,228	29,144
380.75	19,583	14,156	43,300
381.00	20,064	4,956	48,256
382.00	22,026	21,045	69,301
383.00	24,052	23,039	92,340

Device	Routing	Invert	Outlet Devices
#1	Primary	378.00'	**15.0" Round Culvert** L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 377.35' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	378.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	381.00'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.31 cfs @ 22.96 hrs HW=379.79' (Free Discharge)
└**1=Culvert** (Passes 0.31 cfs of 5.04 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 0.31 cfs @ 6.22 fps)
└**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

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



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

Inflow Area = 1.505 ac, 1.07% Impervious, Inflow Depth = 0.93" for 1-YR event
Inflow = 1.79 cfs @ 12.04 hrs, Volume= 0.117 af
Outflow = 0.15 cfs @ 13.51 hrs, Volume= 0.117 af, Atten= 92%, Lag= 88.0 min
Primary = 0.15 cfs @ 13.51 hrs, Volume= 0.117 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 381.53' @ 13.51 hrs Surf.Area= 4,513 sf Storage= 2,246 cf
Flood Elev= 385.50' Surf.Area= 12,170 sf Storage= 33,008 cf

Plug-Flow detention time= 256.9 min calculated for 0.117 af (100% of inflow)
Center-of-Mass det. time= 257.0 min (1,114.0 - 857.0)

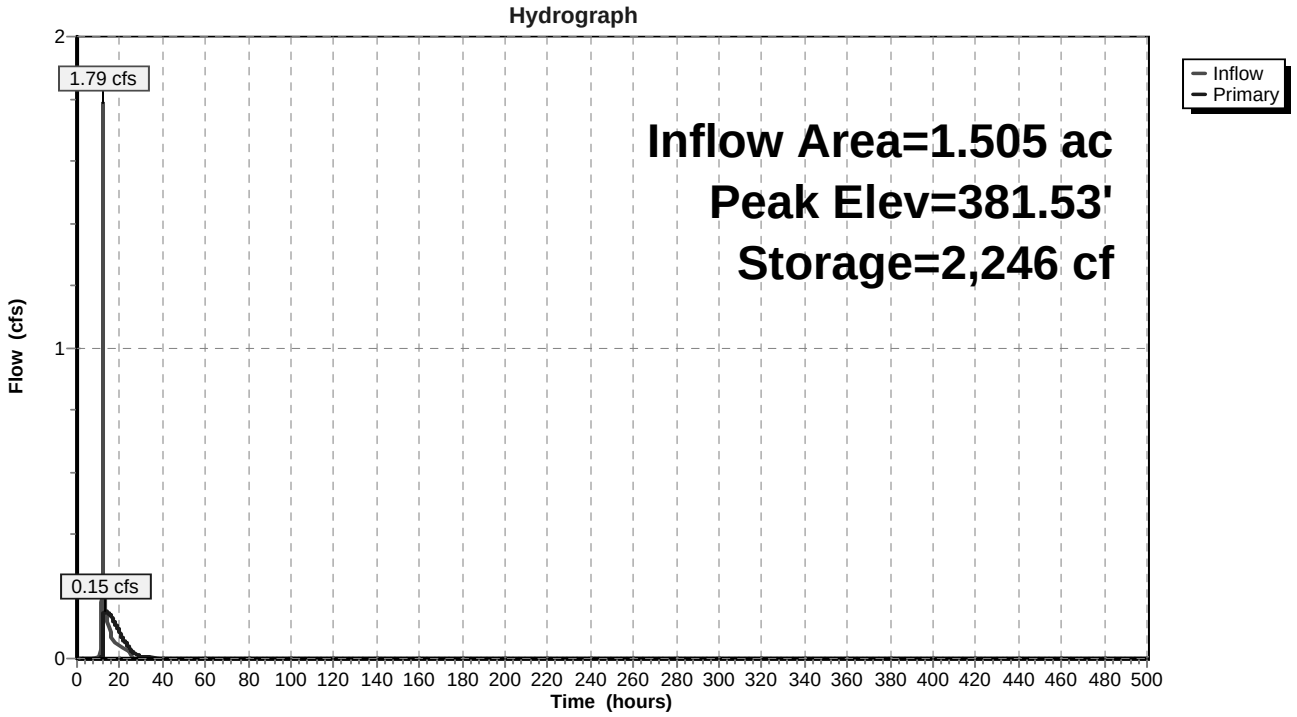
Volume	Invert	Avail.Storage	Storage Description
#1	381.00'	33,008 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
381.00	3,950	0	0
382.00	5,011	4,481	4,481
382.25	5,287	1,287	5,768
383.00	6,594	4,455	10,223
383.25	6,915	1,689	11,912
384.00	7,899	5,555	17,467
385.00	11,399	9,649	27,116
385.50	12,170	5,892	33,008

Device	Routing	Invert	Outlet Devices
#1	Primary	381.00'	**12.0" Round Culvert** L= 339.0' CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 379.31' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	381.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	384.00'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.15 cfs @ 13.51 hrs HW=381.53' (Free Discharge)
└**1=Culvert** (Passes 0.15 cfs of 0.83 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 0.15 cfs @ 3.07 fps)
└**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

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



Summary for Pond SD-2B: SEDIMENT FACILITY #2B

Inflow Area = 12.388 ac, 0.26% Impervious, Inflow Depth = 1.24" for 1-YR event
Inflow = 16.42 cfs @ 12.09 hrs, Volume= 1.285 af
Outflow = 9.45 cfs @ 12.22 hrs, Volume= 1.285 af, Atten= 42%, Lag= 7.6 min
Primary = 9.45 cfs @ 12.22 hrs, Volume= 1.285 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Starting Elev= 380.25' Surf.Area= 23,382 sf Storage= 69,215 cf
Peak Elev= 380.66' @ 12.22 hrs Surf.Area= 24,502 sf Storage= 79,015 cf (9,800 cf above start)
Flood Elev= 383.25' Surf.Area= 42,248 sf Storage= 149,590 cf (80,375 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 31.1 min (895.5 - 864.5)

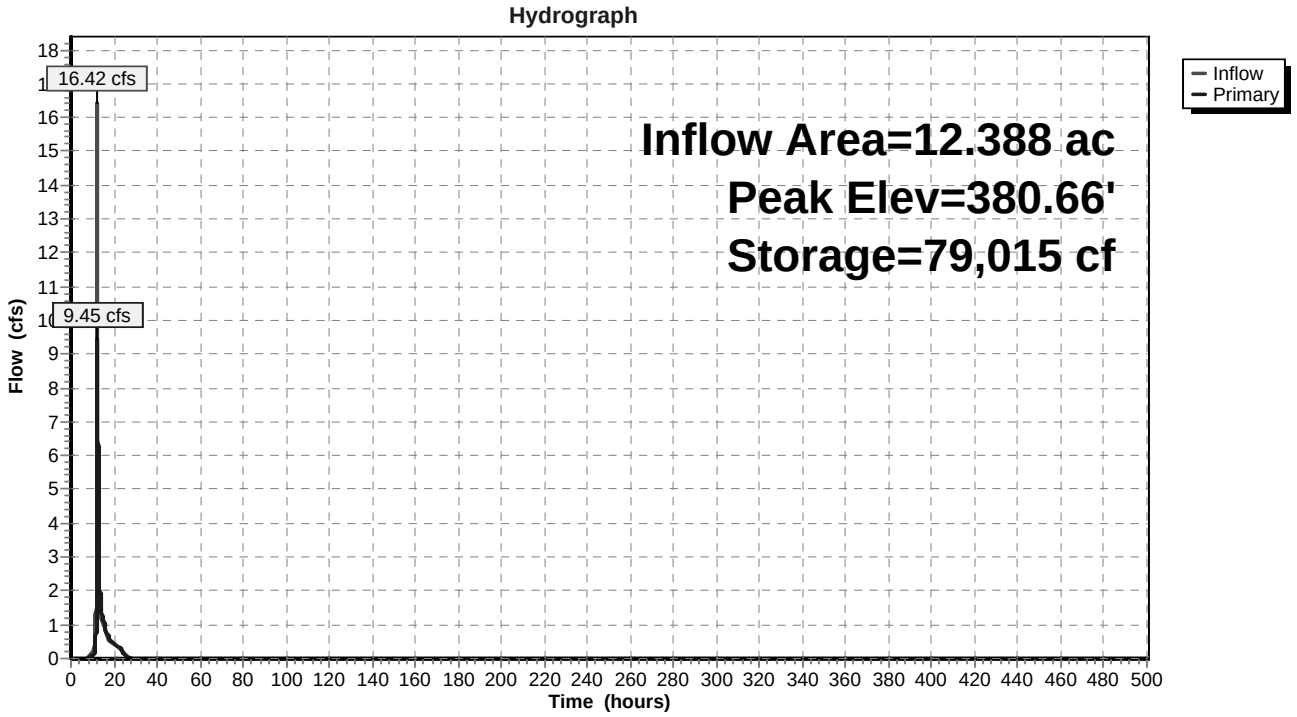
Volume	Invert	Avail.Storage	Storage Description
#1	376.00'	149,590 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
376.00	5,557	0	0
377.00	13,547	9,552	9,552
378.00	15,765	14,656	24,208
379.00	20,018	17,892	42,100
379.25	20,682	5,088	47,187
380.00	22,698	16,268	63,455
381.00	25,434	24,066	87,521
382.00	28,228	26,831	114,352
383.00	42,248	35,238	149,590

Device	Routing	Invert	Outlet Devices
#1	Primary	380.25'	**14.0' 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=9.41 cfs @ 12.22 hrs HW=380.66' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 9.41 cfs @ 1.64 fps)

Pond SD-2B: SEDIMENT FACILITY #2B



Summary for Pond SD-3: SEDIMENT FACILITY #3

Inflow Area = 4.661 ac, 0.00% Impervious, Inflow Depth = 1.16" for 1-YR event
Inflow = 6.72 cfs @ 12.06 hrs, Volume= 0.451 af
Outflow = 3.93 cfs @ 12.16 hrs, Volume= 0.451 af, Atten= 42%, Lag= 5.9 min
Primary = 3.93 cfs @ 12.16 hrs, Volume= 0.451 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Starting Elev= 380.25' Surf.Area= 12,805 sf Storage= 23,239 cf
Peak Elev= 380.51' @ 12.16 hrs Surf.Area= 13,386 sf Storage= 26,597 cf (3,357 cf above start)
Flood Elev= 383.50' Surf.Area= 22,860 sf Storage= 79,832 cf (56,593 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 24.3 min (868.8 - 844.6)

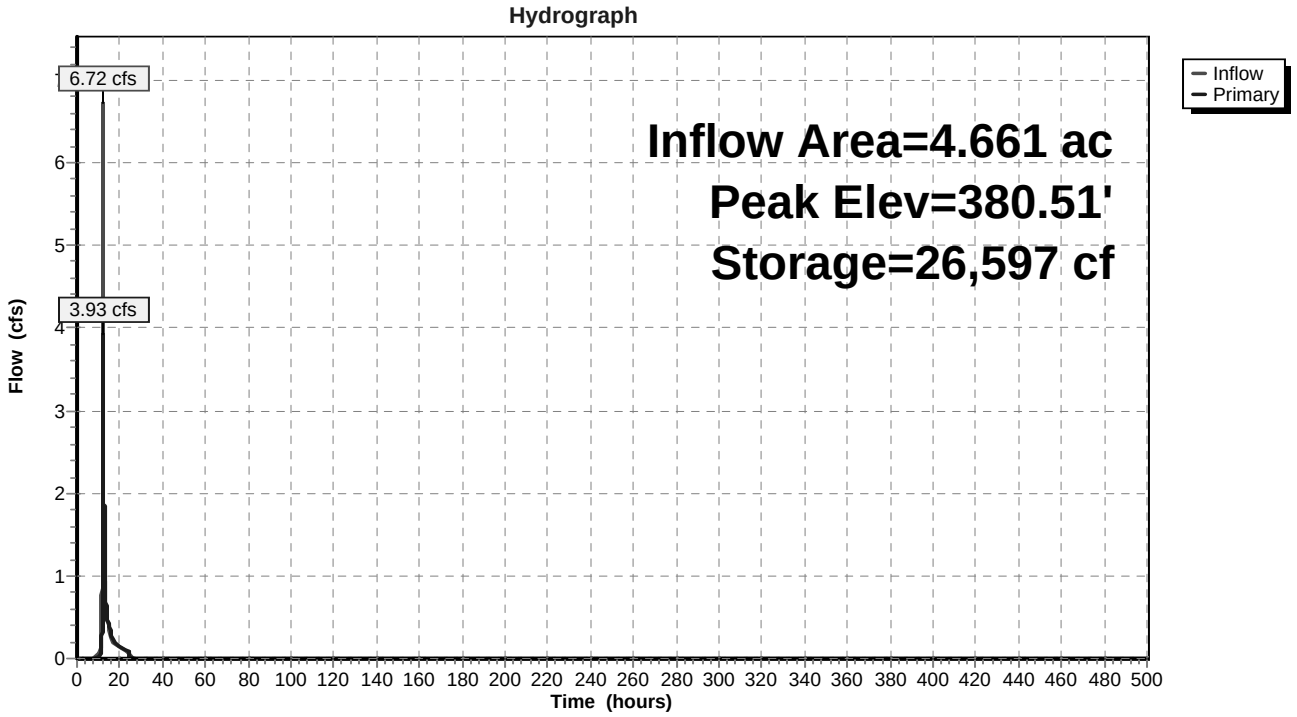
Volume	Invert	Avail.Storage	Storage Description
#1	378.00'	79,832 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
378.00	7,891	0	0
379.00	10,040	8,966	8,966
380.00	12,245	11,143	20,108
380.25	12,805	3,131	23,239
381.00	14,506	10,242	33,481
381.25	15,080	3,698	37,179
382.00	17,545	12,234	49,414
383.00	21,241	19,393	68,807
383.50	22,860	11,025	79,832

Device	Routing	Invert	Outlet Devices
#1	Primary	380.25'	**12.0' 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=3.91 cfs @ 12.16 hrs HW=380.51' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 3.91 cfs @ 1.27 fps)

Pond SD-3: SEDIMENT FACILITY #3



Summary for Pond W1: WETLAND LOWPOINT

Inflow Area = 30.826 ac, 3.58% Impervious, Inflow Depth = 1.04" for 1-YR event
Inflow = 18.37 cfs @ 12.31 hrs, Volume= 2.684 af
Outflow = 32.19 cfs @ 12.43 hrs, Volume= 2.022 af, Atten= 0%, Lag= 7.0 min
Primary = 32.19 cfs @ 12.43 hrs, Volume= 2.022 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 381.45' @ 12.43 hrs Surf.Area= 29,635 sf Storage= 29,135 cf

Plug-Flow detention time= 154.6 min calculated for 2.022 af (75% of inflow)
Center-of-Mass det. time= 53.4 min (941.3 - 887.9)

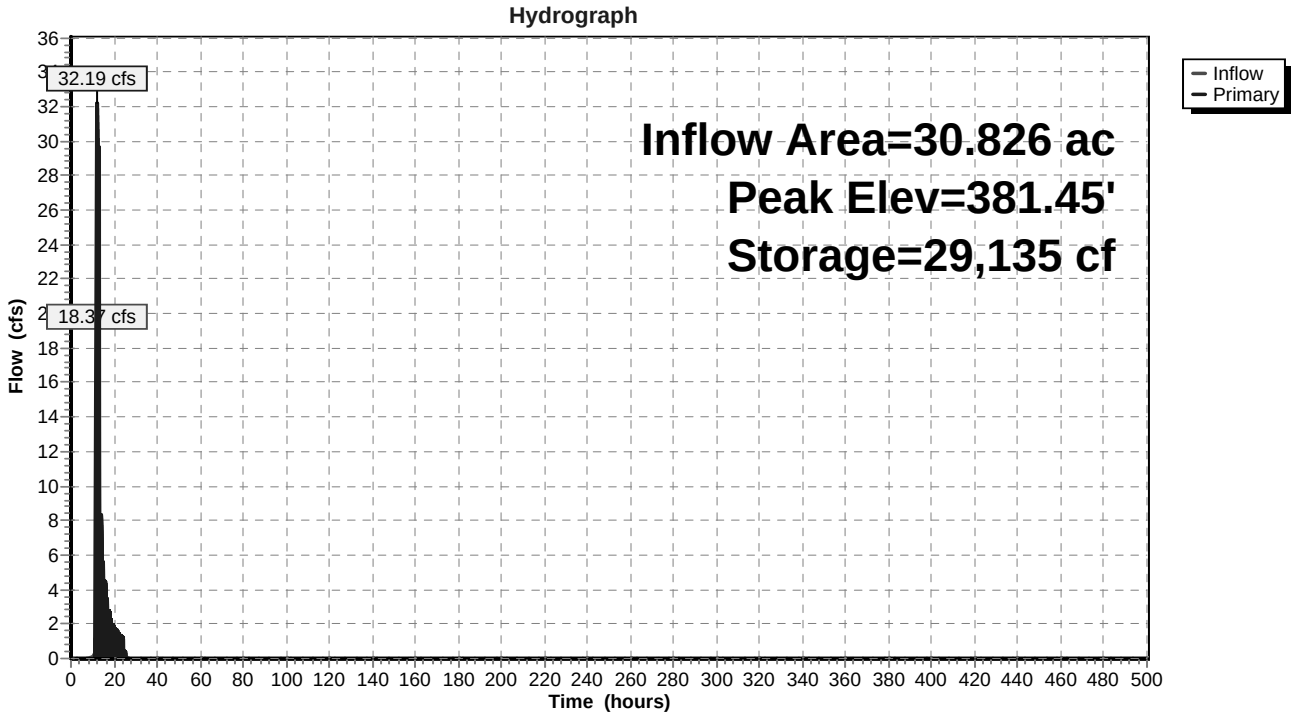
Volume	Invert	Avail.Storage	Storage Description
#1	379.00'	29,135 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
379.00	2,926	0	0
380.00	12,854	7,890	7,890
381.00	29,635	21,245	29,135

Device	Routing	Invert	Outlet Devices
#1	Primary	381.00'	**40.0' long x 20.0' 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) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=32.19 cfs @ 12.43 hrs HW=381.45' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 32.19 cfs @ 1.80 fps)

Pond W1: WETLAND LOWPOINT



Summary for Subcatchment PS-1A:

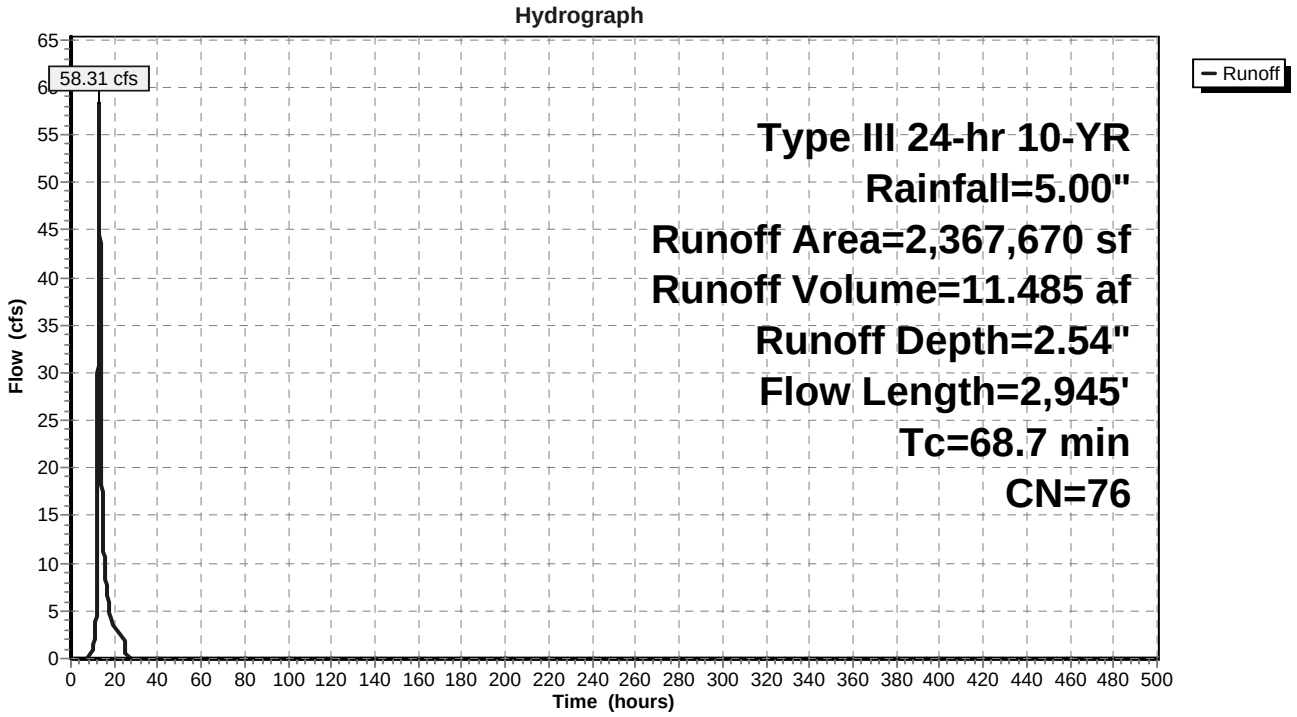
Runoff = 58.31 cfs @ 12.90 hrs, Volume= 11.485 af, Depth= 2.54"

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
*	87,517	98	IMPERVIOUS
	19,578	58	Woods/grass comb., Good, HSG B
	1,350,887	78	Row crops, straight row, Good, HSG B
	89,965	79	Woods/grass comb., Good, HSG D
	177,429	89	Row crops, straight row, Good, HSG D
	350,944	69	50-75% Grass cover, Fair, HSG B
	3,142	77	Brush, Fair, HSG D
	24,913	84	50-75% Grass cover, Fair, HSG D
	263,295	56	Brush, Fair, HSG B
	2,367,670	76	Weighted Average
	2,280,153		96.30% Pervious Area
	87,517		3.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	100	0.0080	0.14		**Sheet Flow, SHEET FLOW** Range n= 0.130 P2= 3.50"
32.2	1,557	0.0080	0.80		**Shallow Concentrated Flow, SHALLOW CONC FLOW** Cultivated Straight Rows Kv= 9.0 fps
19.5	733	0.0080	0.63		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	30	0.0100	2.36	1.85	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
4.3	400	0.0500	1.57		**Shallow Concentrated Flow, SHALLOW CONC FLOW** Short Grass Pasture Kv= 7.0 fps
0.4	125	0.0141	5.85	128.70	**Channel Flow, CHANNEL FLOW** Area= 22.0 sf Perim= 17.6' r= 1.25' n= 0.035 Earth, dense weeds
68.7	2,945	Total			

Subcatchment PS-1A:



Summary for Subcatchment PS-1B:

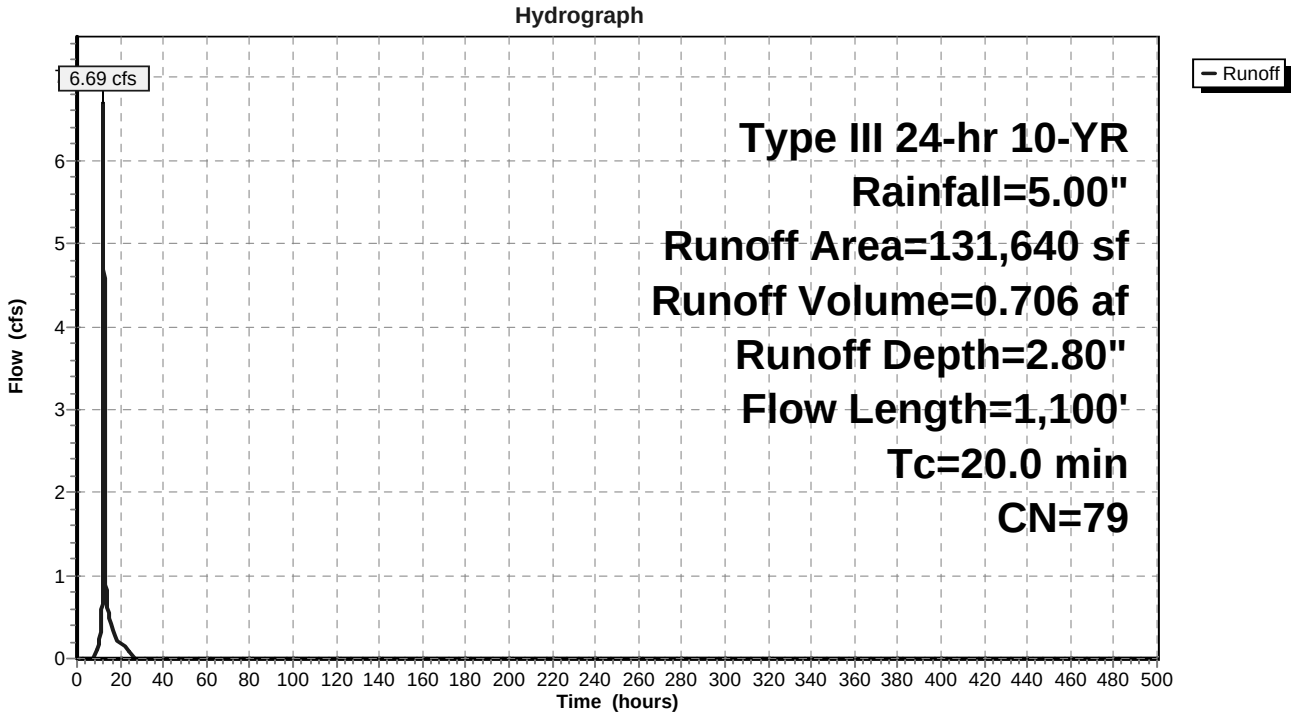
Runoff = 6.69 cfs @ 12.28 hrs, Volume= 0.706 af, Depth= 2.80"

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
1,293	78	Row crops, straight row, Good, HSG B
17,617	72	Woods/grass comb., Good, HSG C
4,269	85	Row crops, straight row, Good, HSG C
73,959	79	Woods/grass comb., Good, HSG D
33,254	84	50-75% Grass cover, Fair, HSG D
1,248	61	>75% Grass cover, Good, HSG B
131,640	79	Weighted Average
131,640		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	40	0.0200	0.17		**Sheet Flow,** Range n= 0.130 P2= 3.50"
10.3	60	0.0400	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
3.3	100	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.4	900	0.0100	6.28	282.71	**Channel Flow,** Area= 45.0 sf Perim= 25.0' r= 1.80' n= 0.035 Earth, dense weeds
20.0	1,100	Total			

Subcatchment PS-1B:



Summary for Subcatchment PS-1C:

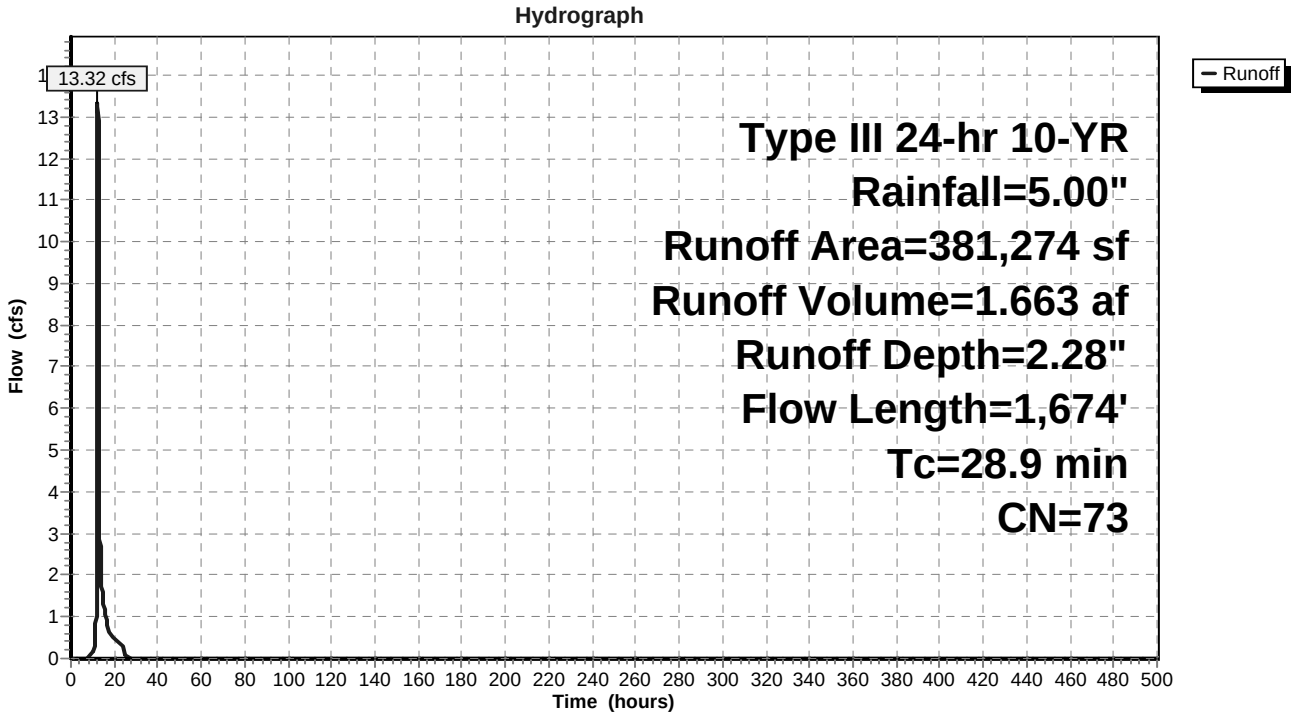
Runoff = 13.32 cfs @ 12.42 hrs, Volume= 1.663 af, Depth= 2.28"

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
*	7,027	98	IMPERVIOUS
	11,137	58	Woods/grass comb., Good, HSG B
	51,478	78	Row crops, straight row, Good, HSG B
	277,554	72	Woods/grass comb., Good, HSG C
	3,791	85	Row crops, straight row, Good, HSG C
	11,050	69	50-75% Grass cover, Fair, HSG B
	3,895	56	Brush, Fair, HSG B
	2,880	70	Brush, Fair, HSG C
	12,462	77	Brush, Fair, HSG D
	381,274	73	Weighted Average
	374,247		98.16% Pervious Area
	7,027		1.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
3.6	152	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.8	1,422	0.0100	4.93	108.39	**Channel Flow,** Area= 22.0 sf Perim= 17.6' r= 1.25' n= 0.035 Earth, dense weeds
28.9	1,674	Total			

Subcatchment PS-1C:



Summary for Subcatchment PS-2:

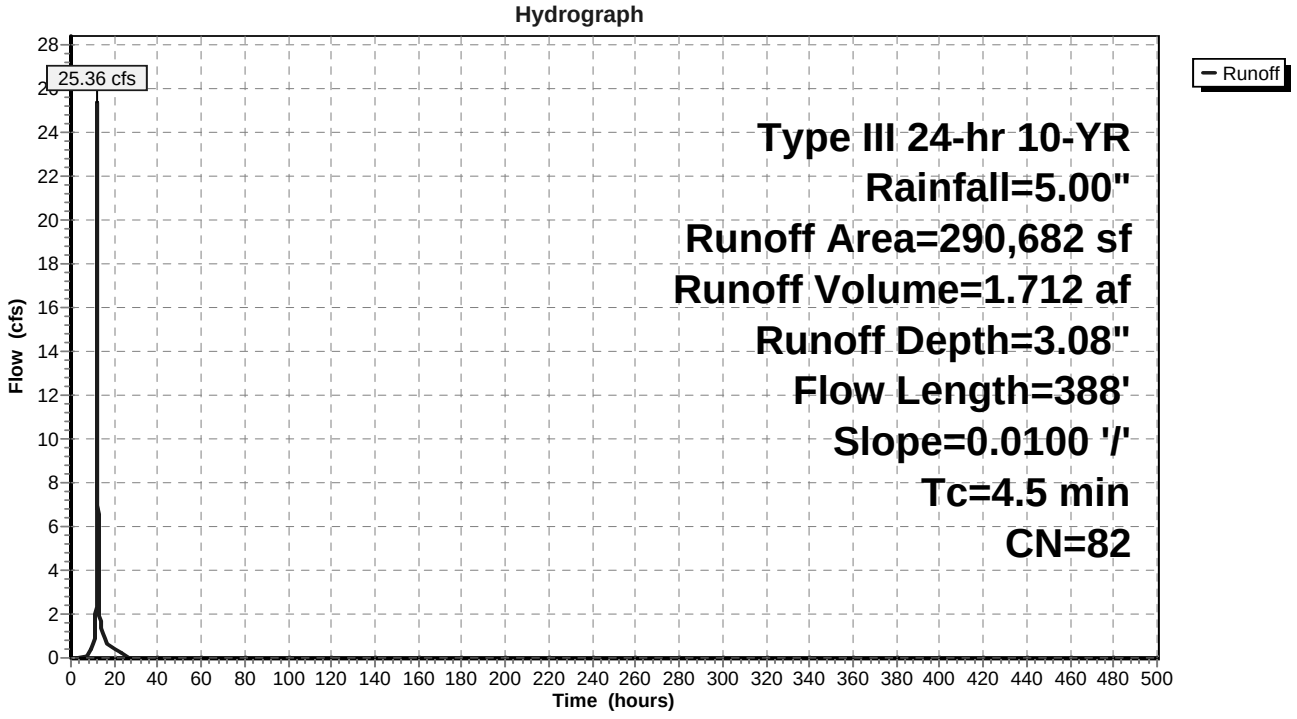
Runoff = 25.36 cfs @ 12.07 hrs, Volume= 1.712 af, Depth= 3.08"

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
245,669	85	Gravel roads, HSG B
34,957	61	>75% Grass cover, Good, HSG B
10,056	74	>75% Grass cover, Good, HSG C
290,682	82	Weighted Average
290,682		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0100	1.09		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
3.0	288	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
4.5	388	Total			

Subcatchment PS-2:



Summary for Subcatchment PS-3:

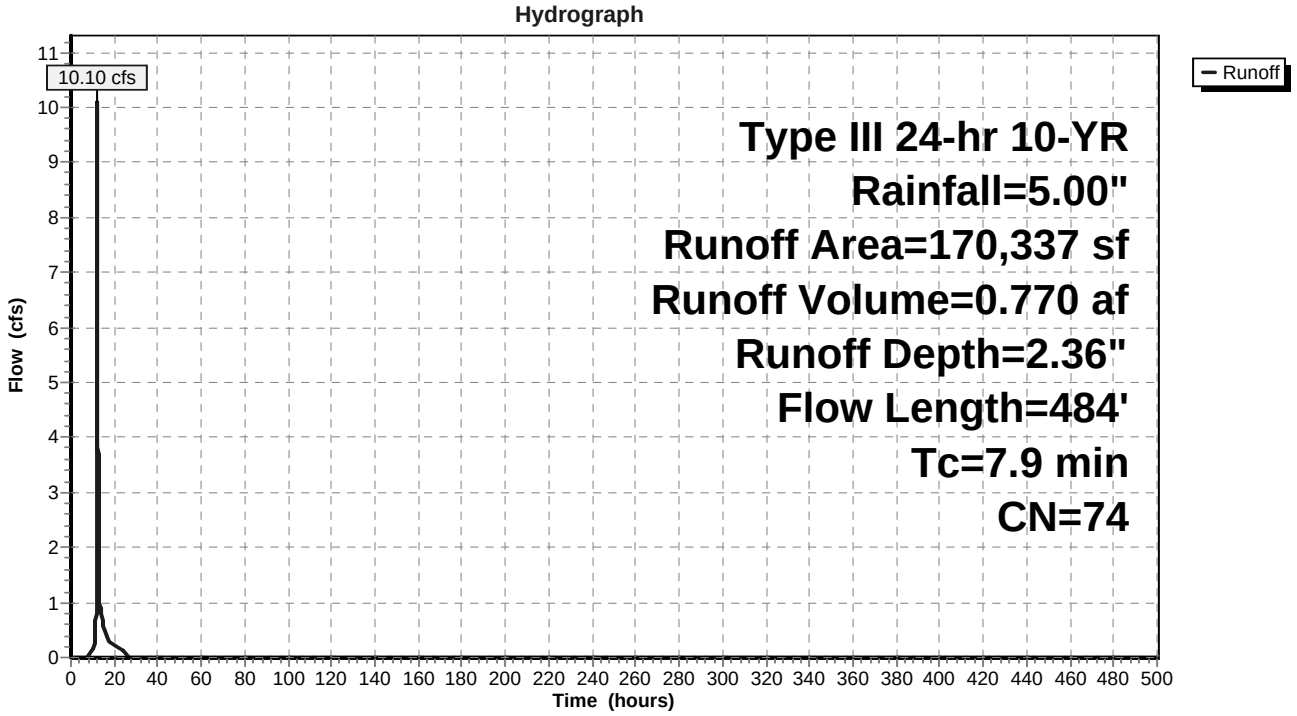
Runoff = 10.10 cfs @ 12.12 hrs, Volume= 0.770 af, Depth= 2.36"

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
94,634	85	Gravel roads, HSG B
75,703	61	>75% Grass cover, Good, HSG B
170,337	74	Weighted Average
170,337		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	100	0.0500	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
1.3	329	0.0100	4.12	41.16	**Channel Flow,** Area= 10.0 sf Perim= 13.2' r= 0.76' n= 0.030 Earth, grassed & winding
0.1	55	0.0200	7.44	9.14	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
7.9	484	Total			

Subcatchment PS-3:



Summary for Subcatchment PS-4:

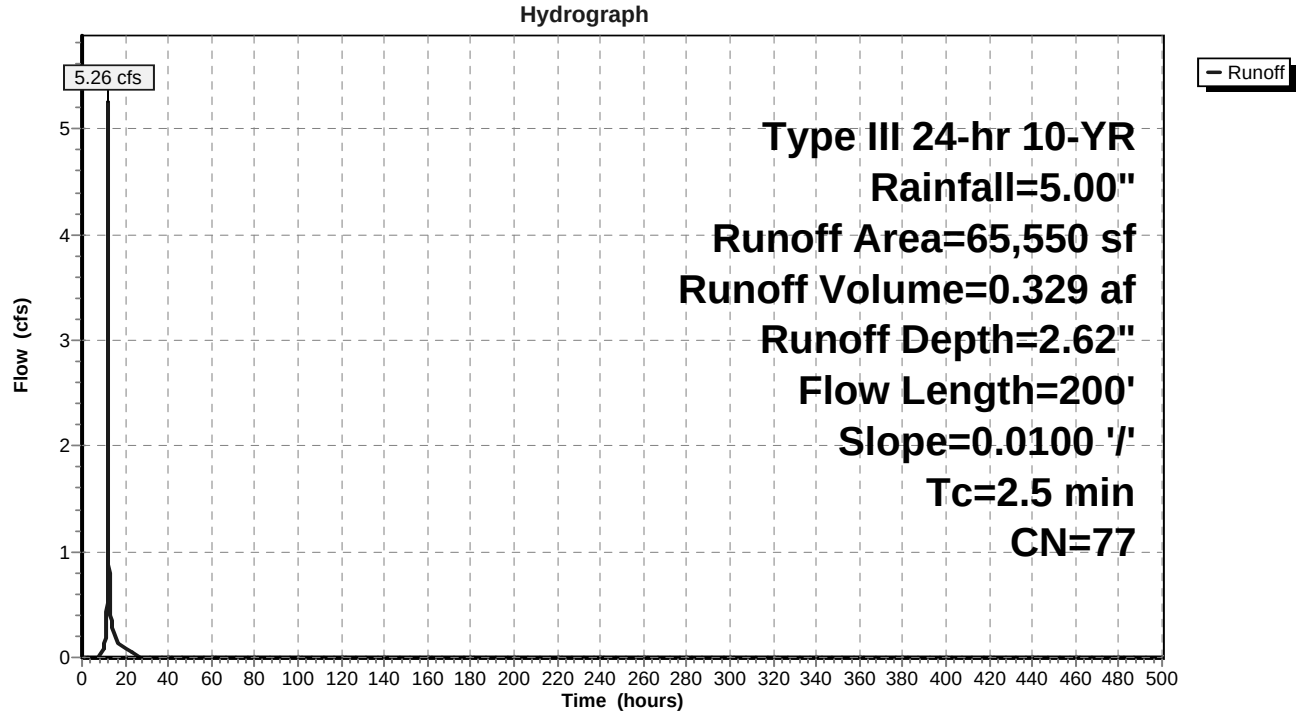
Runoff = 5.26 cfs @ 12.04 hrs, Volume= 0.329 af, Depth= 2.62"

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
43,709	85	Gravel roads, HSG B
21,141	61	>75% Grass cover, Good, HSG B
700	98	Roofs, HSG B
65,550	77	Weighted Average
64,850		98.93% Pervious Area
700		1.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0100	1.09		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
1.0	100	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.5	200	Total			

Subcatchment PS-4:



Summary for Subcatchment PS-5A:

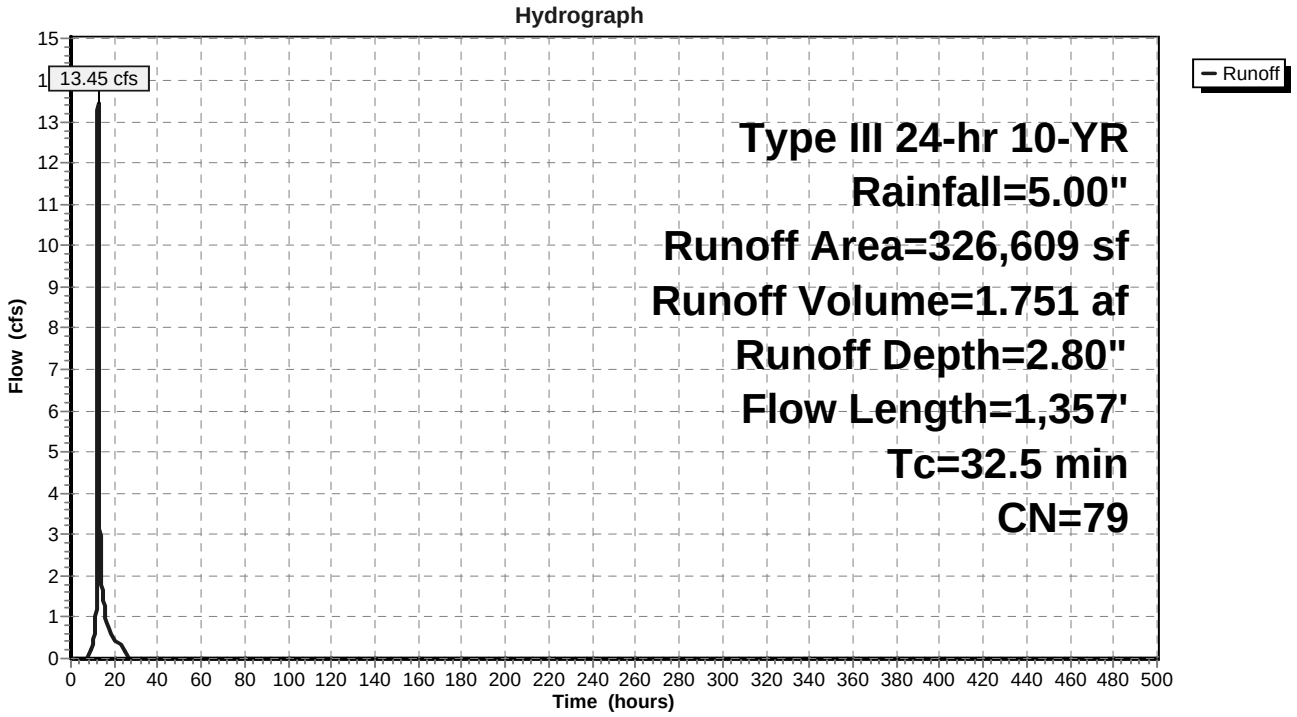
Runoff = 13.45 cfs @ 12.46 hrs, Volume= 1.751 af, Depth= 2.80"

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
*	24,513	98	IMPERVIOUS
	1,877	85	Gravel roads, HSG B
	9,892	58	Woods/grass comb., Good, HSG B
	144,880	78	Row crops, straight row, Good, HSG B
	54,018	79	Woods/grass comb., Good, HSG D
	30,521	89	Row crops, straight row, Good, HSG D
	44,405	69	50-75% Grass cover, Fair, HSG B
	10,952	84	50-75% Grass cover, Fair, HSG D
	5,551	77	Brush, Fair, HSG D
	326,609	79	Weighted Average
	302,096		92.49% Pervious Area
	24,513		7.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	24	0.0200	1.08		**Sheet Flow, SHEET FLOW** Smooth surfaces n= 0.011 P2= 3.50"
13.0	80	0.0400	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.6	67	0.0200	0.71		**Shallow Concentrated Flow, SHALLOW CONC FLOW** Woodland Kv= 5.0 fps
2.9	87	0.0100	0.50		**Shallow Concentrated Flow, SHALLOW CONC FLOW** Woodland Kv= 5.0 fps
11.3	612	0.0100	0.90		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
0.4	70	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
1.8	322	0.0050	3.00	22.47	**Parabolic Channel,** W=15.00' D=0.75' Area=7.5 sf Perim=15.1' n= 0.022 Earth, clean & straight
1.1	95	0.0010	1.43	1.13	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
32.5	1,357	Total			

Subcatchment PS-5A:



Summary for Subcatchment PS-5B:

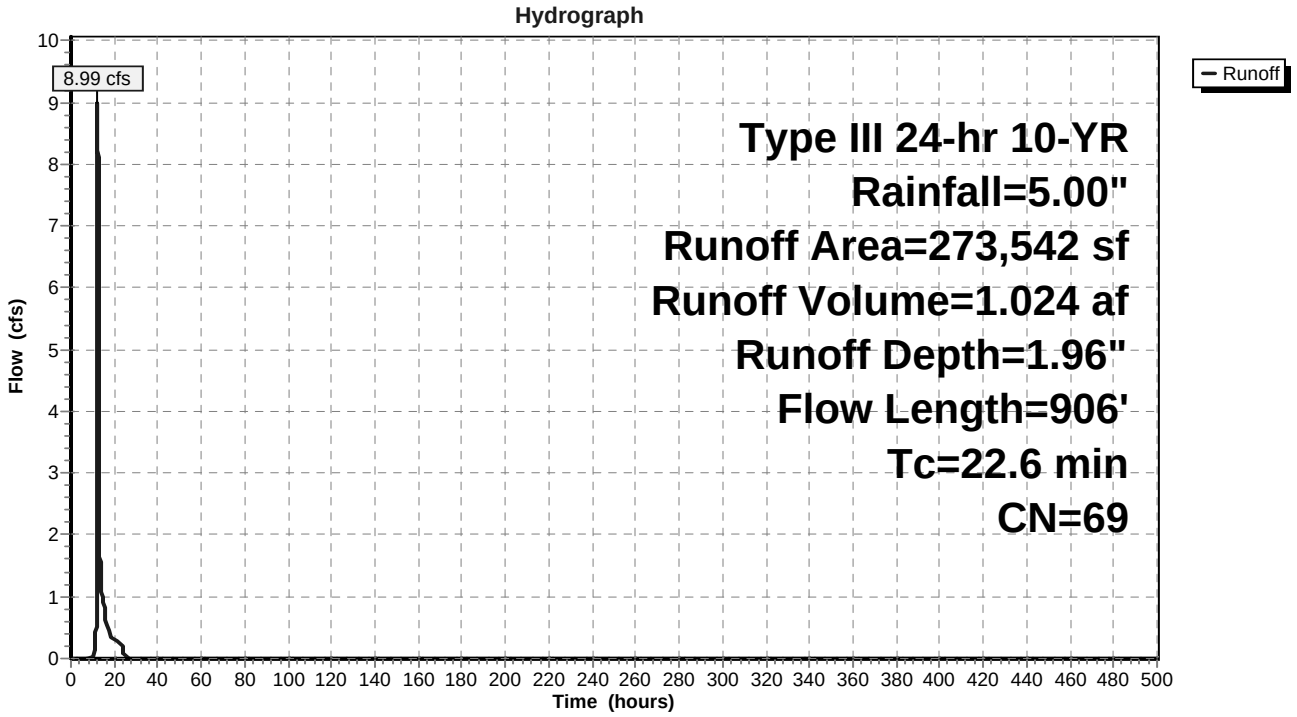
Runoff = 8.99 cfs @ 12.33 hrs, Volume= 1.024 af, Depth= 1.96"

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
*	22,101	98	IMPERVIOUS
	11,322	85	Gravel roads, HSG B
	98,889	58	Woods/grass comb., Good, HSG B
	58,296	78	Row crops, straight row, Good, HSG B
	68,671	69	50-75% Grass cover, Fair, HSG B
	14,263	56	Brush, Fair, HSG B
	273,542	69	Weighted Average
	251,441		91.92% Pervious Area
	22,101		8.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	30	0.0200	1.13		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
9.9	40	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
3.2	30	0.0200	0.16		**Sheet Flow,** Range n= 0.130 P2= 3.50"
0.8	60	0.0200	1.27		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
1.0	318	0.0100	5.22	36.55	**Channel Flow,** Area= 7.0 sf Perim= 10.3' r= 0.68' n= 0.022 Earth, clean & straight
4.5	243	0.0100	0.90		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
0.3	64	0.0050	3.72	4.57	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
0.8	71	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.7	50	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.6	906	Total			

Subcatchment PS-5B:



Summary for Subcatchment PS-6:

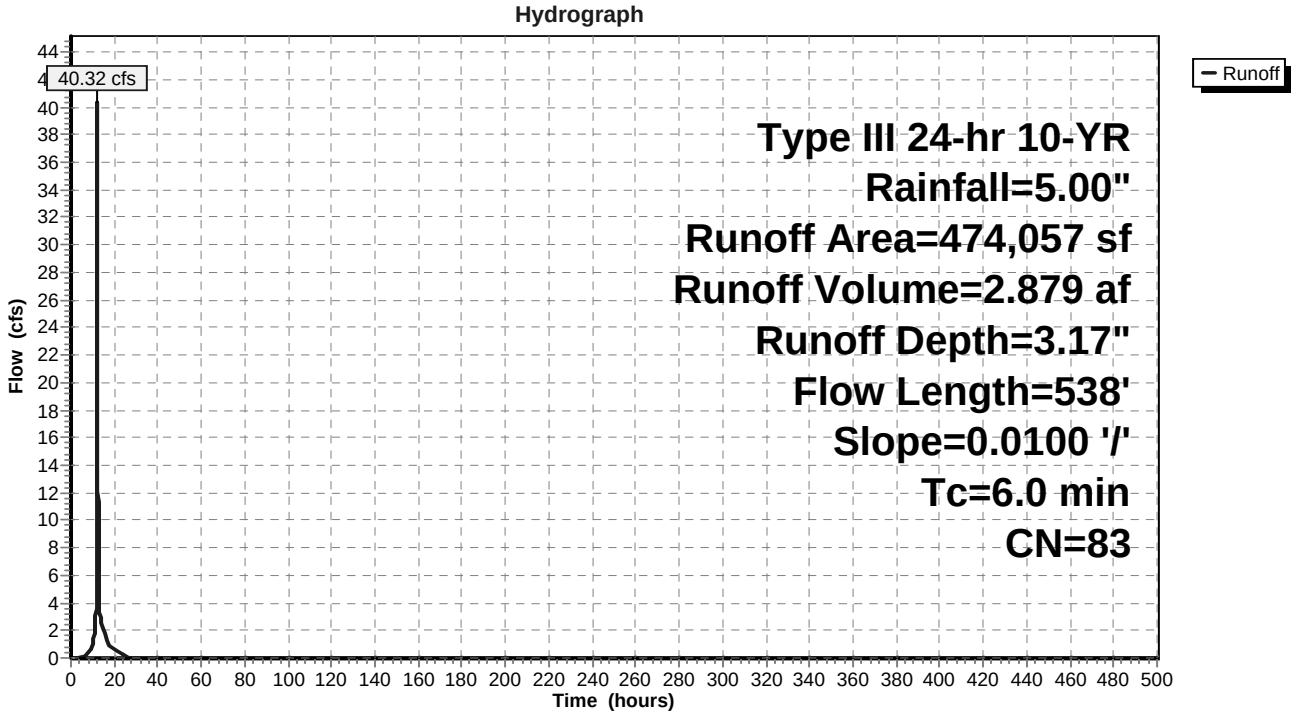
Runoff = 40.32 cfs @ 12.09 hrs, Volume= 2.879 af, Depth= 3.17"

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
416,388	85	Gravel roads, HSG B
12,723	89	Gravel roads, HSG C
44,246	61	>75% Grass cover, Good, HSG B
700	98	Roofs, HSG B
474,057	83	Weighted Average
473,357		99.85% Pervious Area
700		0.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0100	1.09		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
4.5	438	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
6.0	538	Total			

Subcatchment PS-6:



Summary for Subcatchment PS-7:

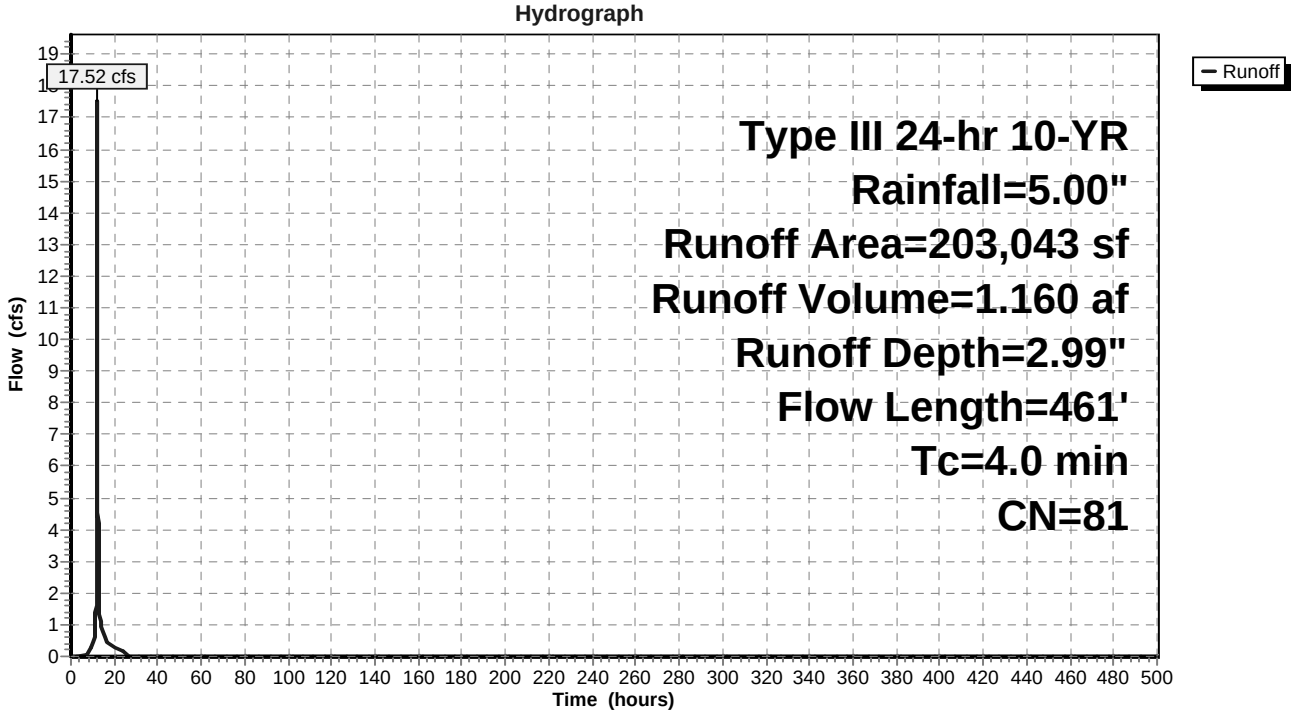
Runoff = 17.52 cfs @ 12.06 hrs, Volume= 1.160 af, Depth= 2.99"

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
169,224	85	Gravel roads, HSG B
33,819	61	>75% Grass cover, Good, HSG B
203,043	81	Weighted Average
203,043		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0170	1.35		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
2.8	361	0.0173	2.12		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
4.0	461	Total			

Subcatchment PS-7:



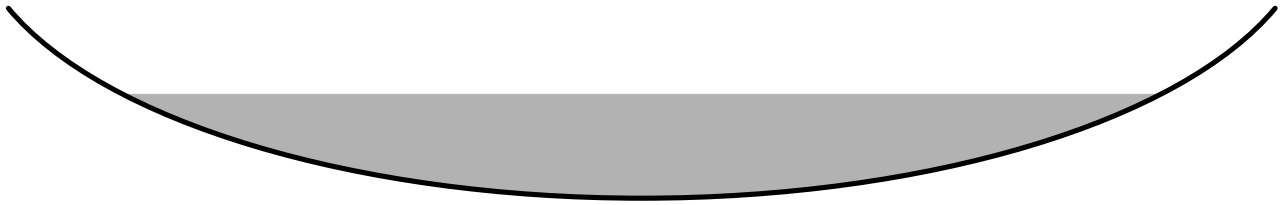
Summary for Reach R1: WETLAND REACH #1

Inflow Area = 30.826 ac, 3.58% Impervious, Inflow Depth = 2.52" for 10-YR event
Inflow = 65.46 cfs @ 12.22 hrs, Volume= 6.478 af
Outflow = 52.70 cfs @ 12.36 hrs, Volume= 6.478 af, Atten= 19%, Lag= 8.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.43 fps, Min. Travel Time= 4.1 min
Avg. Velocity = 0.32 fps, Avg. Travel Time= 31.6 min

Peak Storage= 13,005 cf @ 12.29 hrs, Average Depth at Peak Storage= 1.10'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 193.11 cfs

40.00' x 2.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 600.0' Slope= 0.0050 '/'
Inlet Invert= 381.00', Outlet Invert= 378.00'



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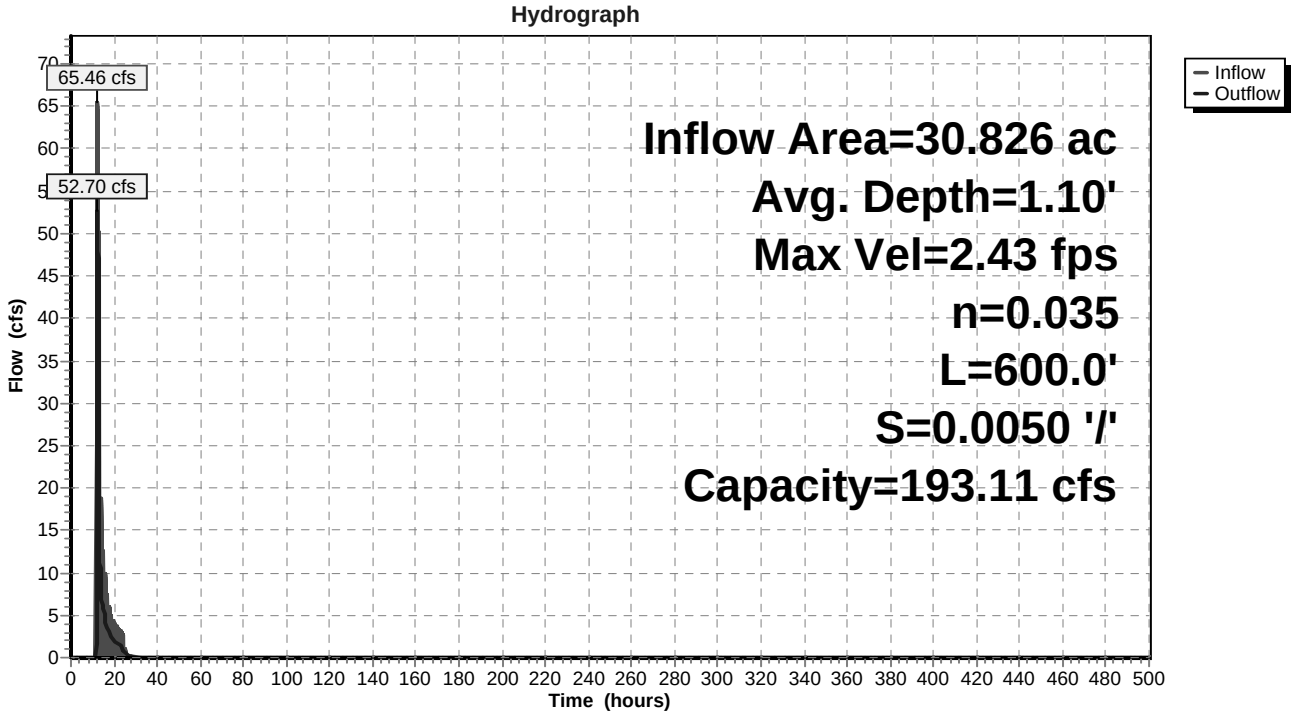
Reach R1: WETLAND REACH #1



Summary for Reach R2: WETLAND REACH #2

Inflow Area = 39.579 ac, 3.19% Impervious, Inflow Depth = 2.47" for 10-YR event
Inflow = 65.82 cfs @ 12.37 hrs, Volume= 8.141 af
Outflow = 65.00 cfs @ 12.49 hrs, Volume= 8.141 af, Atten= 1%, Lag= 6.8 min

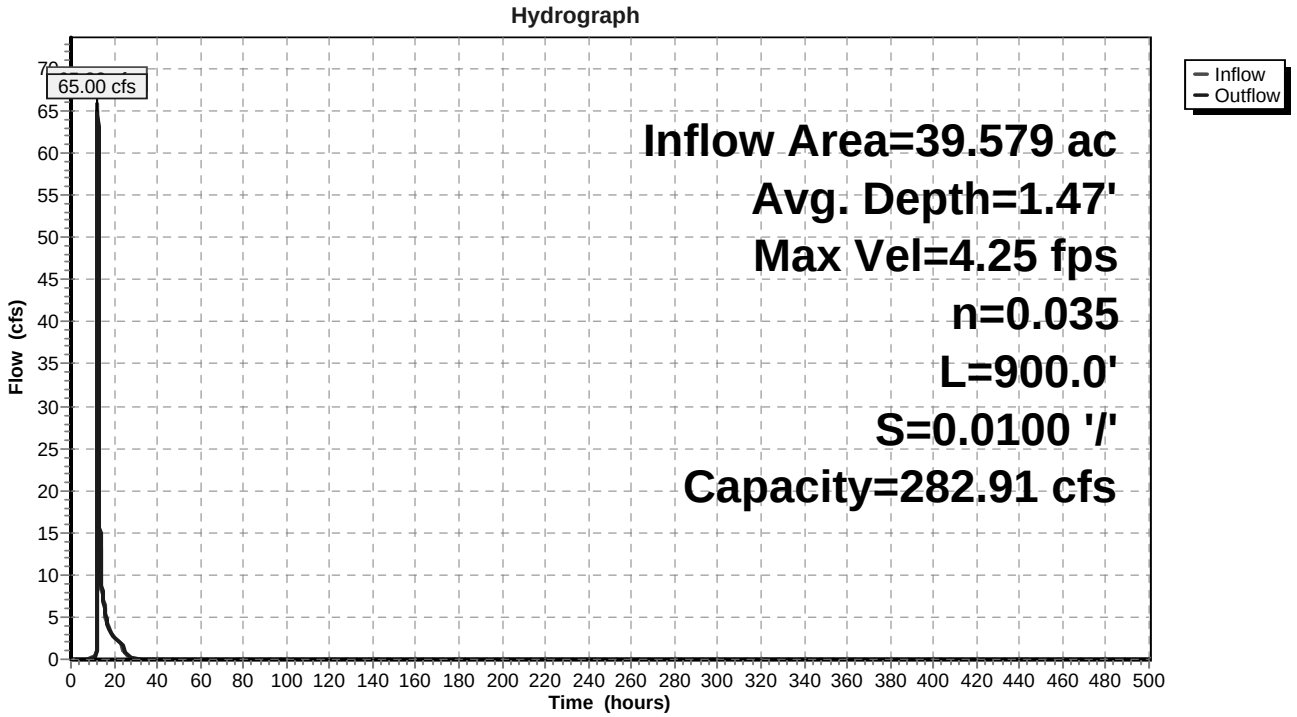
Routing by Stor-Ind+Trans method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.25 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 0.65 fps, Avg. Travel Time= 23.1 min

Peak Storage= 13,776 cf @ 12.43 hrs, Average Depth at Peak Storage= 1.47'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 282.91 cfs

6.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 3.0 '/' Top Width= 24.00'
Length= 900.0' Slope= 0.0100 '/'
Inlet Invert= 378.00', Outlet Invert= 369.00'

‡

Reach R2: WETLAND REACH #2



Summary for Reach R3: WETLAND REACH #3

Inflow Area = 53.185 ac, 2.38% Impervious, Inflow Depth = 2.56" for 10-YR event
Inflow = 70.20 cfs @ 12.47 hrs, Volume= 11.330 af
Outflow = 69.02 cfs @ 12.60 hrs, Volume= 11.330 af, Atten= 2%, Lag= 7.5 min

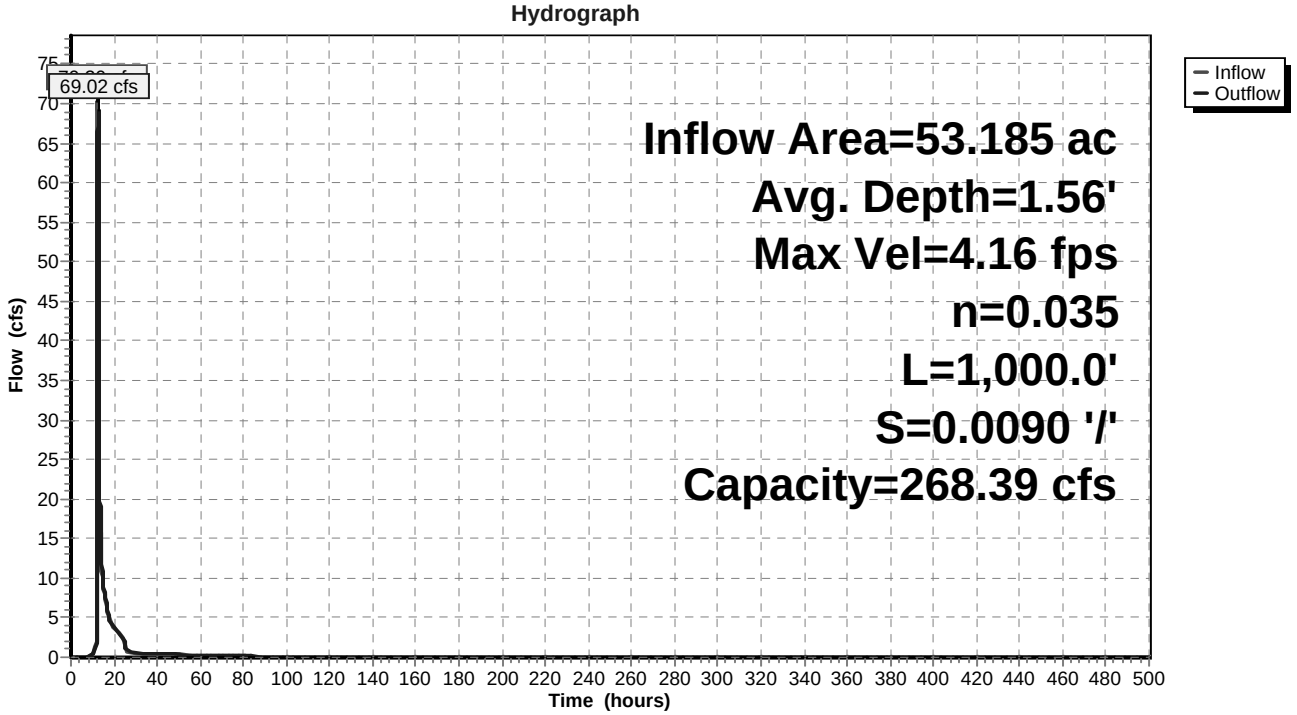
Routing by Stor-Ind+Trans method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.16 fps, Min. Travel Time= 4.0 min
Avg. Velocity = 0.53 fps, Avg. Travel Time= 31.4 min

Peak Storage= 16,609 cf @ 12.53 hrs, Average Depth at Peak Storage= 1.56'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 268.39 cfs

6.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 3.0 '/' Top Width= 24.00'
Length= 1,000.0' Slope= 0.0090 '/'
Inlet Invert= 369.00', Outlet Invert= 360.00'

‡

Reach R3: WETLAND REACH #3

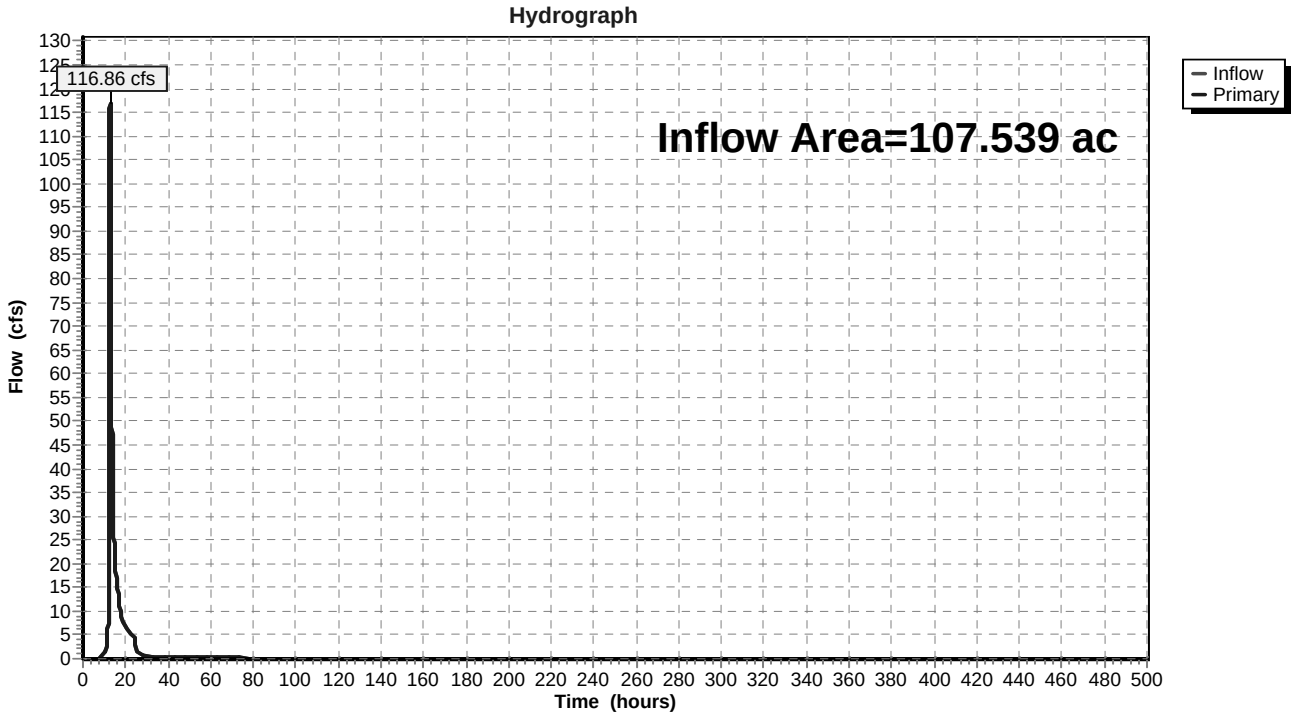


Summary for Pond DP-1: DESIGN POINT #1 (Culvert under Old State Route 22)

Inflow Area = 107.539 ac, 3.04% Impervious, Inflow Depth = 2.55" for 10-YR event
Inflow = 116.86 cfs @ 12.69 hrs, Volume= 22.814 af
Primary = 116.86 cfs @ 12.69 hrs, Volume= 22.814 af, Atten= 0%, Lag= 0.0 min

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

Pond DP-1: DESIGN POINT #1 (Culvert under Old State Route 22)



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

Inflow Area = 3.910 ac, 0.00% Impervious, Inflow Depth = 2.36" for 10-YR event
Inflow = 10.10 cfs @ 12.12 hrs, Volume= 0.770 af
Outflow = 0.36 cfs @ 16.62 hrs, Volume= 0.770 af, Atten= 96%, Lag= 270.1 min
Primary = 0.36 cfs @ 16.62 hrs, Volume= 0.770 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 382.40' @ 16.62 hrs Surf.Area= 14,714 sf Storage= 21,728 cf
Flood Elev= 385.00' Surf.Area= 30,192 sf Storage= 73,624 cf

Plug-Flow detention time= 734.8 min calculated for 0.770 af (100% of inflow)
Center-of-Mass det. time= 734.7 min (1,573.9 - 839.2)

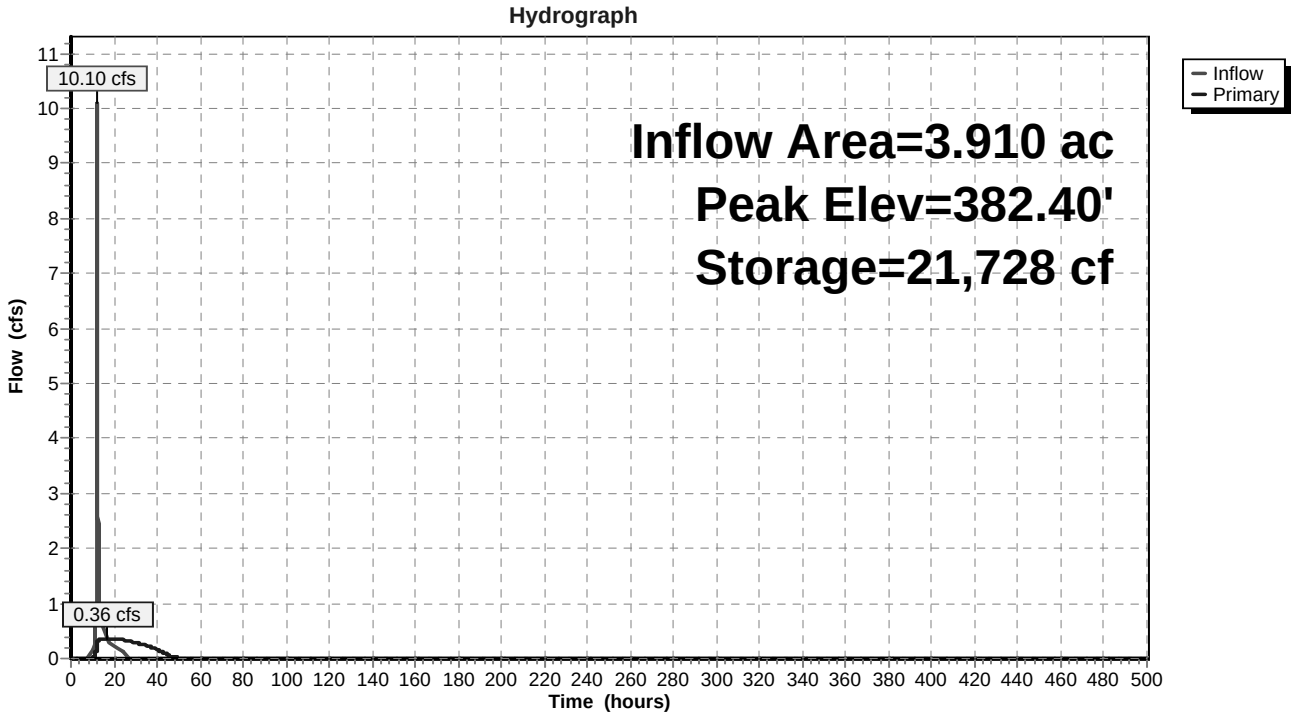
Volume	Invert	Avail.Storage	Storage Description
#1	380.00'	73,624 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
380.00	3,851	0	0
381.00	7,438	5,645	5,645
381.75	11,899	7,251	12,896
382.00	13,599	3,187	16,083
383.00	16,396	14,998	31,081
384.00	19,249	17,823	48,903
385.00	30,192	24,721	73,624

Device	Routing	Invert	Outlet Devices
#1	Primary	380.00'	**12.0" Round Culvert** L= 275.0' CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 378.63' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	380.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	383.50'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.36 cfs @ 16.62 hrs HW=382.40' (Free Discharge)
└**1=Culvert** (Passes 0.36 cfs of 3.29 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.36 cfs @ 7.26 fps)
└**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

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



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

Inflow Area = 10.584 ac, 0.00% Impervious, Inflow Depth = 2.81" for 10-YR event
Inflow = 25.59 cfs @ 12.07 hrs, Volume= 2.483 af
Outflow = 1.36 cfs @ 15.34 hrs, Volume= 2.483 af, Atten= 95%, Lag= 196.2 min
Primary = 1.36 cfs @ 15.34 hrs, Volume= 2.483 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 381.28' @ 15.34 hrs Surf.Area= 20,612 sf Storage= 53,941 cf
Flood Elev= 383.00' Surf.Area= 24,052 sf Storage= 92,340 cf

Plug-Flow detention time= 1,299.6 min calculated for 2.483 af (100% of inflow)
Center-of-Mass det. time= 1,299.8 min (2,350.3 - 1,050.4)

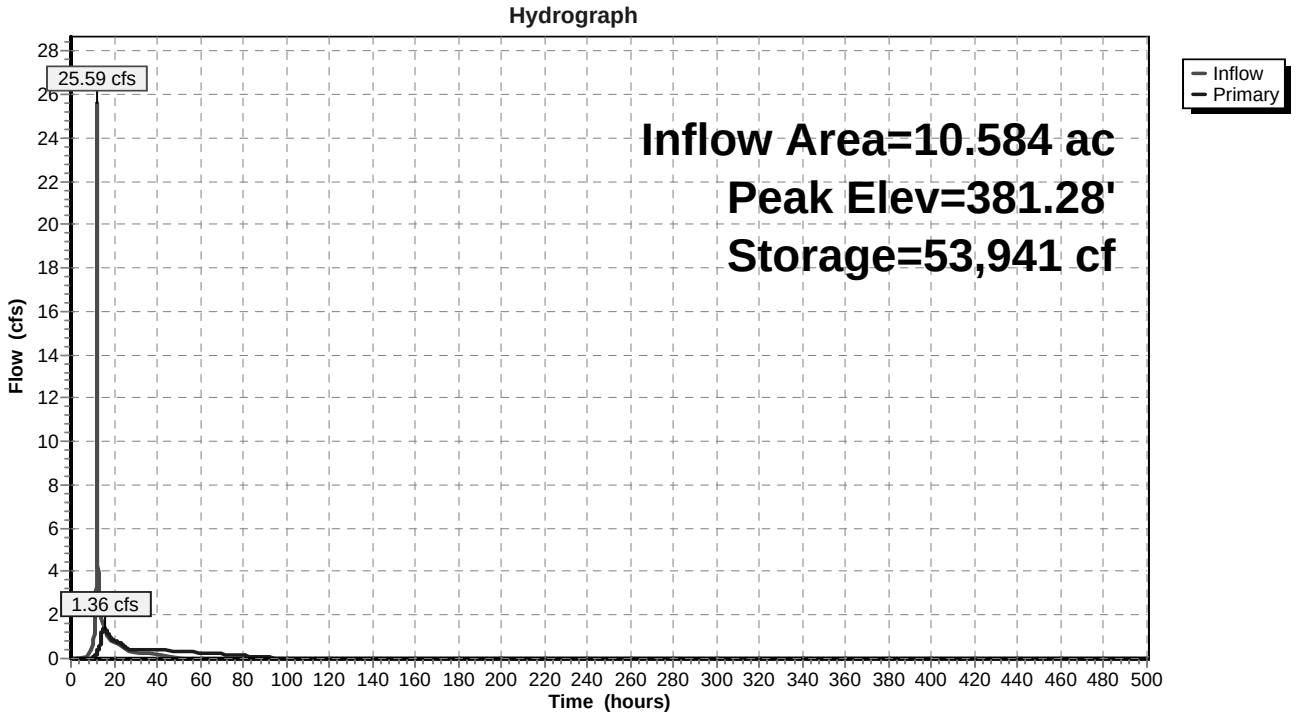
Volume	Invert	Avail.Storage	Storage Description
#1	378.00'	92,340 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
378.00	12,840	0	0
379.00	14,426	13,633	13,633
379.75	15,661	11,283	24,916
380.00	18,166	4,228	29,144
380.75	19,583	14,156	43,300
381.00	20,064	4,956	48,256
382.00	22,026	21,045	69,301
383.00	24,052	23,039	92,340

Device	Routing	Invert	Outlet Devices
#1	Primary	378.00'	**15.0" Round Culvert** L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 377.35' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	378.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	381.00'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.36 cfs @ 15.34 hrs HW=381.28' (Free Discharge)
└**1=Culvert** (Passes 1.36 cfs of 7.60 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.42 cfs @ 8.55 fps)
  └**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.94 cfs @ 1.73 fps)

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



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

Inflow Area = 1.505 ac, 1.07% Impervious, Inflow Depth = 2.62" for 10-YR event
Inflow = 5.26 cfs @ 12.04 hrs, Volume= 0.329 af
Outflow = 0.29 cfs @ 14.11 hrs, Volume= 0.329 af, Atten= 95%, Lag= 124.2 min
Primary = 0.29 cfs @ 14.11 hrs, Volume= 0.329 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 382.60' @ 14.11 hrs Surf.Area= 5,905 sf Storage= 7,752 cf
Flood Elev= 385.50' Surf.Area= 12,170 sf Storage= 33,008 cf

Plug-Flow detention time= 365.5 min calculated for 0.329 af (100% of inflow)
Center-of-Mass det. time= 365.6 min (1,192.1 - 826.5)

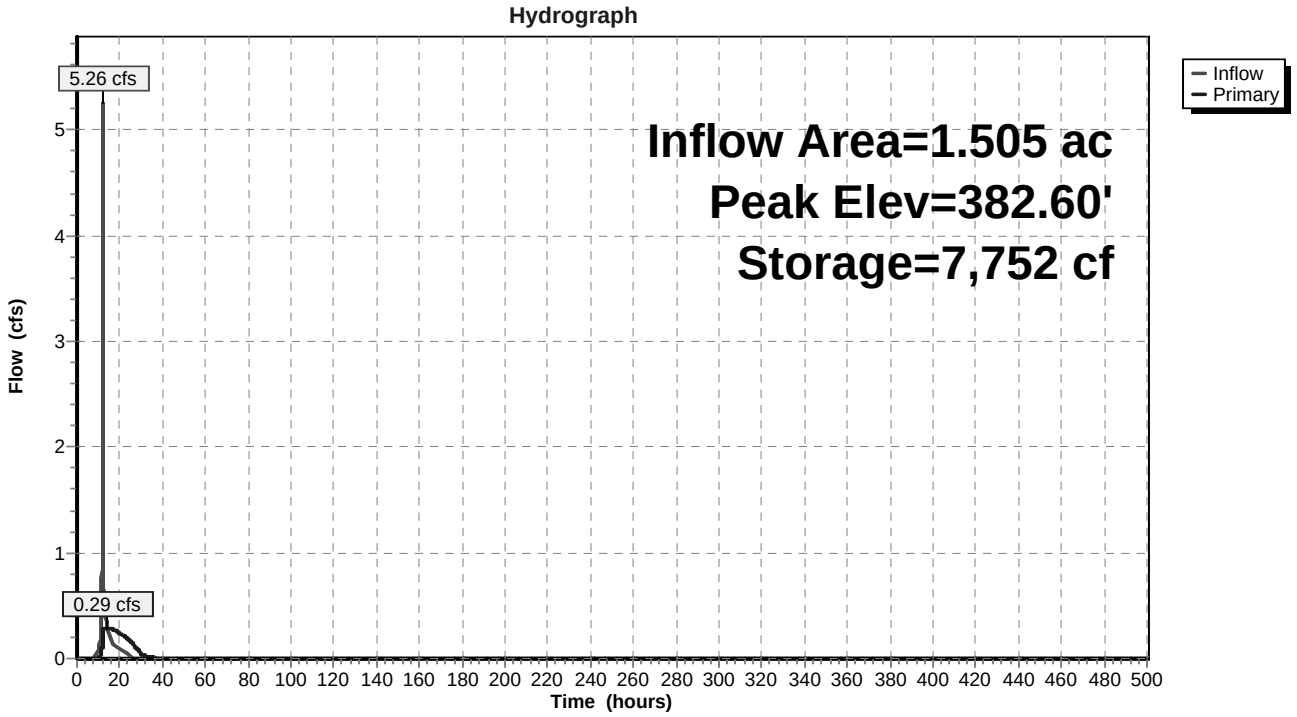
Volume	Invert	Avail.Storage	Storage Description
#1	381.00'	33,008 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
381.00	3,950	0	0
382.00	5,011	4,481	4,481
382.25	5,287	1,287	5,768
383.00	6,594	4,455	10,223
383.25	6,915	1,689	11,912
384.00	7,899	5,555	17,467
385.00	11,399	9,649	27,116
385.50	12,170	5,892	33,008

Device	Routing	Invert	Outlet Devices
#1	Primary	381.00'	**12.0" Round Culvert** L= 339.0' CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 379.31' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	381.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	384.00'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.29 cfs @ 14.11 hrs HW=382.60' (Free Discharge)
└**1=Culvert** (Passes 0.29 cfs of 2.74 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.29 cfs @ 5.86 fps)
└**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

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



Summary for Pond SD-2B: SEDIMENT FACILITY #2B

Inflow Area = 12.388 ac, 0.26% Impervious, Inflow Depth = 3.11" for 10-YR event
Inflow = 40.54 cfs @ 12.09 hrs, Volume= 3.208 af
Outflow = 27.63 cfs @ 12.17 hrs, Volume= 3.208 af, Atten= 32%, Lag= 5.1 min
Primary = 27.63 cfs @ 12.17 hrs, Volume= 3.208 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Starting Elev= 380.25' Surf.Area= 23,382 sf Storage= 69,215 cf
Peak Elev= 381.06' @ 12.17 hrs Surf.Area= 25,611 sf Storage= 89,141 cf (19,926 cf above start)
Flood Elev= 383.25' Surf.Area= 42,248 sf Storage= 149,590 cf (80,375 cf above start)

Plug-Flow detention time= 326.4 min calculated for 1.619 af (50% of inflow)
Center-of-Mass det. time= 24.6 min (876.8 - 852.3)

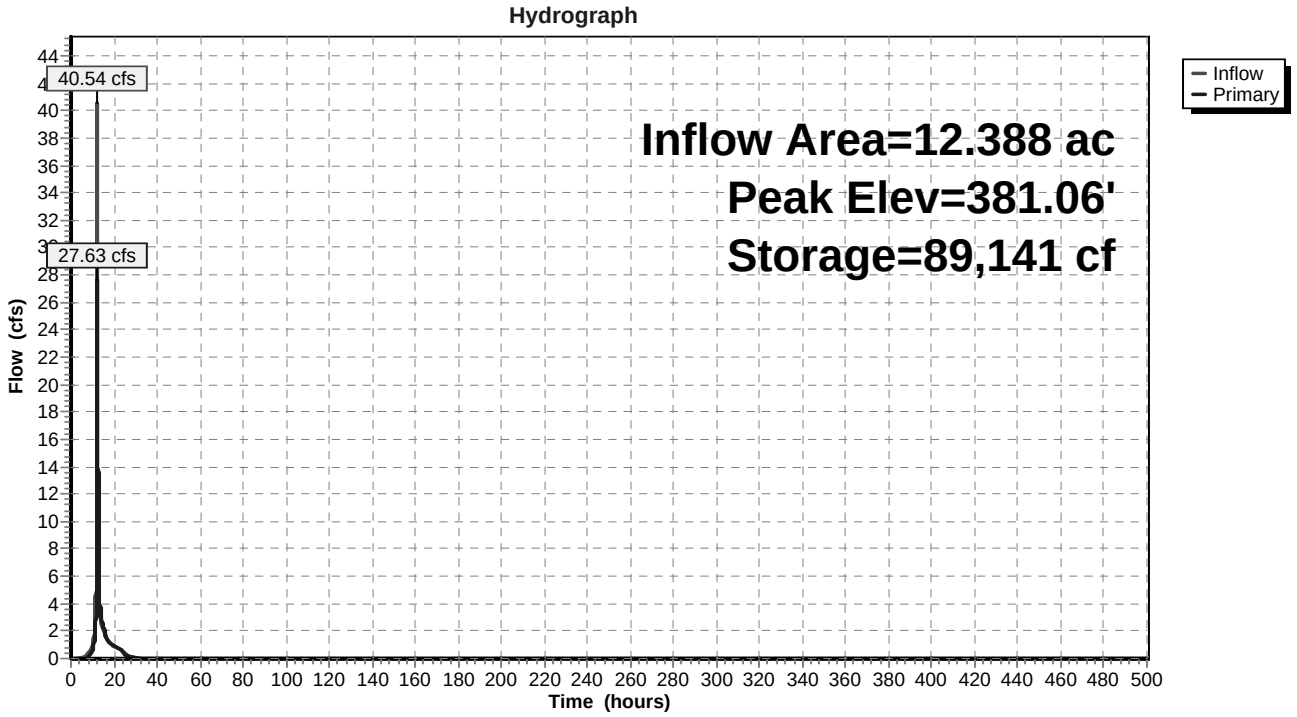
Volume	Invert	Avail.Storage	Storage Description
#1	376.00'	149,590 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
376.00	5,557	0	0
377.00	13,547	9,552	9,552
378.00	15,765	14,656	24,208
379.00	20,018	17,892	42,100
379.25	20,682	5,088	47,187
380.00	22,698	16,268	63,455
381.00	25,434	24,066	87,521
382.00	28,228	26,831	114,352
383.00	42,248	35,238	149,590

Device	Routing	Invert	Outlet Devices
#1	Primary	380.25'	**14.0' 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=27.61 cfs @ 12.17 hrs HW=381.06' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 27.61 cfs @ 2.43 fps)

Pond SD-2B: SEDIMENT FACILITY #2B



Summary for Pond SD-3: SEDIMENT FACILITY #3

Inflow Area = 4.661 ac, 0.00% Impervious, Inflow Depth = 2.99" for 10-YR event
Inflow = 17.52 cfs @ 12.06 hrs, Volume= 1.160 af
Outflow = 12.41 cfs @ 12.13 hrs, Volume= 1.160 af, Atten= 29%, Lag= 4.1 min
Primary = 12.41 cfs @ 12.13 hrs, Volume= 1.160 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Starting Elev= 380.25' Surf.Area= 12,805 sf Storage= 23,239 cf
Peak Elev= 380.78' @ 12.13 hrs Surf.Area= 14,014 sf Storage= 30,388 cf (7,149 cf above start)
Flood Elev= 383.50' Surf.Area= 22,860 sf Storage= 79,832 cf (56,593 cf above start)

Plug-Flow detention time= 235.5 min calculated for 0.626 af (54% of inflow)
Center-of-Mass det. time= 19.0 min (836.3 - 817.2)

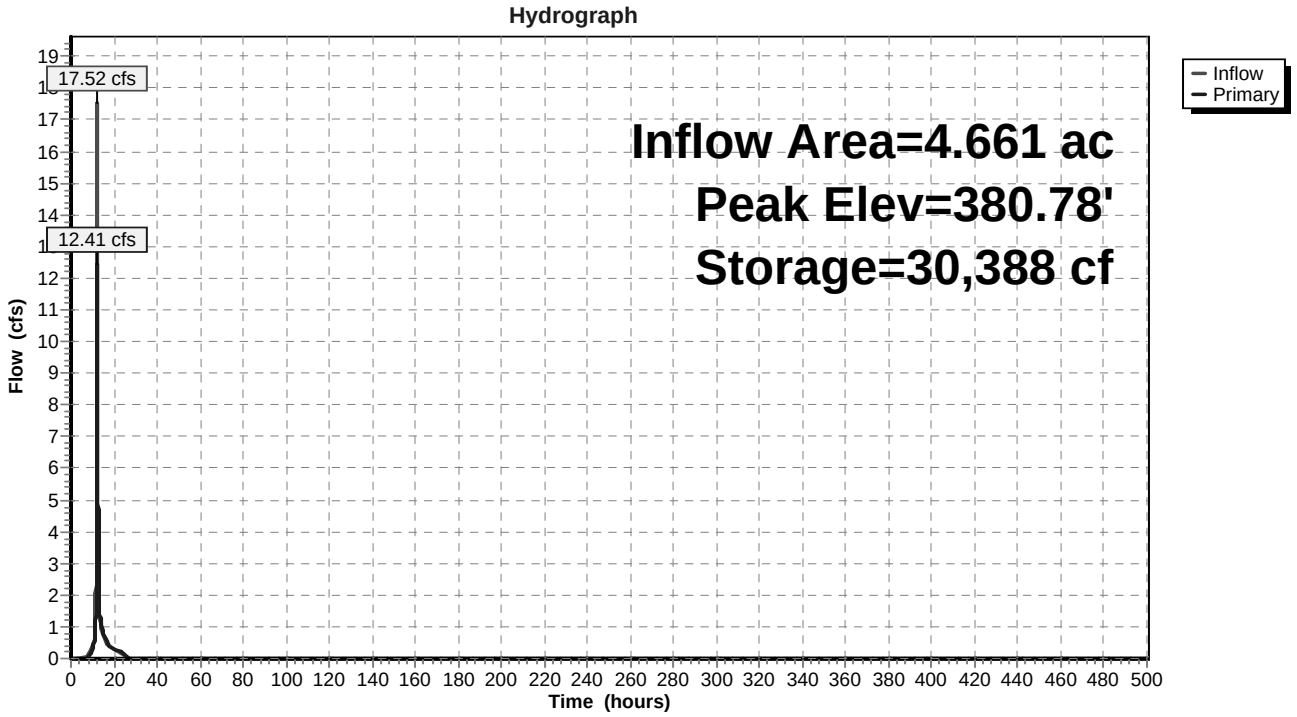
Volume	Invert	Avail.Storage	Storage Description
#1	378.00'	79,832 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
378.00	7,891	0	0
379.00	10,040	8,966	8,966
380.00	12,245	11,143	20,108
380.25	12,805	3,131	23,239
381.00	14,506	10,242	33,481
381.25	15,080	3,698	37,179
382.00	17,545	12,234	49,414
383.00	21,241	19,393	68,807
383.50	22,860	11,025	79,832

Device	Routing	Invert	Outlet Devices
#1	Primary	380.25'	**12.0' 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=12.39 cfs @ 12.13 hrs HW=380.78' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 12.39 cfs @ 1.94 fps)

Pond SD-3: SEDIMENT FACILITY #3



Summary for Pond W1: WETLAND LOWPOINT

Inflow Area = 30.826 ac, 3.58% Impervious, Inflow Depth = 2.78" for 10-YR event
Inflow = 53.70 cfs @ 12.22 hrs, Volume= 7.142 af
Outflow = 65.46 cfs @ 12.22 hrs, Volume= 6.478 af, Atten= 0%, Lag= 0.1 min
Primary = 65.46 cfs @ 12.22 hrs, Volume= 6.478 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 381.72' @ 12.22 hrs Surf.Area= 29,635 sf Storage= 29,135 cf

Plug-Flow detention time= 74.5 min calculated for 6.478 af (91% of inflow)
Center-of-Mass det. time= 21.0 min (882.8 - 861.8)

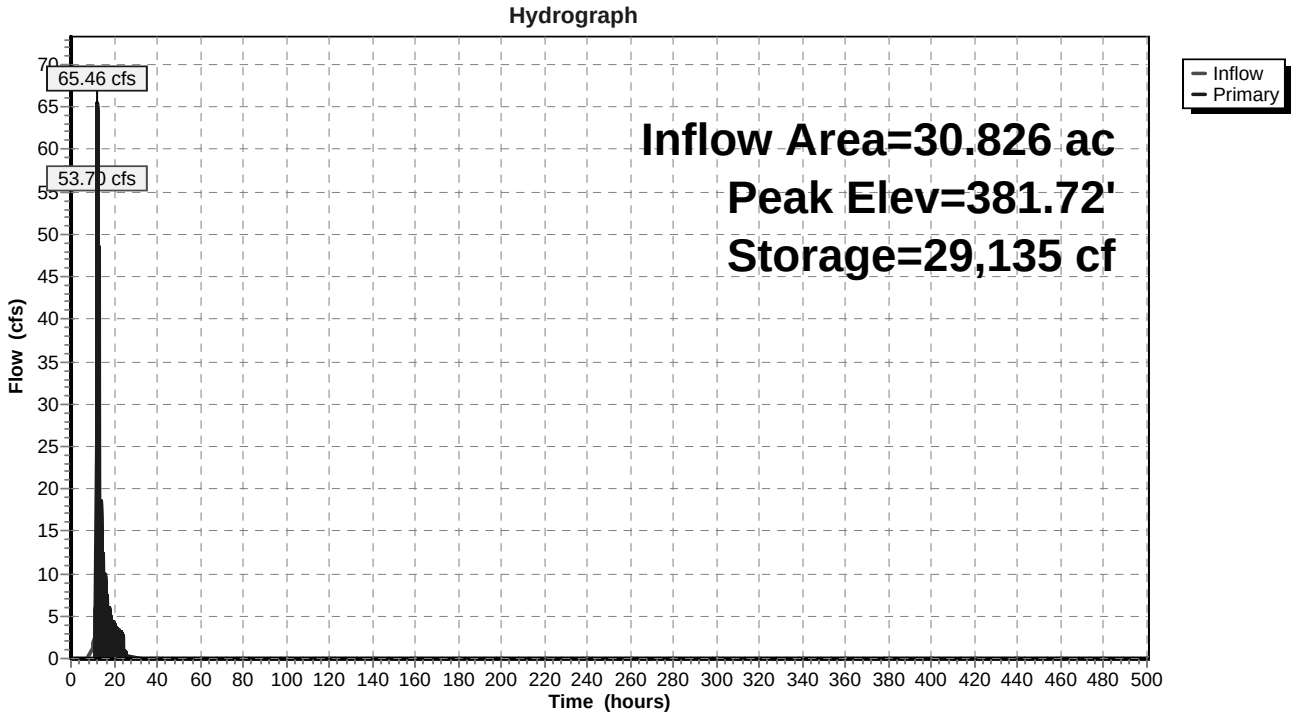
Volume	Invert	Avail.Storage	Storage Description
#1	379.00'	29,135 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
379.00	2,926	0	0
380.00	12,854	7,890	7,890
381.00	29,635	21,245	29,135

Device	Routing	Invert	Outlet Devices
#1	Primary	381.00'	**40.0' long x 20.0' 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) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=65.45 cfs @ 12.22 hrs HW=381.72' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 65.45 cfs @ 2.26 fps)

Pond W1: WETLAND LOWPOINT



Summary for Subcatchment PS-1A:

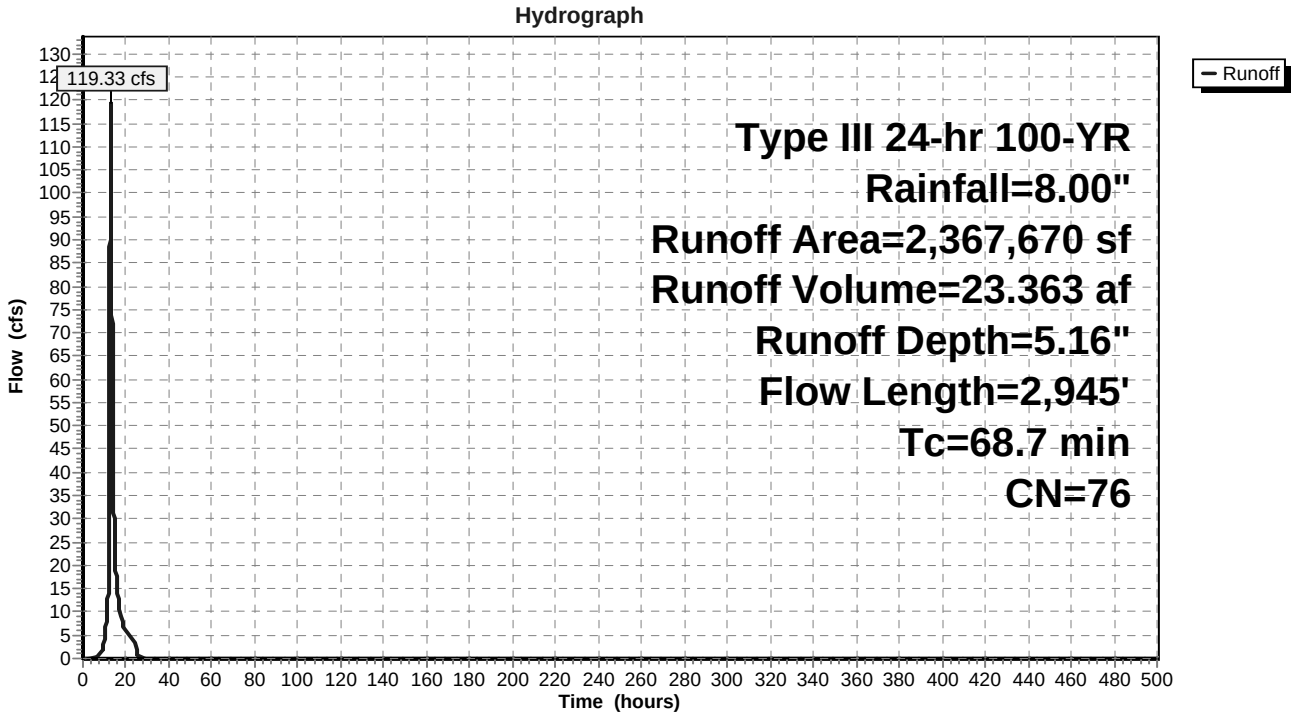
Runoff = 119.33 cfs @ 12.90 hrs, Volume= 23.363 af, Depth= 5.16"

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
*	87,517	98	IMPERVIOUS
	19,578	58	Woods/grass comb., Good, HSG B
	1,350,887	78	Row crops, straight row, Good, HSG B
	89,965	79	Woods/grass comb., Good, HSG D
	177,429	89	Row crops, straight row, Good, HSG D
	350,944	69	50-75% Grass cover, Fair, HSG B
	3,142	77	Brush, Fair, HSG D
	24,913	84	50-75% Grass cover, Fair, HSG D
	263,295	56	Brush, Fair, HSG B
	2,367,670	76	Weighted Average
	2,280,153		96.30% Pervious Area
	87,517		3.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	100	0.0080	0.14		**Sheet Flow, SHEET FLOW** Range n= 0.130 P2= 3.50"
32.2	1,557	0.0080	0.80		**Shallow Concentrated Flow, SHALLOW CONC FLOW** Cultivated Straight Rows Kv= 9.0 fps
19.5	733	0.0080	0.63		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	30	0.0100	2.36	1.85	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.025 Corrugated metal
4.3	400	0.0500	1.57		**Shallow Concentrated Flow, SHALLOW CONC FLOW** Short Grass Pasture Kv= 7.0 fps
0.4	125	0.0141	5.85	128.70	**Channel Flow, CHANNEL FLOW** Area= 22.0 sf Perim= 17.6' r= 1.25' n= 0.035 Earth, dense weeds
68.7	2,945	Total			

Subcatchment PS-1A:



Summary for Subcatchment PS-1B:

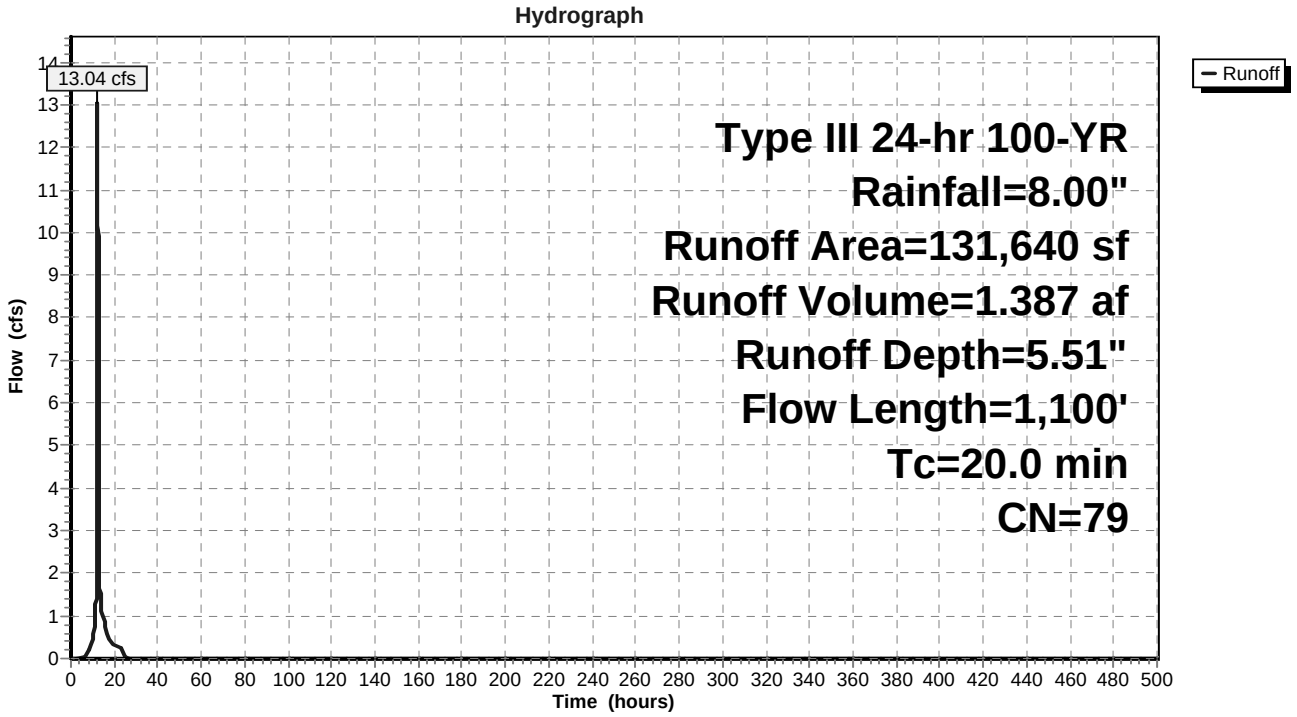
Runoff = 13.04 cfs @ 12.27 hrs, Volume= 1.387 af, Depth= 5.51"

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
1,293	78	Row crops, straight row, Good, HSG B
17,617	72	Woods/grass comb., Good, HSG C
4,269	85	Row crops, straight row, Good, HSG C
73,959	79	Woods/grass comb., Good, HSG D
33,254	84	50-75% Grass cover, Fair, HSG D
1,248	61	>75% Grass cover, Good, HSG B
131,640	79	Weighted Average
131,640		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	40	0.0200	0.17		**Sheet Flow,** Range n= 0.130 P2= 3.50"
10.3	60	0.0400	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
3.3	100	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
2.4	900	0.0100	6.28	282.71	**Channel Flow,** Area= 45.0 sf Perim= 25.0' r= 1.80' n= 0.035 Earth, dense weeds
20.0	1,100	Total			

Subcatchment PS-1B:



Summary for Subcatchment PS-1C:

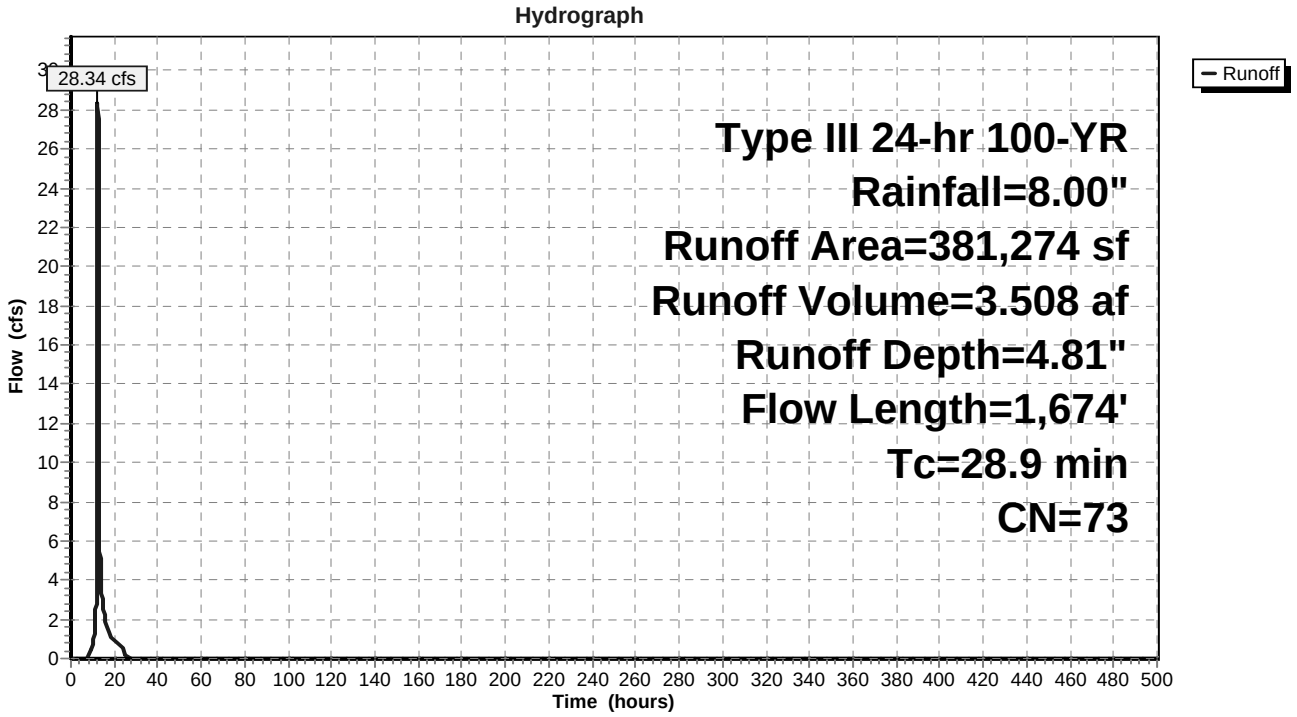
Runoff = 28.34 cfs @ 12.40 hrs, Volume= 3.508 af, Depth= 4.81"

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
*	7,027	98	IMPERVIOUS
	11,137	58	Woods/grass comb., Good, HSG B
	51,478	78	Row crops, straight row, Good, HSG B
	277,554	72	Woods/grass comb., Good, HSG C
	3,791	85	Row crops, straight row, Good, HSG C
	11,050	69	50-75% Grass cover, Fair, HSG B
	3,895	56	Brush, Fair, HSG B
	2,880	70	Brush, Fair, HSG C
	12,462	77	Brush, Fair, HSG D
	381,274	73	Weighted Average
	374,247		98.16% Pervious Area
	7,027		1.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
3.6	152	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.8	1,422	0.0100	4.93	108.39	**Channel Flow,** Area= 22.0 sf Perim= 17.6' r= 1.25' n= 0.035 Earth, dense weeds
28.9	1,674	Total			

Subcatchment PS-1C:



Summary for Subcatchment PS-2:

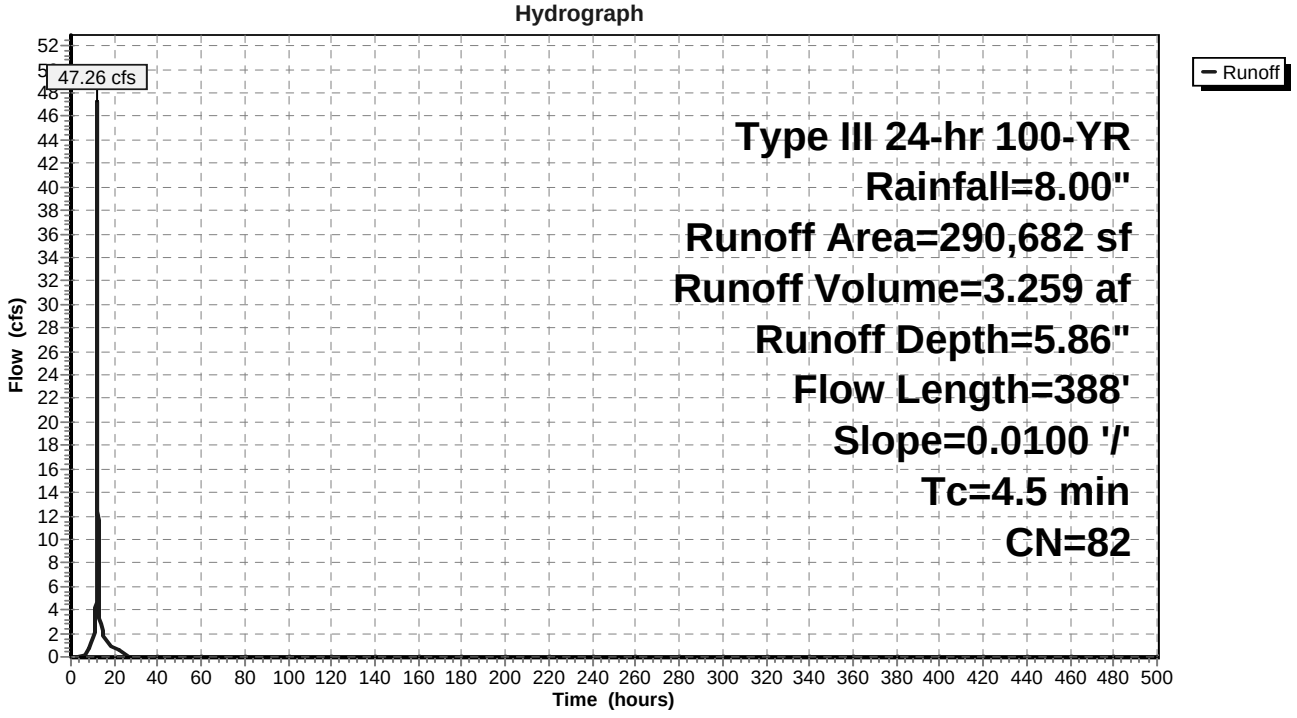
Runoff = 47.26 cfs @ 12.07 hrs, Volume= 3.259 af, Depth= 5.86"

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
245,669	85	Gravel roads, HSG B
34,957	61	>75% Grass cover, Good, HSG B
10,056	74	>75% Grass cover, Good, HSG C
290,682	82	Weighted Average
290,682		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0100	1.09		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
3.0	288	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
4.5	388	Total			

Subcatchment PS-2:



Summary for Subcatchment PS-3:

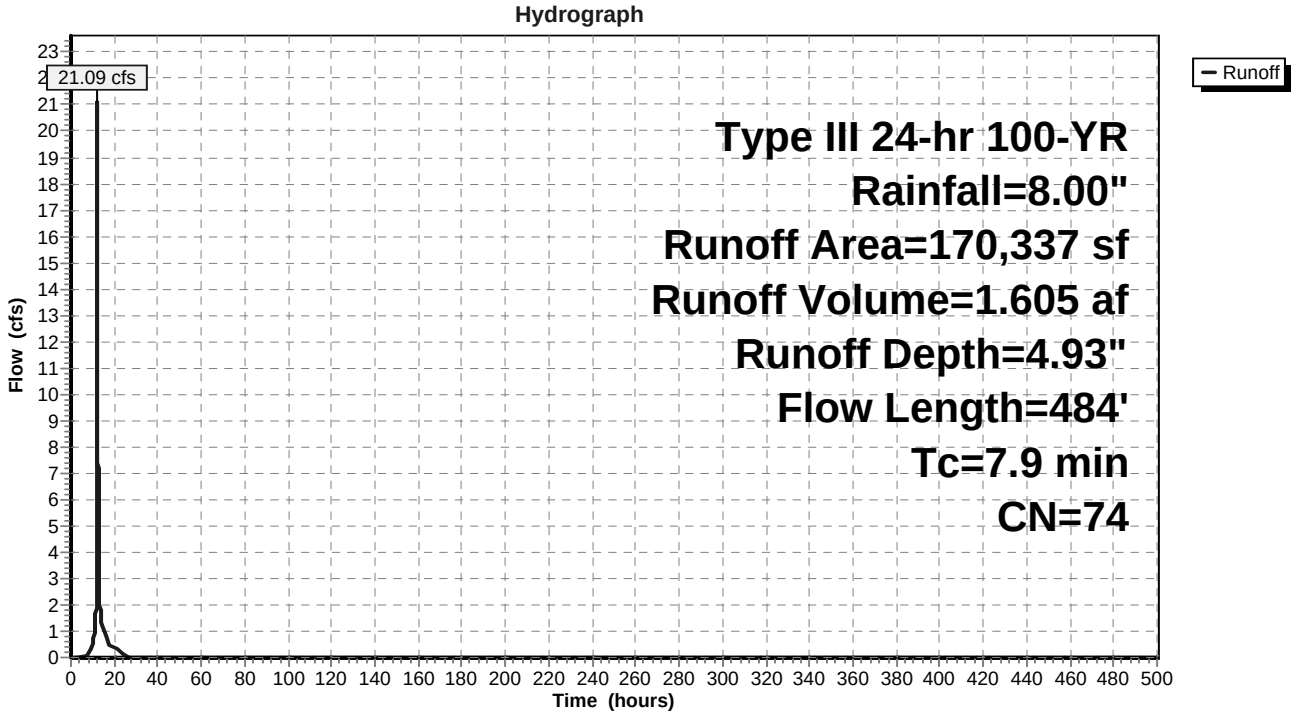
Runoff = 21.09 cfs @ 12.11 hrs, Volume= 1.605 af, Depth= 4.93"

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
94,634	85	Gravel roads, HSG B
75,703	61	>75% Grass cover, Good, HSG B
170,337	74	Weighted Average
170,337		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	100	0.0500	0.26		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
1.3	329	0.0100	4.12	41.16	**Channel Flow,** Area= 10.0 sf Perim= 13.2' r= 0.76' n= 0.030 Earth, grassed & winding
0.1	55	0.0200	7.44	9.14	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
7.9	484	Total			

Subcatchment PS-3:



Summary for Subcatchment PS-4:

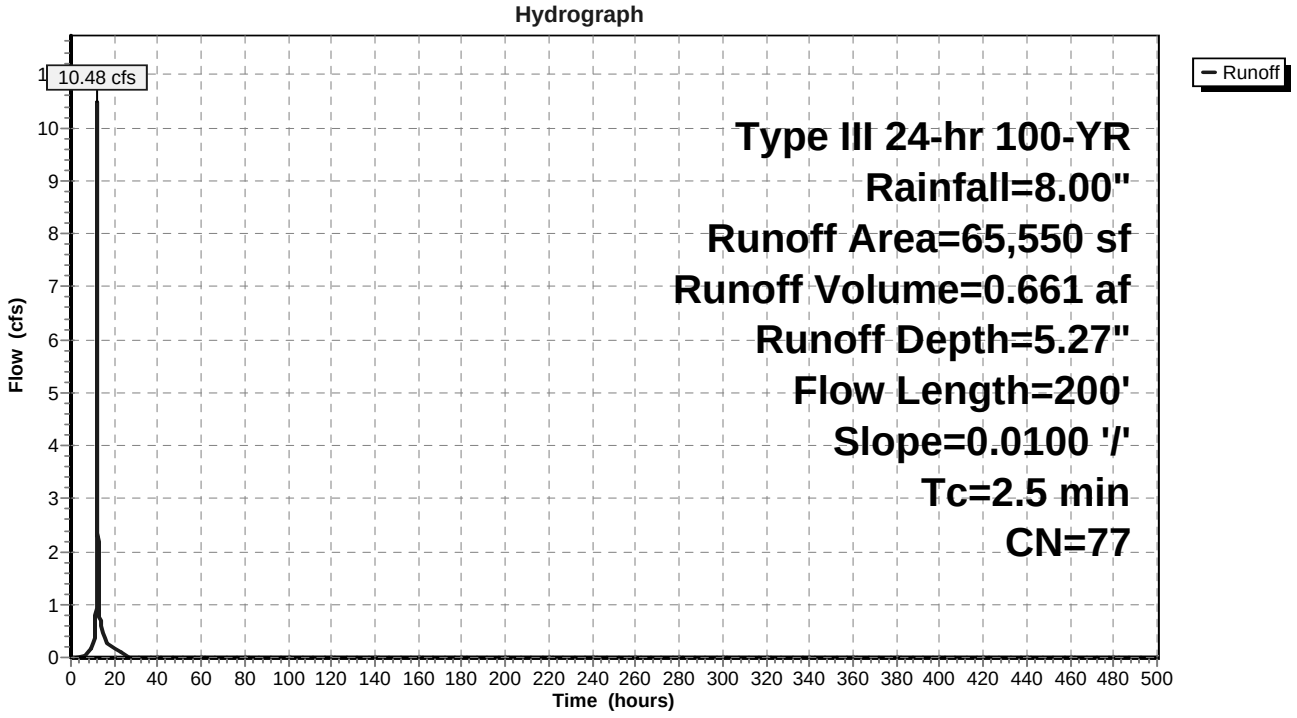
Runoff = 10.48 cfs @ 12.04 hrs, Volume= 0.661 af, Depth= 5.27"

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
43,709	85	Gravel roads, HSG B
21,141	61	>75% Grass cover, Good, HSG B
700	98	Roofs, HSG B
65,550	77	Weighted Average
64,850		98.93% Pervious Area
700		1.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0100	1.09		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
1.0	100	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
2.5	200	Total			

Subcatchment PS-4:



Summary for Subcatchment PS-5A:

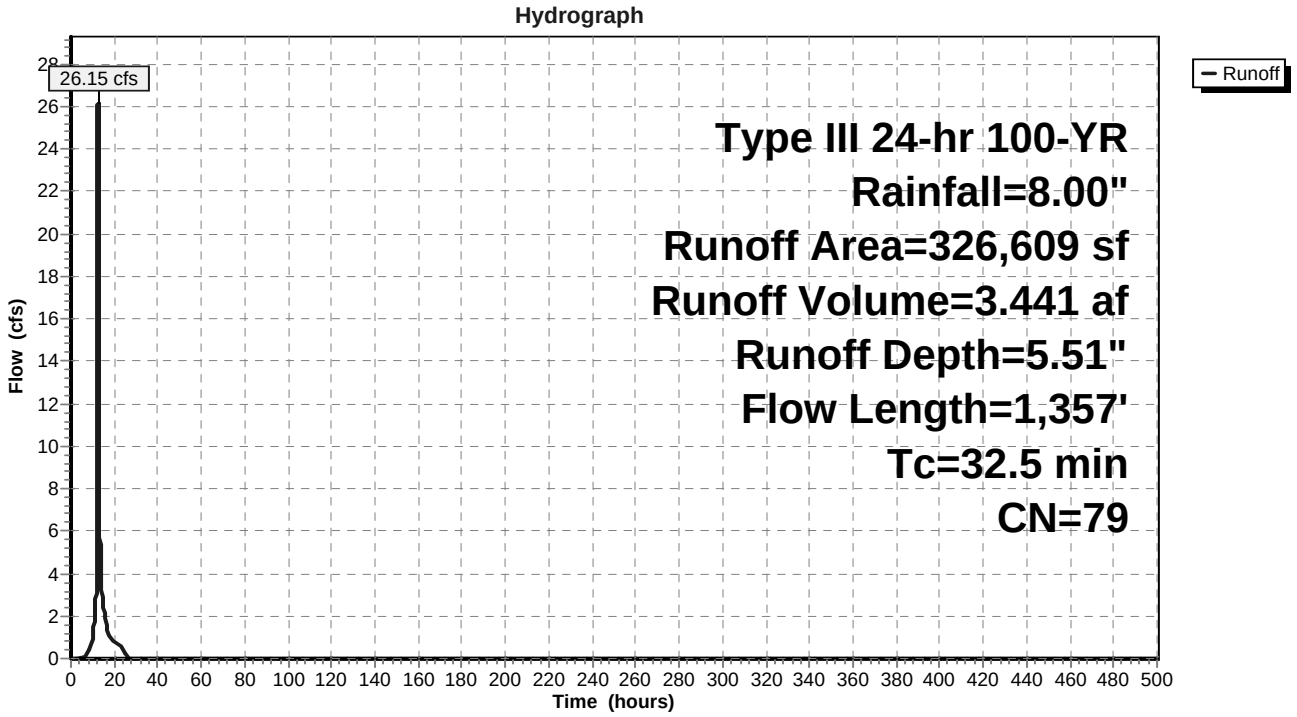
Runoff = 26.15 cfs @ 12.45 hrs, Volume= 3.441 af, Depth= 5.51"

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
*	24,513	98	IMPERVIOUS
	1,877	85	Gravel roads, HSG B
	9,892	58	Woods/grass comb., Good, HSG B
	144,880	78	Row crops, straight row, Good, HSG B
	54,018	79	Woods/grass comb., Good, HSG D
	30,521	89	Row crops, straight row, Good, HSG D
	44,405	69	50-75% Grass cover, Fair, HSG B
	10,952	84	50-75% Grass cover, Fair, HSG D
	5,551	77	Brush, Fair, HSG D
	326,609	79	Weighted Average
	302,096		92.49% Pervious Area
	24,513		7.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	24	0.0200	1.08		**Sheet Flow, SHEET FLOW** Smooth surfaces n= 0.011 P2= 3.50"
13.0	80	0.0400	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.6	67	0.0200	0.71		**Shallow Concentrated Flow, SHALLOW CONC FLOW** Woodland Kv= 5.0 fps
2.9	87	0.0100	0.50		**Shallow Concentrated Flow, SHALLOW CONC FLOW** Woodland Kv= 5.0 fps
11.3	612	0.0100	0.90		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
0.4	70	0.0050	3.21	2.52	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
1.8	322	0.0050	3.00	22.47	**Parabolic Channel,** W=15.00' D=0.75' Area=7.5 sf Perim=15.1' n= 0.022 Earth, clean & straight
1.1	95	0.0010	1.43	1.13	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
32.5	1,357	Total			

Subcatchment PS-5A:



Summary for Subcatchment PS-5B:

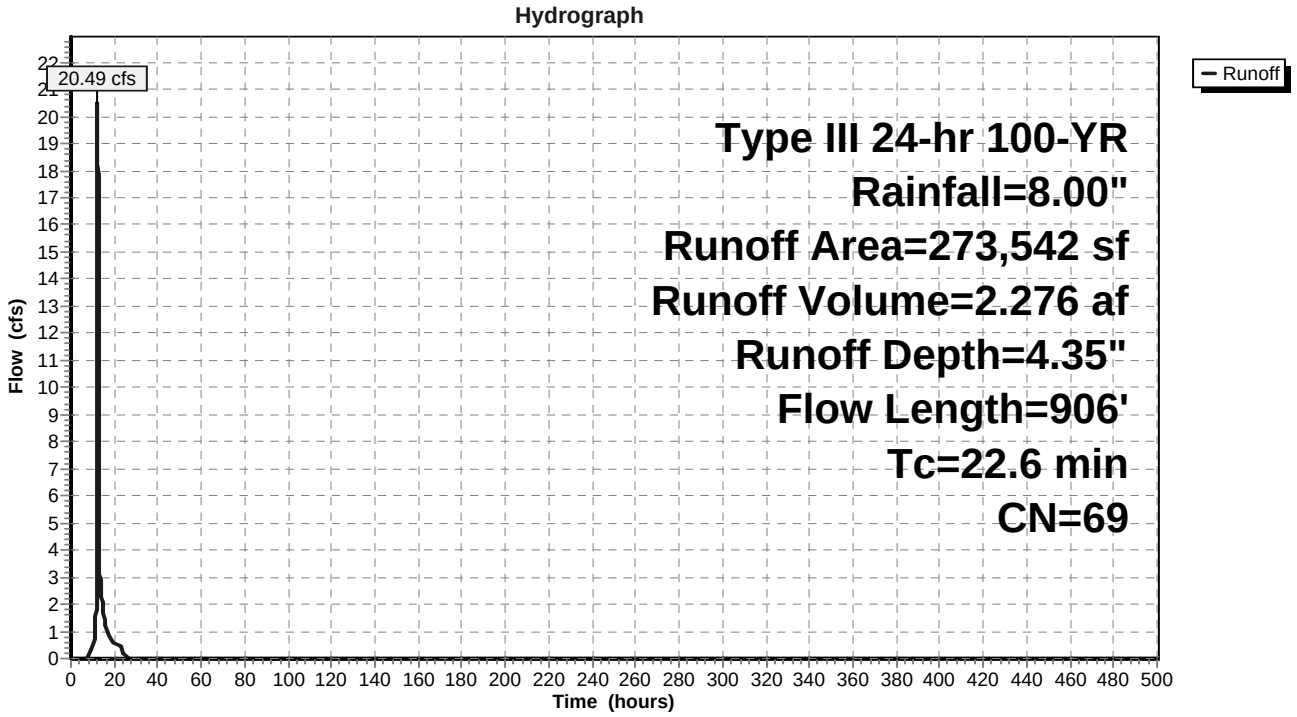
Runoff = 20.49 cfs @ 12.32 hrs, Volume= 2.276 af, Depth= 4.35"

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
*	22,101	98	IMPERVIOUS
	11,322	85	Gravel roads, HSG B
	98,889	58	Woods/grass comb., Good, HSG B
	58,296	78	Row crops, straight row, Good, HSG B
	68,671	69	50-75% Grass cover, Fair, HSG B
	14,263	56	Brush, Fair, HSG B
	273,542	69	Weighted Average
	251,441		91.92% Pervious Area
	22,101		8.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	30	0.0200	1.13		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
9.9	40	0.0200	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
3.2	30	0.0200	0.16		**Sheet Flow,** Range n= 0.130 P2= 3.50"
0.8	60	0.0200	1.27		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
1.0	318	0.0100	5.22	36.55	**Channel Flow,** Area= 7.0 sf Perim= 10.3' r= 0.68' n= 0.022 Earth, clean & straight
4.5	243	0.0100	0.90		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
0.3	64	0.0050	3.72	4.57	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
0.8	71	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.7	50	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
22.6	906	Total			

Subcatchment PS-5B:



Summary for Subcatchment PS-6:

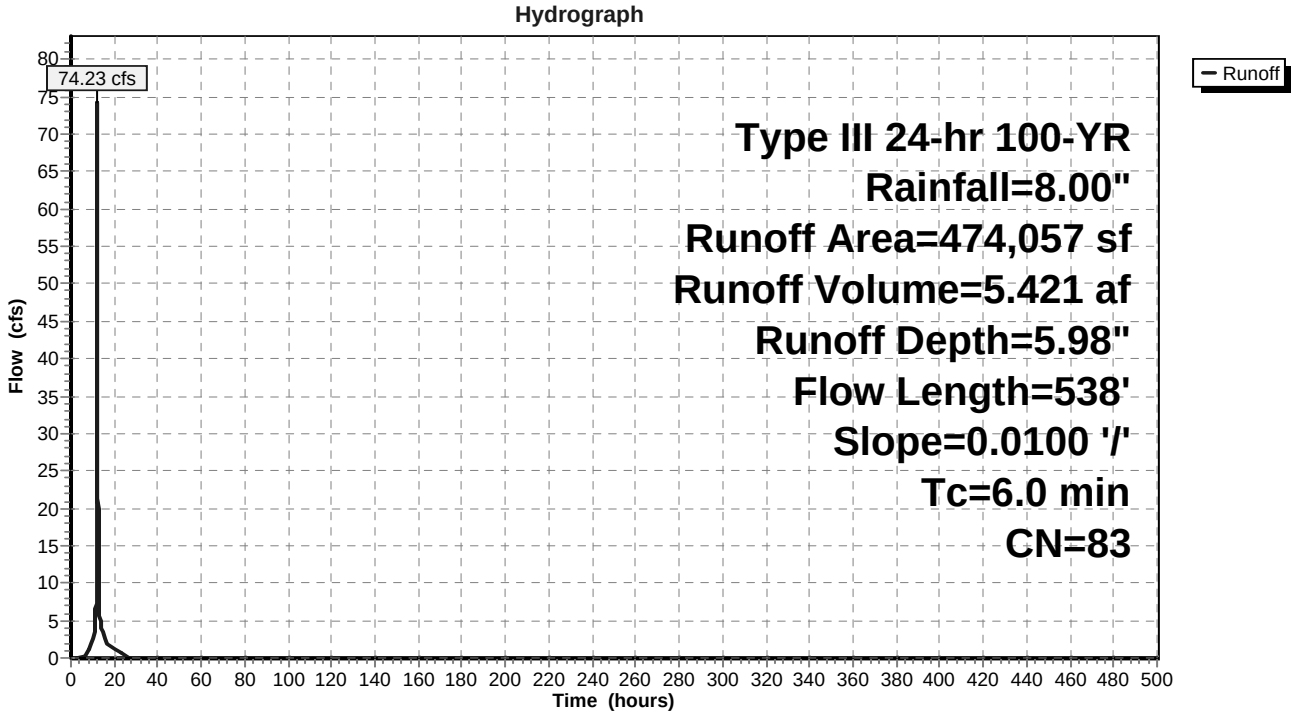
Runoff = 74.23 cfs @ 12.09 hrs, Volume= 5.421 af, Depth= 5.98"

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
416,388	85	Gravel roads, HSG B
12,723	89	Gravel roads, HSG C
44,246	61	>75% Grass cover, Good, HSG B
700	98	Roofs, HSG B
474,057	83	Weighted Average
473,357		99.85% Pervious Area
700		0.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0100	1.09		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
4.5	438	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
6.0	538	Total			

Subcatchment PS-6:



Summary for Subcatchment PS-7:

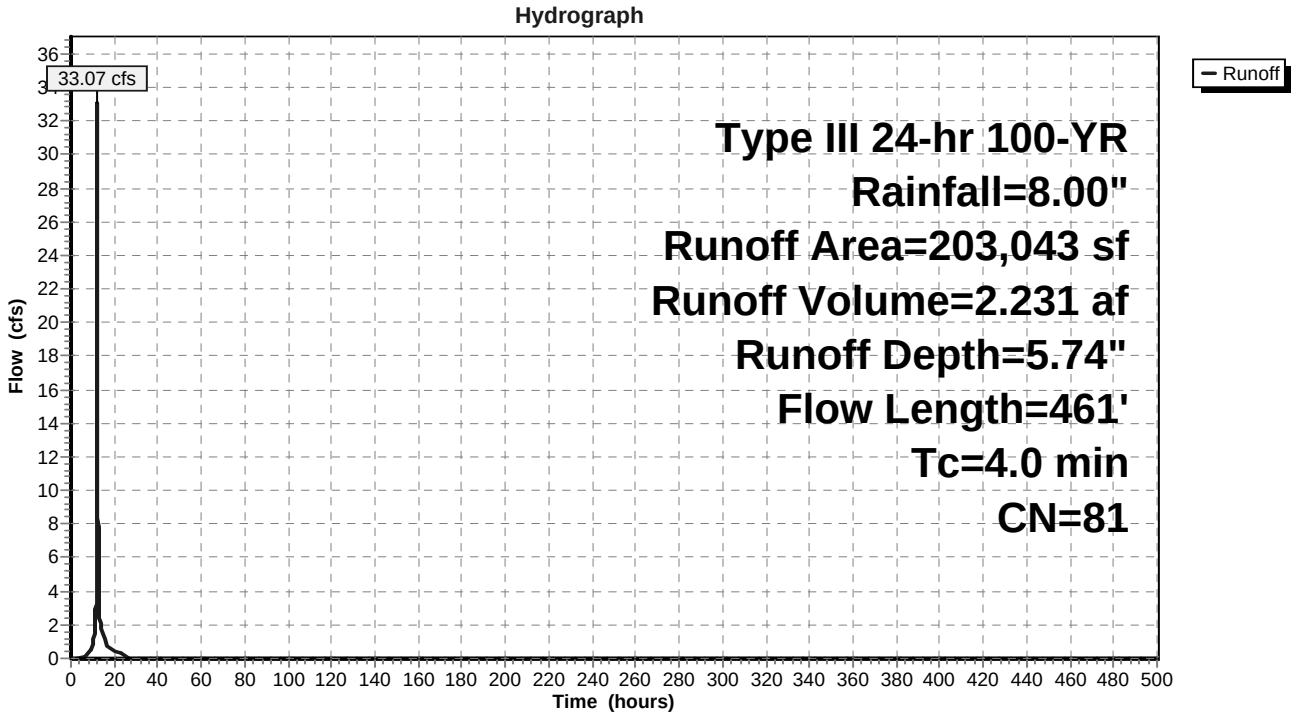
Runoff = 33.07 cfs @ 12.06 hrs, Volume= 2.231 af, Depth= 5.74"

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
169,224	85	Gravel roads, HSG B
33,819	61	>75% Grass cover, Good, HSG B
203,043	81	Weighted Average
203,043		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0170	1.35		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.50"
2.8	361	0.0173	2.12		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
4.0	461	Total			

Subcatchment PS-7:



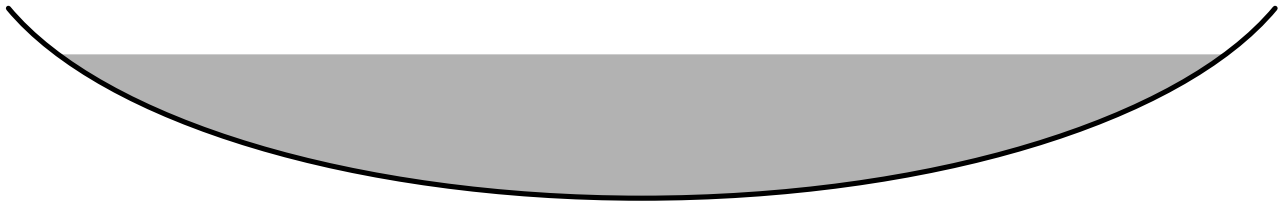
Summary for Reach R1: WETLAND REACH #1

Inflow Area = 30.826 ac, 3.58% Impervious, Inflow Depth = 5.20" for 100-YR event
Inflow = 109.59 cfs @ 12.19 hrs, Volume= 13.363 af
Outflow = 105.67 cfs @ 12.30 hrs, Volume= 13.363 af, Atten= 4%, Lag= 6.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.01 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 0.37 fps, Avg. Travel Time= 26.9 min

Peak Storage= 21,067 cf @ 12.24 hrs, Average Depth at Peak Storage= 1.51'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 193.11 cfs

40.00' x 2.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 600.0' Slope= 0.0050 '/'
Inlet Invert= 381.00', Outlet Invert= 378.00'



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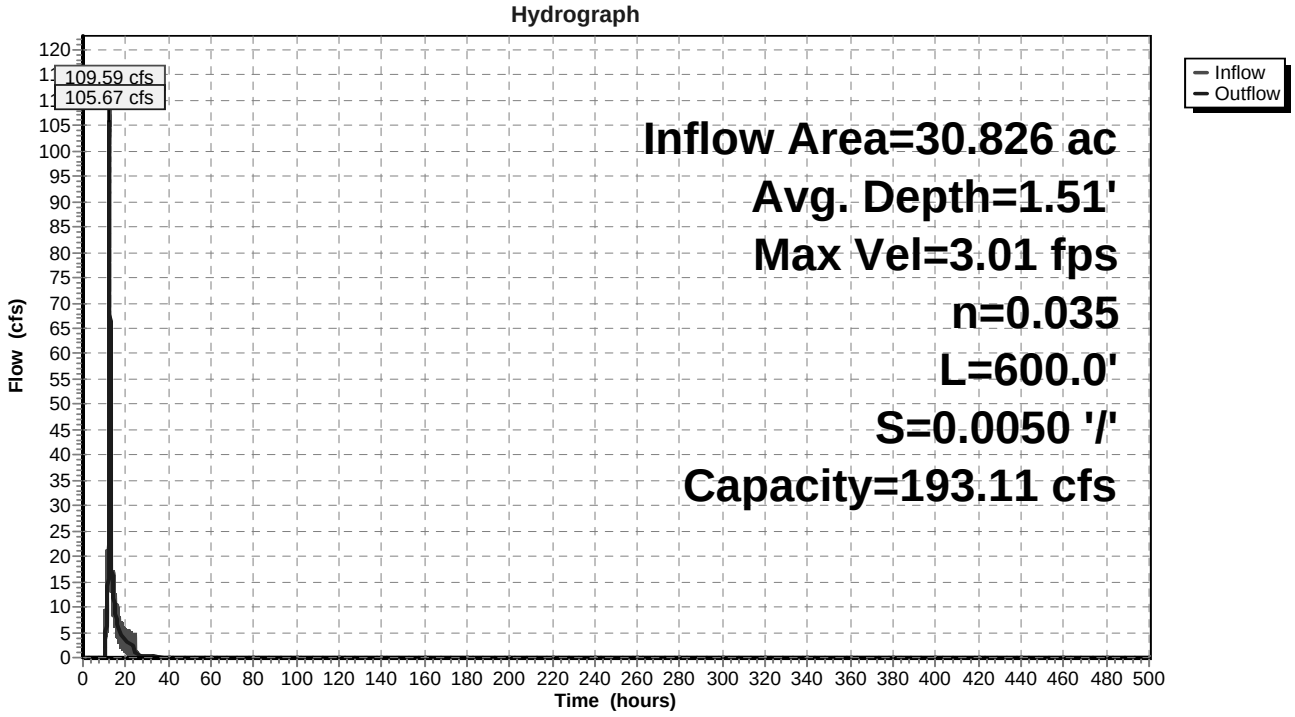
Reach R1: WETLAND REACH #1



Summary for Reach R2: WETLAND REACH #2

Inflow Area = 39.579 ac, 3.19% Impervious, Inflow Depth = 5.12" for 100-YR event
Inflow = 132.37 cfs @ 12.33 hrs, Volume= 16.871 af
Outflow = 131.18 cfs @ 12.42 hrs, Volume= 16.871 af, Atten= 1%, Lag= 5.5 min

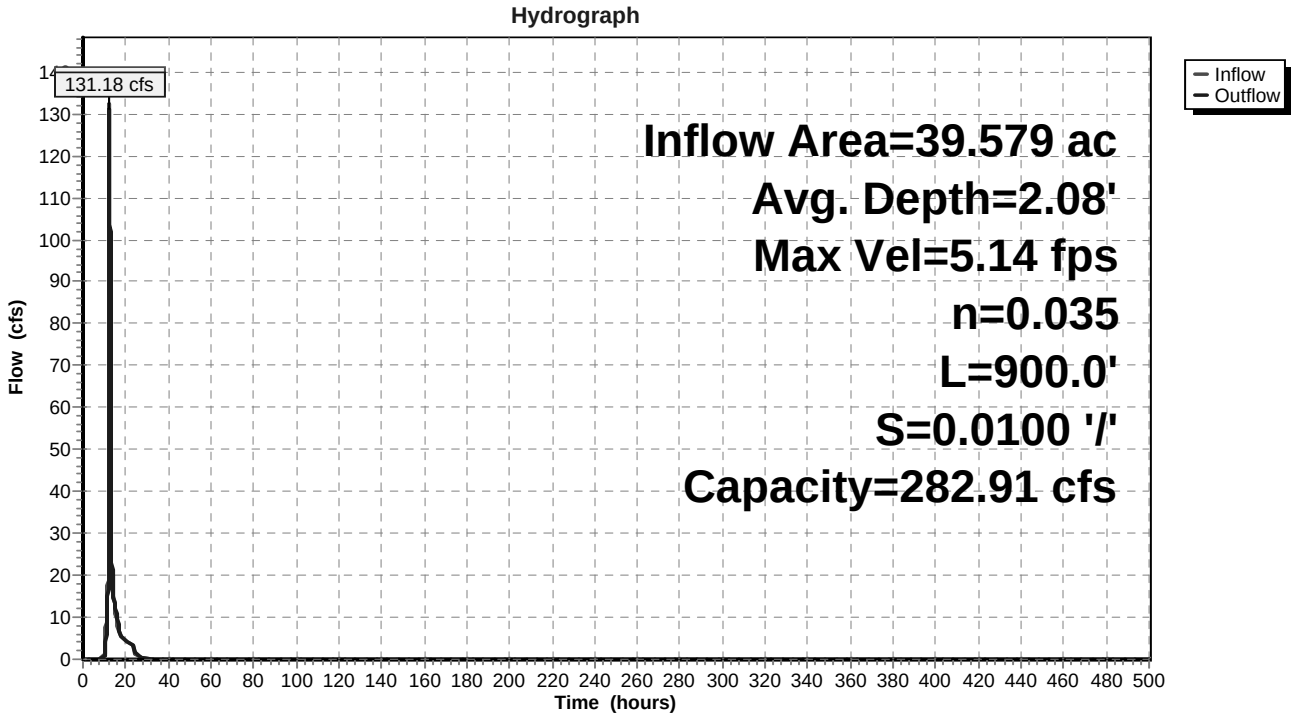
Routing by Stor-Ind+Trans method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.14 fps, Min. Travel Time= 2.9 min
Avg. Velocity = 0.73 fps, Avg. Travel Time= 20.5 min

Peak Storage= 22,980 cf @ 12.37 hrs, Average Depth at Peak Storage= 2.08'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 282.91 cfs

6.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 3.0 '/' Top Width= 24.00'
Length= 900.0' Slope= 0.0100 '/'
Inlet Invert= 378.00', Outlet Invert= 369.00'

‡

Reach R2: WETLAND REACH #2



Summary for Reach R3: WETLAND REACH #3

Inflow Area = 53.185 ac, 2.38% Impervious, Inflow Depth = 5.22" for 100-YR event
Inflow = 150.28 cfs @ 12.41 hrs, Volume= 23.122 af
Outflow = 148.54 cfs @ 12.51 hrs, Volume= 23.122 af, Atten= 1%, Lag= 6.1 min

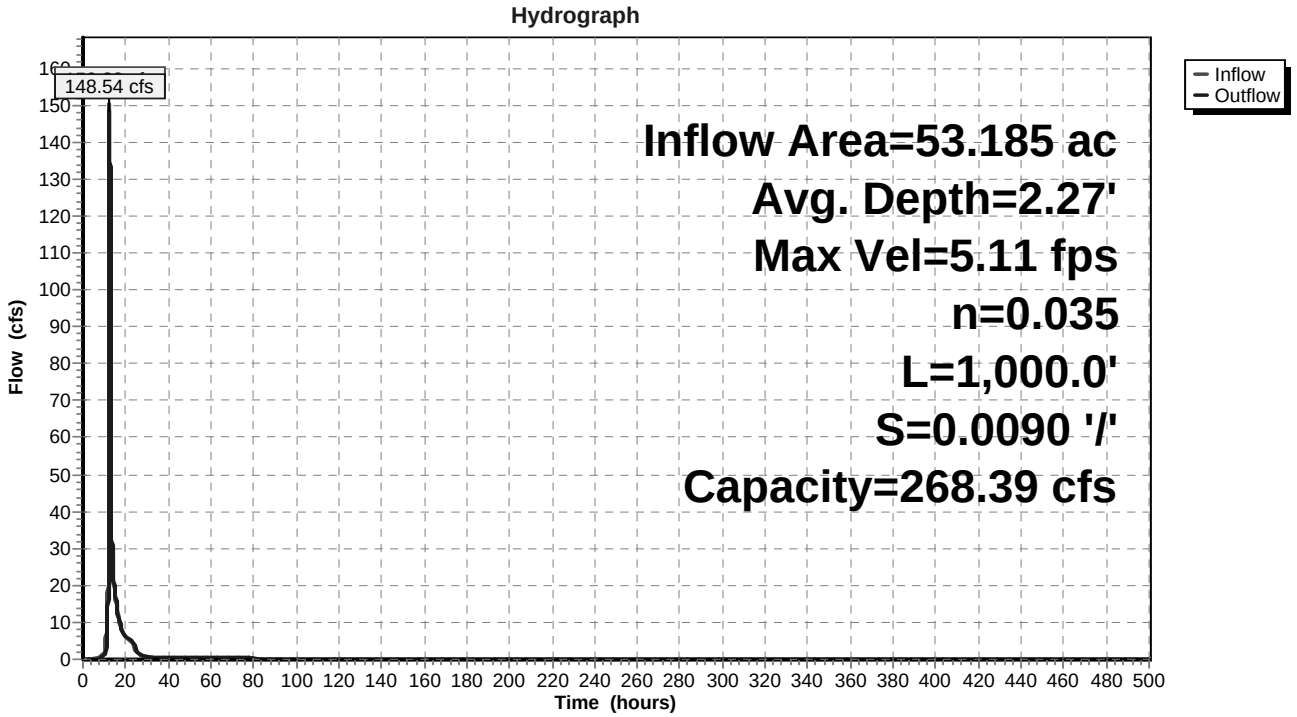
Routing by Stor-Ind+Trans method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.11 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 0.58 fps, Avg. Travel Time= 29.0 min

Peak Storage= 29,078 cf @ 12.46 hrs, Average Depth at Peak Storage= 2.27'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 268.39 cfs

6.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 3.0 '/' Top Width= 24.00'
Length= 1,000.0' Slope= 0.0090 '/'
Inlet Invert= 369.00', Outlet Invert= 360.00'

‡

Reach R3: WETLAND REACH #3

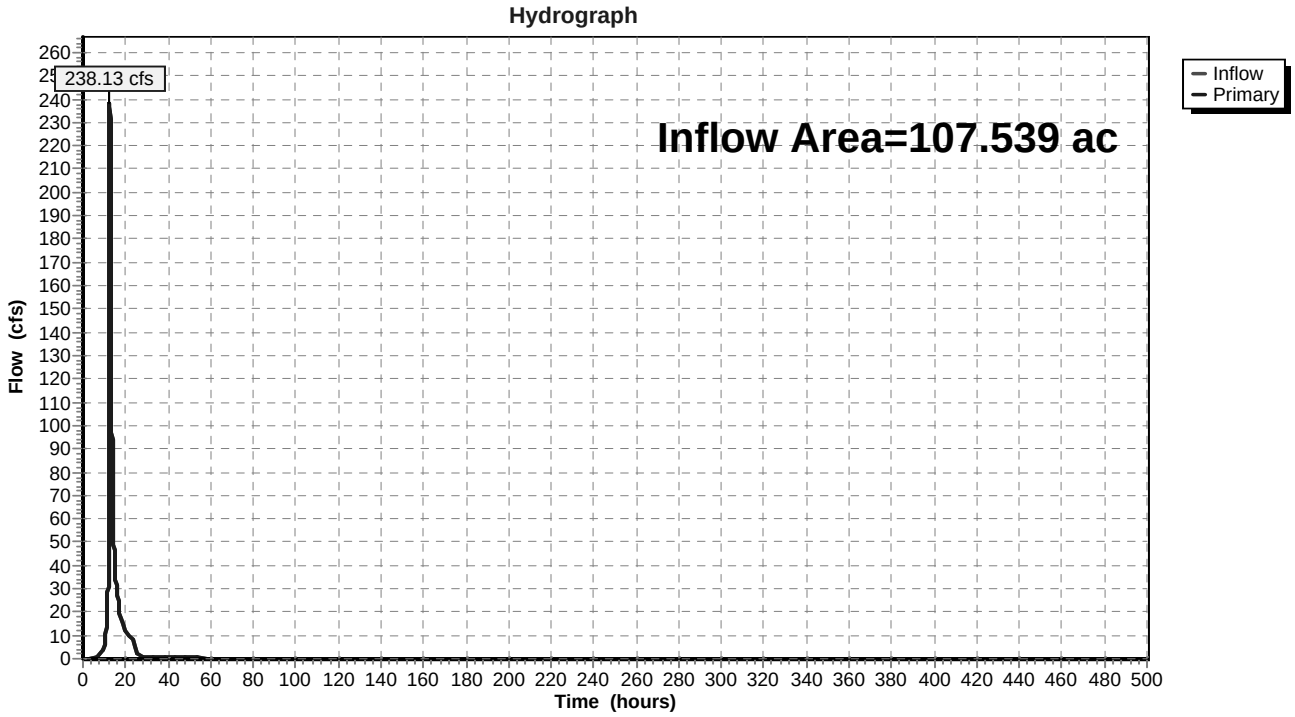


Summary for Pond DP-1: DESIGN POINT #1 (Culvert under Old State Route 22)

Inflow Area = 107.539 ac, 3.04% Impervious, Inflow Depth = 5.19" for 100-YR event
Inflow = 238.13 cfs @ 12.63 hrs, Volume= 46.484 af
Primary = 238.13 cfs @ 12.63 hrs, Volume= 46.484 af, Atten= 0%, Lag= 0.0 min

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

Pond DP-1: DESIGN POINT #1 (Culvert under Old State Route 22)



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

Inflow Area = 3.910 ac, 0.00% Impervious, Inflow Depth = 4.93" for 100-YR event
Inflow = 21.09 cfs @ 12.11 hrs, Volume= 1.605 af
Outflow = 1.22 cfs @ 14.49 hrs, Volume= 1.605 af, Atten= 94%, Lag= 142.8 min
Primary = 1.22 cfs @ 14.49 hrs, Volume= 1.605 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 383.74' @ 14.49 hrs Surf.Area= 18,516 sf Storage= 44,051 cf
Flood Elev= 385.00' Surf.Area= 30,192 sf Storage= 73,624 cf

Plug-Flow detention time= 925.6 min calculated for 1.605 af (100% of inflow)
Center-of-Mass det. time= 925.5 min (1,743.5 - 818.1)

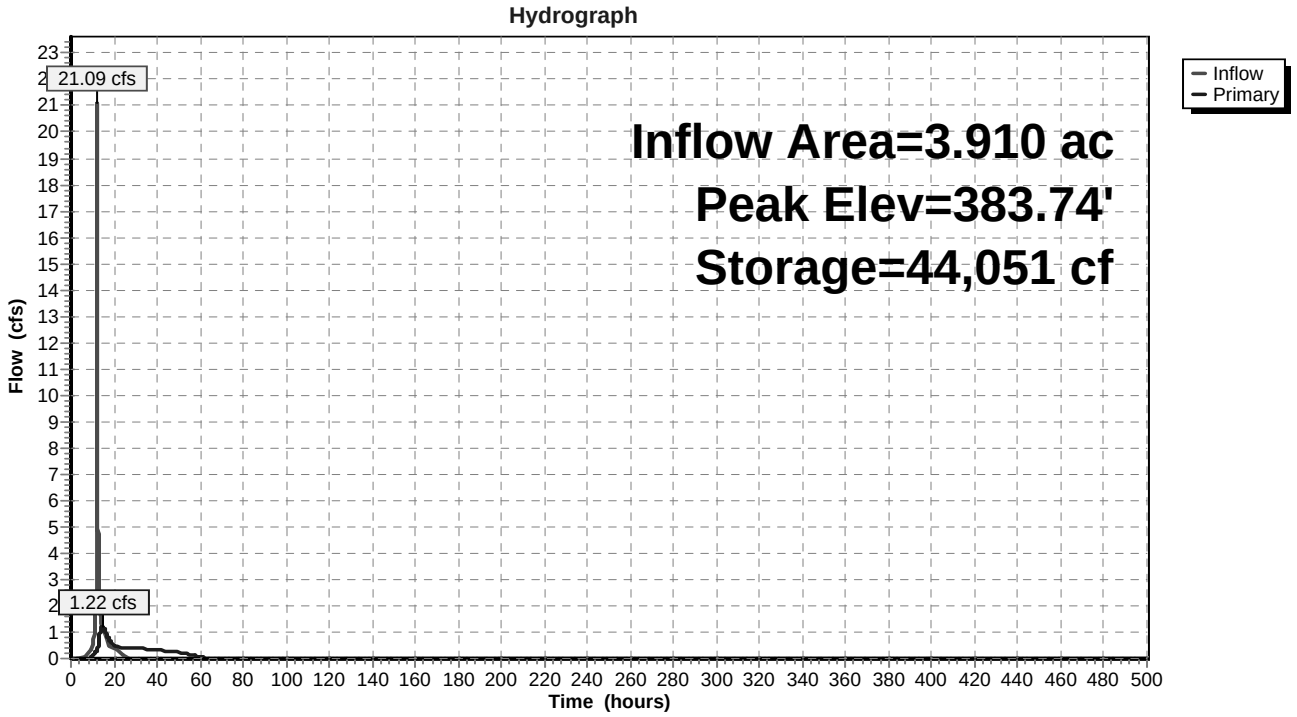
Volume	Invert	Avail.Storage	Storage Description
#1	380.00'	73,624 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
380.00	3,851	0	0
381.00	7,438	5,645	5,645
381.75	11,899	7,251	12,896
382.00	13,599	3,187	16,083
383.00	16,396	14,998	31,081
384.00	19,249	17,823	48,903
385.00	30,192	24,721	73,624

Device	Routing	Invert	Outlet Devices
#1	Primary	380.00'	**12.0" Round Culvert** L= 275.0' CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 378.63' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	380.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	383.50'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.21 cfs @ 14.49 hrs HW=383.74' (Free Discharge)
└**1=Culvert** (Passes 1.21 cfs of 4.02 cfs potential flow)
  └**2=Orifice/Grate** (Orifice Controls 0.45 cfs @ 9.16 fps)
  └**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.76 cfs @ 1.61 fps)

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



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

Inflow Area = 10.584 ac, 0.00% Impervious, Inflow Depth = 5.51" for 100-YR event
Inflow = 47.59 cfs @ 12.07 hrs, Volume= 4.864 af
Outflow = 8.84 cfs @ 12.51 hrs, Volume= 4.864 af, Atten= 81%, Lag= 26.6 min
Primary = 8.84 cfs @ 12.51 hrs, Volume= 4.864 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 382.29' @ 12.51 hrs Surf.Area= 22,617 sf Storage= 75,815 cf
Flood Elev= 383.00' Surf.Area= 24,052 sf Storage= 92,340 cf

Plug-Flow detention time= 877.8 min calculated for 4.864 af (100% of inflow)
Center-of-Mass det. time= 878.1 min (1,987.3 - 1,109.2)

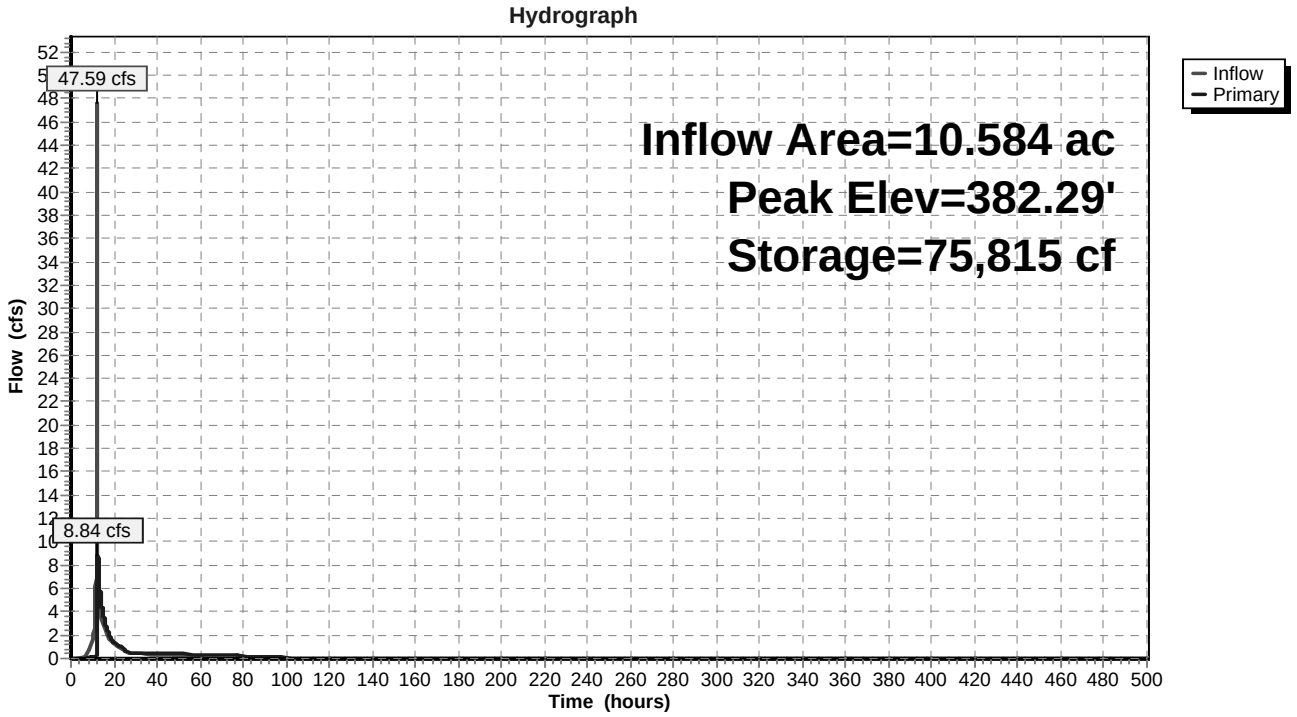
Volume	Invert	Avail.Storage	Storage Description
#1	378.00'	92,340 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
378.00	12,840	0	0
379.00	14,426	13,633	13,633
379.75	15,661	11,283	24,916
380.00	18,166	4,228	29,144
380.75	19,583	14,156	43,300
381.00	20,064	4,956	48,256
382.00	22,026	21,045	69,301
383.00	24,052	23,039	92,340

Device	Routing	Invert	Outlet Devices
#1	Primary	378.00'	**15.0" Round Culvert** L= 65.0' CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 377.35' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	378.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	381.00'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=8.84 cfs @ 12.51 hrs HW=382.29' (Free Discharge)
└**1=Culvert** (Passes 8.84 cfs of 8.93 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.48 cfs @ 9.83 fps)
  └**3=Sharp-Crested Rectangular Weir** (Weir Controls 8.36 cfs @ 3.72 fps)

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



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

Inflow Area = 1.505 ac, 1.07% Impervious, Inflow Depth = 5.27" for 100-YR event
Inflow = 10.48 cfs @ 12.04 hrs, Volume= 0.661 af
Outflow = 0.41 cfs @ 15.02 hrs, Volume= 0.661 af, Atten= 96%, Lag= 179.0 min
Primary = 0.41 cfs @ 15.02 hrs, Volume= 0.661 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 384.01' @ 15.02 hrs Surf.Area= 7,934 sf Storage= 17,547 cf
Flood Elev= 385.50' Surf.Area= 12,170 sf Storage= 33,008 cf

Plug-Flow detention time= 541.3 min calculated for 0.661 af (100% of inflow)
Center-of-Mass det. time= 541.2 min (1,347.7 - 806.5)

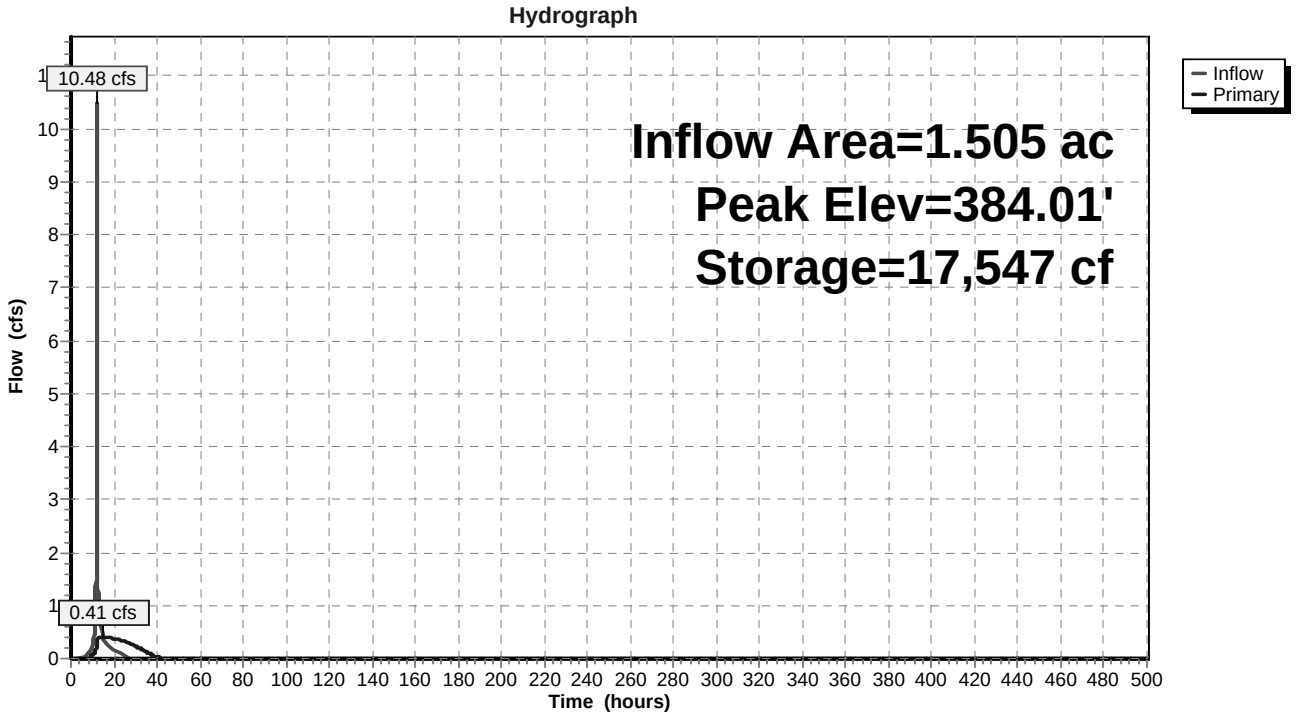
Volume	Invert	Avail.Storage	Storage Description
#1	381.00'	33,008 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
381.00	3,950	0	0
382.00	5,011	4,481	4,481
382.25	5,287	1,287	5,768
383.00	6,594	4,455	10,223
383.25	6,915	1,689	11,912
384.00	7,899	5,555	17,467
385.00	11,399	9,649	27,116
385.50	12,170	5,892	33,008

Device	Routing	Invert	Outlet Devices
#1	Primary	381.00'	**12.0" Round Culvert** L= 339.0' CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 379.31' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	381.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	384.00'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.41 cfs @ 15.02 hrs HW=384.01' (Free Discharge)
└**1=Culvert** (Passes 0.41 cfs of 3.48 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.40 cfs @ 8.18 fps)
  └**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.33 fps)

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



Summary for Pond SD-2B: SEDIMENT FACILITY #2B

Inflow Area = 12.388 ac, 0.26% Impervious, Inflow Depth = 5.89" for 100-YR event
Inflow = 74.55 cfs @ 12.09 hrs, Volume= 6.082 af
Outflow = 54.26 cfs @ 12.16 hrs, Volume= 6.082 af, Atten= 27%, Lag= 4.4 min
Primary = 54.26 cfs @ 12.16 hrs, Volume= 6.082 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Starting Elev= 380.25' Surf.Area= 23,382 sf Storage= 69,215 cf
Peak Elev= 381.53' @ 12.16 hrs Surf.Area= 26,909 sf Storage= 101,339 cf (32,125 cf above start)
Flood Elev= 383.25' Surf.Area= 42,248 sf Storage= 149,590 cf (80,375 cf above start)

Plug-Flow detention time= 227.9 min calculated for 4.493 af (74% of inflow)
Center-of-Mass det. time= 21.4 min (877.0 - 855.7)

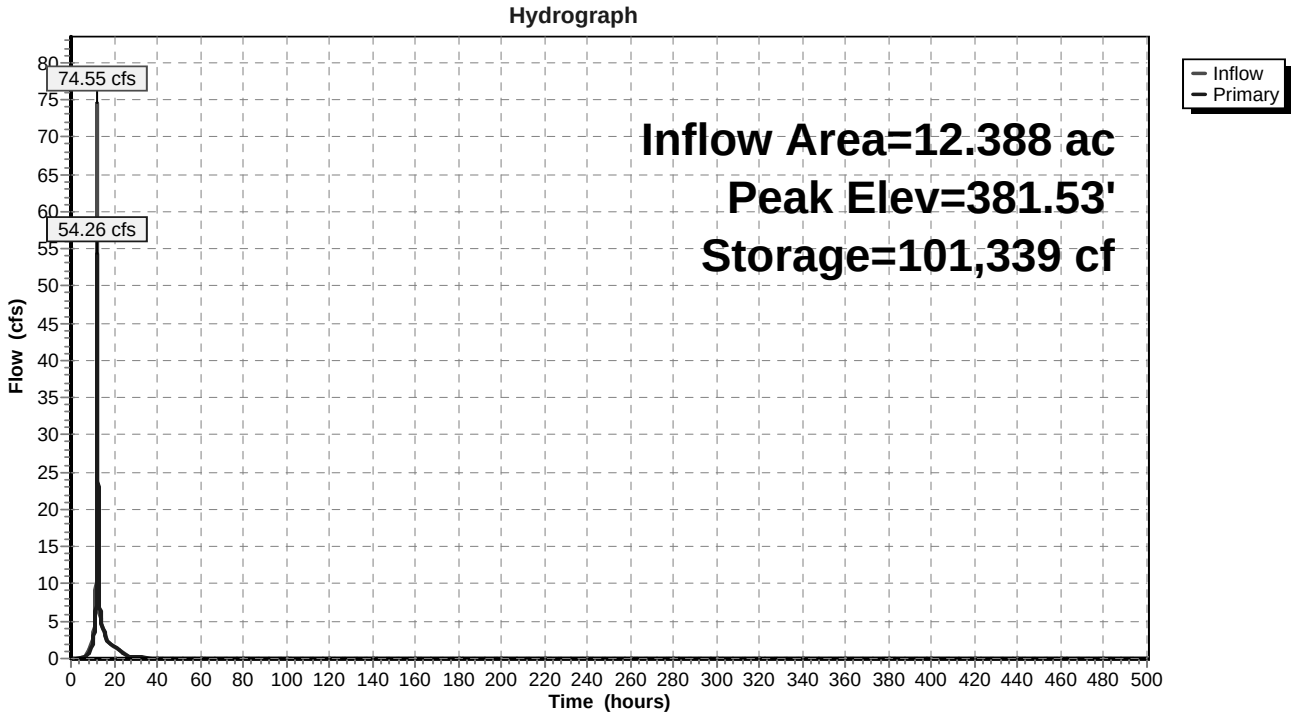
Volume	Invert	Avail.Storage	Storage Description
#1	376.00'	149,590 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
376.00	5,557	0	0
377.00	13,547	9,552	9,552
378.00	15,765	14,656	24,208
379.00	20,018	17,892	42,100
379.25	20,682	5,088	47,187
380.00	22,698	16,268	63,455
381.00	25,434	24,066	87,521
382.00	28,228	26,831	114,352
383.00	42,248	35,238	149,590

Device	Routing	Invert	Outlet Devices
#1	Primary	380.25'	**14.0' 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=54.25 cfs @ 12.16 hrs HW=381.53' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 54.25 cfs @ 3.03 fps)

Pond SD-2B: SEDIMENT FACILITY #2B



Summary for Pond SD-3: SEDIMENT FACILITY #3

Inflow Area = 4.661 ac, 0.00% Impervious, Inflow Depth = 5.74" for 100-YR event
Inflow = 33.07 cfs @ 12.06 hrs, Volume= 2.231 af
Outflow = 24.93 cfs @ 12.12 hrs, Volume= 2.231 af, Atten= 25%, Lag= 3.6 min
Primary = 24.93 cfs @ 12.12 hrs, Volume= 2.231 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Starting Elev= 380.25' Surf.Area= 12,805 sf Storage= 23,239 cf
Peak Elev= 381.09' @ 12.12 hrs Surf.Area= 14,718 sf Storage= 34,827 cf (11,588 cf above start)
Flood Elev= 383.50' Surf.Area= 22,860 sf Storage= 79,832 cf (56,593 cf above start)

Plug-Flow detention time= 147.7 min calculated for 1.697 af (76% of inflow)
Center-of-Mass det. time= 16.0 min (814.7 - 798.7)

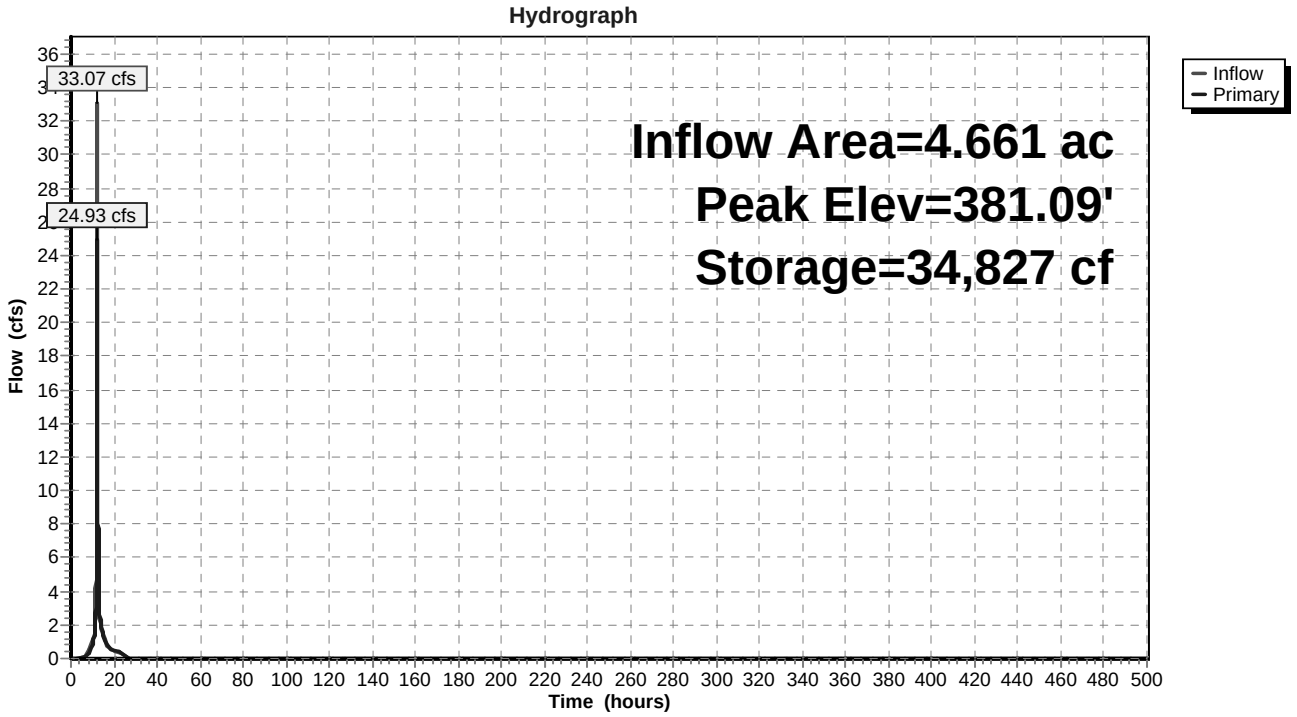
Volume	Invert	Avail.Storage	Storage Description
#1	378.00'	79,832 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
378.00	7,891	0	0
379.00	10,040	8,966	8,966
380.00	12,245	11,143	20,108
380.25	12,805	3,131	23,239
381.00	14,506	10,242	33,481
381.25	15,080	3,698	37,179
382.00	17,545	12,234	49,414
383.00	21,241	19,393	68,807
383.50	22,860	11,025	79,832

Device	Routing	Invert	Outlet Devices
#1	Primary	380.25'	**12.0' 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=24.92 cfs @ 12.12 hrs HW=381.09' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 24.92 cfs @ 2.47 fps)

Pond SD-3: SEDIMENT FACILITY #3



Summary for Pond W1: WETLAND LOWPOINT

Inflow Area = 30.826 ac, 3.58% Impervious, Inflow Depth = 5.46" for 100-YR event
Inflow = 107.61 cfs @ 12.18 hrs, Volume= 14.031 af
Outflow = 109.59 cfs @ 12.19 hrs, Volume= 13.363 af, Atten= 0%, Lag= 0.4 min
Primary = 109.59 cfs @ 12.19 hrs, Volume= 13.363 af

Routing by Stor-Ind method, Time Span= 0.00-500.00 hrs, dt= 0.01 hrs
Peak Elev= 382.03' @ 12.19 hrs Surf.Area= 29,635 sf Storage= 29,135 cf

Plug-Flow detention time= 52.0 min calculated for 13.362 af (95% of inflow)
Center-of-Mass det. time= 14.8 min (864.7 - 849.9)

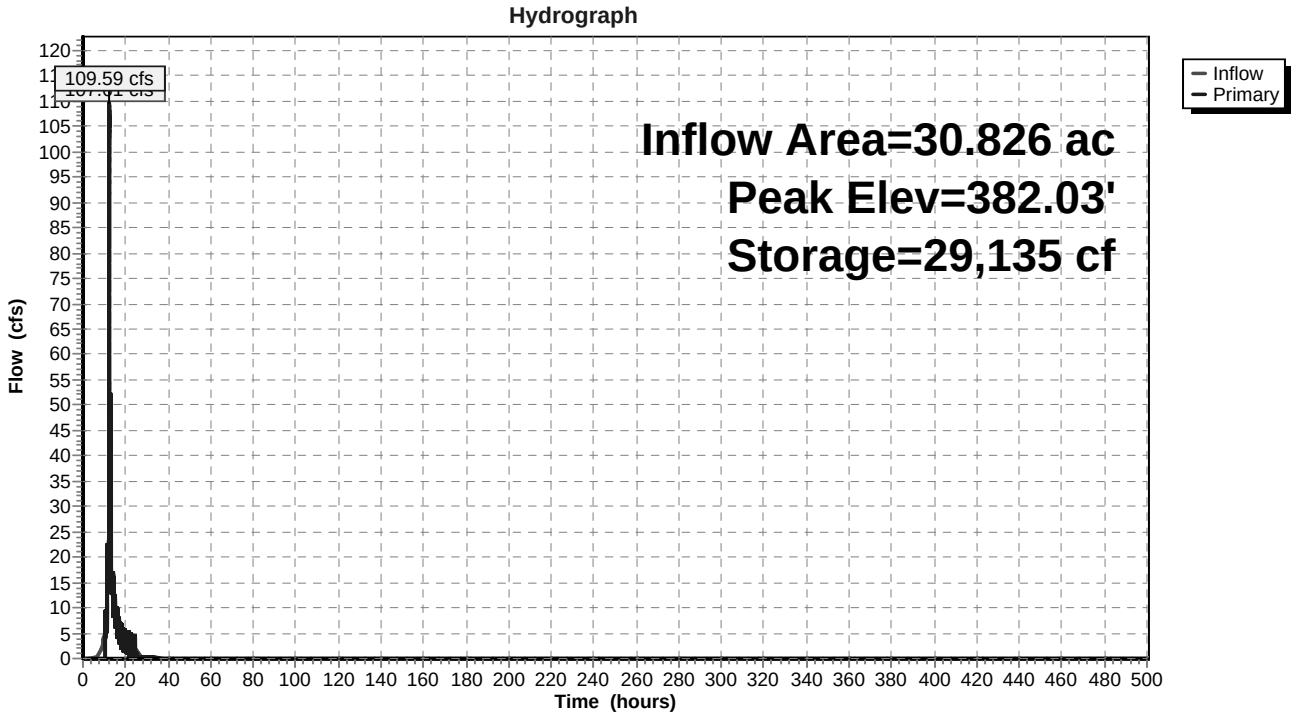
Volume	Invert	Avail.Storage	Storage Description
#1	379.00'	29,135 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
379.00	2,926	0	0
380.00	12,854	7,890	7,890
381.00	29,635	21,245	29,135

Device	Routing	Invert	Outlet Devices
#1	Primary	381.00'	**40.0' long x 20.0' 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) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=109.54 cfs @ 12.19 hrs HW=382.03' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 109.54 cfs @ 2.67 fps)

Pond W1: WETLAND LOWPOINT



Appendix E:
Preliminary Design Calculations

Sediment Trap Design

Job:	Cricket Valley Energy - Remote Laydown Site (Muncey Property)		
Job No.:	81001.01		
Description:	Erosion Control - Sediment Basin/Trap Calculations		
Prep. By:	MMF	Date:	2/24/2012
Check By:	CPL	Date:	2/24/2012

• 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.

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
15.99		

SEDIMENT TRAPS					
RIP RAP OUTLET SEDIMENT TRAP	**TYPE OF FACILITY**	**AREA (sf)**	**AREA (AC)**	**VOLUME REQUIRED (cf)**	**CLEANOUT VOLUME (cf)**
1A	Sediment & Detention*	147,246	3.38	12,168	6,084
1B	Sediment & Detention*	291,290	6.69	24,084	12,042
2A	Sediment & Detention*	61,850	1.42	5,112	2,556
2B	Rip-Rap	475,054	10.91	39,276	19,638
3	Rip-Rap	205,231	4.71	16,956	8,478

* - THE VOLUME OF THE SEDIMENT TRAP FROM THE CREST OF THE RIP RAP SPILLWAY TO THE BOTTOM OF THE TRAP HAS BEEN SIZED AND DESIGNED (3,600 CUBIC FEET PER ACRE OF DRAINAGE AREA) IN ACCORDANCE WITH THE NEW YORK STATE STANDARDS AND SPECIFICATIONS OF EROSION AND SEDIMENT CONTROL.

Proposed Sediment & Detention Facility # 1A (Rip-rap/pipe oulet sediment trap with detention)

- As per the table on page 5A.35 of the New York Guidelines for Urban Erosion and Sediment Control, a contributing drainage area of 3.38 acres requires the following:

- Length of Weir (ft) = 10
- Depth of Channel (ft) = 1.5
- Weir Crest Elev. = 382.75
- Top of Channel Elevation = Weir Crest Elevation + Depth of Channel = 384.25
- Freeboard (ft) = 0.5 x Depth of Channel = 0.75
- Top of Berm (ft) = Freeboard + Top of Channel Elevation = 385

Areas

Contour	Area (sf)	Cumulative Volume (cf)
380	3,851	0
381	7,438	5,645
381.75	11,899	12,896
382	13,599	16,083
383	16,396	31,081
384	19,249	48,903
385	30,192	73,624

Elevation at Storage Limit (one foot below weir elevation) = 381.75
Storage Limit (cf) = 12,896 > 12,168
Cleanout Volume (cf) = 6,084
Cleanout Elevation = 381.06

Proposed Sediment & Detention Facility # 1B (Rip-rap/pipe sediment oulet trap with detention)

- As per the table on page 5A.35 of the New York Guidelines for Urban Erosion and Sediment Control, a contributing drainage area of 6.69 acres requires the following:

- Length of Weir (ft) = 16
- Depth of Channel (ft) = 1.5
- Weir Crest Elev. = 380.75
- Top of Channel Elevation = Weir Crest Elevation + Depth of Channel = 382.25
- Freeboard (ft) = 0.5 x Depth of Channel = 0.75
- Top of Berm (ft) = Freeboard + Top of Channel Elevation = 383

Areas

Contour	Area (sf)	Cumulative Volume (cf)
378	12,840	0
379	14,426	13,633
379.75	15,661	24,916
380	18,166	29,144
380.75	19,583	43,300
381	20,064	48,256
382	22,026	69,301
383	24,052	92,340

Elevation at Storage Limit (one foot below weir elevation) = 379.75
Storage Limit (cf) = 24,916 > 24,084
Cleanout Volume (cf) = 12,042
Cleanout Elevation = 378.94

Proposed Sediment & Detention Facility # 2A (Rip-rap/pipe oulet sediment trap with detention)

- As per the table on page 5A.35 of the New York Guidelines for Urban Erosion and Sediment Control, a contributing drainage area of 1.42 acres requires the following:

- Length of Weir (ft) = 5.00
- Depth of Channel (ft) = 1.5
- Weir Crest Elev. = 383.25
- Top of Channel Elevation = Weir Crest Elevation + Depth of Channel = 384.75
- Freeboard (ft) = 0.5 x Depth of Channel = 0.75
- Top of Berm (ft) = Freeboard + Top of Channel Elevation = 385.5

Areas

Contour	Area (sf)	Cumulative Volume (cf)
381	3,950	0
382	5,011	4,481
382.25	5,287	5,768
383	6,594	10,223
383.25	6,915	11,912
384	7,899	17,467
385	11,339	27,086
385.5	12,170	32,963

Elevation at Storage Limit (one foot below weir elevation) = 382.25
Storage Limit (cf) = 5,768 > 5,112
Cleanout Volume (cf) = 2,556
Cleanout Elevation = 381.78

Proposed Rip-Rap Outlet Sediment Trap # 2B

- As per the table on page 5A.35 of the New York Guidelines for Urban Erosion and Sediment Control, a contributing drainage area of 10.91 acres requires the following:

- Length of Weir (ft) = 14.00
- Depth of Channel (ft) = 2
- Weir Crest Elev. = 380.25
- Top of Channel Elevation = Weir Crest Elevation + Depth of Channel = 382.25
- Freeboard (ft) = 0.5 x Depth of Channel = 1
- Top of Berm (ft) = Freeboard + Top of Channel Elevation = 383.25

Areas

Contour	Area (sf)	Cumulative Volume (cf)
376	5,557	0
377	13,546	9,552
378	15,765	24,207
379	20,018	43,116
379.25	20,682	48,203
380	22,698	64,474
381	25,434	88,540
382	28,228	115,371
383	42,248	150,609

Elevation at Storage Limit (one foot below weir elevation) = 379.25
Storage Limit (cf) = 48,203 > 39,276
Cleanout Volume (cf) = 19,638
Cleanout Elevation = 377.63

Proposed Rip-Rap Outlet Sediment Trap # 3

- As per the table on page 5A.35 of the New York Guidelines for Urban Erosion and Sediment Control, a contributing drainage area of 4.71 acres requires the following:

- Length of Weir (ft) = 12
- Depth of Channel (ft) = 1.5
- Weir Crest Elev. = 381.25
- Top of Channel Elevation = Weir Crest Elevation + Depth of Channel = 382.75
- Freeboard (ft) = 0.5 x Depth of Channel = 0.75
- Top of Berm (ft) = Freeboard + Top of Channel Elevation = 383.5

Areas

Contour	Area (sf)	Cumulative Volume (cf)
378	7,891	0
379	10,040	8,966
380	12,245	20,108
380.25	12,805	23,239
381	14,506	33,481
381.25	15,080	37,179
382	17,545	49,414
383	21,240	68,806
383.5	22,860	79,831

Elevation at Storage Limit (one foot below weir elevation) = 380.25
Storage Limit (cf) = 23,239 > 16,956
Cleanout Volume (cf) = 8,478
Cleanout Elevation = 379.46

Appendix F:
State Historic Preservation Office (SHPO) Correspondence

Cricket Valley Energy Laydown Site

Phase 1B Archaeological Field Reconnaissance Survey Report

(OPRHP 07PR03272)

Route 22 at County Route 6 (Old Route 22)
Town of Dover, Dutchess County New York

Prepared for:

Cricket Valley Energy Center, LLC.
31 Milk Street, Suite 1001
Boston, MA 02109

By:

CITY/SCAPE: Cultural Resource Consultants
166 Hillair Circle
White Plains NY 10605

May 2011

CRICKET VALLEY ENERGY LAYDOWN SITE

Route 22 at County Route 6 (Old Route 22)
Town of Dover. Dutchess County, New York

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APPENDICES:

Appendix A: Photographs
Appendix B: Soil Description and Map
Appendix C: Project Correspondence

Management Summary

SHPO Project Review Number (if available): **OPRHP 07PR03272**

Involved State and Federal Agencies (DEC, CORPS, FHWA, etc): DEC,

Phase of Survey: **Phase 1B Archaeological Field Reconnaissance Survey**

Location Information:

Location: **Route 22 at County Route 6 (Old Route 22)**

Minor Civil Division: **Town of Dover**

County: **Dutchess**

Survey Area (Metric & English)

Length:

Width:

Depth (when appropriate):

Number of Acres Surveyed**: ±30 acres (12 hectares)**

Number of Square Meters & Feet Excavated (Phase II, Phase III only): **N/A**

Percentage of the Site Excavated (Phase II, Phase III only):

USGS 7.5 Minute Quadrangle Map: **Dover Plains**

Archaeological Survey Overview

Number & Interval of Shovel Tests **217 @ 50'**

Number & Size of Units: N/A

Width of Plowed Strips: **10'(3.3 m)**

Surface Survey Transect Interval: **50' (15 m)**

Results of Archaeological Survey

Number & name of prehistoric sites identified: 0

Number & name of historic sites identified: 0

Number & name of sites recommended for Phase II/Avoidance: N/A

Results of Architectural Survey

Number of buildings/structures/cemeteries within project area: **0**

Number of buildings/structures/cemeteries adjacent to project area: **0**

Number of previously determined NR listed or eligible buildings/structures/cemeteries/districts:

Number of identified eligible buildings/structures/cemeteries/districts: N/A

Report Author (s): **Gail T. Guillet, Stephanie Roberg-Lopez M.A., R.P.A. and Beth Selig**

Date of Report: **May 2011**

MAP LIST

Maps

Map 1: 1989 USGS Topographical Map. Dover Plains Quadrangle. 7.5 Minute Series. Blue line indicates APE. Scale: 1"=1500'.

Map 2: Location map showing the Cricket Valley Energy Laydown Site. Source: Hagstrom's *Dutchess County Street Atlas* 2004. Scale: 1"=2250'.

Figures

Fig. 1: Aerial Image of Cricket Valley Laydown Site. Source: The Chazen Companies. Scale: 1"=750'.

Fig. 2: Cricket Valley Energy Laydown Site. Field Reconnaissance Map. Scale 1"-100'

Introduction

The following represents the final Phase 1B report for the Cricket Valley Energy Laydown Site in the Town of Dover Plains, Dutchess County, New York. (Maps 1 & 2)

On December 15, 2010 CITY/SCAPE: Cultural Resource Consultants began a field reconnaissance level archaeological survey of the Cricket Valley Energy Laydown Site. Work on the Cricket Valley Energy Laydown Site continued through December 20, 2010, when work was suspended due to a precipitous drop in temperature, which froze the ground to a depth of 8 inches, precluding further hand excavation. Following the drop in temperature, almost 2 feet of snow fell, effectively obscuring the ground surface. A site visit on January 3, 2011 confirmed that conditions on the site remained unchanged, despite the insulation of the snow cover and several days of warmer weather.

At the time that the field work was suspended, Cricket Valley Energy Center, LLC requested that an interim report be prepared that outlined the work and reported the findings to date, and that the report be submitted to the New York Office of Parks, Recreation and Historic Preservation (OPRHP) for review. The report was submitted to OPRHP in January of 2011. On February 11, 2011, Douglas Mackey, Program Analyst for OPRHP, wrote to the NYS Department of Environmental Conservation (DEC) with a recommendation that, despite an upcoming DEC deadline, no further work be completed until the weather had improved. The letter did, however, recommend to DEC that the applicant (Cricket Valley Energy Center, LLC) be ". . . allowed to proceed with their process with you, with the condition that the Phase 1 archaeological investigation is completed as soon as environmental conditions allow, and that if any sites are identified, the applicant will work with our agencies to develop and implement acceptable mitigation measures before actual construction is allowed to proceed." (See Appendix C: OPRHP Letter dated 2-11-11)

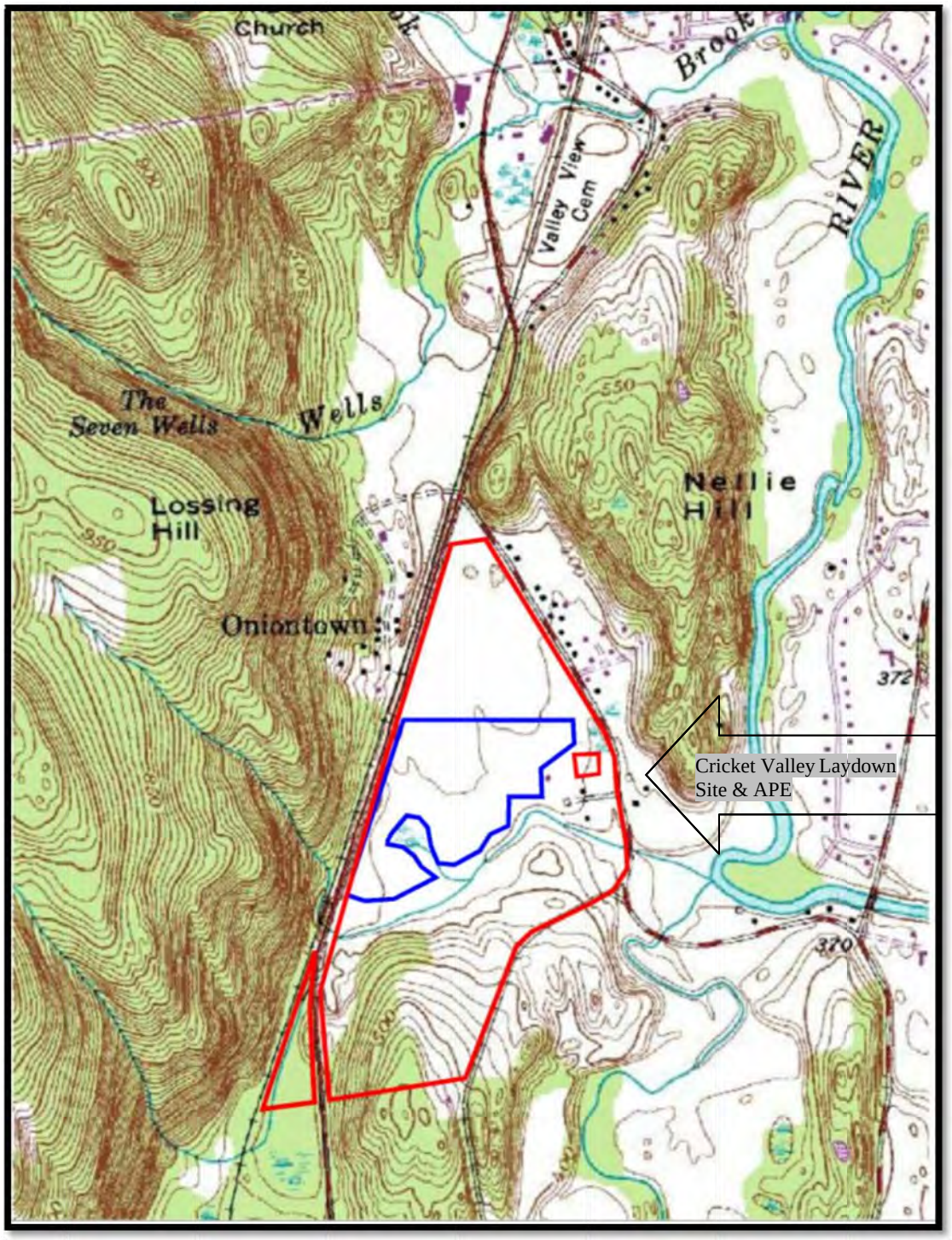
Fieldwork resumed at the Cricket Valley Energy Laydown site on April 25, 2011, with, however, some changes in methodology. In the winter of 2010, the property owner had not been willing to plow the fields within the Area of Potential Effect (APE), precluding walkover survey and surface collection. An alternative field methodology, hand excavated shovel tests at 50 foot intervals along a series of transects, was then employed. Due to the nature of hand excavation, work could not resume on the site until the soils were sufficiently dried out and drained, and could then be easily screened. In mid-April conditions on the site had improved to a point where hand excavation could resume. The day the crew returned to the site, the property owner was in the process of plowing the field, allowing for the walkover and surface collection to begin. Once the plowed soils on the site had been subjected to several hard rains, fieldwork resumed under optimal conditions.

All phases of the archaeological fieldwork were supervised by Stephanie Roberg-Lopez, M.A., R.P.A., Principal Investigator. Stephanie Bower acted as crew chief in December, with Kris Mierisch assuming the lead as crew chief when field work resumed in the spring. Field technicians included Samantha Browne, Stephanie Bower, Kris Mierisch, Tom Wilson and Beth Selig. Writing of the final Phase 1B report was completed by Beth Selig, under the supervision of Stephanie Roberg-Lopez. The preparation of the field reconnaissance map, the shovel test records, site photography and production of the final Phase 1B report were completed by Beth Selig.

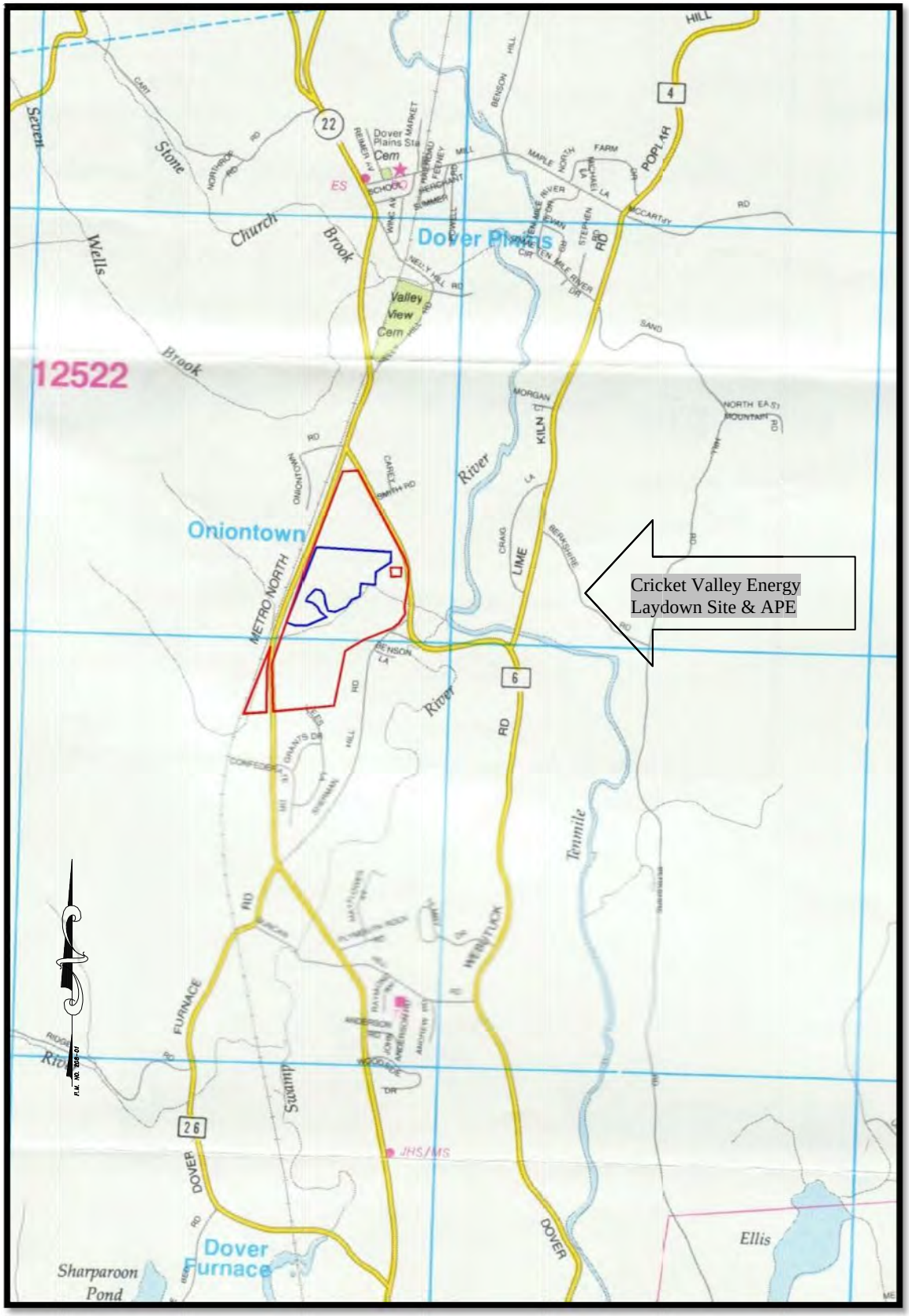
Phase 1A Information

As stated in the Phase 1A, the Cricket Valley Energy Laydown Site is generally level, with elevations on the site sloping gently from 412' (125.6 m) Above Mean Sea Level (AMSL) in the center of the field to 399' (121.6 m) in the southwestern corner of the site, and 380' AMSL (115.8 m) in the southeastern portion of the site.

The characteristics of the soils within the Cricket Valley Energy Laydown Site have an important impact on the potential for the presence of cultural material, since the types of soils present would have affected the ability of an area to support human populations. Topographically, the Cricket Valley Energy Laydown Site is located in an area characterized by level plains with slopes ranging from 0 to 2 percent. With the exception of a small steeper area along Route 22, which contains Copake gravelly silt loam (CuC), the soil complex within the Cricket Valley Energy Laydown Site APE is Copake gravelly silt loam (CuA). Copake gravelly silt loam, formed in glaciofluvial deposits, is very deep to bedrock and well drained. It is found on valley floors and outwash plains. The keyhole outparcel and the land immediately to the north, along the stream corridor, is Pawling silt loam complex (Pg) and Wayland silt loam complex (Wy); both of these soils lie outside the Cricket Valley Energy Laydown Site APE. Pawling silt loam complex is associated with floodplains; it is very deep to bedrock and moderately well drained. Wayland silt loam complex is identified in the *Soil Survey of Dutchess County* as a wetland soil that is very deep to bedrock, nearly level, and poorly to very poorly drained. The soils within the APE, being level and well drained, would have been attractive to prehistoric peoples, particularly since there is fresh water immediately to the south.



Map 1: 1989 USGS Topographical Map. Dover Plains Quadrangle. 7.5 Minute Series. Red line indicates property boundary. Blue line indicates APE. Scale: 1"=1500'.



Map 2: Location map showing Cricket Valley Energy Laydown Site. Source: Hagstrom's *Dutchess County Street Atlas* 2004. Red line indicates property boundary. Blue line indicated APE. Scale: 1"=2250'.

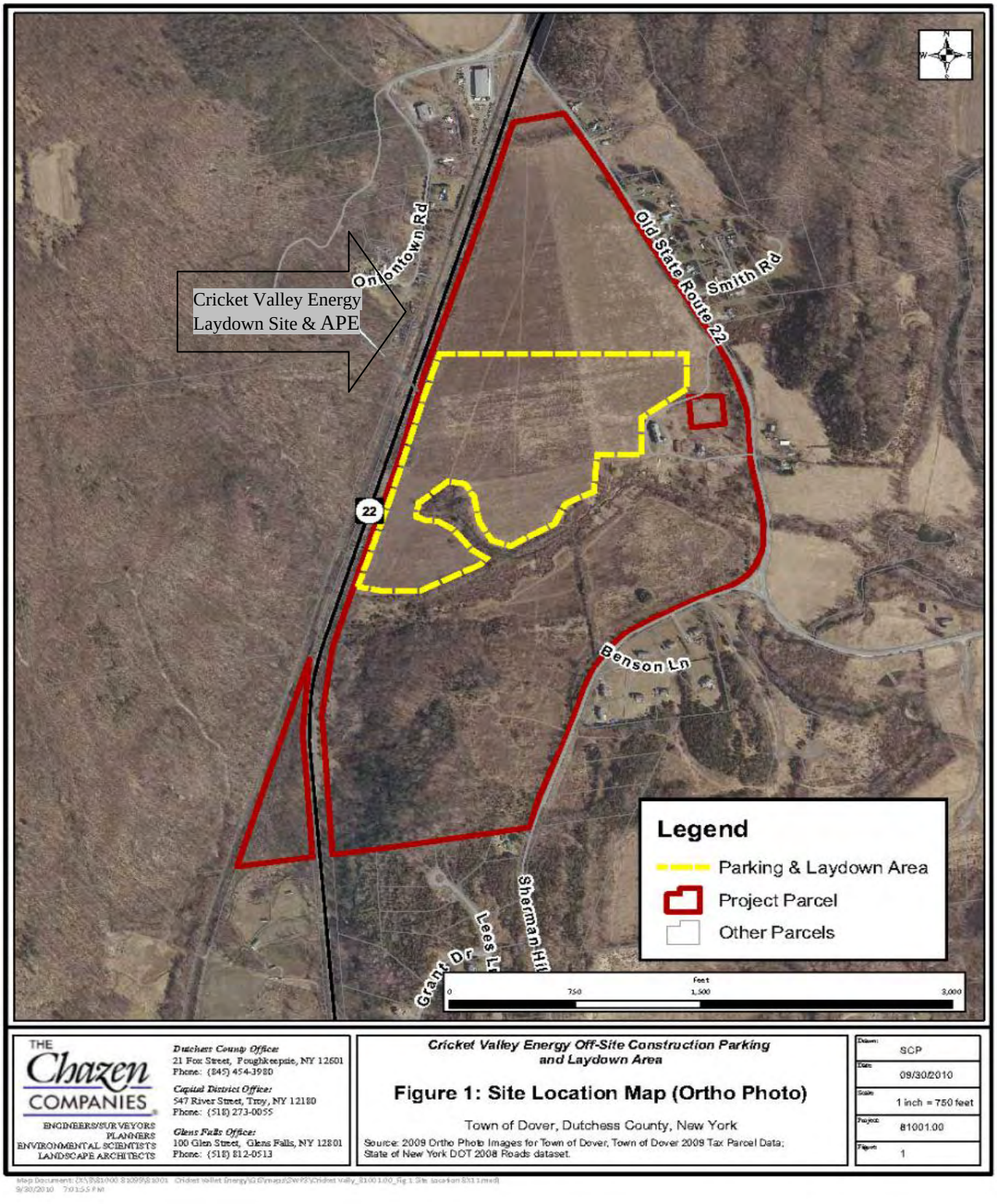


Fig. 1: Aerial photo of Cricket Valley Energy Laydown Site. Source: The Chazen Companies. Red line indicates property boundary. Yellow dashed line indicates APE. Scale: 1"=750'.

Professional surveys and excavations in the Town of Dover indicate the presence of two prehistoric sites that are located on the Swamp River and in the vicinity of the project area. One of the sites, the Jasper Site, was not considered significant, but the other, the Corn Snake Site, was considered significant (i.e., eligible for listing on the National Register of Historic Places). To the north of the Cricket Valley Energy Laydown Site at the intersection of Route 22 and Old State Route 22 (CR 6), a single biface fragment was recovered from the ground surface. Additional shovel testing failed to identify additional prehistoric material, and it was considered that the biface was an isolated find. The identification of prehistoric material in the immediate vicinity of the project area suggest that the Cricket Valley Energy Laydown Site has a moderate to high potential to contain a prehistoric site or sites.

The assessment of the prehistoric potential of the site has been ranked as moderate to high. Among the environmental factors that suggest the potential for prehistoric cultural resources is moderate to high is the presence of an unnamed stream that flows along the southern boundary of the project area APE. The presence of professionally excavated archaeological sites in close proximity to the project area increases the sensitivity of the site. With respect to the potential for historic cultural resources, map research indicates that no Map Documented Structure (MDS) were located within the APE, and it is our assessment that the potential for historic cultural remains within the APE is low. However, because of the identified sensitivity of the site for prehistoric cultural resources, it was the recommendation of CITY/SCAPE Cultural Resources that testing at the level of a Phase 1B Field Reconnaissance Survey be undertaken within the APE to rule out the presence of prehistoric cultural remains.

Methodology

The Cricket Valley Energy Laydown Site is located in an area where prehistoric archaeological sites have been identified, including one at the intersection of Route 22 and County Route 6 (Old State Route 22), and a second on the south side of Sherman Hill Road south of the Cricket Valley Energy Laydown Site. In addition, the reported presence of prehistoric sites nearby (less than ¼ mile distance) suggests that the potential for the Cricket Valley Energy Laydown Site to contain prehistoric cultural resources is moderate to high. The Cricket Valley Energy Laydown Site closely conforms to an ecological model that suggests the project area is highly sensitive for prehistoric cultural materials. The site consists of a large level corn field with well drained soils. Although the corn had been harvested from the field, in the early winter the owner of the property was unwilling to plow the field prior to the spring planting. As a result, in December of 2010, hand excavation was undertaken in the southern portion of the fields within the APE. When field work resumed in April 2011, the property owner had plowed the fields, and it was, therefore, possible to investigate the remainder of the project area through surface inspection methods. The field was plowed on April 26, 2011, and on April 28, 2011, a series of storms passed through Dover Plains, effectively washing the plowed furrows. The field walking and surface inspection took place on April 29, 2011.

Areas selected for subsurface testing were identified during a comprehensive walkover of the property. This walkover served to evaluate the site, assess any areas of prior disturbance, rule out slope and designated wetlands, assess available raw material and habitation resources, and determine former land usage. For the purposes of the Phase 1B survey, the (APE) is the Cricket Valley Energy Laydown Site, which is located within a larger parcel of land. On the accompanying maps, the parcel boundaries are indicated by a red line, while those of the project area APE are indicated by a blue or, in the case of the aerial photo, a yellow line.

In December 2010, the areas selected for shovel testing were tested at intervals of 50' (15.24 m) along transects conforming to the land surface. The areas selected for testing were identified based on environmental factors, topography and known activity patterns of prehistoric populations. The locations of the tests and the boundaries of the APE are depicted on a large scale map that shows surveyed borders, the locations of structures and the current project boundaries. (Field Reconnaissance Map)

In April 2011, the methodology for surface inspection involved walking plowed and harrowed furrows that were ten feet (3.04 m) wide and spaced 50' (15.24 m) apart within the open fields. Following the hard rain, which took place on April 26, 2010, the ground surface was carefully inspected for the presence of prehistoric and historic cultural remains. Materials recovered from the surface collection were marked with a pin flag, and mapped using GPS (Global Positioning System) on to a large scale map.

Field Methodology

Two methodologies were employed on the Cricket Valley Energy Laydown Site: hand excavation of shovel tests along a series of transects, and the visual inspection of plowed and rain washed furrows. The field methodology employed at the Cricket Valley Energy Laydown Site consisted of several stages of investigation. These included:

1. A walkover and visual inspection of the site to assess areas of potential sensitivity for prehistoric cultural remains;
2. The excavation of a stratigraphic control test to establish the stratigraphy of the site and to identify the depth and composition of the sterile glacially deposited subsoil;
3. Systematic visual inspection of the land surface to rule out the presence of rock faces and overhangs;
4. Shovel testing in the areas identified as having a potential sensitivity for prehistoric remains;
5. Surface inspection of the plowed and disked areas that had been washed by a heavy rainfall.

As stated above, the field methodology utilized was hand excavation of shovel test pits (STPs) in the sensitive areas on the southern portion of the Cricket Valley Energy Laydown Site and the surface inspection of the plowed northern portion of the project area APE. The hand excavation involved excavating 40cm (16") diameter shovel tests at 50' (15.24 m) intervals. Soils were passed through a ¼ inch (6 mm) steel mesh screen and the materials remaining in the screens were carefully examined for historic and prehistoric artifacts. No cultural material was recovered during the hand excavation of the southern portion of the site, but if items had been recovered from the screens, they would have been assigned to the stratum from which they were obtained, bagged and removed to the CITY/SCAPE laboratory for processing and identification. The stratigraphy of each test was recorded, including the depth and the soil description of each layer. (Appendix B: Shovel Test Record) Once the information had been recorded, the test pit was refilled. The visual inspection of the northern portion of the project area involved the field crew walking and visually inspecting plowed, disced and rain washed furrows. Cultural material was marked by a

pin flag, the location was recorded using a GPS system, and the artifact was bagged for processing in the CITY/SCAPE laboratory.

Field Results

At the time that the fieldwork was suspended at the end of December 2010, a total of 217 shovel tests had been excavated along 24 transects, effectively testing the southern portion of the Cricket Valley Energy Laydown Site APE. This is the area of the Cricket Valley Energy Laydown Site APE in which several of the stormwater management features are to be located, and represents the most extensive area within the Cricket Valley Energy Laydown Site where subsurface excavations related to the Laydown project will take place. Transects began along the eastern boundary of the site, and were aligned east to west terminating at the Cricket Valley Energy Laydown Site's western boundary parallel to Route 22. Soils encountered in the testing completed in December 2010 consisted of dark brown silt loam overlying dark yellowish brown sandy clay with gravel. No cultural material of any kind was recovered from the shovel tests excavated on the southern portion of the site.

At the time of the subsurface freeze, the northern portion of the site had not been tested. The project area was checked during the winter and early spring to determine whether the soils were dry enough to permit field work to resume in the northern portion of the site, where Stormwater Management Area 2 is to be located. It is also in the northern area that parking spaces will be created for the crew working on the Cricket Valley Energy Center site. In mid-April 2011, the property owner plowed the fields within the APE in preparation for spring planting. Because the northern portion of the site was plowed before the field crew resumed shovel testing, that portion of the site was tested by surface reconnaissance methods. The field team completed the visual inspection of the northern portion of the site through the visual inspection of plowed and rain washed furrows that were 10 feet wide and spaced 50 feet apart. All cultural material was flagged and located using GPS technology.

A total of 21 plowed transects were visually inspected on April 29, 2011. On plowed transect 14, a single chert flake was identified. The flake appeared fresh, with a small striking platform, and virtually no bulb of percussion. This chert flake was believed to be plow shatter. Radial confirmation tests were excavated at 5 foot intervals from the location of this find to determine whether a prehistoric site was present. The radial confirmation tests failed to identify any additional prehistoric cultural material, and it was concluded that the chert flake did not represent a prehistoric locus.

The surface inspection recovered a fragment of bottle glass, surface collection point 1 (SC 1), blue transfer-print whiteware (SC 8), black plastic (SC 4), two fragments of stoneware (SC 10), clear bottle glass, (SC 6), and a fragment of aqua bottle glass (SC 5). This material was scattered across the northern portion of the field, and is consistent with farming practices in which manure from the barn was spread to fertilize the fields. Given that the material was spread across the field, and in the absence of a MDS within the Cricket Valley Energy Laydown Site APE, it is not considered that this material is associated with an historic locus.

Rockshelters and Mines

The site was carefully inspected for any rock formations with the potential to yield lithic raw materials or shelter. The Cricket Valley Energy Laydown Site APE is a level agricultural field, with no bedrock outcrops or areas of surficial bedrock that could have provided shelter or lithic resources to prehistoric peoples.

Summary and Conclusions

In late December 2010, an interim Phase 1B Archaeological Field Reconnaissance Survey report for the Cricket Valley Energy Laydown Site APE was prepared at the request of Cricket Valley Energy Center, LLC of Boston, MA. At that time the Phase 1B Archaeological Field Reconnaissance Survey had not been completed due to weather conditions that had frozen the soil to a depth of 8 inches. In addition, almost 2 feet of snow had covered the field, effectively obscuring the ground surface.

Field work resumed in late April 2011, when the snow had melted, the soil had thawed, and the soils were sufficiently drained and dry to allow for field excavation. The northern portion of the site, the area that had not been tested in 2010, was plowed on April 26, 2011. There was a heavy rain on April 27 and April 28, 2011 that washed the soils clean. The Cricket Valley Energy Laydown Site was surface inspected on April 29, 2011. A single chert flake was recovered from TR 14 in the northern portion of the site. Based on our examination of the flake, which revealed that it was fresh, had only a small striking platform, and exhibited virtually no bulb of percussion, it is believed that this represents plow shatter. A limited number of historic cultural artifacts were recovered from the field; these artifacts were spread across the field, and are the result of farming practices, and do not represent an historic locus.

In December of 2010, the Phase 1B Archaeological Field Reconnaissance Survey excavated 217 shovel test pits within an area representing approximately half of the Cricket Valley Energy Laydown Site APE. On April 29, 2011, the balance of the site was inspected through surface reconnaissance. Based on the findings discussed above, it not considered that there is any evidence of either a prehistoric or historic site within the Cricket Valley Energy Laydown Site, and it is recommended that no additional work be required for the Cricket Valley Energy Laydown Site.

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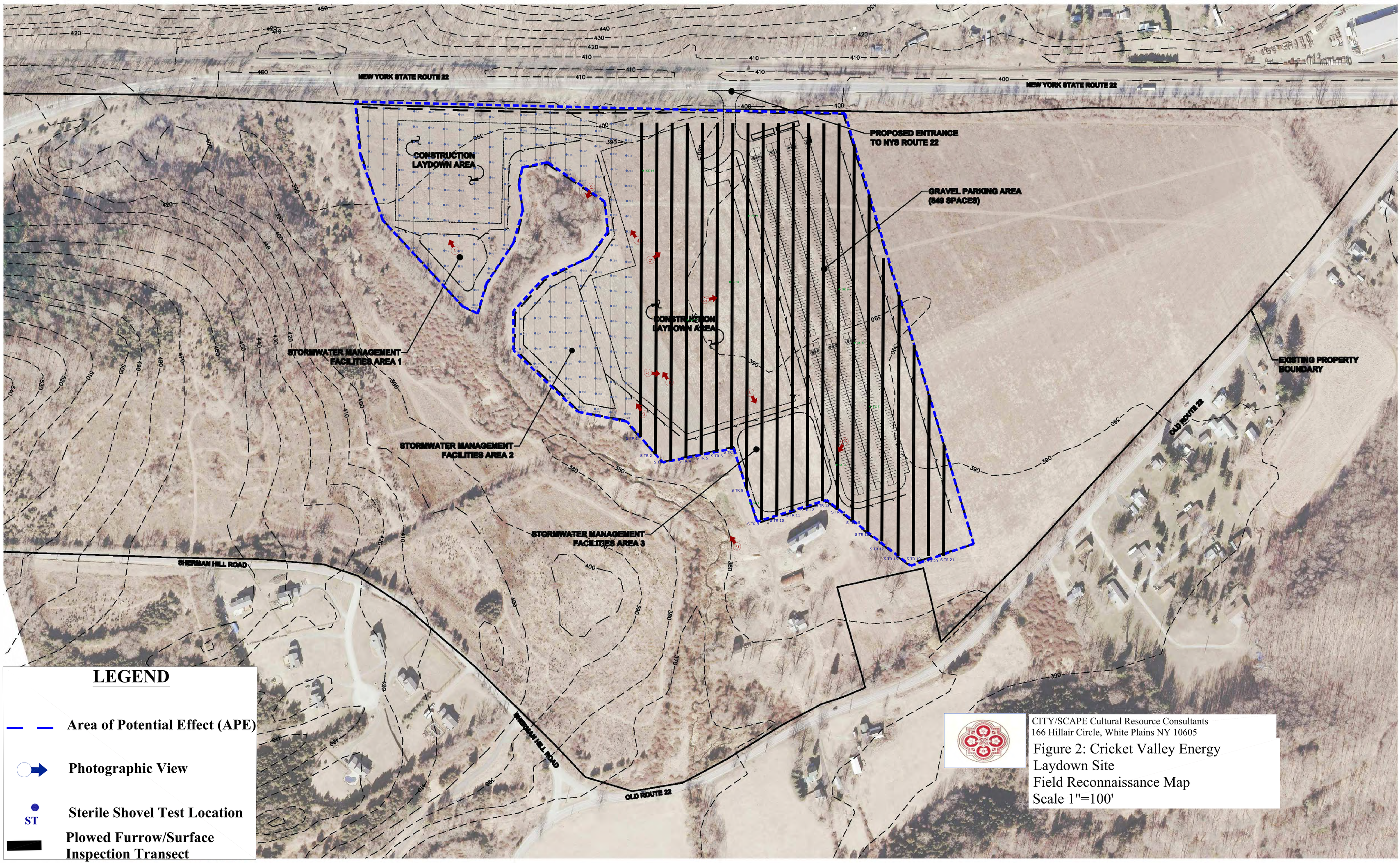
FIELD RECONNAISSANCE MAP



LEGEND

- Area of Potential Effect (APE)
- Photographic View
- ST — Sterile Shovel Test Location
- Plowed Furrow/Surface Inspection Transect

CITY/SCAPE Cultural Resource Consultants
166 Hillair Circle, White Plains NY 10605

Figure 2: Cricket Valley Energy Laydown Site
Field Reconnaissance Map
Scale 1"=100'

ISSUED FOR SEQRA APPROVAL

0 1 2 3
ORIGINAL SCALE IN INCHES

THE Chazen COMPANIES
Engineers/Surveyors
Planners
Environmental Scientists
Landscape Architects

CHAZEN ENGINEERING, LAND SURVEYING & LANDSCAPE ARCHITECTURE CO., P.C.

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rev.	date	description

CRICKET VALLEY ENERGY
CONSTRUCTION LAYDOWN & PARKING AREA

SITE PLAN

TOWN OF DOVER PLAINS, DUTCHESS COUNTY, NEW YORK

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MMF	C.
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10/01/10	1"=100'
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APPENDICES

LIST OF APPENDICES

Appendix A: Photographs
Appendix B: Shovel Test Records
Appendix C: Project Correspondence

APPENDIX A

PHOTOGRAPHS

Photo 1: Field crew excavating shovel tests in southern portion of site. View south.

Photo 2: Wetland area located outside the southeastern portion of the APE. View south.

Photo 3: Southern portion of Cricket Valley Laydown Energy Site APE was shovel tested. View southwest.

Photo 4: View south west of location of TR 24 in southern portion of Cricket Valley Energy Laydown Site.

Photo 5: View of fresh plow cut showing depth of A horizon, and 10YR5/6 subsoil (B horizon). View north.

Photo 6: Plow cut to a depth over 14" below ground surface. View west.

Photo 7: Plow working in northern field. Barn in rear is outside the project APE. View east.

Photo 8: Northern portion of the Cricket Valley Energy Laydown Site prior to plowing. View northwest.

Photo 9: Stream borders the southern extent of project APE. View southwest.

Photo 10: Field crew completing the surface reconnaissance of the northern portion of the Cricket Energy Laydown site. View north.

Photo 11: Kris Mierisch marks the location of chert flake find. View northwest.

Photo 12: Samantha brown excavates radial confirmation tests at location of find SC point 2 (possible chert flake). View east.

APPENDIX B

SHOVEL TEST RECORDS

Transect	STP	Level	Depth (in)	Depth (cm)	Munsell	Soil Description	Cultural Material
TR 1	1	1	0-13	0-33	10YR3/3	Dk Brn Sa Lo	NCM
		2	13-17	33-14	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	2	1	0-12	0-30	10YR3/3	Dk Brn Sa Lo	NCM
		2	12-16	30-10	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	3	1	0-14	0-35	10YR3/3	Dk Brn Sa Lo	NCM
		2	14-18	35-45	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	4	1	0-12	0-30	10YR3/3	Dk Brn Sa Lo	NCM
		2	12-16	30-40	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	5	1	0-15	0-38	10YR3/3	Dk Brn Sa Lo	NCM
		2	15-20	38-50	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
TR 2	6	1	0-13	0-33	10YR3/3	Dk Brn Sa Lo	NCM
		2	13-18	33-48	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	7	1	0-16	0-40	10YR3/3	Dk Brn Sa Lo	NCM
		2	16-20	40-50	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	8	1	0-18	0-48	10YR3/3	Dk Brn Sa Lo	NCM
		2	18-22	48-52	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	9	1	0-13	0-33	10YR3/3	Dk Brn Sa Lo	NCM
		2	13-18	33-48	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	10	1	0-12	0-30	10YR3/3	Dk Brn Sa Lo	NCM
		2	12-16	30-40	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	11	1	0-13	0-33	10YR3/3	Dk Brn Sa Lo	NCM
		2	13-17	33-43	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	12	1	0-12	0-30	10YR3/3	Dk Brn Sa Lo	NCM
		2	12-16	30-40	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	13	1	0-14	0-35	10YR3/3	Dk Brn Sa Lo	NCM
		2	14-18	35-45	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
TR 3	14	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-16	30-40	10YR4/6	DkY Brn Sa Cl	NCM
	15	1	0-8	0-20	10YR3/3	Dk Brn Si Lo	NCM
		2	8-12	20-30	10YR4/6	DkY Brn Sa Cl	NCM
	16	1	0-8	0-2	10YR3/3	Dk Brn Si Lo	NCM
		2	8-10	020-30	10YR4/6	DkY Brn Sa Cl	NCM
	17	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-13	30-33	10YR4/6	DkY Brn Sa Cl	NCM
	18	1	0-10	0-25	10YR3/3	Dk Brn Si Lo	NCM
		2	10-14	25-35	10YR4/6	DkY Brn Sa Cl	NCM
	19	1	0-8	0-20	10YR3/3	Dk Brn Si Lo	NCM

Transect	STP	Level	Depth (in)	Depth (cm)	Munsell	Soil Description	Cultural Material
		2	8-12	20-30	10YR4/6	DkY Brn Sa Cl	NCM
	20	1	0-7	0-18	10YR3/3	Dk Brn Si Lo	NCM
		2	7-11	18-28	10YR4/6	DkY Brn Sa Cl	NCM
	21	1	0-8	0-20	10YR3/3	Dk Brn Si Lo	NCM
		2	8-12	20-30	10YR4/6	DkY Brn Sa Cl	NCM
	22	1	0-10	0-25	10YR3/3	Dk Brn Si Lo	NCM
		2	10-16	25-40	10YR4/6	DkY Brn Sa Cl	NCM
TR 4	23	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-16	30-40	10YR4/6	DkY Brn Sa Cl	NCM
	24	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-17	33-430	10YR4/6	DkY Brn Sa Cl	NCM
	25	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-16	30-40	10YR4/6	DkY Brn Sa Cl	NCM
	26	1	0-11	0-28	10YR3/3	Dk Brn Si Lo	NCM
		2	11-16	28-40	10YR4/6	DkY Brn Sa Cl	NCM
	27	1	0-16	0-40	10YR3/3	Dk Brn Si Lo	NCM
		2	16-20	40-50	10YR4/6	DkY Brn Sa Cl	NCM
	28	1	0-15	0-38	10YR3/3	Dk Brn Si Lo	NCM
		2	15-19	38-49	10YR4/6	DkY Brn Sa Cl	NCM
	29	1	0-18	0-45	10YR3/3	Dk Brn Si Lo	NCM
		2	18-22	45-55	10YR4/6	DkY Brn Sa Cl	NCM
	30	1	0-14	0-35	10YR3/3	Dk Brn Si Lo	NCM
		2	14-20	35-50	10YR4/6	DkY Brn Sa Cl	NCM
	31	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-17	33-43	10YR4/6	DkY Brn Sa Cl	NCM
	32	1	0-18	0-45	10YR3/3	Dk Brn Si Lo	NCM
		2	18-22	45-55	10YR4/6	DkY Brn Sa Cl	NCM
TR 5	33	1	0-14	0-35	10YR3/3	Dk Brn Si Lo	NCM
		2	14-18	35-45	10YR4/6	DkY Brn Sa Cl	NCM
	34	1	0-15	0-38	10YR3/3	Dk Brn Si Lo	NCM
		2	15-19	38-48	10YR4/6	DkY Brn Sa Cl	NCM
	35	1	0-8	0-20	10YR3/3	Dk Brn Si Lo	NCM
		2	8-14	20-35	10YR4/6	DkY Brn Sa Cl	NCM
	36	1	0-10	0-25	10YR3/3	Dk Brn Si Lo	NCM
		2	10-16	25-40	10YR4/6	DkY Brn Sa Cl	NCM
	37	1	0-15	0-38	10YR3/2	V Dk Brn Si Cl	NCM
		2	15-20	38-50	10YR6/1	G and Dk Y Brn mottled Sa	NCM

Transect	STP	Level	Depth (in)	Depth (cm)	Munsell	Soil Description	Cultural Material
		3	20-23	50-58	10YR3/2	V Dk Brn Si Cl	NCM
	38	1	0-11	0-28	10YR3/3	Dk Brn Si Lo	NCM
		2	11-21	28-52	10YR4/6	DkY Brn Sa Cl	NCM
	39	1	0-12	0-30	10YR6/1	G and Dk Y Brn mottled Sa	NCM
		2	12-16	30-40	10YR3/2	V Dk Brn Si Cl	NCM
		3	16-21	40-51	10YR6/1	G and Dk Y Brn mottled Sa	NCM
	40	1	0-14	0-35	10YR3/3	Dk Brn Si Lo	NCM
		2	14-18	35-45	10YR4/6	DkY Brn Sa Cl	NCM
	41	1	0-16	0-40	10YR3/3	Dk Brn Si Lo	NCM
		2	16-22	40-55	10YR3/1	V Dk Gry Brn Si LO	NCM
		3	22-25	55-63	10YR4/6	DkY Brn Sa Cl	NCM
	42	1	0-11	0-28	10YR3/3	Dk Brn Si Lo	NCM
		2	11-17	28-43	10YR3/1	V Dk Gry Brn Si LO	NCM
	43	1	0-16	0-40	10YR3/3	Dk Brn Si Lo	NCM
		2	16-20	40-50	10YR3/1	V Dk Gry Brn Si LO	NCM
		3	20-23	50-63	10YR4/6	DkY Brn Sa Cl	NCM
TR 6	44	1	0-14	0-35	10YR3/3	Dk Brn Si Lo	NCM
		2	14-18	35-45	10YR4/6	DkY Brn Sa Cl	NCM
	45	1	0-11	0-28	10YR3/3	Dk Brn Si Lo	NCM
		2	11-15	28-38	10YR4/6	DkY Brn Sa Cl	NCM
	46	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-16	30-40	10YR4/6	DkY Brn Sa Cl	NCM
	47	1	0-17	0-38	10YR3/3	Dk Brn Si Lo	NCM
		2	17-21	38-50	10YR4/6	DkY Brn Sa Cl	NCM
	48	1	0-16	0-40	10YR3/3	Dk Brn Si Lo	NCM
		2	16-20	40-50	10YR4/6	DkY Brn Sa Cl	NCM
	49	1	0-20	0-50	10YR3/3	Dk Brn Si Lo	NCM
		2	20-23	50-63	10YR3/1	V Dk Gry Brn Si LO	NCM
		3	23-27	63-68	10YR4/6	DkY Brn Sa Cl	NCM
	50	1	0-16	0-40	10YR3/3	Dk Brn Si Lo	NCM
		2	16-20	40-50	10YR4/6	DkY Brn Sa Cl	NCM
	51	1	0-20	0-50	10YR3/3	Dk Brn Si Lo	NCM
		2	20-24	50-60	10YR4/6	DkY Brn Sa Cl	NCM
	52	1	0-14	0-35	10YR3/3	Dk Brn Si Lo	NCM
		2	14-23	35-58	10YR3/1	V Dk Gry Brn Si LO	NCM
		3	23-27	58-68	10YR4/6	DkY Brn Sa Cl	NCM
	53	1	0-20	0-50	10YR3/3	Dk Brn Si Lo	NCM

Transect	STP	Level	Depth (in)	Depth (cm)	Munsell	Soil Description	Cultural Material
		2	20-24	50-60	10YR3/1	V Dk Gry Brn Si LO	NCM
		3	24-28	60-70	10YR4/6	DkY Brn Sa Cl	NCM
	54	1	0-18	0-	10YR3/3	Dk Brn Si Lo	NCM
		2	18-23	45-58	10YR4/6	DkY Brn Sa Cl	NCM
	55	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-18	33-45	10YR4/6	DkY Brn Sa Cl	NCM
TR 7	56	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-16	33-40	10YR4/6	DkY Brn Sa Cl	NCM
	57	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-19	33-49	10YR4/6	DkY Brn Sa Cl	NCM
	58	1	0-11	0-28	10YR3/3	Dk Brn Si Lo	NCM
		2	11-15	28-38	10YR4/6	DkY Brn Sa Cl	NCM
	59	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-18	33-45	10YR4/6	DkY Brn Sa Cl	NCM
	60	1	0-18	0-45	10YR3/3	Dk Brn Si Lo	NCM
		2	18-22	45-55	10YR4/6	DkY Brn Sa Cl	NCM
	61	1	0-14	0-35	10YR5/4	Y Brn Sa Cl	NCM
		2	14-17	35-48	10YR6/4	Lt Y Brn Sa	NCM
		3	17-21	48-52	10YR4/2	Dk G Brn Si Lo	NCM
	62	1	0-20	0-50	10YR3/3	Dk Brn Si Lo	NCM
		2	20-24	50-60	10YR4/6	DkY Brn Sa Cl	NCM
	63	1	0-15	0-38	10YR3/3	Dk Brn Si Lo	NCM
		2	15-20	38-60	10YR4/6	DkY Brn Sa Cl	NCM
	64	1	0-24	0-60	10YR3/3	Dk Brn Si Lo	NCM
		2	24-28	60-70	10YR4/6	DkY Brn Sa Cl	NCM
	65	1	0-15	0-38	10YR3/3	Dk Brn Si Lo	NCM
		2	15-20	38-50	10YR4/6	DkY Brn Sa Cl	NCM
	66	1	0-14	0-35	10YR3/3	Dk Brn Si Lo	NCM
		2	14-18	35-45	10YR4/6	DkY Brn Sa Cl	NCM
	67	1	0-10	0-25	10YR3/3	Dk Brn Si Lo	NCM
		2	10-14	25-35	10YR4/6	DkY Brn Sa Cl	NCM
	68	1	0-8	0-20	10YR3/3	Dk Brn Si Lo	NCM
		2	8-10	20-30	10YR4/6	DkY Brn Sa Cl	NCM
TR 8	69	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-18	33-45	10YR4/6	DkY Brn Sa Cl	NCM
	70	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-16	33-40	10YR4/6	DkY Brn Sa Cl	NCM

Transect	STP	Level	Depth (in)	Depth (cm)	Munsell	Soil Description	Cultural Material
	71	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-19	33-49	10YR4/6	DkY Brn Sa Cl	NCM
	72	1	0-11	0-28	10YR3/3	Dk Brn Si Lo	NCM
		2	11-15	28-38	10YR4/6	DkY Brn Sa Cl	NCM
	73	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-18	33-45	10YR4/6	DkY Brn Sa Cl	NCM
	74	1	0-18	0-45	10YR3/3	Dk Brn Si Lo	NCM
		2	18-22	45-55	10YR4/6	DkY Brn Sa Cl	NCM
	75	1	0-14	0-35	10YR5/4	Y Brn Sa Cl	NCM
		2	14-17	35-43	10YR6/4	Lt Y Brn Sa	NCM
		3	17-21	43-52	10YR4/2	Dk G Brn Si Lo	NCM
	76	1	0-20	0-50	10YR3/3	Dk Brn Si Lo	NCM
		2	20-24	50-60	10YR4/6	DkY Brn Sa Cl	NCM
	77	1	0-15	0-38	10YR3/3	Dk Brn Si Lo	NCM
		2	15-20	38-50	10YR4/6	DkY Brn Sa Cl	NCM
	78	1	0-24	0-60	10YR3/3	Dk Brn Si Lo	NCM
		2	24-28	60-70	10YR4/6	DkY Brn Sa Cl	NCM
	79	1	0-15	0-38	10YR3/3	Dk Brn Si Lo	NCM
		2	15-20	38-50	10YR4/6	DkY Brn Sa Cl	NCM
	80	1	0-14	0-35	10YR3/3	Dk Brn Si Lo	NCM
		2	14-18	35-45	10YR4/6	DkY Brn Sa Cl	NCM
	81	1	0-10	0-25	10YR3/3	Dk Brn Si Lo	NCM
		2	10-14	25-35	10YR4/6	DkY Brn Sa Cl	NCM
TR 9	82	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM
		2	9-15	23-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	83	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM
		2	9-15	23-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	84	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM
		2	9-15	23-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	85	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM
		2	9-15	23-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	86	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM
		2	9-14	23-35	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	87	1	0-16	0-40	10YR3/3	Dk Brn Sa Lo	NCM
		2	16-20	40-50	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	88	1	0-11	0-28	10YR3/3	Dk Brn Sa Lo	NCM
		2	11-15	28-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM

Transect	STP	Level	Depth (in)	Depth (cm)	Munsell	Soil Description	Cultural Material
	89	1	0-15	0-38	10YR3/3	Dk Brn Sa Lo	NCM
		2	15-20	38-50	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	90	1	0-10	0-25	10YR3/3	Dk Brn Sa Lo	NCM
		2	10-14	25-35	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	91	1	0-10	0-25	10YR3/3	Dk Brn Sa Lo	NCM
		2	10-14	25-35	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	92	1	0-10	0-25	10YR3/3	Dk Brn Sa Lo	NCM
		2	10-14	25-35	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	93	1	0-15	0-38	10YR3/3	Dk Brn Si Lo	NCM
		2	15-20	38-50	10YR4/6	DkY Brn Sa Cl	NCM
TR 10	94	1	0-24	0-60	10YR3/3	Dk Brn Si Lo	NCM
		2	24-27	60-68	10YR4/6	DkY Brn Sa Cl	NCM
	95	1	0-14	0-35	10YR3/3	Dk Brn Si Lo	NCM
		2	14-19	35-49	10YR4/6	DkY Brn Sa Cl	NCM
	96	1	0-11	0-28	10YR3/3	Dk Brn Si Lo	NCM
		2	11-16	28-40	10YR4/6	DkY Brn Sa Cl	NCM
	97	1	0-16	0-40	10YR3/3	Dk Brn Si Lo	NCM
		2	16-20	40-50	10YR4/6	DkY Brn Sa Cl	NCM
	98	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-17	33-43	10YR4/6	DkY Brn Sa Cl	NCM
	99	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-18	33-45	10YR4/6	DkY Brn Sa Cl	NCM
	100	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-18	33-45	10YR3/1	V Dk Gry Brn Si LO	NCM
		3	18-22	45-55	10YR4/6	DkY Brn Sa Cl	NCM
	101	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-19	30-49	10YR3/1	V Dk Gry Brn Si Lo	NCM
		3	19-22	49-52	10YR4/6	DkY Brn Sa Cl	NCM
	102	1	0-20	0-50	10YR3/3	Dk Brn Si Lo	NCM
		2	20-24	50-60	10YR3/1	V Dk Gry Brn Si LO	NCM
		3	24-27	60-68	10YR4/6	DkY Brn Sa Cl	NCM
TR 11	103	1	0-13	0-33	10YR3/3	Dk Brn Sa Lo	NCM
		2	13-19	33-49	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	104	1	0-12	0-30	10YR3/3	Dk Brn Sa Lo	NCM
		2	12-16	30-40	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	105	1	0-13	0-33	10YR3/3	Dk Brn Sa Lo	NCM
		2	13-18	33-45	10YR6/4	Lt Y Brn Si Cl w gravel	NCM

Transect	STP	Level	Depth (in)	Depth (cm)	Munsell	Soil Description	Cultural Material
	106	1	0-12	0-30	10YR3/3	Dk Brn Sa Lo	NCM
		2	12-16	30-40	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
TR 12	107	1	0-10	0-25	10YR3/3	Dk Brn Sa Lo	NCM
		2	10-14	25-35	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	108	1	0-11	0-28	10YR3/3	Dk Brn Sa Lo	NCM
		2	11-16	28-40	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	109	1	0-8	0-20	10YR3/3	Dk Brn Sa Lo	NCM
		2	8-12	20-30	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	110	1	0-11	0-28	10YR3/3	Dk Brn Si Lo, w/ gravel and	NCM
		2	11-15	28-38	10YR4/4	DK Y Brn Si w/ gravel	NCM
TR 13	111	1	0-11	0-28	10YR3/3	Dk Brn Si Lo, w/ gravel and	NCM
		2	11-15	28-38	10YR4/4	DK Y Brn Si w/ gravel	NCM
	112	1	0-12	0-30	10YR3/3	Dk Brn Si Lo, w/ gravel and	NCM
		2	12-16	30-40	10YR4/4	DK Y Brn Si w/ gravel	NCM
	113	1	0-13	0-33	10YR3/3	Dk Brn Sa Lo	NCM
		2	13-17	33-43	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	114	1	0-14	0-35	10YR3/3	Dk Brn Sa Lo	NCM
		2	14-18	35-45	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
TR14	115	1	0-13	0-33	10YR3/3	Dk Brn Sa Lo	NCM
		2	13-17	33-43	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	116	1	0-15	0-38	10YR3/3	Dk Brn Sa Lo	NCM
		2	15-18	38-45	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	117	1	0-13	0-33	10YR3/3	Dk Brn Sa Lo	NCM
		2	13-17	33-43	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	118	1	0-14	0-35	10YR3/3	Dk Brn Sa Lo	NCM
		2	14-18	35-45	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	119	1	0-13	0-33	10YR3/3	Dk Brn Sa Lo	NCM
		2	13-17	33-43	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
TR 15	120	1	0-15	0-38	10YR3/3	Dk Brn Sa Lo	NCM
		2	15-18	38-45	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	121	1	0-13	0-33	10YR3/3	Dk Brn Sa Lo	NCM
		2	13-17	33-43	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	122	1	0-12	0-30	10YR3/3	Dk Brn Sa Lo	NCM
		2	12-16	30-40	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	123	1	0-12	0-30	10YR3/3	Dk Brn Sa Lo	NCM
		2	12-16	30-40	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	124	1	0-13	0-33	10YR3/3	Dk Brn Sa Lo	NCM

Transect	STP	Level	Depth (in)	Depth (cm)	Munsell	Soil Description	Cultural Material
		2	13-17	33-43	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
TR 16	125	1	0-14	0-35	10YR3/3	Dk Brn Sa Lo	NCM
		2	14-16	35-40	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	127	1	0-8	0-20	10YR3/3	Dk Brn Sa Lo	NCM
		2	8-12	20-30	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	128	1	0-16	0-40	10YR3/3	Dk Brn Sa Lo	NCM
		2	16-20	40-50	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	129	1	0-13	0-33	10YR3/3	Dk Brn Sa Lo	NCM
		2	13-17	33-43	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	130	1	0-12	0-30	10YR3/3	Dk Brn Sa Lo	NCM
		2	12-16	30-40	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
TR 17	131	1	0-11	0-28	10YR3/3	Dk Brn Sa Lo	NCM
		2	11-15	28-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	132	1	0-11	0-28	10YR3/3	Dk Brn Sa Lo	NCM
		2	11-15	28-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	133	1	0-14	0-35	10YR3/3	Dk Brn Si Lo	NCM
		2	14-18	35-45	10YR4/6	DkY Brn Sa Cl	NCM
	134	1	0-10	0-25	10YR3/3	Dk Brn Si Lo	NCM
		2	10-24	25-60	10YR4/6	DkY Brn Sa Cl	NCM
TR 18	135	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-17	33-43	10YR4/6	DkY Brn Sa Cl	NCM
	136	1	0-16	0-40	10YR3/3	Dk Brn Si Lo	NCM
		2	16-20	40-50	10YR4/6	DkY Brn Sa Cl	NCM
	137	1	0-8	0-20	10YR3/3	Dk Brn Sa Lo	NCM
		2	8-12	20-30	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	138	1	0-16	0-40	10YR3/3	Dk Brn Sa Lo	NCM
		2	16-20	40-50	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	139	1	0-13	0-33	10YR3/3	Dk Brn Sa Lo	NCM
		2	13-17	33-43	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	140	1	0-12	0-30	10YR3/3	Dk Brn Sa Lo	NCM
		2	12-16	30-40	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
TR 19	141	1	0-11	0-28	10YR3/3	Dk Brn Sa Lo	NCM
		2	11-15	28-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	142	1	0-11	0-28	10YR3/3	Dk Brn Sa Lo	NCM
		2	11-15	28-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	143	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-16	30-40	10YR4/6	DkY Brn Sa Cl	NCM

Transect	STP	Level	Depth (in)	Depth (cm)	Munsell	Soil Description	Cultural Material
	144	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-17	33-43	10YR4/6	DkY Brn Sa Cl	NCM
	145	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-16	30-40	10YR4/6	DkY Brn Sa Cl	NCM
	146	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-18	33-45	10YR4/6	DkY Brn Sa Cl	NCM
	147	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-16	30-40	10YR4/6	DkY Brn Sa Cl	NCM
TR 20	148	1	0-10	0-25	10YR3/3	Dk Brn Si Lo	NCM
		2	10-14	25-35	10YR4/6	DkY Brn Sa Cl	NCM
	149	1	0-6	0-15	10YR3/3	Dk Brn Si Lo	NCM
		2	6-12	15-30	10YR4/6	DkY Brn Sa Cl	NCM
	150	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-17	33-43	10YR4/6	DkY Brn Sa Cl	NCM
	151	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM
		2	9-15	23-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	152	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM
		2	9-15	23-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	153	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM
		2	9-15	23-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	154	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM
TR 17		2	9-15	23-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	155	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM
		2	9-14	23-35	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	156	1	0-16	0-40	10YR3/3	Dk Brn Sa Lo	NCM
		2	16-20	40-50	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	157	1	0-11	0-28	10YR3/3	Dk Brn Sa Lo	NCM
		2	15-20	38-50	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	158	1	0-10	0-25	10YR3/3	Dk Brn Sa Lo	NCM
		2	10-14	25-35	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	159	1	0-10	0-25	10YR3/3	Dk Brn Sa Lo	NCM
		2	10-14	25-35	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	160	1	0-10	0-25	10YR3/3	Dk Brn Sa Lo	NCM
		2	10-14	25-35	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
TR 21	161	1	0-15	0-38	10YR3/3	Dk Brn Sa Lo	NCM
		2	15-18	38-45	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	162	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM

Transect	STP	Level	Depth (in)	Depth (cm)	Munsell	Soil Description	Cultural Material
		2	9-15	23-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	163	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM
		2	9-15	23-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	164	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM
		2	9-15	23-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	165	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM
		2	9-15	23-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	166	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM
		2	9-14	23-35	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
TR 22	167	1	0-16	0-40	10YR3/3	Dk Brn Sa Lo	NCM
		2	16-20	40-50	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	168	1	0-15	0-38	10YR3/3	Dk Brn Sa Lo	NCM
		2	15-20	38-50	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	169	1	0-14	0-35	10YR3/3	Dk Brn Sa Lo	NCM
		2	14-18	35-45	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	170	1	0-12	0-30	10YR3/3	Dk Brn Sa Lo	NCM
		2	12-16	30-40	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	171	1	0-15	0-38	10YR3/3	Dk Brn Sa Lo	NCM
		2	15-18	38-45	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	172	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM
		2	9-15	23-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	173	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM
		2	9-15	23-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	174	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM
		2	9-15	23-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	175	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM
		2	9-15	23-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	176	1	0-9	0-23	10YR3/3	Dk Brn Sa Lo	NCM
		2	9-14	23-35	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	177	1	0-16	0-40	10YR3/3	Dk Brn Sa Lo	NCM
		2	16-20	40-50	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
TR 23	178	1	0-15	0-38	10YR3/3	Dk Brn Sa Lo	NCM
		2	15-20	38-50	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	179	1	0-14	0-35	10YR3/3	Dk Brn Sa Lo	NCM
		2	14-18	35-45	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	180	1	0-12	0-30	10YR3/3	Dk Brn Sa Lo	NCM
		2	12-16	30-40	10YR6/4	Lt Y Brn Si Cl w gravel	NCM

Transect	STP	Level	Depth (in)	Depth (cm)	Munsell	Soil Description	Cultural Material
	181	1	0-10	0-23	10YR3/3	Dk Brn Sa Lo	NCM
		2	10-14	25-35	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	182	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-16	30-40	10YR4/6	DkY Brn Sa Cl	NCM
	183	1	0-11	0-28	10YR3/3	Dk Brn Si Lo	NCM
		2	11-15	28-38	10YR4/6	DkY Brn Sa Cl	NCM
	184	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-18	33-45	10YR4/6	DkY Brn Sa Cl	NCM
	185	1	0-11	0-28	10YR3/3	Dk Brn Si Lo	NCM
		2	11-15	28-38	10YR4/6	DkY Brn Sa Cl	NCM
	186	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-16	30-40	10YR4/6	DkY Brn Sa Cl	NCM
	187	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-16	30-40	10YR4/6	DkY Brn Sa Cl	NCM
	188	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-17	33-43	10YR4/6	DkY Brn Sa Cl	NCM
	189	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-18	33-45	10YR4/6	DkY Brn Sa Cl	NCM
	190	1	0-11	0-28	10YR3/3	Dk Brn Si Lo	NCM
		2	11-17	28-43	10YR4/6	DkY Brn Sa Cl	NCM
	191	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-17	33-43	10YR4/6	DkY Brn Sa Cl	NCM
	192	1	0-14	0-35	10YR3/3	Dk Brn Si Lo	NCM
		2	14-18	35-45	10YR4/6	DkY Brn Sa Cl	NCM
	193	1	0-11	0-28	10YR3/3	Dk Brn Si Lo	NCM
		2	11-15	28-38	10YR4/6	DkY Brn Sa Cl	NCM
	194	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-16	30-40	10YR4/6	DkY Brn Sa Cl	NCM
	195	1	0-11	0-28	10YR3/3	Dk Brn Si Lo	NCM
		2	11-15	28-38	10YR4/6	DkY Brn Sa Cl	NCM
	196	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-16	30-40	10YR4/6	DkY Brn Sa Cl	NCM
	197	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-16	30-40	10YR4/6	DkY Brn Sa Cl	NCM
TR 24	198	1	0-24	0-60	10YR3/3	Dk Brn Si Lo	NCM
		2	24-28	60-70	10YR4/6	DkY Brn Sa Cl	NCM
	199	1	0-23	0-58	10YR3/3	Dk Brn Si Lo	NCM

Transect	STP	Level	Depth (in)	Depth (cm)	Munsell	Soil Description	Cultural Material
		2	2-16	5-40	10YR4/6	DkY Brn Sa Cl	NCM
	200	1	0-8	0-20	10YR3/3	Dk Brn Si Lo	NCM
		2	8-10	20-30	10YR4/6	DkY Brn Sa Cl	NCM
	201	1	0-8	0-02	10YR3/3	Dk Brn Si Lo	NCM
		2	8-10	20-30	10YR4/6	DkY Brn Sa Cl	NCM
	202	1	0-16	0-40	10YR3/3	Dk Brn Sa Lo	NCM
		2	16-22	40-52	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	203	1	0-16	0-40	10YR3/3	Dk Brn Sa Lo	NCM
		2	16-22	40-52	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	204	1	0-11	0-28	10YR3/3	Dk Brn Sa Lo	NCM
		2	11-15	28-38	10YR6/4	Lt Y Brn Si Cl w gravel	NCM
	205	1	0-11	0-28	10YR3/3	Dk Brn Si Lo	NCM
		2	11-15	28-38	10YR4/6	DkY Brn Sa Cl	NCM
	206	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-16	30-40	10YR4/6	DkY Brn Sa Cl	NCM
	207	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-16	30-40	10YR4/6	DkY Brn Sa Cl	NCM
	208	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-17	33-43	10YR4/6	DkY Brn Sa Cl	NCM
	209	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-18	33-45	10YR4/6	DkY Brn Sa Cl	NCM
	210	1	0-11	0-28	10YR3/3	Dk Brn Si Lo	NCM
		2	11-17	28-43	10YR4/6	DkY Brn Sa Cl	NCM
	211	1	0-13	0-33	10YR3/3	Dk Brn Si Lo	NCM
		2	13-17	33-43	10YR4/6	DkY Brn Sa Cl	NCM
	212	1	0-14	0-35	10YR3/3	Dk Brn Si Lo	NCM
		2	14-18	35-45	10YR4/6	DkY Brn Sa Cl	NCM
	213	1	0-11	0-28	10YR3/3	Dk Brn Si Lo	NCM
		2	11-15	28-38	10YR4/6	DkY Brn Sa Cl	NCM
	214	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-16	30-40	10YR4/6	DkY Brn Sa Cl	NCM
	215	1	0-11	0-28	10YR3/3	Dk Brn Si Lo	NCM
		2	11-15	28-38	10YR4/6	DkY Brn Sa Cl	NCM
	216	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-16	30-40	10YR4/6	DkY Brn Sa Cl	NCM
	217	1	0-12	0-30	10YR3/3	Dk Brn Si Lo	NCM
		2	12-16	30-40	10YR4/6	DkY Brn Sa Cl	NCM

APPENDIX C

PROJECT CORRESPONDENCE

OFFICE OF PARKS · RECREATION · HISTORIC PRESERVATION
NEW YORK STATE

New York State Office of Parks, Recreation and Historic Preservation

Andrew M. Cuomo
Governor

Andy Beers
Acting Commissioner

Historic Preservation Field Services Bureau
P.O. Box 189, Waterford, New York 12188-0189
518-237-8643

February 11, 2011

Stephen Tomasik
Project Manager
Major Projects Management Section
Division of Environmental Permits
NYS Department of Environmental Conservation
625 Broadway - 4th Floor
Albany, NY 12233-1750

Dear Mr. Tomasik

RE: DEC
Main Site/Laydown Area
Cricket Valley Energy Project
Town of Dover, Dutchess County, NY
09PR04340

Thank your for requesting the comments of the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) with regard to the potential for this project to affect significant historical/cultural resources. As you may be aware, OPRHP has been reviewing this project and working with the project sponsors for several years. During that time we have reviewed the main project site and previously provided a finding of No Impact/Effect for that property. More recently, it was recognized that a separate 'Laydown" site would be needed to successfully complete the project's construction. The applicant and their archaeological consultant have been working with us to complete the examination of that additional area so that we could provide a No Impact/Effect finding for that parcel as well. However, due to the unusual weather conditions this season, it has not been possibly to complete the testing needed to allow us to provide a final determination.

We understand that the applicant now finds that they are in a time bind. Field/weather conditions will not allow the field testing to be completed for a number of weeks, but there is a deadline approaching for your processes which requires a statement from our office or else the project will be put on hold until the next such cycle in 2012. While OPHRP is often reluctant to seek conditional responses from other agencies before we have a full grasp of a projects impacts, in this case we are willing to make an exception. The Applicant has shown a good faith effort to complete the study, and has been willing to ask their archaeologists to work in the adverse weather, however it is our recommendation that work not be done under these conditions as we have seen how such conditions affect the quality of archaeological research at this scale.

Therefore, ORPHP it is the opinion of OPRHP that this project is unlikely to have an adverse impact on historic resources and would have no objection to the applicant being allowed to proceed in their process with you, with the condition that the Phase I archaeological

investigation is completed as soon as environmental conditions allow, and that if any sites are identified, the applicant will work with our agencies to develop and implement acceptable mitigation measures before actual construction is allowed to proceed.

I hope you find this correspondence helpful in your efforts to evaluate the applicants proposals with regard to being allow to proceed in the process.

Please contact me at extension 3291, or by e-mail at douglas.mackey@oprhp.state.ny.us, if you have any questions regarding these comments.

Sincerely

Douglas P. Mackey

Douglas P. Mackey
Historic Preservation Program Analyst
Archaeology

OFFICE OF PARKS · RECREATION · HISTORIC PRESERVATION
NEW YORK STATE

Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

New York State Office of Parks, Recreation and Historic Preservation

Historic Preservation Field Services Bureau • Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643
www.nysparks.com

July 06, 2011

Mathew Martin
Cricket Valley Energy
PO Box 407
Dover Plains, NY 12522

Re: EPA,CORPS PERMITS,DEC,PSC,SEQRA
Advanced Power NA; Cricket Valley Site
West of NY 22,
DOVER, Dutchess County
09PR04340

Dear Mr. Martin

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). We have reviewed the project in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

Based upon our review of the recently completed Phase 1B Archaeological report prepared by CityScape Cultural Resource Consultants, and the Draft Environmental Impact Statement you recently submitted, it is the SHPO's opinion that your project will have No Effect upon cultural resources in or eligible for inclusion in the National Registers of Historic Places.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above. Please contact me at extension 3291, or by e-mail at douglas.mackey@oprhp.state.ny.us, if you have any questions regarding these comments.

Sincerely

Douglas P. Mackey
Historic Preservation Program Analyst
Archaeology

Cc: Gail Guillet, CityScape (e-mail)

Appendix G:
NYSDEC Forms

Notice of Intent
(Sample Form)

1358331598

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
- ○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
- ○ OTHER

***note: for gas well drilling, non-high volume hydraulic fractured wells only**

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, federal government 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? **If Yes, what is the acreage to be disturbed?** ◯ **Yes** ◯ **No**

.

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**

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) **(If No, skip questions 23 and 27-35)** ◯ **Yes** ◯ **No**

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 - Remote Laydown Site
Muncey Parcel Lease, 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:

Page ____ of ____

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:_____

Appendix I:
SWPPP Inspection Report
(Sample Form)

Stormwater Pollution Prevention Plan
Inspection Report

Cricket Valley Energy – Remote Laydown Site
Muncey Parcel Lease, 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 – Remote Laydown Site
Muncey Parcel Lease, 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).