



## **APPENDIX 13-B**

### **SWPPP**

# Stormwater Pollution Prevention Plan (SWPPP)

Somerset Solar  
Lake Road  
Somerset, New York 14012

**March 2023**

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## ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
CFS	Cubic Feet per Second
CWA	Clean Water Act
ECL	Environmental Conservation Law
ESC	Erosion & Sediment Controls
FIRM	Flood Insurance Rate Map
HSG	Hydrologic Soil Group
NOI	Notice of Intent
NOT	Notice of Termination
NTS	Not to Scale
NYCRR	New York Code of Rules and Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
OPRHP	Office of Parks, Recreation and Historic Preservation
ORES	Office of Renewable Energy
PCC	Portland Cement Concrete
PV	Photovoltaic
SCS	Soil Conservation Service
SHPA	State Historic Preservation Act
SMDM	Stormwater Management Design Manual (NYS)
SMP	Stormwater Management Practice
SPDES	State Pollutant Discharge Elimination System
SWPPP	Stormwater Pollution Prevention Plan
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
VDCR	Virginia's Department of Conservation and Recreation

## 1.0 INTRODUCTION

This Stormwater Pollution Prevention Plan (SWPPP) has been prepared for AES for activities associated with construction of the Somerset Solar Project (the Project) located on Lake Road, Town of Somerset, Niagara County, New York. The properties on which the Project is located comprises approximately 1,508 acres of land. The Project will encompass an approximately 1,250-acre subset of those properties (the Site). See Figure 1 for the Project area and property boundaries.



**Figure 1** – Property Boundary & Project Area

Pursuant to Section 402 of the Clean Water Act (CWA), stormwater discharges from certain construction activities are unlawful unless authorized by a National Pollutant Discharge Elimination System (NPDES) permit or by a state permit program. The New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) permit program is a NPDES-approved program with permits issued in accordance with the Environmental Conservation Law (ECL). The General Permit for Stormwater Discharges from Construction Activity, General Permit Number GP-0-20-001 (the Permit) is issued pursuant to Article 17, Titles 7, 8 and Article 70 of the ECL.

The Permit authorizes stormwater discharges to surface waters of the State from construction activities involving soil disturbances of one or more acres, provided the eligibility provisions of the Permit are met. Part III.C of the Permit states that construction activities identified in Table 1 of Appendix B (of the Permit) are required to prepare a SWPPP that only includes erosion and sediment control practices. Construction activities identified in Table 2 of Appendix B (of the Permit) are required to prepare a SWPPP that also includes post-construction stormwater management practices.

The Project involves construction of ground-mounted solar photovoltaic (PV) arrays, permanent access roads, equipment pads, and a substation. Although overall impervious area is relatively small and most of the Site will consist of vegetative cover, the construction activities described above are identified in Table 2 of the Permit, and therefore post-construction stormwater management practices will be included in this SWPPP.

The area of soil disturbance considered for this project is 303.96 acres. This calculation is based on the information provided in Table 1.

**Table 1** – Areas of Soil Disturbance

Access Roads	14.77 acres
Equipment	1.05 acres
Fence Post Footings*	0.04 acres
Tree/ Brush Clearing	80.89 acres
Grassed Filter Strips	10.44 acres
Laydown Area	27.45 acres
Array Grading	169.32 acres
<b>Total Area of Soil Disturbance</b>	<b>303.96 acres</b>

\*Footings are assumed only for chain link fence. There are no footings specified for the Agricultural Fence.

The impervious surfaces include the proposed access roads, concrete equipment pads, fence post footings, and substation. The total area of proposed impervious surface is 15.86 acres.

It is expected that more than 5 acres of the Project area will be disturbed at one given time.

**Prior to construction, the following items are required by the Owner and Contractor:**

- Obtain written authorization from the NYSDEC prior to construction.
- Conduct at least two site inspections in accordance with Part IV.C of the General Permit every seven calendar days, for as long as greater than five acres of soil remain disturbed. The two inspections shall be separated by a minimum of two full calendar days.
- Initiate soil stabilization measures by the end of the next business day in areas where soil disturbance has temporarily or permanently ceased and complete within seven days from the date the current soil disturbance activity ceased.
- Prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.
- Install additional site-specific practices needed to protect water quality.

Refer to Appendix B for a copy of the Permit.

## 2.0 SITE DESCRIPTION

### 2.1 PROPERTY

The Site covers approximately 1,508 acres of multiple larger parcels located in the Town of Somerset within Niagara County, New York. The Site is in a rural area approximately 2.5-miles northwest of the Village of Barker. The Site parcels include the former Somerset coal-fired power plant and several surrounding agricultural properties along Lake Road. The general area around the Site consists of residential and agricultural properties. The Site is bound by agricultural properties to the west, Haight Road and agricultural properties to the south, Hartland Road to the east, and Lake Ontario to the north.

## 2.2 TOPOGRAPHY

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The maximum elevation of the Project area is approximately 300 feet above mean sea level. The Site generally slopes toward Lake Ontario to the north. The project is located on relatively flat, gently sloping land ranging in elevation from approximately 250 feet along Lake Ontario boundary to approximately 300 feet moving south. Most of the Site has slopes between 0-10%. There are steeper slopes greater than 10% within several portions of the site. These features include landfills, the berm south of the railroad loop, and areas with grading for existing stormwater features, roads, and railroads. A portion of Fish Creek runs from southwest to northeast through several of the Site parcels and drains into Lake Ontario.

## 2.3 SOILS

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The United States Department of Agriculture (USDA) Soil Conservation Service (SCS) Soil Survey for Niagara County was reviewed to determine surficial soil conditions for the Site. The SCS identified the presence of 35 soil types on the properties, of which 33 are within the Site. Figure 2 shows the soil map for the properties.



**Figure 2 – Soil Map (NTS)**

The complete USDA Soil Survey (including the soil map to scale) for the Site can be found in Appendix E.

The SCS 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 consists mainly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission.
- Type C Soils:** Soils having a low infiltration rate when thoroughly wet. These soils consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine-to-fine texture. These soils have a low rate of water transmission.
- Type D Soils:** Soils having a very low infiltration rate and high runoff potential when thoroughly wet. These soils consist chiefly of clays that have high shrink-swell potential, soils that have a permanent high-water table, soils that have a clay pan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very low rate of water transmission.

## 2.4 COVER CONDITIONS

Row crops, wooded area with meadow and wetlands comprise the majority of the existing pre-development Site cover conditions. The former coal plant site is more developed including roads, railroad tracks, buildings, and landfills. The Site cover condition post-construction is a permanent grassed vegetative cover, multiple access roads, and concrete equipment pads, with portions of the Site remaining as wooded area and wetlands. Disturbed areas will receive topsoil and seeding for final stabilization to a meadow condition.

Runoff curve numbers for the various cover types and descriptions used in the stormwater evaluation for this Project were obtained from Tables 2-2a-d of the *Urban Hydrology for Small Watersheds Technical Release 55* by the USDA. A summary of the curve numbers is provided in Table 2.

**Table 2** – Curve Numbers for Hydrologic Soil Group

Cover Type	Hydrologic Soil Group			
	A	B	C	D
Woods, Good Condition	30	55	70	77
Woods/Grass Comb., Good	32	58	72	79
Pasture, grassland, or range	39	61	74	80

Cover Type	Hydrologic Soil Group			
	A	B	C	D
>75% Grass Cover, Good	39	61	74	80
Meadow, Non-Grazed	30	58	71	78
Legumes, Straight Row, Good	58	72	81	85
Gravel Surface (Unpaved Roads)	96	96	96	96
Paved Roads, Roofs, Driveways, Capped Area, Water Surface, etc.	98	98	98	98

## 2.5 WETLANDS

Data from the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) identified 47 separate features within or partially within the Project Area. These include freshwater forested/shrub wetlands, freshwater emergent wetlands, freshwater ponds, lakes, and riverine types. These features cover an area of approximately 93 acres. The following tables indicate the New York State Department of Environmental Conservation (NYSDEC)-regulated freshwater wetlands that are identified within the Project Area. 40 additional wetlands were delineated within the Project Area covering an area of 267.43 acres.

**Table 3** – Activity Impacts to State Jurisdictional Wetlands within the Facility Site.

Wetland Identification	Cowardin Classification <sup>1</sup>	Office of Renewable Energy Siting (ORES/NYS) Status	Facility Component	Impact Acreage
<b>Major Activity Impacts</b>				
WA-5	PFO	Unmapped >12.4 acres	Access Road	0.05
<b>Minor Activity Impacts</b>				
WB-18	PFO	Unmapped >12.4 acres	Selective Cutting of Trees and Shrubs	<0.00
<b>Total ORES/NYS Wetland Impacts</b>				<b>0.05</b>

1 - Definitions: PFO – palustrine

**Table 4** – Activity Impacts to State Regulated Adjacent Areas within the Facility Site.

Wetland Identification	Cowardin Classification <sup>1</sup>	Office of Renewable Energy Siting (ORES/NYS) Status	Facility Component	Impact Acreage
<b>Major Activity Impacts</b>				
WA-3B	PEM/PFO	Unmapped >12.4 acres	Solar panels	0.21
WA-5	PFO	Unmapped >12.4 acres	Clearing of forest	0.26

Wetland Identification	Cowardin Classification <sup>1</sup>	Office of Renewable Energy Siting (ORES/NYS) Status	Facility Component	Impact Acreage
WA-5	PFO	Unmapped >12.4 acres	Access roads	0.46
WA-5	PFO	Unmapped >12.4 acres	Solar panels	0.01
WA-12	PFO	Unmapped >12.4 acres	Access roads	0.15
WA-12	PFO	Unmapped >12.4 acres	Solar panels	0.10
WB-13	PFO	Unmapped >12.4 acres	Clearing of forest	2.04
WB-18	PFO	Unmapped >12.4 acres	Access roads	0.52
WB-18	PFO/PEM	Unmapped >12.4 acres	Other activities and structures integral to the Facility involving placement of fill	0.61
WB-18	PFO	Unmapped >12.4 acres	Clearing of forest	0.03
WB-18	PFO/PSS/PEM	Unmapped >12.4 acres	Solar panels	0.73
WB-19	PFO	Unmapped >12.4 acres	Access roads	0.04
WB-20A	PEM/PFO	Unmapped >12.4 acres	Clearing of forest	0.05
<b>Intermediate Activity Impacts</b>				
WA-5	PFO	Unmapped >12.4 acres	Clearing and manipulation of undisturbed herbaceous vegetation	1.21
WA-12	PFO	Unmapped >12.4 acres	Clearing and manipulation of undisturbed herbaceous vegetation	0.29
WB-18	PEM	Unmapped >12.4 acres	Clearing and manipulation of undisturbed herbaceous vegetation	0.01
<b>Minor Activity Impacts</b>				
OW-4	POW	Unmapped >12.4 acres	Grading and manipulation of disturbed areas	0.56
WA-3A	PEM/PFO	Unmapped >12.4 acres	Grading and manipulation of disturbed areas	0.02
WA-3B	PEM/PFO	Unmapped >12.4 acres	Grading and manipulation of disturbed areas	0.94

Wetland Identification	Cowardin Classification <sup>1</sup>	Office of Renewable Energy Siting (ORES/NYS) Status	Facility Component	Impact Acreage
WA-5	PFO	Unmapped >12.4 acres	Grading and manipulation of disturbed areas	2.85
WA-12	PFO	Unmapped >12.4 acres	Grading and manipulation of disturbed areas	0.92
WB-13	PFO	Unmapped >12.4 acres	Grading and manipulation of disturbed areas	3.98
WB-18	PEM/PSS/PFO	Unmapped >12.4 acres	Grading and manipulation of disturbed areas	7.89
WB-19	PFO	Unmapped >12.4 acres	Grading and manipulation of disturbed areas	0.24
WB-20A	PEM/PFO	Unmapped >12.4 acres	Grading and manipulation of disturbed areas	0.16
WB-25	PFO	Unmapped >12.4 acres	Grading and manipulation of disturbed areas	1.22
<b>Total ORES/NYS Wetland Impacts</b>				<b>25.50</b>

1 – Definitions: PEM – palustrine emergent wetland, PSS- palustrine scrub shrub, PFO – palustrine.

2 – Grading and manipulation of disturbed areas includes manipulation within the agricultural fields for placement and temporary storage of materials/equipment and general activities and foot traffic in the limit of disturbance area.

## 2.6 HISTORIC PRESERVATION

The NYSDEC and NYS Office of Parks, Recreation and Historic Preservation (OPRHP) have developed a process for construction projects to identify and address potential impacts on archeological and historic resources. This process is documented in a Letter of Resolution (LOR) that was developed between the NYSDEC and OPRHP.

Through coordination with the OPRHP, the site was determined to be in an environmentally sensitive area. Per OPRHP, a Phase 1A/1B Cultural Resources Survey are being conducted.

## 2.7 SURFACE WATERS & FLOODPLAINS

The Site is in the Oak Orchard-Twelve Mile watershed as part of the Lake Ontario Drainage Basin. This watershed is not identified in Appendix C of the Permit; enhanced phosphorous removal standards are not required. Runoff from the agricultural site parcels flows over agricultural areas (currently row crops) and infiltrate into surface soils. The Site runoff primarily discharges via overland flow to Fish Creek or Lake Ontario. The main coal plant parcel has several locations that pump water to multiple discharge points along the Lake Ontario shoreline. Runoff from the Site likely discharges into Lake Ontario which is included on the Section 303(d) List of Impaired Waters, Appendix E of the Permit.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panels below, the Site is identified in Zone X, an area of minimal flood hazard (unshaded).

- Firm Panel No. 36063C0101F, Effective date May 4, 2021
- Firm Panel No. 36063C0102F, Effective date May 4, 2021
- Firm Panel No. 36063C0103E, Effective date September 17, 2010
- Firm Panel No. 36063C0104E, Effective date September 17, 2010

These maps can be found in Appendix D.

## 2.8 RAINFALL DATA

In accordance with the *2016 New York State Standards and Specifications for Erosion and Sediment Control*, hydrologic data and rainfall distributions published by the Northeast Regional Climate Center (NRCC) on their website (<http://precip.eas.cornell.edu/>), are used in the stormwater hydrology calculations herein. The rainfall data for various 24-hour storm events anticipated at the Site are presented in Table 5.

**Table 5 – Rainfall Data**

Storm Event	24-Hour Rainfall
1-year	1.74-inches
10-year	2.96-inches
100-year	4.88-inches

## 3.0 EROSION & SEDIMENT CONTROL

This section of the SWPPP and the associated construction drawings identify the temporary and permanent erosion and sediment control (ESC) measures that have been incorporated into the design of this Project. These measures will be implemented during construction to protect the waters of the State from sediment loads during runoff events.

The anticipated order of construction activities is outlined along with the ESC measures to be implemented for each construction activity that will result in soil disturbance. The SWPPP and construction drawings provide a description of the temporary and permanent ESC measures including limitations on the duration of soil exposure, criteria and specifications for placement and installation of the ESC measures, and a maintenance schedule.

An emphasis was placed on the preservation of natural features, conserving existing drainage patterns and vegetation, minimizing impervious surfaces, reducing runoff velocity, and increasing infiltration throughout the design process.

### 3.1 CONSTRUCTION SEQUENCE

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Construction is anticipated to start in 2023 and operation is targeted for 2025. The Project's construction will be approximately one year in duration. The construction will begin with initial site preparation, preliminary site grading, installation of access roadway, erection of arrays, electrical installation, and commissioning/startup.

The following is a typical sequence of operations and phasing plan describing the intended order of construction activities:

#### Initial Phase

1. Hold a pre-construction meeting on-site attended by the qualified inspector, and any involved subcontractors to discuss responsibilities as they relate to the implementation of the SWPPP, identify the secure location where the SWPPP will be kept on the Site (must be accessible during normal business hours), and review appropriate measures to avoid and minimize impacts to protected species during remediation, demolition, and construction. If contractors and subcontractors have not already done so, the certification statements in Appendix L shall be signed at this time.
2. Delineate limits of work disturbance, proposed infrastructure areas for the Project, and resources to protect.
3. Identify post-construction stormwater management practice areas to be protected to preserve native soil permeability.
4. Minimally clear areas as required for the following:
  - a. Installation of perimeter controls and stabilized construction entrance.
  - b. Placement of construction office trailer and parking areas.
  - c. Placement of temporary ESC measures.
5. Establish equipment staging (laydown area), temporary soil stockpile areas, and concrete washout areas.
6. Install and stabilize temporary ESC measures.
7. Install temporary infrastructure (e.g., construction office trailer, security measures, etc.).

#### Interim Phase

1. Perform grading, clearing, grubbing for the remainder of the site per approved construction drawings.
2. Construct access roads.
3. Install permanent perimeter fencing.

4. Mount and install the supporting structure and racking system.
5. Install solar panels, combiners, and connections.
6. Construct equipment supports (transformer, central inverters, etc.).
7. Install underground electric wiring and/or above ground cable management systems.

#### Final Phase

1. Install permanent ESC measures.
2. Install permanent access road and paved access road entrance (if required).
3. Install permanent post-construction stormwater management practices.
4. Conduct soil restoration.
5. Complete fine grading, landscaping, seeding and soil stabilization.
6. Remove temporary ESC measures.
7. Restore and stabilize any disturbed areas remaining upon removal of temporary ESC measures

If the disturbed area exceeds 5 acres at any given time, written acceptance of this plan from the Regional NYSDEC office must be received and attached.

## **3.2 TEMPORARY EROSION & SEDIMENT CONTROL MEASURES**

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Temporary ESC measures are included as part of the construction drawings and described herein.

### **3.2.1 Stabilized Construction Entrance**

During the initial phase, stabilized construction entrances shall be installed, as shown on the construction drawings, 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 entrances will be maintained in a condition that controls tracking of sediment onto the local roadway. When necessary, the placement of additional aggregate atop the filter fabric shall be done to assure the minimum thickness is maintained. Sediments and soils spilled, dropped, or washed onto any public right-of-way must be removed immediately. Periodic inspection and needed maintenance shall be provided after each substantial rainfall event.

### **3.2.2 Dust Control**

Water trucks may be used as needed during construction to reduce dust generated on the Site. Dust control must be provided by the Contractor to a degree that is acceptable to the Owner, and in compliance with the applicable local and State dust control requirements.

Water lay down will be completed in such a way as to not have adverse effects on stormwater runoff.

### **3.2.3 Material Storage & Equipment Staging Areas**

Construction materials shall be stored in a dedicated staging area. The staging area shall be in an area that minimizes the impacts of the construction materials affecting stormwater quality and protected by a temporary sediment control barrier.

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

Material resulting from the clearing and grubbing operation shall be stockpiled up slope from adequate sedimentation controls or at an off-site location with appropriate protections for re-use during the restoration stage.

### **3.2.4 Concrete Wash Area**

Concrete trucks will be allowed to wash out or discharge surplus concrete or drum wash water on the site, but only in a specifically designated diked and impervious washout area which has been prepared to prevent contact between the concrete wash and stormwater. Waste generated from concrete wash water shall not be allowed to flow into drainage ways, inlets, receiving waters, highway right of ways, or any location other than the designated Concrete Wash Areas. Proper signage designating the "Concrete Wash Area" shall be implemented. The Concrete Wash Area shall be located at minimum 100 linear feet from drainage ways, inlets, and surface waters.

The hardened residue from the Concrete Wash Area shall be disposed of in the same manner as other non-hazardous construction waste materials. Maintenance of the wash area shall include removal of hardened concrete. The Concrete Washout Area shall have sufficient volume to contain all the concrete waste resulting from washout and a minimum freeboard of 12 inches. The Facility shall not be filled beyond 95 percent capacity and shall be cleaned out once 75 percent full unless a new facility is constructed. The Contractor is responsible for seeing that these procedures are followed.

Saw-cut Portland Cement Concrete (PCC) slurry shall not be allowed to enter storm drains or watercourses. Saw-cut residue should not be left on the surface of pavement or be allowed to flow over and off pavement.

All concrete washout areas shall be inspected daily and repaired or replaced as necessary. The Site shall be inspected daily to ensure that no concrete discharges are taking place in non-designated areas.

### **3.2.5 Sediment Control Barrier**

Prior to the initiation of and during construction activities, a geotextile filter fabric (or silt fence) or non-penetrating compost filter sock will be established along the perimeter of areas to be disturbed as a result of the construction that lies upgradient of water courses or adjacent properties. These barriers may extend into non-impact areas to ensure adequate protection of adjacent lands.

Clearing and grubbing will be performed only as necessary for the installation of the sediment control barrier. To ensure effectiveness of the sediment control barrier, daily inspections and inspections immediately following significant storm events shall be performed by Site personnel. Maintenance of the sediment control barrier will be performed as needed.

### **3.2.6 Temporary Soil Stockpile**

Materials, such as topsoil or removed soil for special handling, shall be temporarily stockpiled (if necessary) on the Site during the grading and construction process. Stockpiles shall be in an area away from storm drainage, water bodies and/or courses, and properly protected from erosion by a surrounding sediment control barrier.

### **3.2.7 Preservation of Natural Areas**

During the initial phase, limits of construction and resources to protect shall be identified in accordance with the construction drawings. Sturdy fences or other protective materials shall be placed around valuable vegetation for protection from construction equipment. Soil placement over existing tree and shrub roots shall be limited to a maximum of 3 inches.

### **3.2.8 Temporary Seeding**

In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased.

### **3.2.9 Temporary Diversion Swales**

Temporary diversion swales may 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. Depending on field conditions, the contractor may utilize this method as a form of runoff control if needed during construction. Temporary diversion swales must discharge to temporary sediment traps, and not to adjacent wetlands, streams, or lakes.

### **3.2.10 Temporary Slope Protection**

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

### **3.2.11 Temporary Soil Stabilization**

In areas where soil disturbance activity has temporarily ceased (*i.e.*, an existing disturbed area will not be disturbed again within fourteen (14) calendar days of the previous soil disturbance), the application of temporary soil stabilization measures shall be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased.

Temporary soil stabilization can be achieved by covering exposed soil with mulch, seed and mulch, and/or erosion control mats (*e.g.*, jute twisted yarn, excelsior wood fiber mats) to prevent the exposed soil from eroding until permanent soil stabilization has been implemented and achieved.

## **3.3 PERMANENT EROSION & SEDIMENT CONTROL MEASURES**

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Permanent ESC measures are included as part of the construction drawings provided in Appendix A and described herein.

### **3.3.1 Permanent Soil Stabilization**

Disturbed areas that will be stabilized must be seeded in accordance with the construction drawings.

All areas at final grade must be seeded and mulched within fourteen (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.

### **3.3.2 Rock Outlet Protection**

Outlet protection will be utilized as necessary using rock riprap at culvert outlets, new channels constructed as outlets for culverts and conduits, and pipe conduits from sediment basins, dry storm water ponds, and permanent ponds. Rock for riprap shall consist of field rock or rough unhewn quarry rock. The rock shall be hard and angular, and of a quality that will not disintegrate on exposure to water or weathering. The specific gravity of the individual rocks shall be at least 2.5. A filter shall be placed under the rock riprap. Permanent sections of rock protection at outlets reduce the depth, velocity, and energy of the water to prevent the flow from eroding the downstream reach.

### **3.3.3 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 stormwater 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 significant soil disturbance has occurred outside of pavement

areas, the disturbed sub-soils shall be returned to rough grade and soil restoration steps applied, in accordance with Table 4.6, Soil Restoration Requirements of the NYS Standards and Specifications for Erosion and Sediment Control dated November 2016 and Section 5.1.6, Soil Restoration of the NYS Stormwater Management Design Manual (SMDM), dated January 2015.

Table 6 provides the soil restoration requirements for various types of soil disturbance. Grading and soil restoration requirements shall be in accordance with the construction drawings.

**Table 6 – Soil Restoration Requirements**

Type of Soil Disturbance	Soil Restoration Requirement		Comments/Examples
No Soil Disturbance	Restoration not permitted.		Preservation of natural features.
Minimal Soil Disturbance	Restoration not required.		Clearing and grubbing.
Areas where topsoil is stripped only – no change in grade	HSG A & B	HSG C & D	Protect areas from any ongoing construction activities.
	Apply 6 inches of topsoil	Aerate* and apply 6 inches of topsoil	
Areas of cut or fill	HSG A & B	HSG C & D	None
	Aerate and apply 6 inches of topsoil	Apply full soil restoration**	
Heavy traffic areas on site (especially within 5-25 feet of buildings but not within a 5-foot perimeter around foundation walls)	Apply full soil restoration (de-compaction and compost enhancement)		None
Areas where runoff reduction and/or infiltration practices are applied	Restoration not required but may be applied to enhance the reduction specified for appropriate practices.		Keep construction equipment away from crossing these areas.

\* Aeration includes the use of machines such as tractor-drawn implements with coulters making a narrow slit in the soil, a roller with many spikes making indentations in the soil, or prongs which function like a mini-subsoiler.

\*\* Per “Deep Ripping and De-compaction, DEC 2008”

## 4.0 STORMWATER MANAGEMENT DESIGN

The design described herein is in conformance with the sizing criteria outlined in the Permit, and the performance criteria provided in the NYS SMDM. The NYS SMDM outlines provisions for water quality, runoff reduction, channel protection, overbank flood control, and extreme flood management in the State of New York.

The design objectives are focused on water quality and quantity. Utilization of green infrastructure techniques to the maximum extent possible reduces the total water quality volume and the overall site runoff volume.

## **4.1 STORMWATER MANAGEMENT PRACTICES (SMPS)**

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The SWPPP and construction drawings identify the stormwater management practices that have been incorporated into the design of this Project. Stormwater runoff from the proposed development will be collected and conveyed to the quantity and quality control systems described herein.

### **4.1.1 Preservation of Undisturbed Areas & Buffers**

Important natural features and areas such as undisturbed forested and native vegetated areas, natural terrain, riparian corridors, wetlands, and other important site features have been delineated and placed into permanent conservations areas. These areas are shown on the construction drawings as delineated wetlands and an associated buffer. During construction, these areas shall be delineated and a physical barrier (i.e., fence) placed between the disturbed area and conservation area.

### **4.1.2 Reduction of Clearing & Grading**

Clearing and grading of the site has been limited to the minimum amount needed for the racking system installation, road access, and infrastructure. Limits of disturbance have been established for all development activities. The areas within the limits of disturbance will ultimately be planted with a low-maintenance grass seed as permanent vegetation over the design life of the system.

### **4.1.3 Locating Development in Less Sensitive Areas**

The site layout has been designed to avoid sensitive resource areas such as floodplains, mature forests, wetlands, critical habitat areas, and excessive slopes. There are no mapped 100-year or 500-year floodplains on this Site. See Appendix D for the FEMA Flood maps.

### **4.1.4 Reduction of Impervious Cover**

Reduction of impervious cover utilized in this design includes methods to reduce the amount of parking lots, roadways, and other surfaces that do not allow rainfall to infiltrate the soil, to reduce the volume of stormwater runoff, increase groundwater recharge, and reduce pollutant loadings that are generated from a site.

The length and width of the proposed access roads have been minimized to reduce overall imperviousness. The design of the access roads is based on the minimum lengths and widths required to meet applicable federal, state, and local codes and support the necessary equipment accessing the Site.

### **4.1.5 Vegetated Filter Strips**

Vegetated filter strips are used to slow and treat the stormwater runoff for portions of the site. The filter strips are vegetated surfaces designed to treat sheet flow from the adjacent drainage area and remove

pollutants through filtration and infiltration. Vegetated filter strips are incorporated into the final SWPPP to treat runoff from the roads and concrete equipment pads.

Areas draining by sheet flow to a filter strip can be subtracted from the total contributing drainage area for water quality volume calculations. If the area draining contains impervious surface, the runoff reduction volume is reduced as well.

The NYS SMDM specifies the minimum width of a vegetated filter strip to be 50 feet (for slopes of 0% to 8%). However, the NYSDEC provided guidance for use of a smaller width filter strip based on the State of Virginia's Department of Conservation and Recreation (VDCR) Design Specification No. 2, Sheet Flow to a Vegetated Filter Strip or Conserved Open Space. This guidance assumes the proposed filter strips will comply with the outlined criteria in the VDCR design specification document. Using Table 2.3 of the VDCR design specification document, a 35-foot-wide vegetated filter strip is proposed adjacent to the access road on Site given that the slopes do not exceed 4%.

When installing a filter strip a pea-gravel diaphragm or riprap is installed at the top of the slope which receives runoff from the adjacent equipment pads to promote sheet flow. A 2-inch drop is specified from the edge of the road to the top of the gravel diaphragm to prevent runoff from moving laterally along the pavement edge and bypassing the filter strip.

Compost soil amendments shall extend over the full length and width of the filter strip. The required depth of compost and specifications shall be in accordance with Section 5.3.2 of the NYS SMDM. Rake the amended area to achieve the most level slope possible without using heavy construction equipment and stabilize rapidly with perennial grass and/or herbaceous species.

Soil compaction or disturbance in the area of the proposed filter strip should be minimized to the extent practicable. If this is unavoidable, the area should be restored by tilling or otherwise reestablishing the soil permeability.

#### **4.1.6 Disconnection of Non-rooftop Runoff**

Due to the nature of ground mounted solar system installation, the solar panels themselves are not considered to contribute to the amount of impervious area provided they are designed as a non-rooftop disconnection. The memorandum from the NYSDEC dated February 21, 2020 provides guidance for solar panel construction stormwater permitting. This Project falls under Scenario 2 which requires post-construction stormwater practices to be designed in accordance with Chapter 4 of the NYS SMDM. The water quality volume and runoff reduction volume sizing criteria can be addressed by design and constructing the solar panels in accordance with the criteria in items 1-4, which are summarized below.

1. Solar panels are constructed on post or rack systems elevated off the ground surface.
2. The panels are spaced apart so that rainwater can flow off the down gradient side of the panel and continue as sheet flow across the ground surface.
3. For solar panels constructed on slopes, the individual rows of solar panels are generally installed along the contour so rainwater sheet flows down slope.

4. The ground surface below the panels consist of a well-established vegetative cover (see “Final Stabilization” definition in Appendix A of the General Permit)

Items 2 & 3 reference the Maryland Department of the Environment’s stormwater design guidance for solar panel installations. Due to the presence of steep slopes exceeding the limitations within the provided guidance in some areas of the project Site, hydroseeding with tackifier and compost filter socks are proposed to ensure vegetated cover can be well established in areas that have been disturbed during construction. Due to the nature of the panel rows being installed at an angle to the contour, flow spreaders at the edge of the drip line are not proposed to avoid channeling the runoff from the panels and disrupting the existing hydrology and natural drainage paths of the Site. Tetra Tech has observed previously constructed solar projects on slopes exceeding 10% that have not displayed signs of erosion at the drip edge. However, permanent reinforced turf matting may be installed during construction in areas with excessive slopes where adequate ground cover cannot be established.

## 4.2 DRAINAGE AREAS

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The study area for this Project consists of fifty-four (54) drainage areas that encompass approximately 1,215-acres. These drainage areas discharge separate outfall locations, each defined as a Design Point (DP).

The separation of the drainage areas was dictated by watershed conditions, methods of collection, conveyance, and points of discharge. Watershed characteristics for each drainage area were assessed using aerial photographs, a topographical survey, soil surveys, Site investigations, and land use maps.

The location and acreage for each of the drainage areas can be found in Appendix F with the Drainage Maps. These depict the extent of the drainage areas, the locations of the design points, the flow paths and routing, and the soils within each drainage area for both pre-development and post-development conditions.

## 4.3 STORMWATER QUALITY CONTROL

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Stormwater runoff from impervious surfaces is recognized as a significant contributor of pollution that can adversely affect the quality of the receiving water bodies. Therefore, treatment of stormwater runoff is important since most runoff related water quality contaminants are transported from land, particularly the impervious surfaces, during the initial stages of storm events.

The objective for this design is to reduce the total water quality volume of the Site by applying runoff reduction techniques and standard SMPs with runoff reduction volume capacity. The NYS SMDM provides a unified approach for calculating the water quality volume, runoff reduction volumes, and sizing green infrastructure and SMPs to meet pollutant removal goals.

### 4.3.1 Water Quality Volume (WQ<sub>v</sub>)

The Water Quality Volume (WQ<sub>v</sub>) is intended to improve water quality by capturing and treating runoff from small, frequent storm events that tend to contain higher pollutant levels. New York defines WQ<sub>v</sub> as the volume generated from the 90<sup>th</sup> percentile rain event.

The following equation is used to determine the water quality volume (in acre-feet of storage):

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

Where:

$WQ_v$	=	Water Quality Volume (acre-feet)
$P$	=	90% Rainfall Event Number (Figure 4.1 in NYS SMDM)
$R_v$	=	$0.05 + 0.009(I)$ , where $I$ is percent impervious cover
$A$	=	Site contributing area (acres)

The  $WQ_v$  is calculated in the Runoff Reduction Worksheet provided by NYSDEC for each drainage area. Areas containing only solar panels have been left out of these calculations as the runoff reduction technique and guidance discussed satisfies the requirement for water quality volume. Additionally, portions of the drainage areas that are not altered from pre- to post-development conditions have not been included in these calculations.

Calculations are provided in Appendix G. Runoff reduction techniques previously discussed that help to reduce the overall contributing area have been accounted for in this calculation and are summarized in Table 7.

### 4.3.2 Runoff Reduction Volume ( $RR_v$ )

The NYS SMDM states; runoff reduction shall be achieved by infiltration, groundwater recharge, reuse, recycle, or evaporation/evapotranspiration of 100 percent of the post-development water quality volume to the maximum extent practical. If the runoff reduction volume ( $RR_v$ ) is greater than the  $WQ_v$ , then the Project has already met the requirement for  $WQ_v$  by applying runoff reduction techniques.

Projects that do not achieve runoff reduction requirements must, at a minimum, reduce a percentage of the runoff from impervious areas to be constructed on the Site. In no case shall the runoff reduction achieved be less than the minimum  $RR_v$ .

The percent reduction is based upon the Hydrologic Soil Group (HSG) of the Site and is defined as the Specific Reduction Factor (S). Section 4.3 of the NYS SMDM defines the minimum Runoff Reduction Volume ( $RR_{v\min}$ ) as:

$$RR_{v\min} = \frac{(P)(\bar{R}_v^*)(A_{ic})(S)}{12}$$

Where:

$RR_{v\min}$	=	Minimum Runoff Reduction Volume required (acre-feet)
$P$	=	90 percent Rainfall Event Number

$$\bar{R}_V^* = 0.05 + 0.009 (I), \text{ where } I \text{ is } 100\% \text{ impervious}$$

$$A_{ic} = \text{Total Area of New Impervious Cover (Acres)}$$

$$S = \text{HSG Specific Reduction Factor where:}$$

$$\text{HSG A} = 0.55$$

$$\text{HSG C} = 0.30$$

$$\text{HSG B} = 0.40$$

$$\text{HSG D} = 0.20$$

The  $RR_v$  provided and the  $RR_{vmin}$  are calculated in the Runoff Reduction Worksheet provided by NYSDEC. Calculations are provided in Appendix G and summarized in Table 7.

### 4.3.3 Summary

The following table summarizes the green infrastructure practice that has been implemented for each drainage area to meet the water quality volume requirements. As shown, the water quality requirements have been satisfied through the implementation of runoff reduction techniques.

As shown, the water quality requirements have been satisfied through the implementation of runoff reduction techniques and standards SMPs.

**Table 7** – Summary of the Water Quality Volume ( $WQ_v$ ) Calculations

Drainage Areas	Runoff Reduction Technique(s)	Min $RR_v$ (cf)	$WQ_v$ Reduced $RR_v$ (cf)
3	Vegetated Filter Strip	66	232
5	Vegetated Filter Strip	1,072	11,248
6	Vegetated Filter Strip	602	4,205
9	Vegetated Filter Strip	230	2,775
12	Vegetated Filter Strip	1,006	5,095
14	Vegetated Filter Strip	372	1,869
15	Vegetated Filter Strip	142	454
16	Vegetated Filter Strip	109	374
18	Vegetated Filter Strip	777	2,556
19	Vegetated Filter Strip	230	728
20	Vegetated Filter Strip	547	2,171
21	Vegetated Filter Strip	339	1,339
22	Vegetated Filter Strip	98	1,770
25	Vegetated Filter Strip	722	2,310
26	Vegetated Filter Strip	1,356	6,930
44	Vegetated Filter Strip	1,061	5,986
46	Vegetated Filter Strip	2,067	10,612
53	Vegetated Filter Strip	645	3,588

## 4.4 STORMWATER QUANTITY CONTROL

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This section presents the methodology and analysis performed for the pre- and post-development conditions of the Site to address erosion and flood control during specified storm events.

### 4.4.1 Hydrologic & Hydraulic Analysis

HydroCAD® Storm and Sanitary Analysis, a comprehensive hydrology and hydraulic analysis application, was used to compute the stormwater peak discharge rate at the drainage area outfalls for each storm event. A stormwater network model was produced consisting of three types of components as described below:

- **Subbasin:** Hydrologic areas of land whose topography and drainage system elements direct surface runoff to a single discharge point.
- **Conveyance Link:** Channels, pipes and culverts used to route the stormwater runoff to various features.
- **Storage Nodes:** Catch basins, detention ponds, reservoirs and lakes associated with storage volume.

A comparison of the pre- and post-development watershed conditions was performed for all design points and storm events evaluated herein.

The hydrologic and hydraulic analysis considers the SCS Type II 24-hour storm events and uses TR-20 methodology. The TR-55 method is used for calculating the time of concentration ( $T_c$ ). Input data required to perform the analysis includes acreages and curve numbers for the associated drainage areas, and slopes and flow lengths for the time of concentration calculations.

The analyses demonstrate that the peak rate of runoff will not be increased post-development for each design storm. While there is a slight increase in the runoff rate for various design points in the post-construction condition, the flow increase is limited and is considered insignificant. The overall project peak discharge rates and volumes are significantly decreased in the post-construction condition. Additionally, due to minor site grading, some drainage areas appear to have a larger increase in post-construction peak rates. However, these increases are offset when considering the overall area between pre-dev and post-dev drainage areas. Overall, the amount of new impervious area on the site is very minimal, and these increases are effectively managed by improved ground cover throughout the majority of the site in the post-construction condition. Finally, as shown in Table 7 above, the minor increases in impervious cover are also treated for water quality using grass filter strips. Therefore, the Project will not have a significant adverse impact on the adjacent or downstream properties or receiving water courses.

The results of the computer modeling used to analyze the pre- and post-development conditions are presented in Appendix H and Appendix I, respectively. Table 8 summarizes the results.

**Table 8** – Summary of Pre-Development & Post-Development Peak Discharge Rates

Design Point (DP #) <sup>1</sup>	24-Hour Storm Event (cfs)					
	1-year		10-year		100-year	
	Pre	Post	Pre	Post	Pre	Post
1 <sup>1</sup>	0.23	0.34	1.78	1.85	5.58	7.05
2 <sup>1</sup>	0.00	0.00	0.00	0.00	0.02	0.00
3	0.08	0.45	0.57	1.45	1.78	3.48
4 <sup>1</sup>	0.24	3.46	2.32	15.29	7.94	41.14
5 <sup>1</sup>	2.48	0.00	12.28	0.00	34.54	0.00
6 <sup>1</sup>	1.61	0.00	7.25	0.00	19.18	0.00
7 <sup>1</sup>	1.27	5.19	6.76	13.99	19.53	29.49
8 <sup>1</sup>	0.26	0.00	2.42	0.00	7.78	0.00
9	3.91	3.35	13.33	9.70	31.24	21.16
10	0.74	0.51	3.41	2.09	8.87	5.25
11	1.83	1.10	5.59	3.06	12.51	6.55
12	2.60	4.29	11.32	14.45	30.02	33.97
13	1.95	3.11	8.19	9.22	20.97	20.28
14	1.35	4.94	7.29	15.80	21.65	36.44
15 <sup>1</sup>	2.97	1.94	10.05	5.67	23.49	12.46
16 <sup>1</sup>	0.04	0.00	0.31	0.00	0.97	0.00
17	1.87	0.16	5.71	0.44	12.77	0.97
18	4.16	4.53	13.65	12.29	31.54	26.05
19	1.74	1.62	5.94	4.53	13.90	9.75
20 <sup>1</sup>	1.09	3.15	5.65	12.13	15.88	30.64
21 <sup>1</sup>	1.01	0.00	5.97	0.00	17.93	0.00
22	2.97	3.02	11.62	10.18	28.93	23.95
23	0.54	0.48	3.61	3.44	10.88	10.72
24	1.41	1.05	7.64	4.93	21.43	13.36
25	5.31	8.76	28.55	30.23	80.28	71.52
26 <sup>1</sup>	3.22	4.24	16.69	12.38	49.88	28.04
27 <sup>1</sup>	10.13	1.37	27.41	4.11	57.95	9.34
28	8.71	2.91	19.30	9.31	36.42	21.15
29 <sup>1</sup>	1.76	7.96	8.31	32.16	23.74	82.13
30	2.32	2.03	13.21	7.07	38.45	17.44
31	1.25	3.73	8.50	14.23	25.44	34.65
32	0.08	0.64	1.69	1.74	6.71	3.81
33	2.68	2.91	14.34	7.19	40.32	14.94
34 <sup>1</sup>	5.66	0.86	20.66	2.00	49.82	4.12
35	1.40	1.70	9.79	7.33	31.96	19.96
36 <sup>1</sup>	0.27	0.00	2.51	0.00	8.04	0.00
37	7.33	1.20	15.42	3.93	28.30	7.84

Design Point (DP #) <sup>1</sup>	24-Hour Storm Event (cfs)					
	1-year		10-year		100-year	
	Pre	Post	Pre	Post	Pre	Post
38	3.19	0.07	7.11	0.07	13.48	0.07
39	2.97	0.62	5.64	1.09	9.80	1.84
40	1.35	0.39	2.83	0.69	5.18	1.15
41 <sup>1</sup>	26.87	6.76	48.46	9.98	81.93	13.68
42 <sup>1</sup>	1.26	6.87	7.62	18.31	23.81	38.57
43	0.16	0.78	1.93	3.05	6.93	7.77
44	2.49	5.33	12.77	15.73	36.15	34.84
45	0.41	0.60	2.67	1.93	8.08	4.47
46 <sup>1</sup>	8.01	16.76	33.51	50.98	86.08	113.54
47 <sup>1</sup>	2.28	1.68	8.08	4.80	19.23	10.41
48	0.20	1.38	4.00	4.84	14.18	11.46
49	0.00	0.94	0.00	4.00	0.53	10.19
50	0.32	2.01	7.94	10.35	33.61	28.95
51	0.59	2.67	2.67	7.99	7.26	17.75
52	1.44	4.10	8.63	11.29	25.06	24.05
53	2.81	3.52	11.44	11.86	29.33	28.04
54	0.93	0.74	3.94	2.38	9.96	5.47
<b>Total</b>	<b>141.75</b>	<b>136.22</b>	<b>508.28</b>	<b>431.53</b>	<b>1287.24</b>	<b>999.90</b>

1 – Post-Development flows for the following design points were combined after site grading: DA-01 and DA-02; DA-04, DA-05, and DA-06; DA-15 and DA-16; DA-20 and DA-21; portions of DA-26, DA-27, and DA-29; DA-34 and DA-36 DA-41 and DA-42; and DA-46 and DA-47.

#### 4.4.2 Stream Channel Protection Volume ( $C_p$ )

The stream channel protection volume 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, remaining from runoff reduction. The NYS SMDM defines the  $C_p$  detention time as the center of mass detention time through each stormwater management practice.

The  $C_p$  requirement does not apply when the reduction of the entire  $C_p$  is achieved at a site through green infrastructure or infiltration systems.

#### 4.4.3 Overbank Flood Control ( $Q_p$ )

The overbank flood control 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. The control requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate ( $Q_p$ ) to pre-development rates.

#### 4.4.4 Extreme Flood Control ( $Q_f$ )

The extreme flood control 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 stormwater management practices. The control requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate ( $Q_f$ ) to pre-development rates.

## 5.0 SPILL PREVENTION & SOLID WASTE MANAGEMENT

The following describes other control measures to be employed during all phases of construction.

### 5.1 SPILL PREVENTION & 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 Safety Data Sheets (SDS) for materials to be stored on-site. Workers on-site will be required to be trained on safe handling and spill prevention procedures for all materials used during construction. Hazard communication will also be required.

The use of detergents for large scale washing is prohibited (e.g., vehicles, buildings, pavement surfaces, etc.).

In accordance with the United States Environmental Protection Agency's (USEPA) Clean Water Act, the Oil Pollution Prevention Regulations, 40 CFR, Part 112, a Spill Prevention, Control and Countermeasures (SPCC) Plan may be required for the subject Site. This SWPPP does not include a SPCC Plan. Should the oil storage capacity at the Site meet or exceed regulatory standards, the Contractor shall provide a compliant SPCC Plan.

### 5.2 SOLID & LIQUID WASTE DISPOSAL

No solid or liquid waste, including building materials, are allowed to be discharged from the Site with stormwater. All solid waste, including disposable materials incidental to the major construction activities, must be collected, and placed in containers. The containers shall be emptied periodically by a licensed solid waste disposal service and hauled away from the Site and disposed at a permitted facility.

Substances that have the potential for polluting surface and/or groundwater must be controlled by whatever means necessary to ensure that they do not discharge from the Site. As an example, special care must be exercised during equipment fueling and servicing operations. A designated refueling area will be provided that will allow for appropriate containment. If a spill occurs, it must be contained and disposed 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.

### 5.2.1 Sanitary Facilities

Temporary sanitary facilities may be provided throughout the construction phase. These facilities will be utilized by construction personnel and will be serviced by an outside contractor. These facilities shall comply with state and local sanitary or septic system regulations.

### 5.2.2 Water Source

Non-stormwater components of Site discharge must be clean water. Water used for construction, which discharge from the Site, must originate from a public water supply or private well approved by the Niagara County Health Department. Water used for construction that does not originate from an approved public supply must not discharge from the Site. It can be retained until it infiltrates and evaporates.

## 6.0 INSPECTION & MAINTENANCE REQUIREMENTS

### 6.1 PRE-CONSTRUCTION INSPECTION

Prior to the commencement of construction, the Owner or Operator must identify the Contractor(s) and Subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the Contractor(s) and Subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The Owner or Operator shall have each of the Contractors and Subcontractors identify at least one (1) person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the Trained Contractor as defined in Appendix A of the General Permit GP-0-020-001, who shall be on site on a daily basis when soil disturbance activities are being performed.

The responsible Contractor or Subcontractor shall sign the form included in Appendix L.

A Qualified Inspector shall conduct an assessment of the Site and certify that the appropriate erosion and sediment control structures have been adequately installed and implemented. Refer to the inspection forms in Appendix M.

As required for pre-construction compliance filings outlined in §900-10.2 (7,) a Complaint Management Plan will be prepared and approved by Office of Renewable Energy (ORES) prior to initiation of construction activities. The Applicant will maintain a toll-free telephone number and email address for purposes of receiving communications from the public regarding the Facility. The Applicant will work to address landowner issues related to groundwater in a timely manner.

## 6.2 CONSTRUCTION PHASE INSPECTIONS & MAINTENANCE

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A Qualified Inspector, as defined in Appendix A of the General Permit GP-0-020-001, shall conduct weekly Site inspections between the time the SWPPP is implemented and final site stabilization. To ensure the stability and effectiveness of all protective measures and practices during construction, all erosion and sediment control measures employed will be inspected by the Qualified Inspector at least every 7 calendar days. If disturbance exceeds 5 acres, the Qualified Inspector shall conduct at least two inspections every 7 calendar days. The two inspections shall be separated by a minimum of two full calendar days. The NYSDEC also needs to be advised in writing that the 5 acres has been disturbed.

The purpose of Site inspections is to assess performance of pollutant controls. Based on these inspections, the Qualified Inspector shall decide whether it is necessary to modify this SWPPP, add or relocate sediment barriers, or whatever else may be needed to prevent pollutants from leaving the Site via stormwater runoff. The Contractor is charged with repairing, modifying, maintaining, supplementing or whatever else is necessary to achieve effective pollutant control.

Examples of 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 details of individual system components. Additional factors should be considered as appropriate to the circumstances.

- 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.
- Sediment barriers must be inspected and, if necessary, they must be enlarged or cleaned 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.
- 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 to contain runoff from material storage areas.
- Grassed areas will be inspected to confirm that a healthy stand of grass is maintained. The Site will be considered to have achieved final stabilization once all areas are covered with building foundation, pavement, or gravel, or have a stand of grass with at least 80 percent density, which is considered stabilized or mulched. Areas must be watered, fertilized, and reseeded as needed to achieve this goal. If permanent ground cover cannot be well established due to erosion in areas where slopes exceed 5% noticed during the Site inspections both during and after construction is completed, a permanent reinforced turf matting shall be installed in the noted areas to help with soil stabilization.
- All discharge points must be inspected to determine whether erosion control measures are effective in preventing significant impacts to receiving waters.

Within 1 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 1 business day of this notification and shall complete the corrective actions in a reasonable time frame.

In addition to the inspections performed by the Qualified Inspector, 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 Drawings. 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 Contractor to assure the adequacy of Site pollutant discharge controls. Actual physical Site conditions or contractor practices could make it necessary to install more erosion and sediment controls than shown on the attached Drawings. (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 addressed throughout all aspects of this Project, and until the Site achieves final stabilization.

### **6.3 INSPECTION & MAINTENANCE REPORTS**

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Inspection reports must be completed for every inspection conducted and include additional remarks 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 SWPPP at the time of inspection and specifically identify all incidents of non-compliance.

Sample inspection forms are included in Appendix M. At a minimum, the inspection report shall include and/or address the following:

- Date and time of inspection;
- Name and title of person(s) performing inspection;
- A description of the weather and soil conditions (*e.g.*, dry, wet, saturated) at the time of the inspection;
- 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 (*e.g.*, pipes, culverts, ditches, etc.) and overland flow;
- Identification of all erosion and sediment control practices that need repair or maintenance;
- 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;

- 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;
- 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;
- 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
- Include color photographs with date stamp, taken with a digital camera that clearly show 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.

**All inspection reports shall be signed by the Qualified Inspector and shall be maintained on Site with the SWPPP, kept in Appendix N.**

## 6.4 TEMPORARY SUSPENSION OF CONSTRUCTION ACTIVITIES

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For constructions areas 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 in writing.

## 6.5 PARTIAL PROJECT COMPLETION

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For construction areas where soil disturbance activities have been shut down with partial project completion, the Qualified Inspector may 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 NYSDEC 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 Notice of Termination (NOT).

## 6.6 POST-CONSTRUCTION OR PLANNED SHUTDOWN INSPECTION

The Owner or Operator shall have the Qualified Inspector perform a final Site inspection prior to submitting the NOT when all disturbed areas are stabilized, and all stormwater management systems are in place and operable. The Qualified Inspector shall 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.

Prior to submitting the NOT, the Owner or Operator must have a deed restriction in place to ensure that the Operation and Maintenance Plan is implemented for the post-construction stormwater management practices.

## 6.7 RETENTION OF RECORDS

The Owner or Operator shall retain a copy of the Notice of Intent (NOI), NOI Acknowledgment Letter, SWPPP, and any inspection reports that were prepared in conjunction with this permit for a period of at least 5 years from the date that the Site achieves final stabilization. This period may be extended by the NYSDEC, in its sole discretion, at any time upon written notification.

With the exception of the NOI, and NOT, all written correspondence requested by the NYSDEC, including individual permit applications, shall be sent to the following NYSDEC address:

NYSDEC Region 9 Headquarters  
270 Michigan Avenue  
Buffalo, NY 14203

## 7.0 CONCLUSION

This Project is not subject to the requirements of a regulated Municipal Separate Storm Sewer System (MS4), and this SWPPP has been prepared in conformance with the New York State Stormwater Design Manual 2015 with additional guidance provided by the NYSDEC. As such, it is anticipated that GP-0-20-001 coverage will be effective 5 business days from the date the NYSDEC receives the complete electronic version of the NOI (eNOI) or 10 business days from the date the NYSDEC receives the complete paper version of the NOI, unless notified otherwise by the NYSDEC.

Following construction of the Project, the Site soils shall be restored in accordance with Section 5.1.6 of the NYS SMDM, and re-vegetation shall be implemented.

The post-construction stormwater management practice(s) will be owned by the Owner. Policies and procedures will be put in place that ensure that operation and maintenance of the practice(s) are in accordance with the operation and maintenance plan.

As demonstrated within this SWPPP, the proposed Project will not adversely impact adjacent or downstream properties.

## 8.0 LIMITATIONS

The work product included in this report was undertaken in full conformity with generally accepted professional consulting principles and practices and to the fullest extent as allowed by law we expressly disclaim all warranties, express or implied, including warranties of merchantability or fitness for a particular purpose. The work product was completed in full conformity with the contract with our client and this document is solely for the use and reliance of our client (unless previously agreed upon that a third party could rely on the work product) and any reliance on this work product by an unapproved outside party is at such party's risk.

The work product herein (including opinions, conclusions, suggestions, etc.) was prepared based on the situations and circumstances as found at the time, location, scope and goal of our performance and, thus, should be relied upon and used by our client recognizing these considerations and limitations. Tetra Tech shall not be liable for the consequences of any change in environmental standards, practices, or regulations following the completion of our work and there is no warrant to the veracity of information provided by third parties, or the partial utilization of this work product.

## 9.0 REFERENCES

NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity, Permit No. GP-0-20-001 (effective January 29, 2020, expires January 28, 2025).

New York State Department of Environmental Conservation, Stormwater Toolbox, from World Wide Web: <http://www.dec.ny.gov/>.

New York State Department of Environmental Conservation, Memorandum “Solar Panel Construction Stormwater Permitting/SWPPP Guidance” (February 21, 2020).

New York State Stormwater Management Design Manual (January 2015).

New York State Standards and Specifications for Erosion and Sediment Control, NYSDEC (November 2016).

Maryland Department of the Environment Stormwater Design Guidance – Solar Panel Installations.

Virginia Department of Environmental Quality Stormwater Design Specification No. 2, Sheetflow to a Vegetated Filter Strip or Conserved Open Space, Version 1.9 (March 1, 2011).

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## APPENDIX A – CONSTRUCTION DRAWINGS

Refer to the 30% civil design set issued for discretionary permitting. Construction drawings will be attached and included in the final SWPPP prior to construction.

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**APPENDIX B – NYSDEC GENERAL PERMIT FOR STORMWATER DISCHARGES  
FROM CONSTRUCTION ACTIVITY PERMIT NO. GP-0-20-001**



Department of  
Environmental  
Conservation

NEW YORK STATE  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT  
FOR STORMWATER DISCHARGES

From

**CONSTRUCTION ACTIVITY**

Permit No. GP- 0-20-001

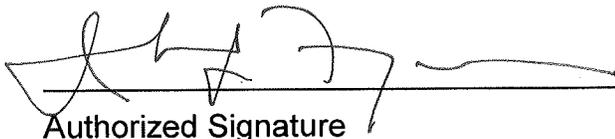
Issued Pursuant to Article 17, Titles 7, 8 and Article 70  
of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator



Authorized Signature

1-23-20

Date

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

## PREFACE

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

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

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

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

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## Part 1. PERMIT COVERAGE AND LIMITATIONS

### A. Permit Application

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

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;
2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State*.
3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

### B. Effluent Limitations Applicable to Discharges from Construction Activities

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

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

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

- a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:
- (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharges*;
  - (ii) Control stormwater *discharges*, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;
  - (iii) *Minimize* the amount of soil exposed during *construction activity*;
  - (iv) *Minimize* the disturbance of *steep slopes*;
  - (v) *Minimize* sediment *discharges* from the site;
  - (vi) Provide and maintain *natural buffers* around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharges*, unless *infeasible*;
  - (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;
  - (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and
  - (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.
- b. **Soil Stabilization.** In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

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

- c. **Dewatering.** *Discharges* from *dewatering* activities, including *discharges* from *dewatering* of trenches and excavations, must be managed by appropriate control measures.
  
- d. **Pollution Prevention Measures.** Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:
  - (i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;
  
  - (ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and
  
  - (iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.
  
- e. **Prohibited Discharges.** The following *discharges* are prohibited:
  - (i) Wastewater from washout of concrete;
  
  - (ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

- (iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;
  - (iv) Soaps or solvents used in vehicle and equipment washing; and
  - (v) Toxic or hazardous substances from a spill or other release.
- f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

### **C. Post-construction Stormwater Management Practice Requirements**

1. The *owner or operator of a construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual (“Design Manual”), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices (“SMPs”) are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.
2. The *owner or operator of a construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

#### **a. Sizing Criteria for New Development**

- (i) Runoff Reduction Volume (“RRv”): Reduce the total Water Quality Volume (“WQv”) by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.
- (ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

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

**In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual.**

The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

- (iii) Channel Protection Volume (“Cpv”): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
  - (1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
  - (2) The site discharges directly to tidal waters, or fifth order or larger streams.
  
- (iv) *Overbank* Flood Control Criteria (“Qp”): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
  - (1) the site discharges directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that *overbank* control is not required.
  
- (v) Extreme Flood Control Criteria (“Qf”): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
  - (1) the site discharges directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that *overbank* control is not required.

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

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

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

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

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

- (iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
  - (1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
  - (2) The site *discharges* directly to tidal waters, or fifth order or larger streams.
- (iv) *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
  - (1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that *overbank* control is not required.
- (v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
  - (1) the site *discharges* directly to tidal waters or fifth order or larger streams, or
  - (2) A downstream analysis reveals that *overbank* control is not required.

### c. Sizing Criteria for Redevelopment Activity

- (i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.
- (1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or
  - (2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or
  - (3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or
  - (4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

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

- (ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.
- (iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.
- (iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

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

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

**D. Maintaining Water Quality**

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

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;
2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and
3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

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

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

## **E. Eligibility Under This General Permit**

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.
2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharges*; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.
3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: "Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned"; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharges* from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.
4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

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

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

1. *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 E.3. of this Part and identified in the SWPPP required by this permit;
3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;
4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

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

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;
6. *Construction activities* for residential, commercial and institutional projects:
  - a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and
  - b. Which are undertaken on land with no existing *impervious cover*; and
  - c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture (“USDA”) Soil Survey as Soil Slope Phase “D”, (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase “E” or “F” (regardless of the map unit name), or a combination of the three designations.
7. *Construction activities* for linear transportation projects and linear utility projects:
  - a. Where the *discharges* from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and
  - b. Which are undertaken on land with no existing *impervious cover*; and
  - c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase “D” (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase “E” or “F” (regardless of the map unit name), or a combination of the three designations.

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:
- a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.
    - 1-5 acres of disturbance - 20 feet
    - 5-20 acres of disturbance - 50 feet
    - 20+ acres of disturbance - 100 feet, or
  - b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
    - (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
    - (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
    - (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
    - (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or
  - c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

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

d. Documentation that:

- (i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.
9. *Discharges from construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

## Part II. PERMIT COVERAGE

### A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.
2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the “MS4 SWPPP Acceptance” form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.
3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of Owner or Operator) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

## B. Notice of Intent (NOI) Submittal

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

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

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.
3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.
4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

## C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.
2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:
  - a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (<http://www.dec.ny.gov/>) for more information,
  - b. where required, all necessary Department permits subject to the *Uniform Procedures Act* ("UPA") (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain UPA permits

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

- c. the final SWPPP has been prepared, and
  - d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.
3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:
- a. For *construction activities* that are not subject to the requirements of a *regulated, traditional land use control MS4*:
    - (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or
    - (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has not been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;
    - (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

- b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:
  - (i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed “MS4 SWPPP Acceptance” form, or
  - (ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed “MS4 SWPPP Acceptance” form.
4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

#### **D. General Requirements For Owners or Operators With Permit Coverage**

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination (“NOT”) has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.
2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor’s or subcontractor’s certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.
3. The *owner or operator of a construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land*

- use control MS4, the regulated, traditional land use control MS4 (provided the regulated, traditional land use control MS4 is not the owner or operator of the construction activity). At a minimum, the owner or operator must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:*
- a. The *owner or operator* shall have a *qualified inspector* conduct **at least two** (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
  - b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.
  - c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.
  - d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.
  - e. The *owner or operator* shall include the requirements above in their SWPPP.
4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..
  5. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.
  6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

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

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

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

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

#### **F. Change of Owner or Operator**

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4*, the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.
2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.
3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

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

### Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

#### A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.
2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.
3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.
4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:
  - a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

- b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;
  - c. to address issues or deficiencies identified during an inspection by the *qualified inspector*, the Department or other regulatory authority; and
  - d. to document the final construction conditions.
5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.
6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor*. The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

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

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with

the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharges* from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

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

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

## **B. Required SWPPP Contents**

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

- b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge(s)*;
- c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);
- d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;
- e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;
- f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;
- g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;
- h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;
- i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection

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

- j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;
  - k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and
  - l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.
2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

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

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

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

- b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;
- c. A Stormwater Modeling and Analysis Report that includes:
  - (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;
  - (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;
  - (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;
  - (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;
  - (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and
  - (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;
- d. Soil testing results and locations (test pits, borings);
- e. Infiltration test results, when required; and
- f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

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

### **C. Required SWPPP Components by Project Type**

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

## **Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS**

### **A. General Construction Site Inspection and Maintenance Requirements**

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.
2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

### **B. Contractor Maintenance Inspection Requirements**

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

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

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.
3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

### C. Qualified Inspector Inspection Requirements

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

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

- licensed Professional Engineer,
  - Certified Professional in Erosion and Sediment Control (CPESC),
  - New York State Erosion and Sediment Control Certificate Program holder
  - Registered Landscape Architect, or
  - someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].
1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:
    - a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located

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

- b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;
  - c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and
  - d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.
2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:
- a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.
  - b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
  - c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

- d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization*, and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the “*Final Stabilization*” and “*Post-Construction Stormwater Management Practice*” certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.
  - e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization*, all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site*, and all points of *discharge* from the *construction site*.
  4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

- a. Date and time of inspection;
- b. Name and title of person(s) performing inspection;
- c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;
- d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;
- e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;
- f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;
- g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;
- h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;
- i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;
- j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);
- k. Identification and status of all corrective actions that were required by previous inspection; and

- I. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.
5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.
6. All inspection reports shall be signed by the *qualified inspector*. Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

## **Part V. TERMINATION OF PERMIT COVERAGE**

### **A. Termination of Permit Coverage**

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.
2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:
  - a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

- b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;
      - c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.
      - d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.
3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the “*Final Stabilization*” and “Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.
4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the “MS4 Acceptance” statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector’s* final site inspection certification(s) required in Part V.A.3. of this permit.
5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:
  - a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

- b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),
- c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,
- d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

## **Part VI. REPORTING AND RETENTION RECORDS**

### **A. Record Retention**

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

### **B. Addresses**

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

## **Part VII. STANDARD PERMIT CONDITIONS**

### **A. Duty to Comply**

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

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

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

#### **B. Continuation of the Expired General Permit**

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

#### **C. Enforcement**

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

#### **D. Need to Halt or Reduce Activity Not a Defense**

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

### **E. Duty to Mitigate**

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

### **F. Duty to Provide Information**

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

### **G. Other Information**

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

### **H. Signatory Requirements**

1. All NOIs and NOTs shall be signed as follows:
  - a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

- (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or
    - (ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
  - b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or
  - c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:
    - (i) the chief executive officer of the agency, or
    - (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).
2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:
- a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;
  - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field,

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

- c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.
3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.
4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4*, or by a duly authorized representative of that person.

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

## **I. Property Rights**

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

## **J. Severability**

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

## **K. Requirement to Obtain Coverage Under an Alternative Permit**

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

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

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

#### **L. Proper Operation and Maintenance**

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

#### **M. Inspection and Entry**

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

1. Enter upon the owner's or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;
2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.
4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

#### **N. Permit Actions**

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

#### **O. Definitions**

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

#### **P. Re-Opener Clause**

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.
2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

#### **Q. Penalties for Falsification of Forms and Reports**

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

**R. Other Permits**

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

## **APPENDIX A – Acronyms and Definitions**

### **Acronyms**

APO – Agency Preservation Officer

BMP – Best Management Practice

CPESC – Certified Professional in Erosion and Sediment Control

Cpv – Channel Protection Volume

CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)

DOW – Division of Water

EAF – Environmental Assessment Form

ECL - Environmental Conservation Law

EPA – U. S. Environmental Protection Agency

HSG – Hydrologic Soil Group

MS4 – Municipal Separate Storm Sewer System

NOI – Notice of Intent

NOT – Notice of Termination

NPDES – National Pollutant Discharge Elimination System

OPRHP – Office of Parks, Recreation and Historic Places

Qf – Extreme Flood

Qp – Overbank Flood

RRv – Runoff Reduction Volume

RWE – Regional Water Engineer

SEQR – State Environmental Quality Review

SEQRA - State Environmental Quality Review Act

SHPA – State Historic Preservation Act

SPDES – State Pollutant Discharge Elimination System

SWPPP – Stormwater Pollution Prevention Plan

TMDL – Total Maximum Daily Load

UPA – Uniform Procedures Act

USDA – United States Department of Agriculture

WQv – Water Quality Volume

## Definitions

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Total Maximum Daily Loads (TMDLs)** - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint 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, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

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

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

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

## APPENDIX B – Required SWPPP Components by Project Type

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

<p><b>The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:</b></p> <ul style="list-style-type: none"><li>• Single family home <u>not</u> located in one of the watersheds listed in Appendix C or <u>not directly discharging</u> to one of the 303(d) segments listed in Appendix E</li><li>• Single family residential subdivisions with 25% or less impervious cover at total site build-out and <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</li><li>• Construction of a barn or other <i>agricultural building</i>, silo, stock yard or pen.</li></ul>
<p><b>The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:</b></p> <p>All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.</p>
<p><b>The following construction activities that involve soil disturbances of one (1) or more acres of land:</b></p> <ul style="list-style-type: none"><li>• Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains</li><li>• Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects</li><li>• Pond construction</li><li>• Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover</li><li>• Cross-country ski trails and walking/hiking trails</li><li>• Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;</li><li>• Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path.</li><li>• Slope stabilization projects</li><li>• Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics</li></ul>

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

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

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

**Table 2**  
**CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES**  
**POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES**

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

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

Table 2 (Continued)

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

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

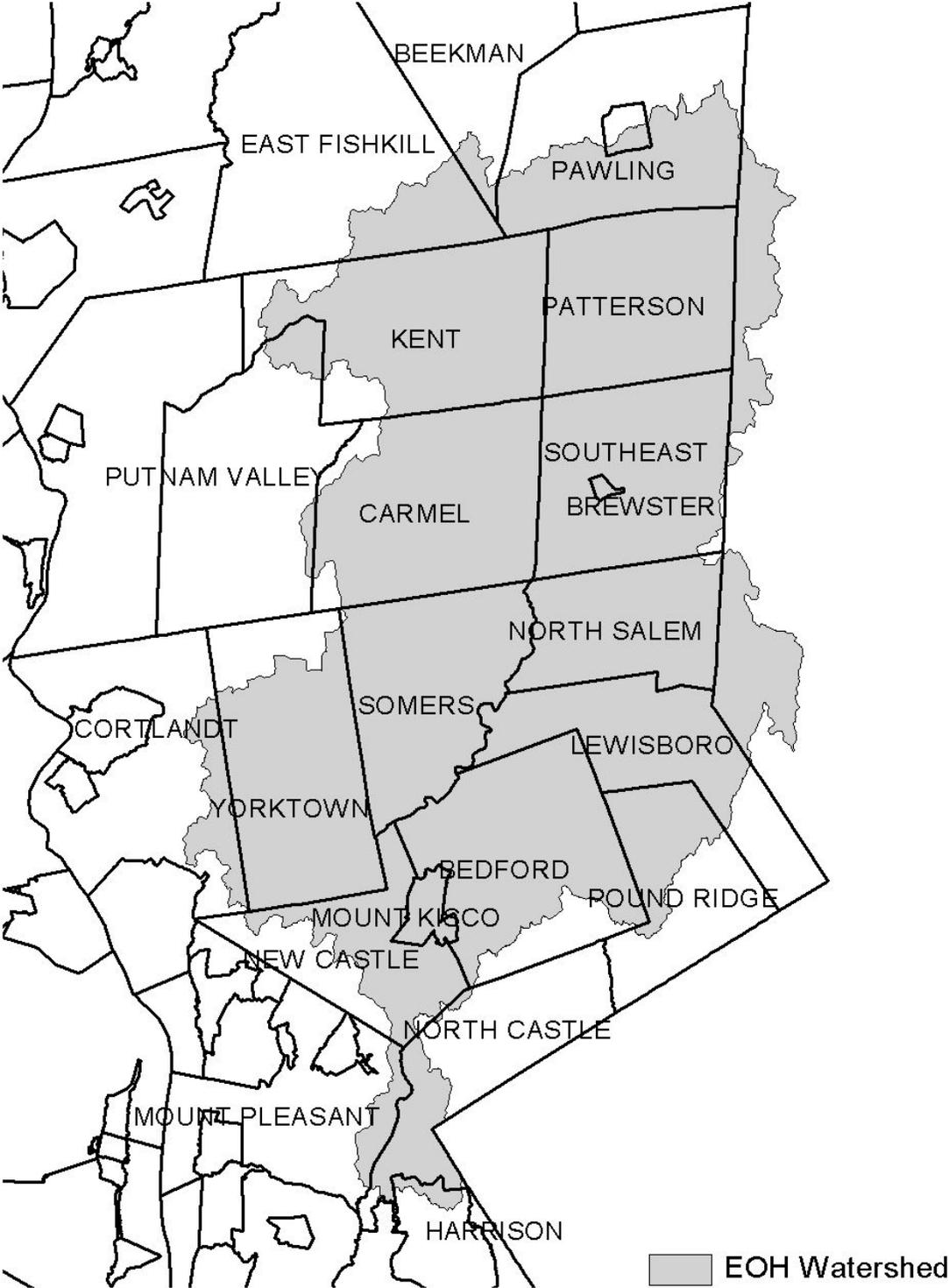
- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post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

## APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

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

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

**Figure 1 - New York City Watershed East of the Hudson**



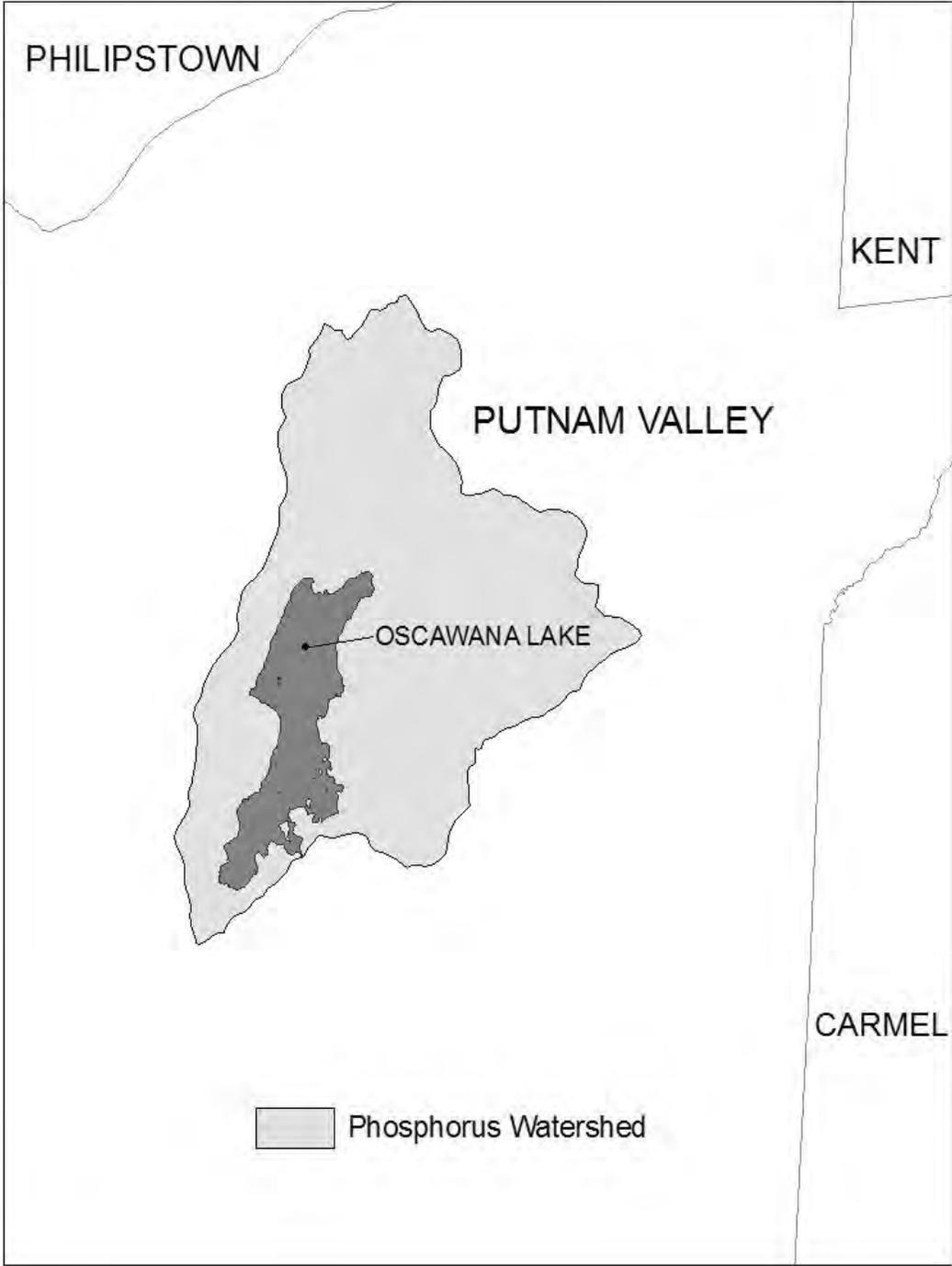
**Figure 2 - Onondaga Lake Watershed**



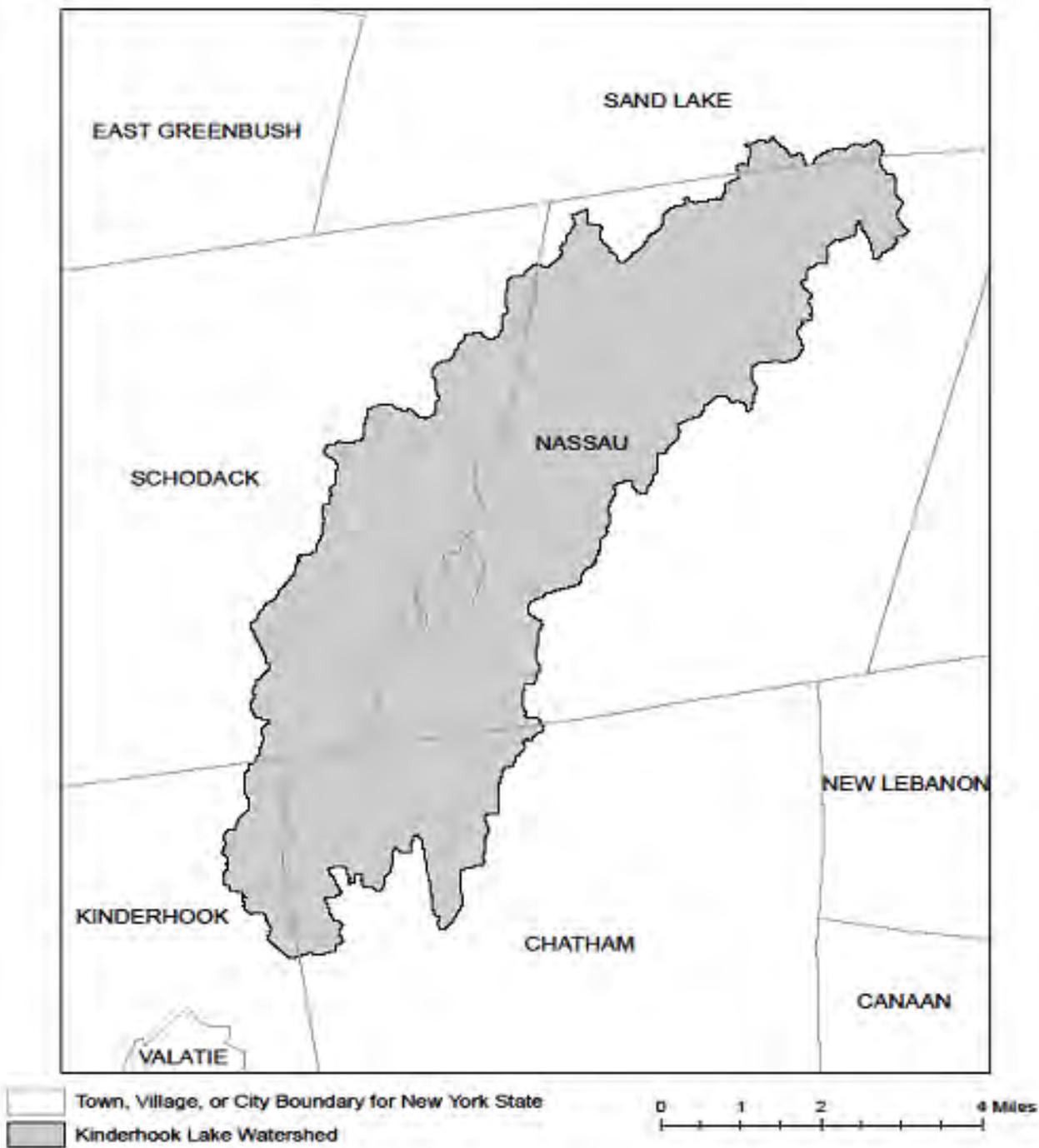
**Figure 3 - Greenwood Lake Watershed**



**Figure 4 - Oscawana Lake Watershed**



**Figure 5 - Kinderhook Lake Watershed**



## **APPENDIX D – Watersheds with Lower Disturbance Threshold**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## APPENDIX F – List of NYS DEC Regional Offices

<u>Region</u>	<u>COVERING THE FOLLOWING COUNTIES:</u>	<u>DIVISION OF ENVIRONMENTAL PERMITS (DEP) PERMIT ADMINISTRATORS</u>	<u>DIVISION OF WATER (DOW) WATER (SPDES) PROGRAM</u>
1	NASSAU AND SUFFOLK	50 CIRCLE ROAD STONY BROOK, NY 11790 TEL. (631) 444-0365	50 CIRCLE ROAD STONY BROOK, NY 11790-3409 TEL. (631) 444-0405
2	BRONX, KINGS, NEW YORK, QUEENS AND RICHMOND	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4997	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4933
3	DUTCHESS, ORANGE, PUTNAM, ROCKLAND, SULLIVAN, ULSTER AND WESTCHESTER	21 SOUTH PUTT CORNERS ROAD NEW PALTZ, NY 12561-1696 TEL. (845) 256-3059	100 HILLSIDE AVENUE, SUITE 1W WHITE PLAINS, NY 10603 TEL. (914) 428 - 2505
4	ALBANY, COLUMBIA, DELAWARE, GREENE, MONTGOMERY, OTSEGO, RENSSELAER, SCHENECTADY AND SCHOHARIE	1150 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2069	1130 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2045
5	CLINTON, ESSEX, FRANKLIN, FULTON, HAMILTON, SARATOGA, WARREN AND WASHINGTON	1115 STATE ROUTE 86, Po Box 296 RAY BROOK, NY 12977-0296 TEL. (518) 897-1234	232 GOLF COURSE ROAD WARRENSBURG, NY 12885-1172 TEL. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070

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## APPENDIX C – LETTER FROM NYS OPRHP



**New York State  
Parks, Recreation and  
Historic Preservation**

**KATHY HOCHUL**  
Governor

**ERIK KULLESEID**  
Commissioner

November 9, 2022

Robert Jacoby  
Tetra Tech, Inc.  
1000 The American Rd.  
Morris Plains, NJ 7950

Re: ORES  
Somerset Solar Project (140-200 MW/~540 of 1410 Acres)  
7725 Lake Road, Town of Somerset, Niagara County, NY  
21PR00981

Dear Robert Jacoby:

Thank you for requesting the comments of the Division for Historic Preservation of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the submitted materials in accordance with the New York State Historic Preservation Act of 1980 (section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the Division for Historic Preservation 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 State Environmental Quality Review Act (New York Environmental Conservation Law Article 8) and its implementing regulations (6NYCRR Part 617).

OPRHP has reviewed the Phase IB archaeological survey report for the Somerset Solar Project (140-200 MW/~540 of 1410 Acres) project (21PR00981) prepared by Tetra Tech, Inc., Consulting Archaeologist (September 2022; 22SR00080). OPRHP concurs with the report recommendation that no additional archaeological investigation is warranted.

Please be advised that this project is still under review by our Technical Services Unit.

If you have any questions, I can be reached at [Bradley.Russell@parks.ny.gov](mailto:Bradley.Russell@parks.ny.gov).

Sincerely,

*Brad Russell*

Bradley W. Russell, Ph.D.  
Historic Preservation Specialist - Archaeology



**New York State  
Parks, Recreation and  
Historic Preservation**

**KATHY HOCHUL**  
Governor

**ERIK KULLESEID**  
Commissioner

February 15, 2023

Robert Jacoby  
Tetra Tech, Inc.  
1000 The American Rd.  
Morris Plains, NJ 7950

Re: ORES  
Somerset Solar Project (140-200 MW/~540 of 1410 Acres)  
7725 Lake Road, Town of Somerset, Niagara County, NY  
21PR00981

Dear Robert Jacoby:

Thank you for continuing to consult with the Division for Historic Preservation of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the submitted materials in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York State Parks, Recreation and Historic Preservation Law). These comments are those of the Division for Historic Preservation 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 Executive Law Section 94-c and its implementing regulations (19 NYCRR Part 900)

Our office has reviewed Tetra Tech's January 26, 2023 response to our request for additional information, regarding the solar installation proposed adjacent to the State and National Register eligible Babcock House – at 7449 Lake Road. We note a vegetative screening plan along with mitigation for the Somerset Historical Society has been proposed to minimize impacts that the solar installation will have on the historic Babcock House. Based upon our review, it is the OPRHP's opinion that this project will have No Adverse Impact on historic or archaeological resources, provided the following conditions can be met:

1. The impact minimization measures presented in the January 26, 2023 letter must be carried out including but not limited to:
  - a. A landscaping plan, which will ensure the long-term success of plantings through monitoring and restoration if needed, will be approved by ORES.
  - b. The Applicant will fund three Somerset Historical Society/Babcock House community events.
  - c. An approximately 2-acre area to the west of the Babcock house will be retained for parking. It must not be paved.

- d. A copy of a letter of support for the Facility from the Somerset Historical Society, and a copy will be provided prior to initiating construction.

If you have any questions, I am best reached by email.

Sincerely,

A handwritten signature in black ink, appearing to read 'DR', is positioned below the word 'Sincerely,'.

Derek Rohde  
Historic Site Restoration Coordinator  
518-275-5745 | [Derek.Rohde@parks.ny.gov](mailto:Derek.Rohde@parks.ny.gov)

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## APPENDIX D – FLOOD INSURANCE RATE MAPS (FIRM)

**NOTES TO USERS**

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

**Coastal Base Flood Elevations** shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 Flood Protection Measures of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 18. The **horizontal datum** was NAD 83, GRS1980. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

NGS Information Services  
NOAA, NNGS12  
National Geodetic Survey  
SSMC-3, #9202  
1315 East-West Highway  
Silver Spring, Maryland 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>.

**Base map** information shown on this FIRM was provided in digital format by the New York State Office of Cyber Security & Critical Infrastructure Coordination. This information was provided as 30-centimeter and 90-centimeter resolution natural color and 30-centimeter resolution color infrared orthoimagery from photography dated April 2005.

This map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. Also, the road to floodplain relationships for unreviewed streams may differ from what is shown on previous maps.

**Corporate limits** shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

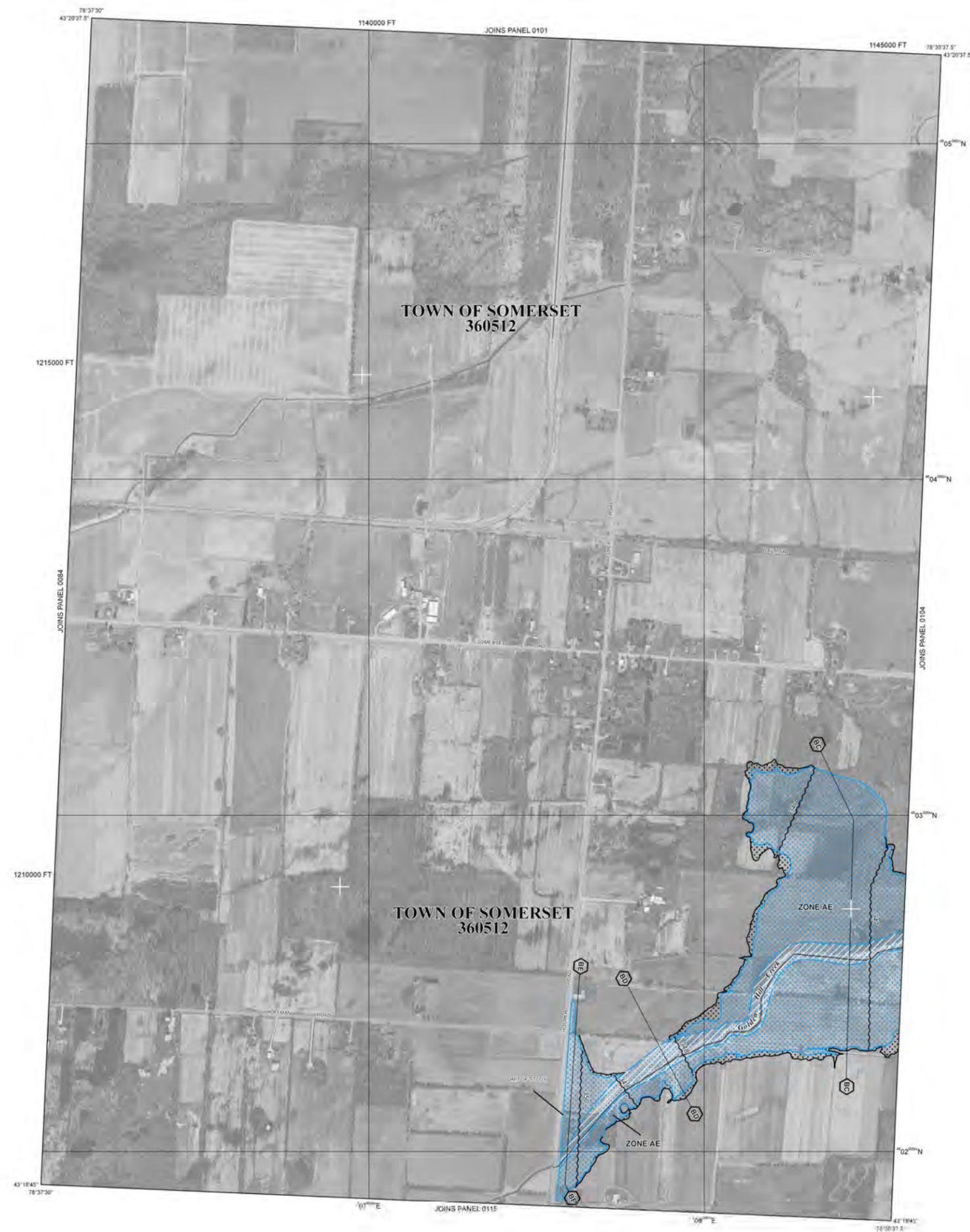
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels, community map repository addresses, and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at <http://msc.fema.gov>.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/>.

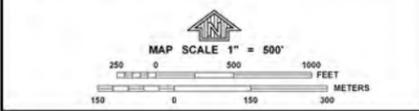


This digital FIRM was produced through a unique cooperative partnership between the New York State Department of Environmental Conservation (NYSDEC) and FEMA. As part of the effort, NYSDEC has joined in a Cooperative Technical Partnership agreement to produce and maintain FEMA's digital FIRM.



**LEGEND**

- SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
- The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, AV, VE, and V. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.
- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently destroyed. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE AR9** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.
- FLOODWAY AREAS IN ZONE AE
- The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.
- OTHER FLOOD AREAS
- Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- OTHER AREAS
- ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D** Areas in which flood hazards are undetermined, but possible.
- COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS
- OTHERWISE PROTECTED AREAS (OPAs)
- CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.
- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different base Flood Elevations, flood depths or flood velocities.
- Base Flood Elevation line and value; elevation in feet\*
- Base Flood Elevation value where uniform within zone; elevation in feet\*
- 30-centimeter
- 90-centimeter
- (E.L. 987)
- \* Referenced to the North American Vertical Datum of 1988 (NAVD 88)
- Cross section line
- Transsect line
- 87° 07'45", 32° 22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 76° 00' N 1000-meter Universal Transverse Mercator grid values, zone 18
- 600000 FT 5000-foot ticks: New York State Plane coordinate system, west zone (PPSZONE 3103), Transverse Mercator
- DX5510 x Bench mark (see explanation in Notes to Users section of this FIRM area)
- M1.5 River Mile
- MAP REPOSITORY: Refer to listing of Map Repositories on Map Index
- EFFECTIVE DATE OF COUNTY-WIDE FLOOD INSURANCE RATE MAP: September 17, 2010
- EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL



**NATIONAL FLOOD INSURANCE PROGRAM**

**PANEL 0103E**

**FIRM**

**FLOOD INSURANCE RATE MAP**

for NIAGARA COUNTY, NEW YORK (ALL JURISDICTIONS)

**CONTAINS:**

COMMUNITY	NUMBER
SOMERSET, TOWN OF	360512

**PANEL 103 OF 430**  
MAP SUFFIX: E  
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

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

**MAP NUMBER**  
36063C0103E

**EFFECTIVE DATE**  
SEPTEMBER 17, 2010

Federal Emergency Management Agency

**NOTES TO USERS**

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Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 18. The **horizontal datum** was NAD 83, GRS1980. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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National Geodetic Survey  
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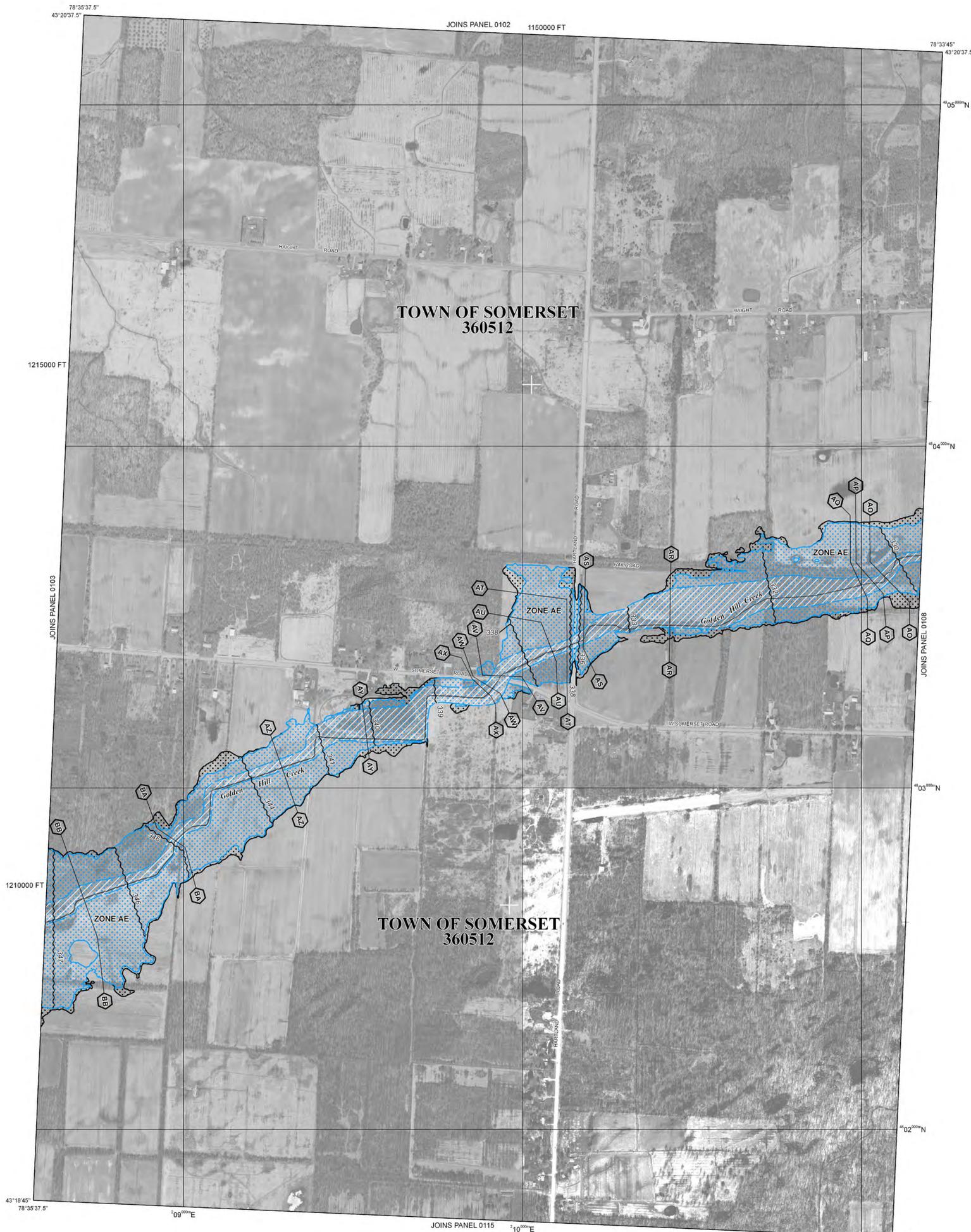
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**LEGEND**

**SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**

- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently determined. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

**FLOODWAY AREAS IN ZONE AE**

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

**OTHER FLOOD AREAS**

**ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

**OTHER AREAS**

**ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.  
**ZONE D** Areas in which flood hazards are undetermined, but possible.

**COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**

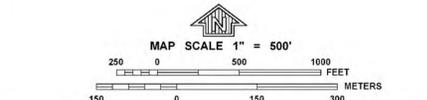
**OTHERWISE PROTECTED AREAS (OPAs)**

- CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.
- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Base Flood Elevation line and value; elevation in feet\*
- Base Flood Elevation value where uniform within zone; elevation in feet\*

- \* Referenced to the North American Vertical Datum of 1988 (NAVD 88)
- Cross section line
- Transsect line
- 87° 07' 45", 32° 22' 20" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 76° 00' 00" N 100-meter Universal Transverse Mercator grid values, zone 18
- 600000 FT 500-foot ticks: New York State Plane coordinate system, west zone (SPSZONE 3103), Transverse Mercator
- DX5510 x Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 River Mile
- MAP REPOSITORY Refer to listing of Map Repositories on Map Index
- EFFECTIVE DATE OF COUNTY-WIDE FLOOD INSURANCE RATE MAP September 17, 2010
- EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.



**NATIONAL FLOOD INSURANCE PROGRAM**

PANEL 0104E

**FIRM**  
FLOOD INSURANCE RATE MAP  
for NIAGARA COUNTY, NEW YORK  
(ALL JURISDICTIONS)

CONTAINS:  
COMMUNITY NUMBER  
SOMERSET, TOWN OF 360512

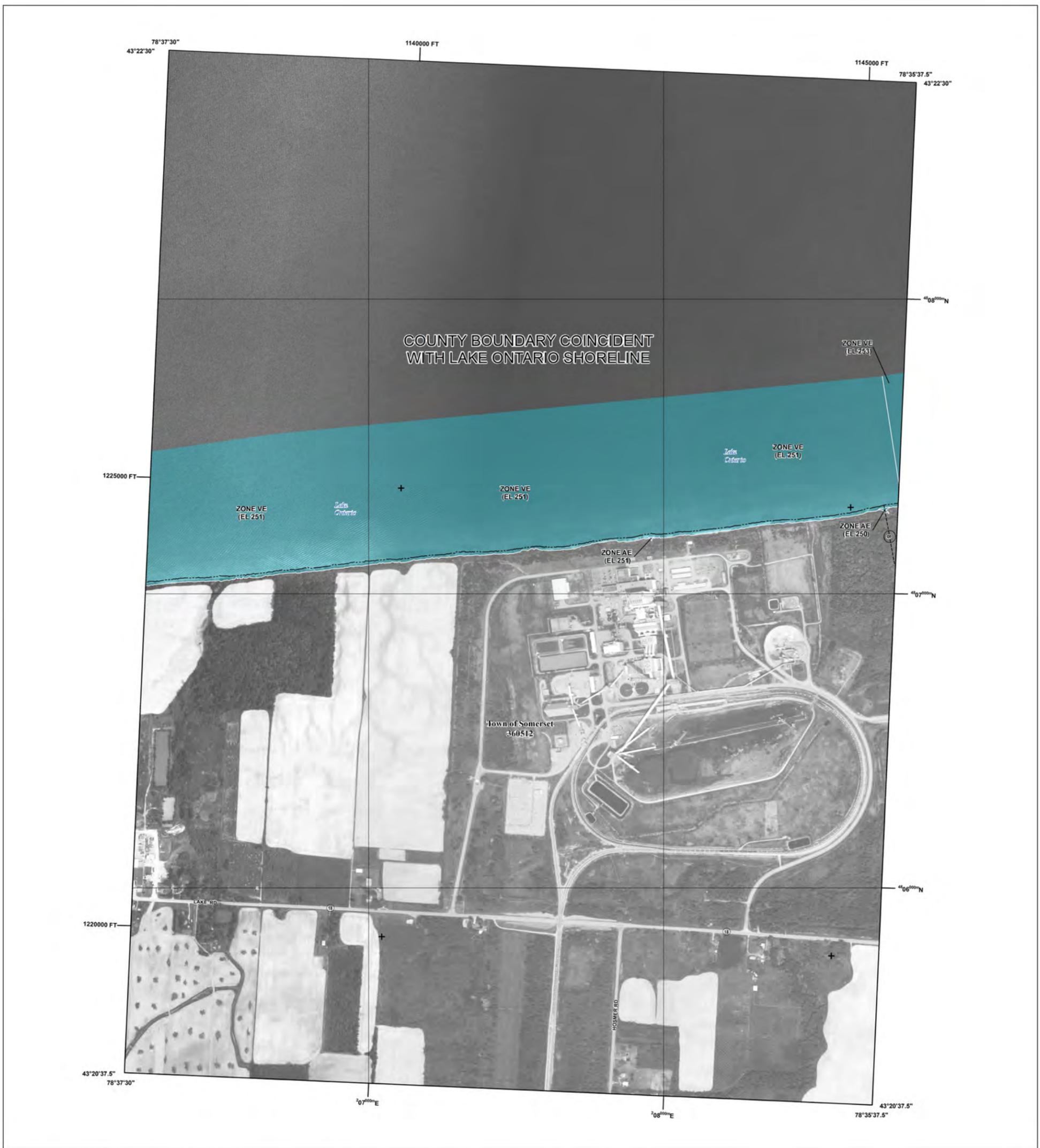
PANEL 104 OF 430  
MAP SUFFIX: E  
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

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

MAP NUMBER  
36063C0104E

EFFECTIVE DATE  
SEPTEMBER 17, 2010

Federal Emergency Management Agency



**FLOOD HAZARD INFORMATION**

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT  
 THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT [HTTPS://MSC.FEMA.GOV](https://msc.fema.gov)

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A.V., A.95
		With BFE or Depth Zone AE, AO, AH, VE, AR
OTHER AREAS OF FLOOD HAZARD		Regulatory Floodway
		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee See Notes. Zone X
OTHER AREAS		Area with Flood Risk due to Levee Zone D
		Area of Minimal Flood Hazard Zone X
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary

**NOTES TO USERS**

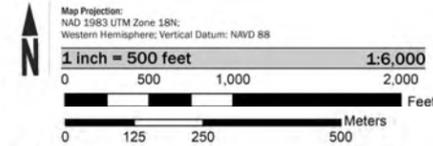
For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at <https://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

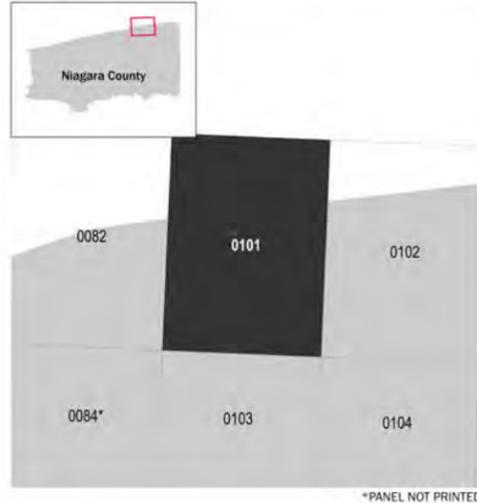
For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction. To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on the FIRM was provided by the US Census Bureau (US Census Bureau 2016) the USDA NAIP (USDA NAIP 2015) and the New York State Office of Cyber Security (NYSOCS 2008).

**SCALE**



**PANEL LOCATOR**



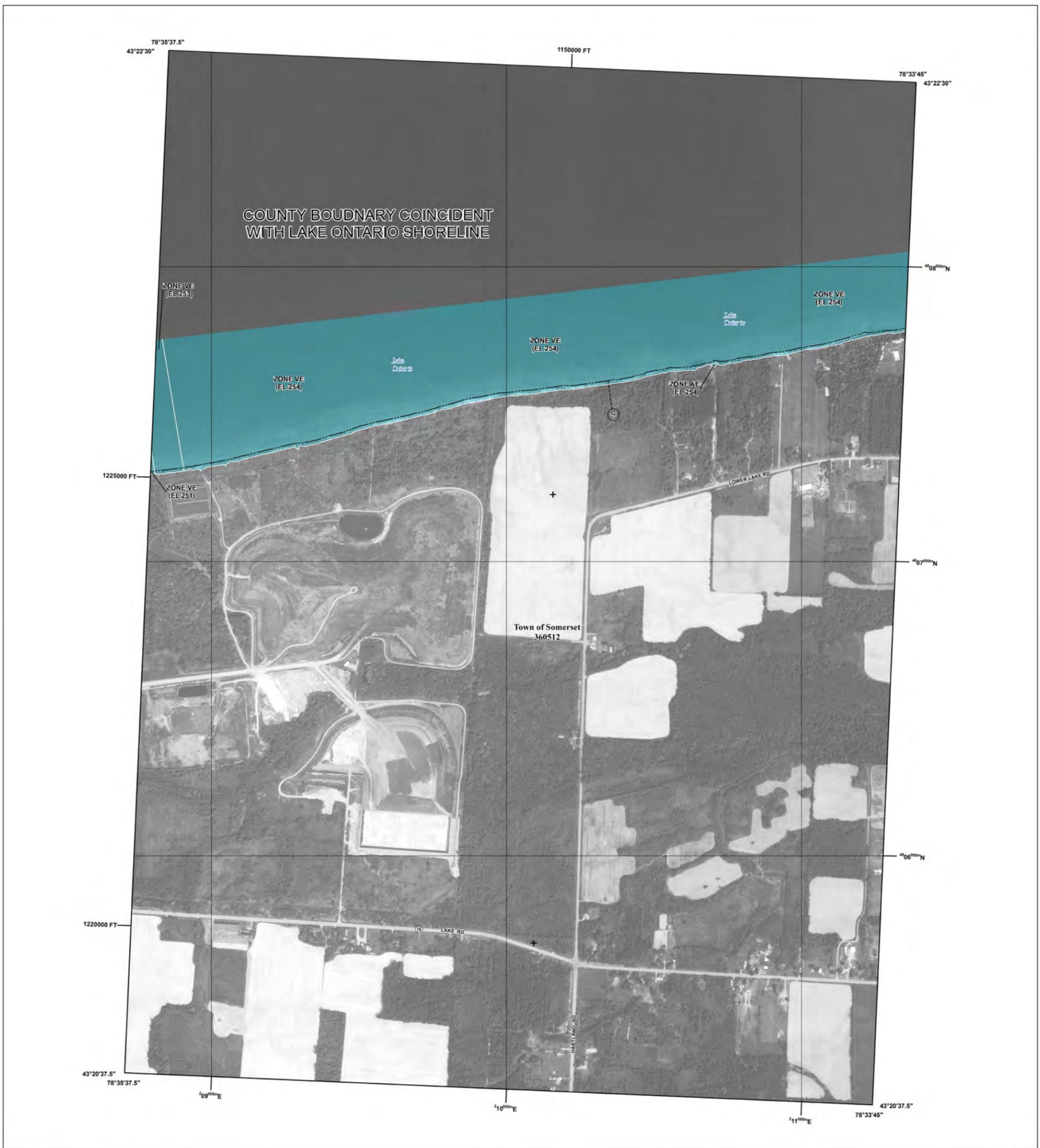
**National Flood Insurance Program**

**NATIONAL FLOOD INSURANCE PROGRAM**  
 FLOOD INSURANCE RATE MAP  
 NIAGARA COUNTY, NEW YORK  
 (All Jurisdictions)

PANEL 101 OF 430

Panel Contains:  
 COMMUNITY NUMBER PANEL SUFFIX  
 SOMERSET, TOWN OF 360512 0101 F

VERSION NUMBER 2.3.3.5  
 MAP NUMBER 36063C0101F  
 MAP REVISED MAY 4, 2021



**FLOOD HAZARD INFORMATION**

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT  
 THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT [HTTPS://MSC.FEMA.GOV](https://msc.fema.gov)

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A.V., A.95
		With BFE or Depth Zone AE, AO, AH, VE, AR
OTHER AREAS OF FLOOD HAZARD		Regulatory Floodway
		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile
		Future Conditions 1% Annual Chance Flood Hazard Zone X
OTHER AREAS		Area with Reduced Flood Risk due to Levee See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
GENERAL STRUCTURES		Area of Minimal Flood Hazard Zone X
		Area of Undetermined Flood Hazard Zone D
OTHER FEATURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
OTHER FEATURES		Coastal Transect Baseline
		Profile Baseline
OTHER FEATURES		Hydrographic Feature
		Base Flood Elevation Line (BFE)
OTHER FEATURES		Limit of Study
		Jurisdiction Boundary

**NOTES TO USERS**

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information Exchange at 1-877-FEMA-MAP (1-877-338-2627) or visit the FEMA Flood Map Service Center website at <https://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

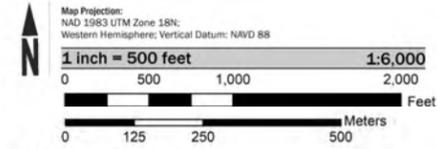
Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

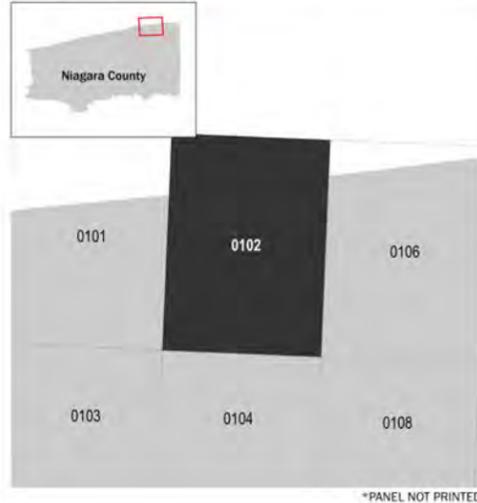
To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on the FIRM was provided by the US Census Bureau (US Census Bureau 2016) the USDA NAIP (USDA NAIP 2015) and the New York State Office of Cyber Security (NYSOCS 2008).

**SCALE**



**PANEL LOCATOR**



**FEMA**

**National Flood Insurance Program**

**NATIONAL FLOOD INSURANCE PROGRAM**  
 FLOOD INSURANCE RATE MAP  
 NIAGARA COUNTY, NEW YORK  
 (All Jurisdictions)

PANEL 102 OF 430

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
SOMERSET, TOWN OF	360512	0102	F

VERSION NUMBER 2.3.3.5  
 MAP NUMBER 36063C0102F  
 MAP REVISED MAY 4, 2021

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## APPENDIX E – NRCS SOILS REPORT



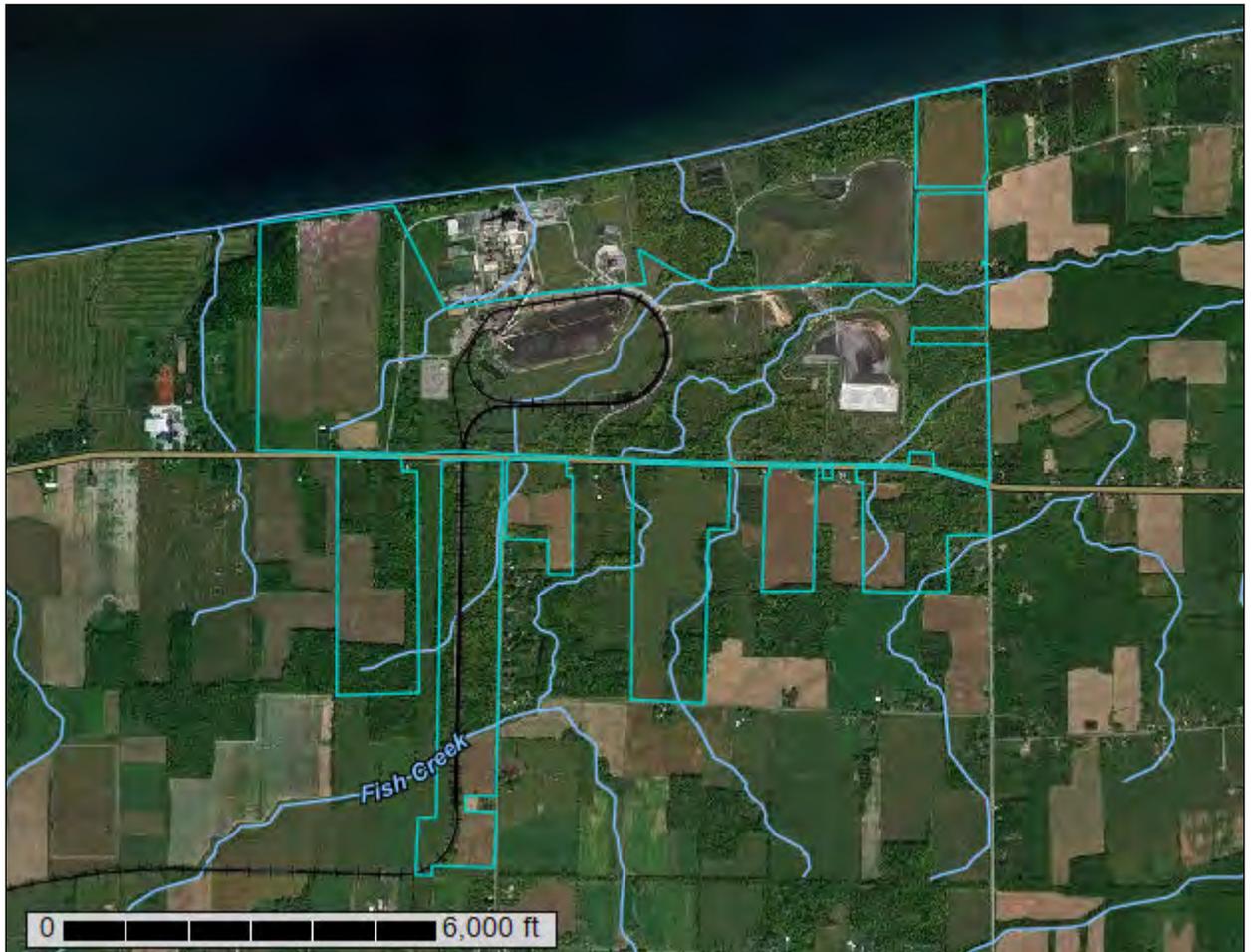
United States  
Department of  
Agriculture

**NRCS**

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for **Niagara County Area, New York**



# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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# How Soil Surveys Are Made

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Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

## Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

## Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

---

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



### MAP LEGEND

**Area of Interest (AOI)**

 Area of Interest (AOI)

**Soils**

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

**Special Point Features**

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

**Water Features**

 Streams and Canals

**Transportation**

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

**Background**

 Aerial Photography

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

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

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

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

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

Soil Survey Area: Niagara County Area, New York  
 Survey Area Data: Version 19, Jun 11, 2020

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

Date(s) aerial images were photographed: Dec 31, 2009—Oct 18, 2016

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

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
ApA	Appleton silt loam, 0 to 3 percent slopes	14.9	1.1%
ArB	Arkport very fine sandy loam, 0 to 6 percent slopes	20.6	1.5%
ArC	Arkport very fine sandy loam, 6 to 12 percent slopes	10.1	0.7%
Ca	Canandaigua silt loam	4.1	0.3%
CcB	Cayuga and Cazenovia silt loams, 2 to 6 percent slopes	5.2	0.4%
CmA	Claverack loamy fine sand, 0 to 2 percent slopes	40.7	2.9%
CmB	Claverack loamy fine sand, 2 to 6 percent slopes	33.4	2.4%
CnA	Collamer silt loam, 0 to 2 percent slopes	120.8	8.6%
CnB	Collamer silt loam, 2 to 6 percent slopes	300.8	21.3%
CoB	Colonie loamy fine sand, 0 to 6 percent slopes	3.2	0.2%
Cs	Cosad fine sandy loam	9.5	0.7%
DuB	Dunkirk silt loam, 2 to 6 percent slopes	16.8	1.2%
DuC3	Dunkirk silt loam, 6 to 12 percent slopes, eroded	22.1	1.6%
DvD3	Dunkirk and Arkport soils, 12 to 20 percent slopes, eroded	3.6	0.3%
EIA	Elnora loamy fine sand, 0 to 2 percent slopes	1.9	0.1%
EIB	Elnora loamy fine sand, 2 to 6 percent slopes	6.1	0.4%
Fr	Fredon gravelly loam	2.6	0.2%
GnA	Galen very fine sandy loam, 0 to 2 percent slopes	7.9	0.6%
GnB	Galen very fine sandy loam, 2 to 6 percent slopes	5.6	0.4%
Ha	Hamlin silt loam	26.7	1.9%
HgB	Hilton gravelly loam, 3 to 8 percent slopes	7.7	0.5%
HIA	Hilton silt loam, 0 to 3 percent slopes	6.4	0.5%
HIB	Hilton silt loam, 3 to 8 percent slopes	18.4	1.3%
HsB	Hudson silt loam, 2 to 6 percent slopes	33.1	2.3%

## Custom Soil Resource Report

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ma	Madalin silt loam, 0 to 3 percent slopes	12.9	0.9%
Md	Madalin silt loam, loamy subsoil variant	13.0	0.9%
Mn	Minoa very fine sandy loam	8.5	0.6%
NaA	Niagara silt loam, 0 to 2 percent slopes	355.3	25.2%
NaB	Niagara silt loam, 2 to 6 percent slopes	31.3	2.2%
OvA	Ovid silt loam, 0 to 2 percent slopes	8.8	0.6%
OvB	Ovid silt loam, 2 to 6 percent slopes	2.1	0.1%
RbA	Rhinebeck silt loam, 0 to 2 percent slopes	207.6	14.7%
RbB	Rhinebeck silt loam, 2 to 6 percent slopes	22.7	1.6%
W	Water	4.4	0.3%
Wa	Wayland soils complex, 0 to 3 percent slopes, frequently flooded	19.8	1.4%
<b>Totals for Area of Interest</b>		<b>1,409.1</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas

## Custom Soil Resource Report

are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## Niagara County Area, New York

### ApA—Appleton silt loam, 0 to 3 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2w5hn  
*Elevation:* 260 to 1,740 feet  
*Mean annual precipitation:* 31 to 57 inches  
*Mean annual air temperature:* 41 to 50 degrees F  
*Frost-free period:* 100 to 190 days  
*Farmland classification:* Prime farmland if drained

#### Map Unit Composition

*Appleton and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Appleton

##### Setting

*Landform:* Drumlins, ridges, till plains  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Parent material:* Calcareous loamy lodgment till derived from limestone, sandstone, and shale

##### Typical profile

*Ap - 0 to 8 inches:* silt loam  
*E - 8 to 16 inches:* loam  
*Bt - 16 to 30 inches:* gravelly silt loam  
*C1 - 30 to 54 inches:* gravelly loam  
*C2 - 54 to 79 inches:* gravelly loam

##### Properties and qualities

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat poorly drained  
*Runoff class:* Very high  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.01 to 1.42 in/hr)  
*Depth to water table:* About 6 to 18 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 40 percent  
*Available water capacity:* Moderate (about 8.4 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3w  
*Hydrologic Soil Group:* B/D  
*Ecological site:* F101XY013NY - Moist Till  
*Hydric soil rating:* No

**Minor Components**

**Lima**

*Percent of map unit:* 5 percent  
*Landform:* Drumlins, till plains  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**Lyons**

*Percent of map unit:* 4 percent  
*Landform:* Drainageways, depressions  
*Landform position (two-dimensional):* Toeslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

**Churchville**

*Percent of map unit:* 3 percent  
*Landform:* Lake plains, till plains  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope, rise, talf  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**Darien**

*Percent of map unit:* 3 percent  
*Landform:* Drainageways, till plains  
*Landform position (two-dimensional):* Footslope, summit  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**ArB—Arkport very fine sandy loam, 0 to 6 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 9tvf  
*Elevation:* 300 to 900 feet  
*Mean annual precipitation:* 31 to 37 inches  
*Mean annual air temperature:* 46 to 50 degrees F  
*Frost-free period:* 145 to 190 days  
*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Arkport and similar soils:* 80 percent

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*Minor components: 20 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Arkport

#### Setting

*Landform: Deltas on lake plains*  
*Landform position (two-dimensional): Summit*  
*Landform position (three-dimensional): Tread*  
*Down-slope shape: Convex*  
*Across-slope shape: Convex*  
*Parent material: Glaciofluvial or deltaic deposits with a high content of fine and very fine sand*

#### Typical profile

*H1 - 0 to 8 inches: very fine sandy loam*  
*H2 - 8 to 20 inches: loamy very fine sand*  
*H3 - 20 to 48 inches: loamy fine sand*  
*H4 - 48 to 60 inches: fine sand*

#### Properties and qualities

*Slope: 0 to 6 percent*  
*Depth to restrictive feature: More than 80 inches*  
*Drainage class: Well drained*  
*Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)*  
*Depth to water table: More than 80 inches*  
*Frequency of flooding: None*  
*Frequency of ponding: None*  
*Calcium carbonate, maximum content: 15 percent*  
*Available water capacity: Low (about 5.4 inches)*

#### Interpretive groups

*Land capability classification (irrigated): None specified*  
*Land capability classification (nonirrigated): 2e*  
*Hydrologic Soil Group: A*  
*Ecological site: F101XY005NY - Dry Outwash*  
*Hydric soil rating: No*

### Minor Components

#### Unnamed soils

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

#### Claverack

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

#### Collamer

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

#### Dunkirk

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

#### Galen

*Percent of map unit: 4 percent*

*Hydric soil rating:* No

## **ArC—Arkport very fine sandy loam, 6 to 12 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 9tvg

*Elevation:* 300 to 900 feet

*Mean annual precipitation:* 31 to 37 inches

*Mean annual air temperature:* 46 to 50 degrees F

*Frost-free period:* 145 to 190 days

*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*Arkport and similar soils:* 80 percent

*Minor components:* 20 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Arkport**

#### **Setting**

*Landform:* Deltas on lake plains

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Glaciofluvial or deltaic deposits with a high content of fine and very fine sand

#### **Typical profile**

*H1 - 0 to 8 inches:* very fine sandy loam

*H2 - 8 to 20 inches:* loamy very fine sand

*H3 - 20 to 48 inches:* loamy fine sand

*H4 - 48 to 60 inches:* fine sand

#### **Properties and qualities**

*Slope:* 6 to 12 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* High (1.98 to 5.95 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

*Available water capacity:* Low (about 5.4 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* A

*Ecological site:* F101XY005NY - Dry Outwash

## Custom Soil Resource Report

*Hydric soil rating: No*

### Minor Components

#### Colonie

*Percent of map unit: 4 percent*

*Hydric soil rating: No*

#### Unnamed soils

*Percent of map unit: 4 percent*

*Hydric soil rating: No*

#### Collamer

*Percent of map unit: 4 percent*

*Hydric soil rating: No*

#### Dunkirk

*Percent of map unit: 4 percent*

*Hydric soil rating: No*

#### Galen

*Percent of map unit: 4 percent*

*Hydric soil rating: No*

## Ca—Canandaigua silt loam

### Map Unit Setting

*National map unit symbol: 9tvn*

*Elevation: 100 to 1,000 feet*

*Mean annual precipitation: 31 to 37 inches*

*Mean annual air temperature: 46 to 50 degrees F*

*Frost-free period: 145 to 190 days*

*Farmland classification: Not prime farmland*

### Map Unit Composition

*Canandaigua and similar soils: 75 percent*

*Minor components: 25 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Canandaigua

#### Setting

*Landform: Depressions*

*Landform position (two-dimensional): Toeslope*

*Landform position (three-dimensional): Tread*

*Down-slope shape: Concave*

*Across-slope shape: Concave*

*Parent material: Silty and clayey glaciolacustrine deposits*

#### Typical profile

*H1 - 0 to 7 inches: silt loam*

*H2 - 7 to 24 inches: silty clay loam*

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*H3 - 24 to 60 inches: stratified loamy fine sand to silt to clay*

### **Properties and qualities**

*Slope: 0 to 2 percent*

*Depth to restrictive feature: More than 80 inches*

*Drainage class: Very poorly drained*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)*

*Depth to water table: About 0 inches*

*Frequency of flooding: None*

*Frequency of ponding: Frequent*

*Calcium carbonate, maximum content: 15 percent*

*Available water capacity: High (about 12.0 inches)*

### **Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 5w*

*Hydrologic Soil Group: C/D*

*Ecological site: F101XY010NY - Wet Lake Plain Depression*

*Hydric soil rating: Yes*

### **Minor Components**

#### **Rhinebeck**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

#### **Raynham**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

#### **Appleton**

*Percent of map unit: 4 percent*

*Hydric soil rating: No*

#### **Lakemont**

*Percent of map unit: 4 percent*

*Landform: Depressions*

*Hydric soil rating: Yes*

#### **Madalin**

*Percent of map unit: 4 percent*

*Landform: Depressions*

*Hydric soil rating: Yes*

#### **Sun**

*Percent of map unit: 3 percent*

*Landform: Depressions*

*Hydric soil rating: Yes*

## **CcB—Cayuga and Cazenovia silt loams, 2 to 6 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 9tvr  
*Elevation:* 250 to 660 feet  
*Mean annual precipitation:* 31 to 37 inches  
*Mean annual air temperature:* 46 to 50 degrees F  
*Frost-free period:* 145 to 190 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Cayuga and similar soils:* 40 percent  
*Cazenovia and similar soils:* 35 percent  
*Minor components:* 25 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Cayuga**

#### **Setting**

*Landform:* Till plains, lake plains  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Crest, tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Convex  
*Parent material:* Clayey glaciolacustrine deposits over loamy till derived from limestone, dolomite, sandstone, or shale

#### **Typical profile**

*H1 - 0 to 8 inches:* silt loam  
*H2 - 8 to 25 inches:* silty clay  
*H3 - 25 to 60 inches:* gravelly loam

#### **Properties and qualities**

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Moderately well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* About 18 to 36 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Available water capacity:* Moderate (about 8.3 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* D  
*Ecological site:* F101XY009NY - Moist Lake Plain  
*Hydric soil rating:* No

## Description of Cazenovia

### Setting

*Landform:* Reworked lake plains, till plains  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Crest  
*Down-slope shape:* Concave  
*Across-slope shape:* Convex  
*Parent material:* Loamy till that contains limestone with an admixture of reddish lake-laid clays or reddish clay shale

### Typical profile

*H1 - 0 to 11 inches:* silt loam  
*H2 - 11 to 28 inches:* silty clay loam  
*H3 - 28 to 60 inches:* silt loam

### Properties and qualities

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Moderately well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* About 24 to 48 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Available water capacity:* Moderate (about 8.5 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* C  
*Ecological site:* F101XY013NY - Moist Till  
*Hydric soil rating:* No

## Minor Components

### Ovid

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

### Hilton

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

### Hudson

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

### Collamer

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

### Churchville

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

## **CmA—Claverack loamy fine sand, 0 to 2 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 9tw1  
*Elevation:* 600 to 1,800 feet  
*Mean annual precipitation:* 31 to 37 inches  
*Mean annual air temperature:* 46 to 50 degrees F  
*Frost-free period:* 145 to 190 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Claverack and similar soils:* 80 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Claverack**

#### **Setting**

*Landform:* Lake plains  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Convex  
*Parent material:* Sandy glaciolacustrine deposits, derived primarily from non-calcareous sandstone or granite, that overlie clayey glaciolacustrine deposits

#### **Typical profile**

*H1 - 0 to 8 inches:* loamy fine sand  
*H2 - 8 to 32 inches:* loamy fine sand  
*H3 - 32 to 60 inches:* silty clay

#### **Properties and qualities**

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification  
*Drainage class:* Moderately well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* About 18 to 24 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Available water capacity:* Very low (about 2.1 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2w  
*Hydrologic Soil Group:* C/D  
*Ecological site:* F101XY006NY - Moist Outwash

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*Hydric soil rating: No*

### Minor Components

#### **Cosad**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

#### **Elnora**

*Percent of map unit: 3 percent*

*Hydric soil rating: No*

#### **Rhinebeck**

*Percent of map unit: 3 percent*

*Hydric soil rating: No*

#### **Galen**

*Percent of map unit: 3 percent*

*Hydric soil rating: No*

#### **Unnamed soils**

*Percent of map unit: 3 percent*

*Hydric soil rating: No*

#### **Hudson**

*Percent of map unit: 3 percent*

*Hydric soil rating: No*

## **CmB—Claverack loamy fine sand, 2 to 6 percent slopes**

### **Map Unit Setting**

*National map unit symbol: 9tw2*

*Elevation: 600 to 1,800 feet*

*Mean annual precipitation: 31 to 37 inches*

*Mean annual air temperature: 46 to 50 degrees F*

*Frost-free period: 145 to 190 days*

*Farmland classification: All areas are prime farmland*

### **Map Unit Composition**

*Claverack and similar soils: 80 percent*

*Minor components: 20 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Claverack**

#### **Setting**

*Landform: Lake plains*

*Landform position (two-dimensional): Summit*

*Landform position (three-dimensional): Tread*

*Down-slope shape: Concave*

*Across-slope shape: Convex*

## Custom Soil Resource Report

*Parent material:* Sandy glaciolacustrine deposits, derived primarily from non-calcareous sandstone or granite, that overlie clayey glaciolacustrine deposits

### Typical profile

*H1 - 0 to 8 inches:* loamy fine sand  
*H2 - 8 to 32 inches:* loamy fine sand  
*H3 - 32 to 60 inches:* silty clay

### Properties and qualities

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification  
*Drainage class:* Moderately well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* About 18 to 24 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Available water capacity:* Very low (about 2.1 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2w  
*Hydrologic Soil Group:* C/D  
*Ecological site:* F101XY006NY - Moist Outwash  
*Hydric soil rating:* No

### Minor Components

#### Colonie

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Elnora

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Galen

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Arkport

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Cosad

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No

#### Unnamed soils

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No

## **CnA—Collamer silt loam, 0 to 2 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 9tw3  
*Elevation:* 250 to 640 feet  
*Mean annual precipitation:* 31 to 37 inches  
*Mean annual air temperature:* 46 to 50 degrees F  
*Frost-free period:* 145 to 190 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Collamer and similar soils:* 75 percent  
*Minor components:* 25 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Collamer**

#### **Setting**

*Landform:* Lake plains  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Convex  
*Parent material:* Silty and clayey glaciolacustrine deposits

#### **Typical profile**

*H1 - 0 to 8 inches:* silt loam  
*H2 - 8 to 19 inches:* silt loam  
*H3 - 19 to 29 inches:* silt loam  
*H4 - 29 to 60 inches:* silt loam

#### **Properties and qualities**

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Moderately well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.57 in/hr)  
*Depth to water table:* About 18 to 24 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Available water capacity:* High (about 10.0 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2w  
*Hydrologic Soil Group:* C/D  
*Ecological site:* F101XY009NY - Moist Lake Plain  
*Hydric soil rating:* No

**Minor Components**

**Minoa**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Rhinebeck**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Hudson**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Galen**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Unnamed soils**

*Percent of map unit: 3 percent*  
*Hydric soil rating: No*

**Niagara**

*Percent of map unit: 3 percent*  
*Hydric soil rating: No*

**Dunkirk**

*Percent of map unit: 3 percent*  
*Hydric soil rating: No*

**CnB—Collamer silt loam, 2 to 6 percent slopes**

**Map Unit Setting**

*National map unit symbol: 9tw4*  
*Elevation: 250 to 640 feet*  
*Mean annual precipitation: 31 to 37 inches*  
*Mean annual air temperature: 46 to 50 degrees F*  
*Frost-free period: 145 to 190 days*  
*Farmland classification: All areas are prime farmland*

**Map Unit Composition**

*Collamer and similar soils: 75 percent*  
*Minor components: 25 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Collamer**

**Setting**

*Landform: Lake plains*  
*Landform position (two-dimensional): Summit*  
*Landform position (three-dimensional): Tread*  
*Down-slope shape: Concave*

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*Across-slope shape:* Convex

*Parent material:* Silty and clayey glaciolacustrine deposits

### Typical profile

*H1 - 0 to 8 inches:* silt loam

*H2 - 8 to 19 inches:* silt loam

*H3 - 19 to 29 inches:* silt loam

*H4 - 29 to 60 inches:* silt loam

### Properties and qualities

*Slope:* 2 to 6 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.57 in/hr)

*Depth to water table:* About 18 to 24 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

*Available water capacity:* High (about 10.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* C/D

*Ecological site:* F101XY009NY - Moist Lake Plain

*Hydric soil rating:* No

### Minor Components

#### Dunkirk

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Niagara

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Canandaigua

*Percent of map unit:* 4 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

#### Hudson

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### Arkport

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### Galen

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### Unnamed soils

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

## **CoB—Colonie loamy fine sand, 0 to 6 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 9tw5  
*Elevation:* 150 to 1,000 feet  
*Mean annual precipitation:* 31 to 37 inches  
*Mean annual air temperature:* 46 to 50 degrees F  
*Frost-free period:* 145 to 190 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Colonie and similar soils:* 80 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Colonie**

#### **Setting**

*Landform:* Beach ridges, deltas  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Sandy glaciofluvial or eolian deposits

#### **Typical profile**

*H1 - 0 to 8 inches:* loamy fine sand  
*H2 - 8 to 50 inches:* fine sand  
*H3 - 50 to 60 inches:* fine sand

#### **Properties and qualities**

*Slope:* 0 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (1.98 to 19.98 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water capacity:* Low (about 4.1 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2s  
*Hydrologic Soil Group:* A  
*Ecological site:* F101XY005NY - Dry Outwash  
*Hydric soil rating:* No

**Minor Components**

**Elnora**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Arkport**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Claverack**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Unnamed soils**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Otisville**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Cs—Cosad fine sandy loam**

**Map Unit Setting**

*National map unit symbol: 9tw6*  
*Elevation: 200 to 800 feet*  
*Mean annual precipitation: 31 to 37 inches*  
*Mean annual air temperature: 46 to 50 degrees F*  
*Frost-free period: 145 to 190 days*  
*Farmland classification: Prime farmland if drained*

**Map Unit Composition**

*Cosad and similar soils: 70 percent*  
*Minor components: 30 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Cosad**

**Setting**

*Landform: Lake plains*  
*Landform position (two-dimensional): Footslope*  
*Landform position (three-dimensional): Tread*  
*Down-slope shape: Concave*  
*Across-slope shape: Linear*  
*Parent material: Sandy glaciofluvial or deltaic deposits over clayey glaciolacustrine deposits*

**Typical profile**

*H1 - 0 to 9 inches: fine sandy loam*  
*H2 - 9 to 14 inches: loamy fine sand*

## Custom Soil Resource Report

*H3 - 14 to 26 inches: loamy fine sand*

*H4 - 26 to 60 inches: silty clay*

### **Properties and qualities**

*Slope: 0 to 2 percent*

*Depth to restrictive feature: More than 80 inches*

*Drainage class: Somewhat poorly drained*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)*

*Depth to water table: About 6 to 18 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Calcium carbonate, maximum content: 15 percent*

*Available water capacity: Moderate (about 7.5 inches)*

### **Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 3w*

*Hydrologic Soil Group: C/D*

*Ecological site: F101XY006NY - Moist Outwash*

*Hydric soil rating: No*

### **Minor Components**

#### **Minoa**

*Percent of map unit: 4 percent*

*Hydric soil rating: No*

#### **Claverack**

*Percent of map unit: 4 percent*

*Hydric soil rating: No*

#### **Cheektowaga**

*Percent of map unit: 4 percent*

*Landform: Depressions*

*Hydric soil rating: Yes*

#### **Lakemont**

*Percent of map unit: 4 percent*

*Landform: Depressions*

*Hydric soil rating: Yes*

#### **Rhinebeck**

*Percent of map unit: 3 percent*

*Hydric soil rating: No*

#### **Madalin**

*Percent of map unit: 3 percent*

*Landform: Depressions*

*Hydric soil rating: Yes*

#### **Odessa**

*Percent of map unit: 3 percent*

*Hydric soil rating: No*

#### **Stafford**

*Percent of map unit: 3 percent*

*Hydric soil rating: No*

**Unnamed soils**

*Percent of map unit: 2 percent*  
*Hydric soil rating: No*

**DuB—Dunkirk silt loam, 2 to 6 percent slopes**

**Map Unit Setting**

*National map unit symbol: 9tw8*  
*Elevation: 100 to 1,000 feet*  
*Mean annual precipitation: 31 to 37 inches*  
*Mean annual air temperature: 46 to 50 degrees F*  
*Frost-free period: 145 to 190 days*  
*Farmland classification: All areas are prime farmland*

**Map Unit Composition**

*Dunkirk and similar soils: 80 percent*  
*Minor components: 20 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Dunkirk**

**Setting**

*Landform: Lake plains*  
*Landform position (two-dimensional): Summit*  
*Landform position (three-dimensional): Tread*  
*Down-slope shape: Convex*  
*Across-slope shape: Convex*  
*Parent material: Silty and clayey glaciolacustrine deposits*

**Typical profile**

*H1 - 0 to 9 inches: silt loam*  
*H2 - 9 to 17 inches: silt loam*  
*H3 - 17 to 32 inches: silt loam*  
*H4 - 32 to 70 inches: silt loam*

**Properties and qualities**

*Slope: 2 to 6 percent*  
*Depth to restrictive feature: More than 80 inches*  
*Drainage class: Well drained*  
*Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)*  
*Depth to water table: More than 80 inches*  
*Frequency of flooding: None*  
*Frequency of ponding: None*  
*Calcium carbonate, maximum content: 15 percent*  
*Available water capacity: High (about 10.3 inches)*

**Interpretive groups**

*Land capability classification (irrigated): None specified*  
*Land capability classification (nonirrigated): 2e*

Custom Soil Resource Report

*Hydrologic Soil Group: C*  
*Hydric soil rating: No*

**Minor Components**

**Galen**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Niagara**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Hudson**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Collamer**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Arkport**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**DuC3—Dunkirk silt loam, 6 to 12 percent slopes, eroded**

**Map Unit Setting**

*National map unit symbol: 9tw9*  
*Elevation: 100 to 1,000 feet*  
*Mean annual precipitation: 31 to 37 inches*  
*Mean annual air temperature: 46 to 50 degrees F*  
*Frost-free period: 145 to 190 days*  
*Farmland classification: Not prime farmland*

**Map Unit Composition**

*Dunkirk, eroded, and similar soils: 80 percent*  
*Minor components: 20 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Dunkirk, Eroded**

**Setting**

*Landform: Lake plains*  
*Landform position (two-dimensional): Shoulder*  
*Landform position (three-dimensional): Tread*  
*Down-slope shape: Convex*  
*Across-slope shape: Convex*  
*Parent material: Silty and clayey glaciolacustrine deposits*

**Typical profile**

*H1 - 0 to 9 inches: silt loam*

## Custom Soil Resource Report

*H2 - 9 to 17 inches: silt loam*  
*H3 - 17 to 32 inches: silt loam*  
*H4 - 32 to 70 inches: silt loam*

### Properties and qualities

*Slope: 6 to 12 percent*  
*Depth to restrictive feature: More than 80 inches*  
*Drainage class: Well drained*  
*Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)*  
*Depth to water table: More than 80 inches*  
*Frequency of flooding: None*  
*Frequency of ponding: None*  
*Calcium carbonate, maximum content: 15 percent*  
*Available water capacity: High (about 10.3 inches)*

### Interpretive groups

*Land capability classification (irrigated): None specified*  
*Land capability classification (nonirrigated): 4e*  
*Hydrologic Soil Group: C*  
*Hydric soil rating: No*

### Minor Components

#### Arkport

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

#### Galen

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

#### Collamer

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

#### Hudson

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

## DvD3—Dunkirk and Arkport soils, 12 to 20 percent slopes, eroded

### Map Unit Setting

*National map unit symbol: 9twb*  
*Elevation: 100 to 1,000 feet*  
*Mean annual precipitation: 31 to 37 inches*  
*Mean annual air temperature: 46 to 50 degrees F*  
*Frost-free period: 145 to 190 days*  
*Farmland classification: Not prime farmland*

### Map Unit Composition

*Dunkirk, eroded, and similar soils: 41 percent*

## Custom Soil Resource Report

*Arkport and similar soils: 39 percent*

*Minor components: 20 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Dunkirk, Eroded

#### Setting

*Landform: Lake plains*

*Landform position (two-dimensional): Backslope*

*Landform position (three-dimensional): Riser*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Parent material: Silty and clayey glaciolacustrine deposits*

#### Typical profile

*H1 - 0 to 9 inches: silt loam*

*H2 - 9 to 17 inches: silt loam*

*H3 - 17 to 32 inches: silt loam*

*H4 - 32 to 70 inches: silt loam*

#### Properties and qualities

*Slope: 12 to 20 percent*

*Depth to restrictive feature: More than 80 inches*

*Drainage class: Well drained*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Calcium carbonate, maximum content: 15 percent*

*Available water capacity: High (about 10.3 inches)*

#### Interpretive groups

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 4e*

*Hydrologic Soil Group: C*

*Hydric soil rating: No*

### Description of Arkport

#### Setting

*Landform: Deltas on lake plains*

*Landform position (two-dimensional): Backslope*

*Landform position (three-dimensional): Riser*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Parent material: Glaciofluvial or deltaic deposits with a high content of fine and very fine sand*

#### Typical profile

*H1 - 0 to 8 inches: very fine sandy loam*

*H2 - 8 to 20 inches: loamy very fine sand*

*H3 - 20 to 48 inches: loamy fine sand*

*H4 - 48 to 60 inches: fine sand*

#### Properties and qualities

*Slope: 12 to 20 percent*

*Depth to restrictive feature: More than 80 inches*

## Custom Soil Resource Report

*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* High (1.98 to 5.95 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Available water capacity:* Low (about 5.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* A  
*Ecological site:* F101XY005NY - Dry Outwash  
*Hydric soil rating:* No

### Minor Components

#### Otisville

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Colonie

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Hudson

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Howard

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Collamer

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No

#### Galen

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No

## EIA—Elnora loamy fine sand, 0 to 2 percent slopes

### Map Unit Setting

*National map unit symbol:* 9twc  
*Elevation:* 250 to 620 feet  
*Mean annual precipitation:* 31 to 37 inches  
*Mean annual air temperature:* 46 to 50 degrees F  
*Frost-free period:* 145 to 190 days  
*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Elnora and similar soils: 75 percent*

*Minor components: 25 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Elnora**

**Setting**

*Landform: Beach ridges, deltas*

*Landform position (two-dimensional): Summit*

*Landform position (three-dimensional): Tread*

*Down-slope shape: Concave*

*Across-slope shape: Convex*

*Parent material: Sandy glaciofluvial, eolian, or deltaic deposits*

**Typical profile**

*H1 - 0 to 6 inches: loamy fine sand*

*H2 - 6 to 20 inches: loamy fine sand*

*H3 - 20 to 60 inches: loamy fine sand*

**Properties and qualities**

*Slope: 0 to 2 percent*

*Depth to restrictive feature: More than 80 inches*

*Drainage class: Moderately well drained*

*Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)*

*Depth to water table: About 18 to 24 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Available water capacity: Low (about 3.7 inches)*

**Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 2w*

*Hydrologic Soil Group: A/D*

*Hydric soil rating: No*

**Minor Components**

**Galen**

*Percent of map unit: 4 percent*

*Hydric soil rating: No*

**Colonie**

*Percent of map unit: 4 percent*

*Hydric soil rating: No*

**Stafford**

*Percent of map unit: 4 percent*

*Hydric soil rating: No*

**Minoa**

*Percent of map unit: 4 percent*

*Hydric soil rating: No*

**Unnamed soils**

*Percent of map unit: 3 percent*

*Hydric soil rating: No*

**Claverack**

*Percent of map unit: 3 percent*  
*Hydric soil rating: No*

**Cosad**

*Percent of map unit: 3 percent*  
*Hydric soil rating: No*

**EIB—Elnora loamy fine sand, 2 to 6 percent slopes**

**Map Unit Setting**

*National map unit symbol: 9twd*  
*Elevation: 260 to 620 feet*  
*Mean annual precipitation: 31 to 37 inches*  
*Mean annual air temperature: 46 to 50 degrees F*  
*Frost-free period: 145 to 190 days*  
*Farmland classification: All areas are prime farmland*

**Map Unit Composition**

*Elnora and similar soils: 75 percent*  
*Minor components: 25 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Elnora**

**Setting**

*Landform: Beach ridges, deltas*  
*Landform position (two-dimensional): Summit*  
*Landform position (three-dimensional): Tread*  
*Down-slope shape: Concave*  
*Across-slope shape: Convex*  
*Parent material: Sandy glaciofluvial, eolian, or deltaic deposits*

**Typical profile**

*H1 - 0 to 6 inches: loamy fine sand*  
*H2 - 6 to 20 inches: loamy fine sand*  
*H3 - 20 to 60 inches: loamy fine sand*

**Properties and qualities**

*Slope: 2 to 6 percent*  
*Depth to restrictive feature: More than 80 inches*  
*Drainage class: Moderately well drained*  
*Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)*  
*Depth to water table: About 18 to 24 inches*  
*Frequency of flooding: None*  
*Frequency of ponding: None*  
*Available water capacity: Low (about 3.7 inches)*

**Interpretive groups**

*Land capability classification (irrigated): None specified*

## Custom Soil Resource Report

*Land capability classification (nonirrigated): 2w*  
*Hydrologic Soil Group: A/D*  
*Hydric soil rating: No*

### Minor Components

#### **Altmar**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

#### **Fredon**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

#### **Minoa**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

#### **Stafford**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

#### **Unnamed soils**

*Percent of map unit: 3 percent*  
*Hydric soil rating: No*

#### **Colonie**

*Percent of map unit: 3 percent*  
*Hydric soil rating: No*

#### **Galen**

*Percent of map unit: 3 percent*  
*Hydric soil rating: No*

## Fr—Fredon gravelly loam

### Map Unit Setting

*National map unit symbol: 9twh*  
*Elevation: 250 to 1,200 feet*  
*Mean annual precipitation: 31 to 37 inches*  
*Mean annual air temperature: 46 to 50 degrees F*  
*Frost-free period: 145 to 190 days*  
*Farmland classification: Prime farmland if drained*

### Map Unit Composition

*Fredon, poorly drained, and similar soils: 50 percent*  
*Fredon, somewhat poorly drained, and similar soils: 25 percent*  
*Minor components: 25 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

## Description of Fredon, Poorly Drained

### Setting

*Landform:* Valley trains, terraces  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Parent material:* Loamy over sandy and gravelly glaciofluvial deposits

### Typical profile

*H1 - 0 to 8 inches:* gravelly loam  
*H2 - 8 to 22 inches:* gravelly loam  
*H3 - 22 to 60 inches:* stratified very gravelly sand

### Properties and qualities

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 1.98 in/hr)  
*Depth to water table:* About 6 to 18 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Available water capacity:* Low (about 4.9 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4w  
*Hydrologic Soil Group:* B/D  
*Hydric soil rating:* Yes

## Description of Fredon, Somewhat Poorly Drained

### Setting

*Landform:* Valley trains, terraces  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Parent material:* Loamy over sandy and gravelly glaciofluvial deposits

### Typical profile

*H1 - 0 to 8 inches:* gravelly loam  
*H2 - 8 to 22 inches:* gravelly loam  
*H3 - 22 to 60 inches:* stratified very gravelly sand

### Properties and qualities

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 1.98 in/hr)  
*Depth to water table:* About 6 to 18 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None

## Custom Soil Resource Report

*Calcium carbonate, maximum content:* 15 percent  
*Available water capacity:* Low (about 4.9 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3w  
*Hydrologic Soil Group:* B/D  
*Hydric soil rating:* No

### Minor Components

#### Phelps

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Stafford

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Altmar

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Hilton

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Appleton

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

#### Lamson

*Percent of map unit:* 3 percent  
*Landform:* Depressions  
*Hydric soil rating:* Yes

#### Unnamed soils

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

## GnA—Galen very fine sandy loam, 0 to 2 percent slopes

### Map Unit Setting

*National map unit symbol:* 9twk  
*Elevation:* 250 to 610 feet  
*Mean annual precipitation:* 31 to 37 inches  
*Mean annual air temperature:* 46 to 50 degrees F  
*Frost-free period:* 145 to 190 days  
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Galen and similar soils:* 70 percent

## Custom Soil Resource Report

*Minor components: 30 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Galen

#### Setting

*Landform: Deltas on lake plains*  
*Landform position (two-dimensional): Summit*  
*Landform position (three-dimensional): Tread*  
*Down-slope shape: Concave*  
*Across-slope shape: Convex*  
*Parent material: Deltaic deposits with a high content of fine and very fine sand*

#### Typical profile

*H1 - 0 to 8 inches: very fine sandy loam*  
*H2 - 8 to 27 inches: very fine sandy loam*  
*H3 - 27 to 35 inches: loamy fine sand*  
*H4 - 35 to 60 inches: stratified loamy very fine sand to silt loam*

#### Properties and qualities

*Slope: 0 to 2 percent*  
*Depth to restrictive feature: More than 80 inches*  
*Drainage class: Moderately well drained*  
*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high*  
*(0.57 to 5.95 in/hr)*  
*Depth to water table: About 18 to 24 inches*  
*Frequency of flooding: None*  
*Frequency of ponding: None*  
*Calcium carbonate, maximum content: 1 percent*  
*Available water capacity: Moderate (about 6.2 inches)*

#### Interpretive groups

*Land capability classification (irrigated): None specified*  
*Land capability classification (nonirrigated): 2w*  
*Hydrologic Soil Group: A/D*  
*Hydric soil rating: No*

### Minor Components

#### Collamer

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

#### Minoa

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

#### Colonie

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

#### Arkport

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

#### Elnora

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Claverack**

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

**Altmar**

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

**Phelps**

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

**GnB—Galen very fine sandy loam, 2 to 6 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 9twl  
*Elevation:* 250 to 640 feet  
*Mean annual precipitation:* 31 to 37 inches  
*Mean annual air temperature:* 46 to 50 degrees F  
*Frost-free period:* 145 to 190 days  
*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Galen and similar soils:* 70 percent  
*Minor components:* 30 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Galen**

**Setting**

*Landform:* Deltas on lake plains  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Convex  
*Parent material:* Deltaic deposits with a high content of fine and very fine sand

**Typical profile**

*H1 - 0 to 8 inches:* very fine sandy loam  
*H2 - 8 to 27 inches:* very fine sandy loam  
*H3 - 27 to 35 inches:* loamy fine sand  
*H4 - 35 to 60 inches:* stratified loamy very fine sand to silt loam

**Properties and qualities**

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Moderately well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.57 to 5.95 in/hr)  
*Depth to water table:* About 18 to 24 inches  
*Frequency of flooding:* None

## Custom Soil Resource Report

*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 1 percent  
*Available water capacity:* Moderate (about 6.2 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2w  
*Hydrologic Soil Group:* A/D  
*Hydric soil rating:* No

### **Minor Components**

#### **Elnora**

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### **Colonie**

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### **Niagara**

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### **Claverack**

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### **Arkport**

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### **Minoa**

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### **Altmar**

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

#### **Collamer**

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

## **Ha—Hamlin silt loam**

### **Map Unit Setting**

*National map unit symbol:* 9twm  
*Elevation:* 250 to 640 feet  
*Mean annual precipitation:* 31 to 37 inches  
*Mean annual air temperature:* 46 to 50 degrees F  
*Frost-free period:* 145 to 190 days  
*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Hamlin and similar soils: 85 percent*

*Minor components: 15 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Hamlin**

**Setting**

*Landform: Flood plains*

*Landform position (two-dimensional): Summit*

*Landform position (three-dimensional): Rise*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Parent material: Silty alluvium mainly from areas of siltstone, shale, and limestone*

**Typical profile**

*H1 - 0 to 8 inches: silt loam*

*H2 - 8 to 29 inches: silt loam*

*H3 - 29 to 40 inches: silt loam*

*H4 - 40 to 60 inches: silty clay loam*

**Properties and qualities**

*Slope: 0 to 3 percent*

*Depth to restrictive feature: More than 80 inches*

*Drainage class: Well drained*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high  
(0.57 to 1.98 in/hr)*

*Depth to water table: About 36 to 72 inches*

*Frequency of flooding: OccasionalNone*

*Frequency of ponding: None*

*Calcium carbonate, maximum content: 1 percent*

*Available water capacity: High (about 10.9 inches)*

**Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 1*

*Hydrologic Soil Group: B*

*Hydric soil rating: No*

**Minor Components**

**Unnamed soils**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

**Phelps**

*Percent of map unit: 4 percent*

*Hydric soil rating: No*

**Raynham**

*Percent of map unit: 3 percent*

*Hydric soil rating: No*

**Wayland**

*Percent of map unit: 3 percent*

*Landform: Flood plains*

*Hydric soil rating: Yes*

## HgB—Hilton gravelly loam, 3 to 8 percent slopes

### Map Unit Setting

*National map unit symbol:* 2w3lb  
*Elevation:* 260 to 1,050 feet  
*Mean annual precipitation:* 31 to 57 inches  
*Mean annual air temperature:* 41 to 50 degrees F  
*Frost-free period:* 100 to 190 days  
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Hilton and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Hilton

#### Setting

*Landform:* Till plains, drumlins, ridges  
*Landform position (two-dimensional):* Summit, shoulder  
*Landform position (three-dimensional):* Crest  
*Down-slope shape:* Linear  
*Across-slope shape:* Convex, concave  
*Parent material:* Calcareous loamy lodgment till derived from limestone, sandstone, and shale

#### Typical profile

*Ap - 0 to 9 inches:* gravelly loam  
*E - 9 to 17 inches:* loam  
*Bt/E - 17 to 24 inches:* gravelly loam  
*Bt - 24 to 36 inches:* gravelly loam  
*C1 - 36 to 54 inches:* gravelly loam  
*C2 - 54 to 79 inches:* gravelly loam

#### Properties and qualities

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Moderately well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 1.42 in/hr)  
*Depth to water table:* About 18 to 24 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 40 percent  
*Available water capacity:* Moderate (about 7.5 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e

## Custom Soil Resource Report

*Hydrologic Soil Group:* B/D  
*Hydric soil rating:* No

### Minor Components

#### Appleton

*Percent of map unit:* 5 percent  
*Landform:* Drumlins, ridges, till plains  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

#### Ontario

*Percent of map unit:* 5 percent  
*Landform:* Drumlins, ridges, till plains  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

#### Bombay

*Percent of map unit:* 3 percent  
*Landform:* Drumlinoid ridges  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Crest, side slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

#### Cayuga

*Percent of map unit:* 2 percent  
*Landform:* Drumlinoid ridges  
*Landform position (two-dimensional):* Shoulder, summit  
*Landform position (three-dimensional):* Crest, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

## HIA—Hilton silt loam, 0 to 3 percent slopes

### Map Unit Setting

*National map unit symbol:* 2w3kz  
*Elevation:* 260 to 660 feet  
*Mean annual precipitation:* 31 to 57 inches  
*Mean annual air temperature:* 41 to 50 degrees F  
*Frost-free period:* 100 to 190 days  
*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Hilton and similar soils: 85 percent*

*Minor components: 15 percent*

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Hilton**

**Setting**

*Landform: Drumlins, ridges, till plains*

*Landform position (two-dimensional): Summit*

*Landform position (three-dimensional): Crest*

*Down-slope shape: Linear*

*Across-slope shape: Concave, convex*

*Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale*

**Typical profile**

*Ap - 0 to 9 inches: silt loam*

*E - 9 to 17 inches: loam*

*Bt/E - 17 to 24 inches: gravelly loam*

*Bt - 24 to 36 inches: gravelly loam*

*C1 - 36 to 54 inches: gravelly loam*

*C2 - 54 to 79 inches: gravelly loam*

**Properties and qualities**

*Slope: 0 to 3 percent*

*Depth to restrictive feature: More than 80 inches*

*Drainage class: Moderately well drained*

*Runoff class: Low*

*Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)*

*Depth to water table: About 18 to 24 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Calcium carbonate, maximum content: 40 percent*

*Available water capacity: Moderate (about 7.7 inches)*

**Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 2w*

*Hydrologic Soil Group: B/D*

*Hydric soil rating: No*

**Minor Components**

**Ontario**

*Percent of map unit: 5 percent*

*Landform: Till plains, drumlins, ridges*

*Landform position (two-dimensional): Summit*

*Landform position (three-dimensional): Crest*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Hydric soil rating: No*

**Appleton**

*Percent of map unit: 5 percent*

## Custom Soil Resource Report

*Landform:* Drumlins, ridges, till plains  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

### **Bombay**

*Percent of map unit:* 3 percent  
*Landform:* Drumlinoid ridges  
*Landform position (two-dimensional):* Shoulder, backslope, summit  
*Landform position (three-dimensional):* Crest, side slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

### **Cayuga**

*Percent of map unit:* 2 percent  
*Landform:* Drumlinoid ridges  
*Landform position (two-dimensional):* Shoulder, summit  
*Landform position (three-dimensional):* Crest, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

## **HIB—Hilton silt loam, 3 to 8 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2w3l9  
*Elevation:* 260 to 1,640 feet  
*Mean annual precipitation:* 31 to 57 inches  
*Mean annual air temperature:* 41 to 50 degrees F  
*Frost-free period:* 100 to 190 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Hilton and similar soils:* 85 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Hilton**

#### **Setting**

*Landform:* Drumlins, ridges, till plains  
*Landform position (two-dimensional):* Summit, shoulder  
*Landform position (three-dimensional):* Crest  
*Down-slope shape:* Linear  
*Across-slope shape:* Concave, convex  
*Parent material:* Calcareous loamy lodgment till derived from limestone, sandstone, and shale

## Custom Soil Resource Report

### Typical profile

*Ap - 0 to 9 inches:* silt loam  
*E - 9 to 17 inches:* loam  
*Bt/E - 17 to 24 inches:* gravelly loam  
*Bt - 24 to 36 inches:* gravelly loam  
*C1 - 36 to 54 inches:* gravelly loam  
*C2 - 54 to 79 inches:* gravelly loam

### Properties and qualities

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Moderately well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 1.42 in/hr)  
*Depth to water table:* About 18 to 24 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 40 percent  
*Available water capacity:* Moderate (about 7.7 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* B/D  
*Hydric soil rating:* No

### Minor Components

#### Ontario

*Percent of map unit:* 5 percent  
*Landform:* Drumlins, ridges, till plains  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

#### Appleton

*Percent of map unit:* 5 percent  
*Landform:* Drumlins, ridges, till plains  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

#### Bombay

*Percent of map unit:* 3 percent  
*Landform:* Drumlinoid ridges  
*Landform position (two-dimensional):* Shoulder, backslope, summit  
*Landform position (three-dimensional):* Crest, side slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**Cayuga**

*Percent of map unit:* 2 percent  
*Landform:* Drumlinoid ridges  
*Landform position (two-dimensional):* Shoulder, summit  
*Landform position (three-dimensional):* Crest, side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**HsB—Hudson silt loam, 2 to 6 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 9twy  
*Elevation:* 300 to 1,800 feet  
*Mean annual precipitation:* 31 to 37 inches  
*Mean annual air temperature:* 46 to 50 degrees F  
*Frost-free period:* 145 to 190 days  
*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Hudson and similar soils:* 70 percent  
*Minor components:* 30 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Hudson**

**Setting**

*Landform:* Lake plains  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Convex  
*Parent material:* Clayey and silty glaciolacustrine deposits

**Typical profile**

*H1 - 0 to 12 inches:* silt loam  
*H2 - 12 to 20 inches:* silty clay loam  
*H3 - 20 to 30 inches:* silty clay  
*H4 - 30 to 60 inches:* silt loam

**Properties and qualities**

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Moderately well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* About 18 to 24 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent

## Custom Soil Resource Report

*Available water capacity:* High (about 9.7 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* C/D

*Hydric soil rating:* No

### **Minor Components**

#### **Ovid**

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### **Dunkirk**

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### **Rhinebeck**

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### **Collamer**

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### **Niagara**

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### **Cayuga**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### **Churchville**

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### **Claverack**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

#### **Cazenovia**

*Percent of map unit:* 2 percent

*Hydric soil rating:* No

## **Ma—Madalin silt loam, 0 to 3 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2spk0

*Elevation:* 230 to 930 feet

*Mean annual precipitation:* 31 to 57 inches

*Mean annual air temperature:* 41 to 50 degrees F

*Frost-free period:* 100 to 190 days

## Custom Soil Resource Report

*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Madalin and similar soils:* 85 percent

*Minor components:* 15 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Madalin

#### Setting

*Landform:* Depressions

*Landform position (two-dimensional):* Toeslope

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Parent material:* Brown clayey glaciolacustrine deposits derived from calcareous shale

#### Typical profile

*Ap - 0 to 8 inches:* silt loam

*Btg1 - 8 to 16 inches:* silty clay loam

*Btg2 - 16 to 25 inches:* silty clay

*Btg3 - 25 to 33 inches:* silty clay

*C - 33 to 79 inches:* stratified silt to clay

#### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Poorly drained

*Runoff class:* Very low

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

*Depth to water table:* About 0 to 8 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 25 percent

*Available water capacity:* High (about 9.7 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4w

*Hydrologic Soil Group:* C/D

*Ecological site:* F101XY010NY - Wet Lake Plain Depression

*Hydric soil rating:* Yes

### Minor Components

#### Rhinebeck

*Percent of map unit:* 5 percent

*Landform:* Lake plains

*Landform position (two-dimensional):* Footslope

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave

*Across-slope shape:* Linear

*Hydric soil rating:* No

**Canandaigua**

*Percent of map unit:* 4 percent  
*Landform:* Depressions  
*Landform position (two-dimensional):* Toeslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

**Fonda**

*Percent of map unit:* 4 percent  
*Landform:* Depressions  
*Landform position (two-dimensional):* Toeslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

**Cosad**

*Percent of map unit:* 2 percent  
*Landform:* Lake plains  
*Landform position (two-dimensional):* Summit, shoulder  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**Md—Madalin silt loam, loamy subsoil variant**

**Map Unit Setting**

*National map unit symbol:* 9tx8  
*Elevation:* 260 to 640 feet  
*Mean annual precipitation:* 31 to 37 inches  
*Mean annual air temperature:* 46 to 50 degrees F  
*Frost-free period:* 145 to 190 days  
*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

*Madalin variant, loamy substratum, and similar soils:* 75 percent  
*Minor components:* 25 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Madalin Variant, Loamy Substratum**

**Setting**

*Landform:* Depressions  
*Landform position (two-dimensional):* Toeslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave

## Custom Soil Resource Report

*Parent material:* Clayey and silty glaciolacustrine deposits

### Typical profile

*H1 - 0 to 8 inches:* silt loam  
*H2 - 8 to 26 inches:* silty clay  
*H3 - 26 to 60 inches:* silt loam

### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Very poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* About 0 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* Frequent  
*Calcium carbonate, maximum content:* 15 percent  
*Available water capacity:* Moderate (about 8.3 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4w  
*Hydrologic Soil Group:* C/D  
*Ecological site:* F101XY010NY - Wet Lake Plain Depression  
*Hydric soil rating:* Yes

### Minor Components

#### Churchville

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

#### Sun

*Percent of map unit:* 4 percent  
*Landform:* Depressions  
*Hydric soil rating:* Yes

#### Ovid

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Odessa

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Rhinebeck

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

#### Lakemont

*Percent of map unit:* 3 percent  
*Landform:* Depressions  
*Hydric soil rating:* Yes

#### Unnamed soils

*Percent of map unit:* 2 percent  
*Hydric soil rating:* No

## Mn—Minoa very fine sandy loam

### Map Unit Setting

*National map unit symbol:* 9txc  
*Elevation:* 250 to 800 feet  
*Mean annual precipitation:* 31 to 37 inches  
*Mean annual air temperature:* 46 to 50 degrees F  
*Frost-free period:* 145 to 190 days  
*Farmland classification:* Prime farmland if drained

### Map Unit Composition

*Minoa and similar soils:* 70 percent  
*Minor components:* 30 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Minoa

#### Setting

*Landform:* Deltas on lake plains  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Parent material:* Deltaic or glaciolacustrine deposits with a high content of fine and very fine sand

#### Typical profile

*H1 - 0 to 8 inches:* very fine sandy loam  
*H2 - 8 to 20 inches:* very fine sandy loam  
*H3 - 20 to 30 inches:* loamy very fine sand  
*H4 - 30 to 60 inches:* stratified very fine sand to silt loam

#### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)  
*Depth to water table:* About 6 to 18 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Available water capacity:* High (about 9.3 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3w  
*Hydrologic Soil Group:* B/D  
*Ecological site:* F101XY006NY - Moist Outwash  
*Hydric soil rating:* No

**Minor Components**

**Cosad**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Niagara**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Massena**

*Percent of map unit: 4 percent*  
*Hydric soil rating: Yes*

**Elnora**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Galen**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Lamson**

*Percent of map unit: 4 percent*  
*Landform: Depressions*  
*Hydric soil rating: Yes*

**Canandaigua**

*Percent of map unit: 3 percent*  
*Landform: Depressions*  
*Hydric soil rating: Yes*

**Stafford**

*Percent of map unit: 3 percent*  
*Hydric soil rating: No*

**NaA—Niagara silt loam, 0 to 2 percent slopes**

**Map Unit Setting**

*National map unit symbol: 9txf*  
*Elevation: 250 to 660 feet*  
*Mean annual precipitation: 31 to 37 inches*  
*Mean annual air temperature: 46 to 50 degrees F*  
*Frost-free period: 145 to 190 days*  
*Farmland classification: Prime farmland if drained*

**Map Unit Composition**

*Niagara and similar soils: 70 percent*  
*Minor components: 30 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

## Description of Niagara

### Setting

*Landform:* Lake plains

*Landform position (two-dimensional):* Footslope

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave

*Across-slope shape:* Linear

*Parent material:* Silty and clayey glaciolacustrine deposits

### Typical profile

*H1 - 0 to 13 inches:* silt loam

*H2 - 13 to 30 inches:* silt loam

*H3 - 30 to 60 inches:* silt loam

### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.57 in/hr)

*Depth to water table:* About 6 to 18 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

*Available water capacity:* High (about 10.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* C/D

*Ecological site:* F101XY009NY - Moist Lake Plain

*Hydric soil rating:* No

## Minor Components

### Collamer

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

### Galen

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

### Canandaigua

*Percent of map unit:* 4 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

### Rhinebeck

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

### Minoa

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

**Odessa**

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

**Hilton**

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

**Appleton**

*Percent of map unit:* 3 percent  
*Hydric soil rating:* No

**NaB—Niagara silt loam, 2 to 6 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 9txg  
*Elevation:* 250 to 510 feet  
*Mean annual precipitation:* 31 to 37 inches  
*Mean annual air temperature:* 46 to 50 degrees F  
*Frost-free period:* 145 to 190 days  
*Farmland classification:* Prime farmland if drained

**Map Unit Composition**

*Niagara and similar soils:* 80 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Niagara**

**Setting**

*Landform:* Lake plains  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Parent material:* Silty and clayey glaciolacustrine deposits

**Typical profile**

*H1 - 0 to 13 inches:* silt loam  
*H2 - 13 to 30 inches:* silt loam  
*H3 - 30 to 60 inches:* silt loam

**Properties and qualities**

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.57 in/hr)  
*Depth to water table:* About 6 to 18 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None

## Custom Soil Resource Report

*Calcium carbonate, maximum content:* 15 percent  
*Available water capacity:* High (about 10.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3w  
*Hydrologic Soil Group:* C/D  
*Ecological site:* F101XY009NY - Moist Lake Plain  
*Hydric soil rating:* No

### Minor Components

#### Canandaigua

*Percent of map unit:* 4 percent  
*Landform:* Depressions  
*Hydric soil rating:* Yes

#### Claverack

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Collamer

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Hilton

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

#### Galen

*Percent of map unit:* 4 percent  
*Hydric soil rating:* No

## OvA—Ovid silt loam, 0 to 2 percent slopes

### Map Unit Setting

*National map unit symbol:* 9txt  
*Elevation:* 250 to 1,000 feet  
*Mean annual precipitation:* 31 to 37 inches  
*Mean annual air temperature:* 46 to 50 degrees F  
*Frost-free period:* 145 to 190 days  
*Farmland classification:* Prime farmland if drained

### Map Unit Composition

*Ovid and similar soils:* 75 percent  
*Minor components:* 25 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Ovid

#### Setting

*Landform:* Reworked lake plains, till plains

## Custom Soil Resource Report

*Landform position (two-dimensional):* Footslope

*Landform position (three-dimensional):* Base slope

*Down-slope shape:* Concave

*Across-slope shape:* Linear

*Parent material:* Loamy till with a significant component of reddish shale or reddish glaciolacustrine clays, mixed with limestone and some sandstone

### Typical profile

*H1 - 0 to 11 inches:* silt loam

*H2 - 11 to 24 inches:* silty clay loam

*H3 - 24 to 60 inches:* loam

### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 6 to 18 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

*Available water capacity:* Moderate (about 8.6 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* C/D

*Ecological site:* F101XY013NY - Moist Till

*Hydric soil rating:* No

### Minor Components

#### Appleton

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Cayuga

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Cazenovia

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Churchville

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Sun

*Percent of map unit:* 4 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

#### Unnamed soils

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

## OvB—Ovid silt loam, 2 to 6 percent slopes

### Map Unit Setting

*National map unit symbol:* 9txv  
*Elevation:* 250 to 1,000 feet  
*Mean annual precipitation:* 31 to 37 inches  
*Mean annual air temperature:* 46 to 50 degrees F  
*Frost-free period:* 145 to 190 days  
*Farmland classification:* Prime farmland if drained

### Map Unit Composition

*Ovid and similar soils:* 75 percent  
*Minor components:* 25 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Ovid

#### Setting

*Landform:* Reworked lake plains, till plains  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Parent material:* Loamy till with a significant component of reddish shale or reddish glaciolacustrine clays, mixed with limestone and some sandstone

#### Typical profile

*H1 - 0 to 11 inches:* silt loam  
*H2 - 11 to 24 inches:* silty clay loam  
*H3 - 24 to 60 inches:* loam

#### Properties and qualities

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* About 6 to 18 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Available water capacity:* Moderate (about 8.6 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3w  
*Hydrologic Soil Group:* C/D  
*Ecological site:* F101XY013NY - Moist Till  
*Hydric soil rating:* No

**Minor Components**

**Cazenovia**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

**Churchville**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

**Cayuga**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

**Hilton**

*Percent of map unit: 3 percent*  
*Hydric soil rating: No*

**Appleton**

*Percent of map unit: 3 percent*  
*Hydric soil rating: No*

**Madalin**

*Percent of map unit: 2 percent*  
*Landform: Depressions*  
*Hydric soil rating: Yes*

**Unnamed soils**

*Percent of map unit: 2 percent*  
*Hydric soil rating: No*

**RbA—Rhinebeck silt loam, 0 to 2 percent slopes**

**Map Unit Setting**

*National map unit symbol: 9ty1*  
*Elevation: 80 to 1,000 feet*  
*Mean annual precipitation: 31 to 37 inches*  
*Mean annual air temperature: 46 to 50 degrees F*  
*Frost-free period: 145 to 190 days*  
*Farmland classification: Prime farmland if drained*

**Map Unit Composition**

*Rhinebeck and similar soils: 70 percent*  
*Minor components: 30 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Rhinebeck**

**Setting**

*Landform: Lake plains*  
*Landform position (two-dimensional): Footslope*  
*Landform position (three-dimensional): Tread*

## Custom Soil Resource Report

*Down-slope shape:* Concave

*Across-slope shape:* Linear

*Parent material:* Clayey and silty glaciolacustrine deposits

### Typical profile

*H1 - 0 to 10 inches:* silt loam

*H2 - 10 to 23 inches:* silty clay loam

### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* About 6 to 18 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

*Available water capacity:* Low (about 3.6 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* C/D

*Hydric soil rating:* No

### Minor Components

#### Madalin

*Percent of map unit:* 4 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

#### Collamer

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Canandaigua

*Percent of map unit:* 4 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

#### Hudson

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Niagara

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Cayuga

*Percent of map unit:* 4 percent

*Hydric soil rating:* No

#### Churchville

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

#### Ovid

*Percent of map unit:* 3 percent

*Hydric soil rating:* No

## **RbB—Rhinebeck silt loam, 2 to 6 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 9ty2  
*Elevation:* 80 to 1,000 feet  
*Mean annual precipitation:* 31 to 37 inches  
*Mean annual air temperature:* 46 to 50 degrees F  
*Frost-free period:* 145 to 190 days  
*Farmland classification:* Prime farmland if drained

### **Map Unit Composition**

*Rhinebeck and similar soils:* 70 percent  
*Minor components:* 30 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Rhinebeck**

#### **Setting**

*Landform:* Lake plains  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Parent material:* Clayey and silty glaciolacustrine deposits

#### **Typical profile**

*H1 - 0 to 10 inches:* silt loam  
*H2 - 10 to 23 inches:* silty clay loam

#### **Properties and qualities**

*Slope:* 2 to 6 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* About 6 to 18 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Available water capacity:* Low (about 3.6 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3w  
*Hydrologic Soil Group:* C/D  
*Hydric soil rating:* No

**Minor Components**

**Canandaigua**

*Percent of map unit: 4 percent*  
*Landform: Depressions*  
*Hydric soil rating: Yes*

**Churchville**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Collamer**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Hudson**

*Percent of map unit: 4 percent*  
*Hydric soil rating: No*

**Madalin**

*Percent of map unit: 4 percent*  
*Landform: Depressions*  
*Hydric soil rating: Yes*

**Cayuga**

*Percent of map unit: 3 percent*  
*Hydric soil rating: No*

**Niagara**

*Percent of map unit: 3 percent*  
*Hydric soil rating: No*

**Cazenovia**

*Percent of map unit: 2 percent*  
*Hydric soil rating: No*

**Ovid**

*Percent of map unit: 2 percent*  
*Hydric soil rating: No*

**W—Water**

**Map Unit Setting**

*National map unit symbol: 9tyg*  
*Mean annual precipitation: 31 to 37 inches*  
*Mean annual air temperature: 46 to 50 degrees F*  
*Frost-free period: 145 to 190 days*  
*Farmland classification: Not prime farmland*

**Map Unit Composition**

*Water: 100 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

## **Wa—Wayland soils complex, 0 to 3 percent slopes, frequently flooded**

### **Map Unit Setting**

*National map unit symbol:* 2srgv  
*Elevation:* 160 to 1,970 feet  
*Mean annual precipitation:* 31 to 68 inches  
*Mean annual air temperature:* 43 to 52 degrees F  
*Frost-free period:* 105 to 180 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Wayland and similar soils:* 60 percent  
*Wayland, very poorly drained, and similar soils:* 30 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Wayland**

#### **Setting**

*Landform:* Flood plains  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Silty and clayey alluvium derived from interbedded sedimentary rock

#### **Typical profile**

*A - 0 to 6 inches:* silt loam  
*Bg1 - 6 to 12 inches:* silt loam  
*Bg2 - 12 to 18 inches:* silt loam  
*C1 - 18 to 46 inches:* silt loam  
*C2 - 46 to 72 inches:* silty clay loam

#### **Properties and qualities**

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high (0.14 to 14.17 in/hr)  
*Depth to water table:* About 0 to 6 inches  
*Frequency of flooding:* FrequentNone  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water capacity:* Very high (about 12.6 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 5w  
*Hydrologic Soil Group:* B/D  
*Ecological site:* F139XY009OH - Wet Floodplain  
*Hydric soil rating:* Yes

## Description of Wayland, Very Poorly Drained

### Setting

*Landform:* Flood plains

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Parent material:* Silty and clayey alluvium derived from interbedded sedimentary rock

### Typical profile

*A - 0 to 6 inches:* mucky silt loam

*Bg1 - 6 to 12 inches:* silt loam

*Bg2 - 12 to 18 inches:* silt loam

*C1 - 18 to 46 inches:* silt loam

*C2 - 46 to 72 inches:* silty clay loam

### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Very poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high (0.14 to 14.17 in/hr)

*Depth to water table:* About 0 inches

*Frequency of flooding:* FrequentNone

*Frequency of ponding:* Frequent

*Calcium carbonate, maximum content:* 15 percent

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water capacity:* Very high (about 12.8 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 5w

*Hydrologic Soil Group:* B/D

*Ecological site:* F139XY009OH - Wet Floodplain

*Hydric soil rating:* Yes

## Minor Components

### Wakeville

*Percent of map unit:* 10 percent

*Landform:* Flood plains

*Landform position (two-dimensional):* Footslope

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Concave

*Across-slope shape:* Linear

*Hydric soil rating:* No

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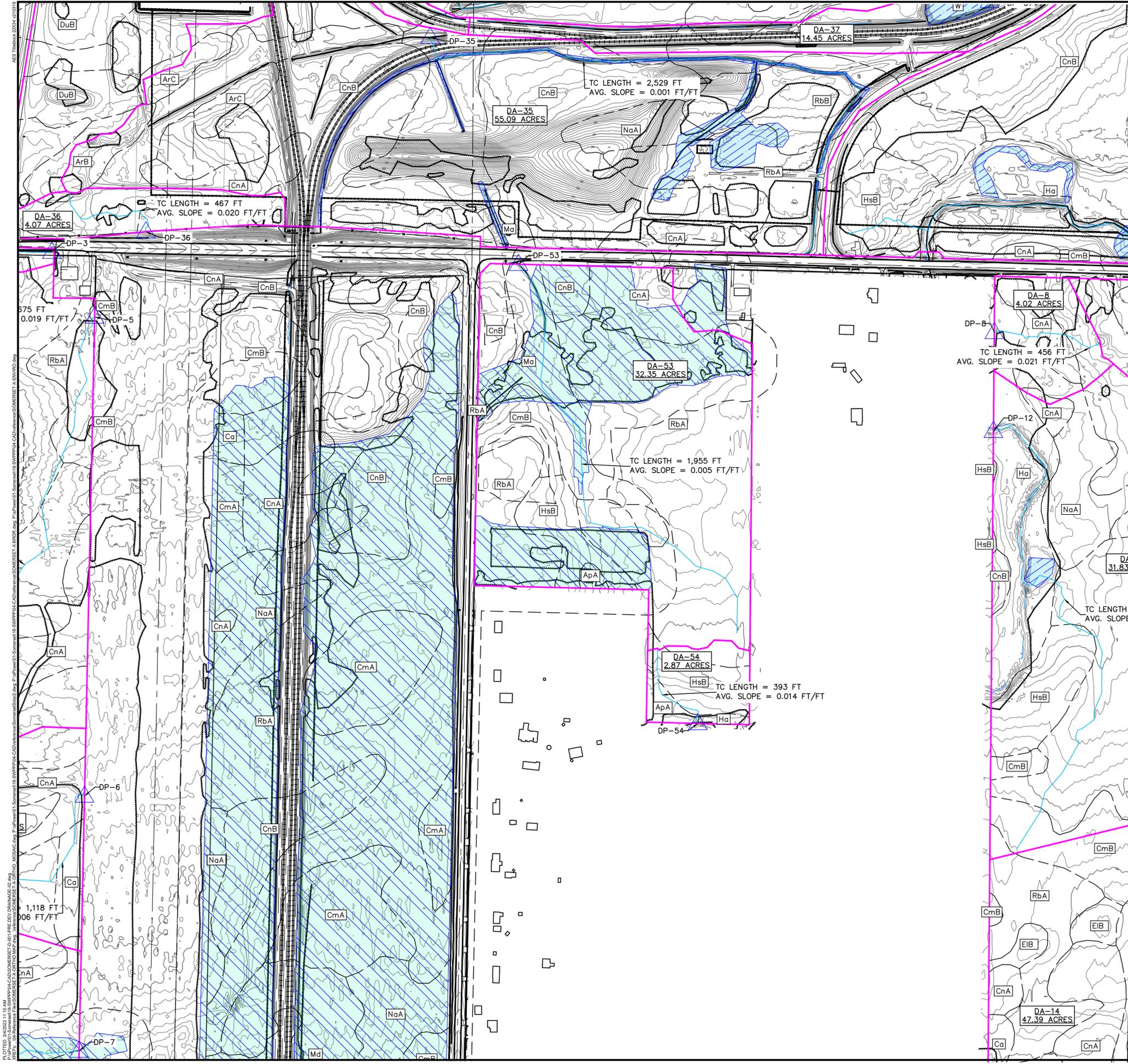
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## APPENDIX F – DRAINAGE MAPS







**LEGEND**

- PROPERTY LINE
- EXISTING DRAINAGE DITCH
- EXISTING WATER EDGE
- 475 EXISTING TOPO MAJOR
- EXISTING TOPO MINOR
- EXISTING FENCE
- EXISTING TREE LINE
- EXISTING RAILROAD
- DELINEATED WETLAND
- DELINEATED WETLAND (NYSDEC)
- DELINEATED DRAINAGE FEATURE
- FLOWPATHS
- SOIL TYPE BOUNDARY
- DRAINAGE AREA BOUNDARY
- DISCHARGE POINT

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, ARTICLE 145, FOR ANY PERSON, UNLESS UNDER THE DIRECTION OF A NEW YORK STATE LICENSED PROFESSIONAL ENGINEER, TO ALTER AN ITEM ON THIS DOCUMENT IN ANY WAY.

PE STAMP:

KEY PLAN:

REVISIONS:

NO.	DATE	DESCRIPTION

PROJECT TITLE:

**SOMERSET SOLAR ENERGY PROJECT**

PROJECT LOCATION:

SOMERSET, NY.

SHEET TITLE & DESCRIPTION:

**PRE-DEVELOPMENT DRAINAGE MAP**

PROJ NUM: 194-1282-0001

DES: 30% DESIGN

DWN: CNT

CHK: -

APV: -

DATE: 02/04/2022

SCALE AT 24" x 36":

1" = 200'

SHEET NO: **D-001.03** REV:  

**PRELIMINARY**  
 NOT FOR CONSTRUCTION



PLOTTED: 3/4/2022 11:10 AM  
 PLOT FILE: \\AES\proj\194-1282-0001\DESIGN\PRE-DEV\DRAINAGE.DWG  
 PLOT DEVICE: HP DesignJet T1100e  
 PLOT SCALE: 1" = 200'  
 PLOT SHEET: D-001.03  
 PLOT USER: aesadmin  
 PLOT PWD: aesadmin  
 PLOT FROM: 0





