

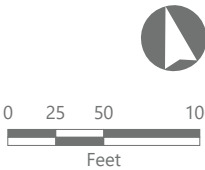


**CHPE EM&CP**

Greene County, New York

**SWPPP Report**

- Soil Type
- KrB - Kingsbury and Rhinebeck soils, 3 to 8 percent slopes
  - Ur - Udorthents, loamy
- Mapped Soil Boundary
- Project Area







**CHPE EM&CP**

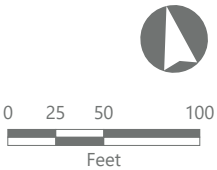
Greene County, New York

**SWPPP Report**

- Soil Type
- KrB - Kingsbury and Rhinebeck soils, 3 to 8 percent slopes

Ur - Udorthents, loamy
- Mapped Soil Boundary

Project Area

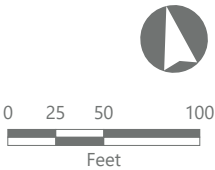






**CHPE EM&CP**  
Greene County, New York

Soil Type      Mapped Soil Boundary  
Ur - Udorthents, loamy      Project Area



SWPPP Report





**CHPE EM&CP**

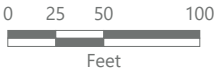
Greene County, New York

Soil Type

Ur - Udorthents, loamy

Mapped Soil Boundary

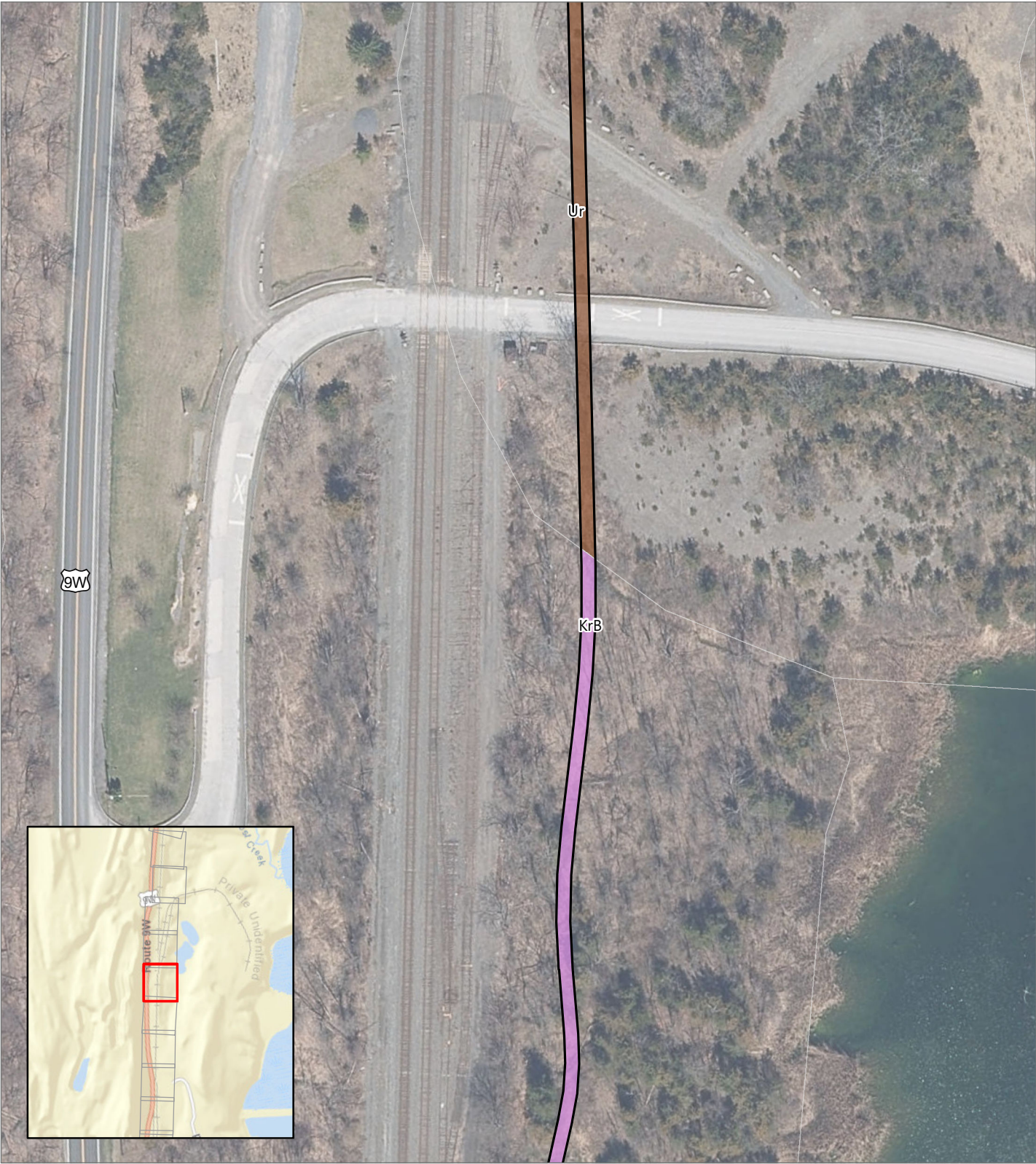
Project Area



**SWPPP Report**

**EDR**





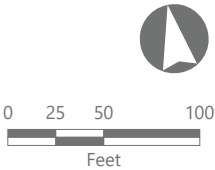
**CHPE EM&CP**

Greene County, New York

**SWPPP Report**

**EDR**

- Soil Type
- KrB - Kingsbury and Rhinebeck soils, 3 to 8 percent slopes
  - Ur - Udorthents, loamy
- Mapped Soil Boundary
- Project Area





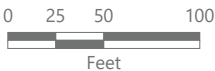


**CHPE EM&CP**

Greene County, New York

Soil Type  
KrB - Kingsbury and Rhinebeck  
soils, 3 to 8 percent slopes

Mapped Soil Boundary  
Project Area



**SWPPP Report**

**EDR**





**CHPE EM&CP**

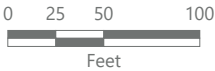
Greene County, New York

Soil Type

KrB - Kingsbury and Rhinebeck  
soils, 3 to 8 percent slopes

Mapped Soil Boundary

Project Area





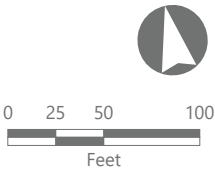


**CHPE EM&CP**

Greene County, New York

**SWPPP Report**

- Soil Type
- KrB - Kingsbury and Rhinebeck soils, 3 to 8 percent slopes
  - Ur - Udorthents, loamy
- Mapped Soil Boundary
- Project Area







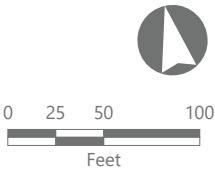
**CHPE EM&CP**

Greene County, New York

**SWPPP Report**

**EDR**

- Soil Type
- HvB - Hudson and Vergennes soils, 3 to 8 percent slopes
  - Ur - Udorthents, loamy
- Mapped Soil Boundary
- Project Area







**CHPE EM&CP**

Greene County, New York

**SWPPP Report**

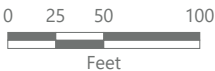
Soil Type

HvB - Hudson and Vergennes soils,  
3 to 8 percent slopes

HwD3 - Hudson and Vergennes silty clay loams,  
15 to 25 percent slopes, severely eroded

Mapped Soil Boundary

Project Area







**CHPE EM&CP**

Greene County, New York

**SWPPP Report**

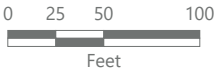
Soil Type

HvB - Hudson and Vergennes soils,  
3 to 8 percent slopes

HwD3 - Hudson and Vergennes silty clay loams,  
15 to 25 percent slopes, severely eroded

Mapped Soil Boundary

Project Area







**CHPE EM&CP**

Greene County, New York

**SWPPP Report**

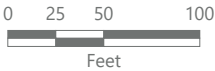
Soil Type

HvB - Hudson and Vergennes soils,  
3 to 8 percent slopes

HwD3 - Hudson and Vergennes silty clay loams,  
15 to 25 percent slopes, severely eroded

Mapped Soil Boundary

Project Area







**CHPE EM&CP**

Greene County, New York

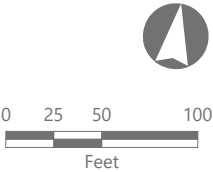
**SWPPP Report**



**Soil Type**

- FaE - Farmington gravelly silt loam, steep, rocky
- HvB - Hudson and Vergennes soils, 3 to 8 percent slopes

- HvC - Hudson and Vergennes soils, 8 to 15 percent slopes
- HwD3 - Hudson and Vergennes silty clay loams, 15 to 25 percent slopes, severely eroded
- Mapped Soil Boundary
- Project Area







**CHPE EM&CP**

Greene County, New York

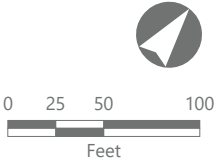
**SWPPP Report**



**Soil Type**

- FaE - Farmington gravelly silt loam, steep, rocky
- HvC - Hudson and Vergennes soils, 8 to 15 percent slopes

- KrB - Kingsbury and Rhinebeck soils, 3 to 8 percent slopes
- RhB - Riverhead loam, 3 to 8 percent slopes
- Mapped Soil Boundary
- Project Area







**CHPE EM&CP**

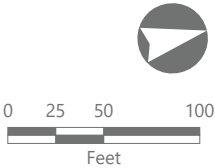
Greene County, New York

**SWPPP Report**

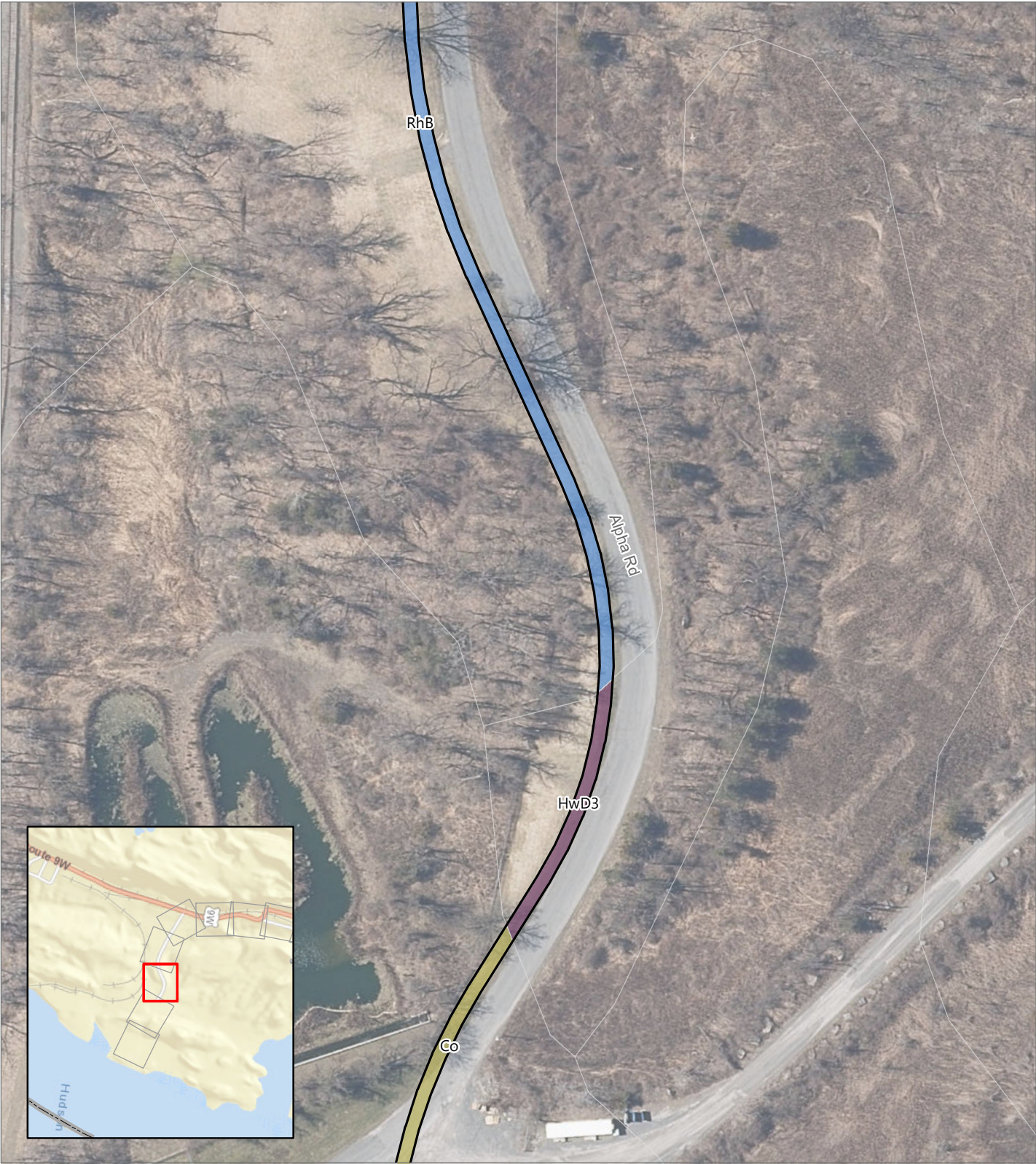
- Soil Type
- KrB - Kingsbury and Rhinebeck soils, 3 to 8 percent slopes

RhB - Riverhead loam, 3 to 8 percent slopes
- Mapped Soil Boundary

Project Area







**CHPE EM&CP**

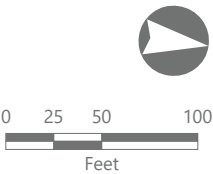
Greene County, New York

**SWPPP Report**



- Soil Type
- Co - Covington and Madalin soils
  - HwD3 - Hudson and Vergennes silty clay loams, 15 to 25 percent slopes, severely eroded
  - RhB - Riverhead loam, 3 to 8 percent slopes

- Mapped Soil Boundary
- Project Area







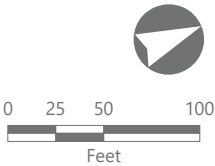
**CHPE EM&CP**

Greene County, New York

**SWPPP Report**



- Soil Type
- Co - Covington and Madalin soils
- FaD - Farmington gravelly silt loam, hilly, rocky
- Ur - Udorthents, loamy
- Mapped Soil Boundary
- Project Area







**CHPE EM&CP**

Greene County, New York

**SWPPP Report**

Soil Type

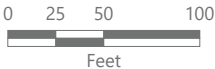
FaD - Farmington gravelly silt loam, hilly, rocky

Mh - Medisaprists-Hydraquents, tidal marsh

Ur - Udorthents, loamy

Mapped Soil Boundary

Project Area







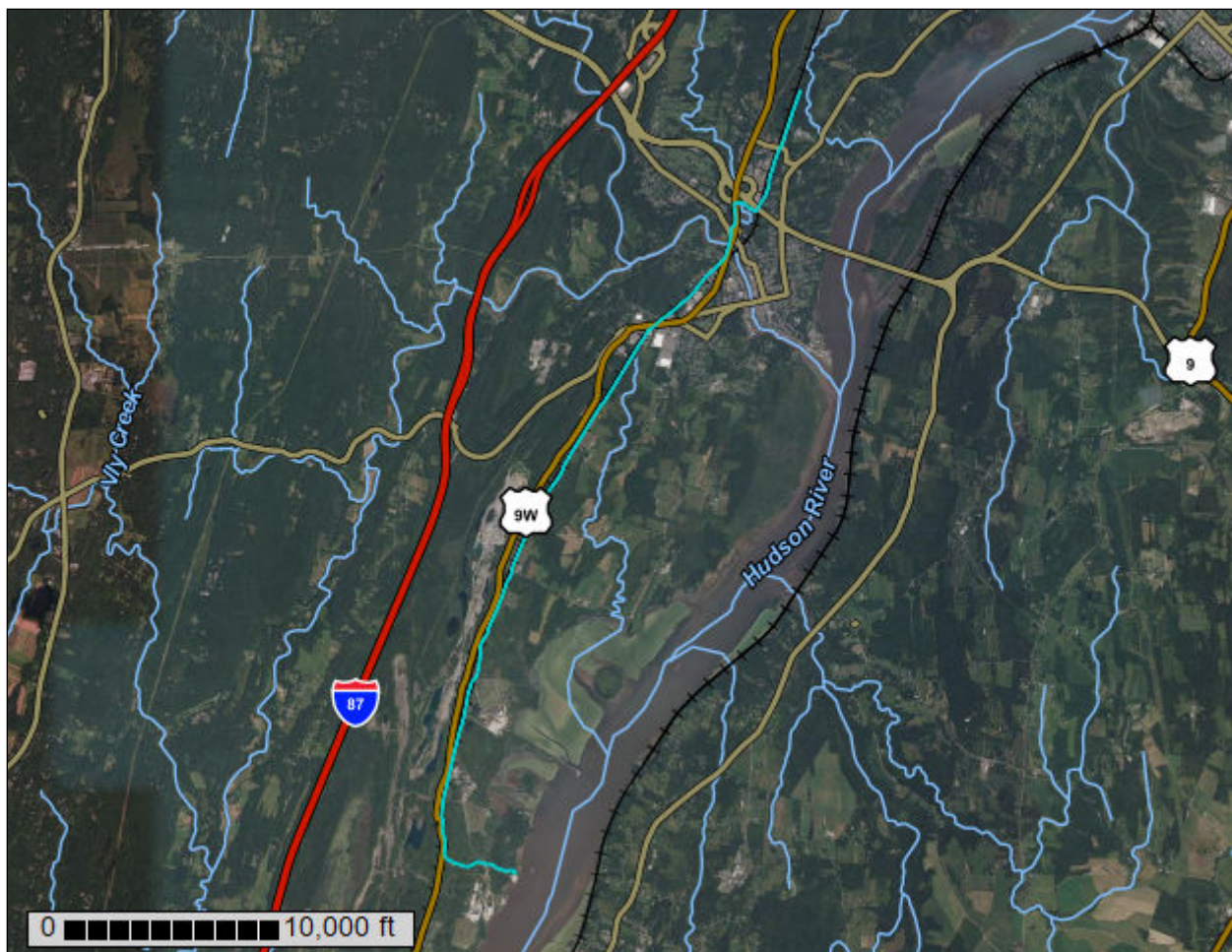
United States  
Department of  
Agriculture

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 Greene County, New York



March 16, 2023



# Preface

---

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



alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.



# Contents

---

<b>Preface</b> .....	2
<b>Soil Map</b> .....	5
Map Unit Legend.....	5
Map Unit Descriptions.....	6
Greene County, New York.....	8
Co—Covington and Madalin soils.....	8
FaD—Farmington gravelly silt loam, hilly, rocky.....	10
FaE—Farmington gravelly silt loam, steep, rocky.....	11
HvB—Hudson and Vergennes soils, 3 to 8 percent slopes.....	12
HvC—Hudson and Vergennes soils, 8 to 15 percent slopes.....	15
HvE—Hudson and Vergennes soils, 25 to 50 percent slopes.....	17
HwD3—Hudson and Vergennes silty clay loams, 15 to 25 percent slopes, severely eroded.....	19
KrA—Kingsbury and Rhinebeck soils, 0 to 3 percent slopes.....	21
KrB—Kingsbury and Rhinebeck soils, 3 to 8 percent slopes.....	23
Mh—Medisaprists-Hydraquents, tidal marsh.....	25
NaC—Nassau channery silt loam, rolling.....	27
NrC—Nassau channery silt loam, rolling, very rocky.....	28
NrD—Nassau channery silt loam, hilly, very rocky.....	30
NrE—Nassau channery silt loam, steep, very rocky.....	31
RhA—Riverhead loam, 0 to 3 percent slopes.....	32
RhB—Riverhead loam, 3 to 8 percent slopes.....	34
TwE—Tunkhannock and Chenango gravelly loams, 25 to 50 percent slopes.....	35
Ur—Udorthents, loamy.....	37
W—Water.....	38



# 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 Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Co	Covington and Madalin soils	0.7	6.3%
FaD	Farmington gravelly silt loam, hilly, rocky	0.1	1.0%
FaE	Farmington gravelly silt loam, steep, rocky	0.1	0.7%
HvB	Hudson and Vergennes soils, 3 to 8 percent slopes	2.9	28.3%
HvC	Hudson and Vergennes soils, 8 to 15 percent slopes	0.8	7.7%
HvE	Hudson and Vergennes soils, 25 to 50 percent slopes	0.1	0.8%
HwD3	Hudson and Vergennes silty clay loams, 15 to 25 percent slopes, severely eroded	0.3	3.3%
KrA	Kingsbury and Rhinebeck soils, 0 to 3 percent slopes	0.2	1.9%
KrB	Kingsbury and Rhinebeck soils, 3 to 8 percent slopes	2.0	19.1%
Mh	Medisapristis-Hydraquents, tidal marsh	0.1	0.5%
NaC	Nassau channery silt loam, rolling	0.5	4.4%
NrC	Nassau channery silt loam, rolling, very rocky	0.0	0.2%
NrD	Nassau channery silt loam, hilly, very rocky	0.7	6.6%
NrE	Nassau channery silt loam, steep, very rocky	0.1	1.3%
RhA	Riverhead loam, 0 to 3 percent slopes	0.4	3.7%



## Custom Soil Resource Report

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
RhB	Riverhead loam, 3 to 8 percent slopes	0.3	2.7%
TwE	Tunkhannock and Chenango gravelly loams, 25 to 50 percent slopes	0.3	2.6%
Ur	Udorthents, loamy	0.8	8.0%
W	Water	0.1	0.7%
<b>Totals for Area of Interest</b>		<b>10.4</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 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,



## Custom Soil Resource Report

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.



## Greene County, New York

### Co—Covington and Madalin soils

#### Map Unit Setting

*National map unit symbol:* 9sg1

*Elevation:* 50 to 1,970 feet

*Mean annual precipitation:* 36 to 44 inches

*Mean annual air temperature:* 45 to 50 degrees F

*Frost-free period:* 135 to 170 days

*Farmland classification:* Farmland of statewide importance

#### Map Unit Composition

*Covington and similar soils:* 45 percent

*Madalin and similar soils:* 30 percent

*Minor components:* 25 percent

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

#### Description of Covington

##### Setting

*Landform:* Depressions

*Landform position (two-dimensional):* Toeslope

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Parent material:* Calcareous clayey glaciolacustrine deposits or glaciomarine deposits

##### Typical profile

*H1 - 0 to 7 inches:* silty clay

*H2 - 7 to 28 inches:* clay

*H3 - 28 to 60 inches:* silty clay

##### 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):* Low to moderately low  
(0.00 to 0.06 in/hr)

*Depth to water table:* About 0 to 12 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

*Available water supply, 0 to 60 inches:* Low (about 5.9 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 5w

*Hydrologic Soil Group:* D

*Ecological site:* F142XB007VT - Wet Clayplain Depression

*Hydric soil rating:* Yes



## **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:* Clayey and silty glaciolacustrine deposits

### **Typical profile**

*H1 - 0 to 9 inches:* silt loam  
*H2 - 9 to 30 inches:* silty clay  
*H3 - 30 to 60 inches:* silty clay

### **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 moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* About 0 to 6 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* Frequent  
*Calcium carbonate, maximum content:* 15 percent  
*Available water supply, 0 to 60 inches:* 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:* F144AY019NH - Wet Lake Plain  
*Hydric soil rating:* Yes

## **Minor Components**

### **Vergennes**

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

### **Rhinebeck**

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

### **Hudson**

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

### **Kingsbury**

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

### **Canandaigua**

*Percent of map unit:* 5 percent  
*Landform:* Depressions  
*Hydric soil rating:* Yes



## **FaD—Farmington gravelly silt loam, hilly, rocky**

### **Map Unit Setting**

*National map unit symbol:* 9sgd

*Elevation:* 100 to 900 feet

*Mean annual precipitation:* 36 to 44 inches

*Mean annual air temperature:* 45 to 50 degrees F

*Frost-free period:* 135 to 170 days

*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Farmington and similar soils:* 75 percent

*Minor components:* 25 percent

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

### **Description of Farmington**

#### **Setting**

*Landform:* Benches, till plains, ridges

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy till or congeliturbate derived from limestone, dolomite, shale, and sandstone, and in many places mixed with wind and water deposits

#### **Typical profile**

*H1 - 0 to 8 inches:* gravelly silt loam

*H2 - 8 to 13 inches:* silt loam

*H3 - 13 to 17 inches:* unweathered bedrock

#### **Properties and qualities**

*Slope:* 15 to 25 percent

*Depth to restrictive feature:* 10 to 20 inches to lithic bedrock

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to high (0.00 to 1.98 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 5 percent

*Available water supply, 0 to 60 inches:* Very low (about 1.6 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6e

*Hydrologic Soil Group:* D

*Ecological site:* F144AY035MA - Shallow Semi-Rich Well Drained Till Uplands

*Hydric soil rating:* No



**Minor Components**

**Nassau**

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

**Arnot**

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

**Rock outcrop**

*Percent of map unit: 5 percent*  
*Hydric soil rating: Unranked*

**Tuller**

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

**Galway**

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

**FaE—Farmington gravelly silt loam, steep, rocky**

**Map Unit Setting**

*National map unit symbol: 9sgf*  
*Elevation: 100 to 900 feet*  
*Mean annual precipitation: 36 to 44 inches*  
*Mean annual air temperature: 45 to 50 degrees F*  
*Frost-free period: 135 to 170 days*  
*Farmland classification: Not prime farmland*

**Map Unit Composition**

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

**Description of Farmington**

**Setting**

*Landform: Benches, till plains, ridges*  
*Landform position (two-dimensional): Backslope*  
*Landform position (three-dimensional): Side slope*  
*Down-slope shape: Convex*  
*Across-slope shape: Convex*  
*Parent material: Loamy till or congeliturbate derived from limestone, dolomite, shale, and sandstone, and in many places mixed with wind and water deposits*

**Typical profile**

*H1 - 0 to 8 inches: gravelly silt loam*  
*H2 - 8 to 13 inches: silt loam*



## Custom Soil Resource Report

*H3 - 13 to 17 inches: unweathered bedrock*

### Properties and qualities

*Slope: 15 to 25 percent*

*Depth to restrictive feature: 10 to 20 inches to lithic bedrock*

*Drainage class: Somewhat excessively drained*

*Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)*

*Depth to water table: More than 80 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Calcium carbonate, maximum content: 5 percent*

*Available water supply, 0 to 60 inches: Very low (about 1.6 inches)*

### Interpretive groups

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 6e*

*Hydrologic Soil Group: D*

*Ecological site: F144AY035MA - Shallow Semi-Rich Well Drained Till Uplands*

*Hydric soil rating: No*

### Minor Components

#### Rock outcrop

*Percent of map unit: 5 percent*

*Hydric soil rating: Unranked*

#### Arnot

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

#### Rock outcrop

*Percent of map unit: 5 percent*

*Hydric soil rating: Unranked*

#### Galway

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

#### Nassau

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

#### Tuller

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

## HvB—Hudson and Vergennes soils, 3 to 8 percent slopes

### Map Unit Setting

*National map unit symbol: 9sgr*

*Elevation: 50 to 1,800 feet*

*Mean annual precipitation: 36 to 44 inches*



## Custom Soil Resource Report

*Mean annual air temperature:* 45 to 50 degrees F

*Frost-free period:* 135 to 170 days

*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Hudson and similar soils:* 40 percent

*Vergennes and similar soils:* 35 percent

*Minor components:* 25 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 4 inches:* silt loam

*H2 - 4 to 13 inches:* silt loam

*H3 - 13 to 30 inches:* silty clay loam

*H4 - 30 to 60 inches:* silty clay

#### Properties and qualities

*Slope:* 3 to 8 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:* 20 percent

*Available water supply, 0 to 60 inches:* High (about 9.4 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* C/D

*Ecological site:* F144AY018NY - Moist Lake Plain

*Hydric soil rating:* No

### Description of Vergennes

#### 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 calcareous glaciolacustrine, glaciomarine, or estuarine deposits

## Custom Soil Resource Report

### Typical profile

*H1 - 0 to 10 inches:* loam

*H2 - 10 to 17 inches:* clay loam

*H3 - 17 to 34 inches:* clay

*H4 - 34 to 60 inches:* stratified silty clay to silty clay loam to silt loam to very fine sandy loam

### Properties and qualities

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

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

*Depth to water table:* About 12 to 36 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

*Available water supply, 0 to 60 inches:* Moderate (about 7.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* D

*Ecological site:* F142XB005VT - Clayplain

*Hydric soil rating:* No

### Minor Components

#### Kingsbury

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Madalin

*Percent of map unit:* 5 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

#### Rhinebeck

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Elmridge

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Nunda

*Percent of map unit:* 5 percent

*Hydric soil rating:* No



## **HvC—Hudson and Vergennes soils, 8 to 15 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 9sgs

*Elevation:* 50 to 1,800 feet

*Mean annual precipitation:* 36 to 44 inches

*Mean annual air temperature:* 45 to 50 degrees F

*Frost-free period:* 135 to 170 days

*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*Hudson and similar soils:* 40 percent

*Vergennes and similar soils:* 35 percent

*Minor components:* 25 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 4 inches:* silt loam

*H2 - 4 to 13 inches:* silt loam

*H3 - 13 to 30 inches:* silty clay loam

*H4 - 30 to 60 inches:* silty clay

#### **Properties and qualities**

*Slope:* 8 to 15 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:* 20 percent

*Available water supply, 0 to 60 inches:* High (about 9.4 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* C/D

*Ecological site:* F144AY018NY - Moist Lake Plain

## Custom Soil Resource Report

*Hydric soil rating:* No

### Description of Vergennes

#### 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 calcareous glaciolacustrine, glaciomarine, or estuarine deposits

#### Typical profile

*H1 - 0 to 10 inches:* loam

*H2 - 10 to 17 inches:* clay loam

*H3 - 17 to 34 inches:* clay

*H4 - 34 to 60 inches:* stratified silty clay to silty clay loam to silt loam to very fine sandy loam

#### Properties and qualities

*Slope:* 8 to 15 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* About 12 to 36 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

*Available water supply, 0 to 60 inches:* Moderate (about 7.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* D

*Ecological site:* F142XB005VT - Clayplain

*Hydric soil rating:* No

### Minor Components

#### Kingsbury

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Rhinebeck

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Elmridge

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Madalin

*Percent of map unit:* 5 percent

*Landform:* Depressions

*Hydric soil rating:* Yes



**Nunda**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

**HvE—Hudson and Vergennes soils, 25 to 50 percent slopes**

**Map Unit Setting**

*National map unit symbol: 9sgt*

*Elevation: 50 to 1,800 feet*

*Mean annual precipitation: 36 to 44 inches*

*Mean annual air temperature: 45 to 50 degrees F*

*Frost-free period: 135 to 170 days*

*Farmland classification: Not prime farmland*

**Map Unit Composition**

*Hudson and similar soils: 45 percent*

*Vergennes and similar soils: 30 percent*

*Minor components: 25 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): Riser*

*Down-slope shape: Concave*

*Across-slope shape: Convex*

*Parent material: Clayey and silty glaciolacustrine deposits*

**Typical profile**

*H1 - 0 to 4 inches: silt loam*

*H2 - 4 to 13 inches: silt loam*

*H3 - 13 to 30 inches: silty clay loam*

*H4 - 30 to 60 inches: silty clay*

**Properties and qualities**

*Slope: 25 to 50 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: 20 percent*

*Available water supply, 0 to 60 inches: High (about 9.4 inches)*

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7e

*Hydrologic Soil Group:* C/D

*Ecological site:* F144AY018NY - Moist Lake Plain

*Hydric soil rating:* No

**Description of Vergennes**

**Setting**

*Landform:* Lake plains

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Riser

*Down-slope shape:* Concave

*Across-slope shape:* Convex

*Parent material:* Clayey calcareous glaciolacustrine, glaciomarine, or estuarine deposits

**Typical profile**

*H1 - 0 to 10 inches:* loam

*H2 - 10 to 17 inches:* clay loam

*H3 - 17 to 34 inches:* clay

*H4 - 34 to 60 inches:* stratified silty clay to silty clay loam to silt loam to very fine sandy loam

**Properties and qualities**

*Slope:* 25 to 50 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* About 12 to 36 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

*Available water supply, 0 to 60 inches:* Moderate (about 7.0 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7e

*Hydrologic Soil Group:* D

*Ecological site:* F142XB005VT - Clayplain

*Hydric soil rating:* No

**Minor Components**

**Rhinebeck**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Kingsbury**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Nunda**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No



**Elmridge**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Shaker**

*Percent of map unit:* 5 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

**HwD3—Hudson and Vergennes silty clay loams, 15 to 25 percent slopes, severely eroded**

**Map Unit Setting**

*National map unit symbol:* 9sgw

*Elevation:* 50 to 1,800 feet

*Mean annual precipitation:* 36 to 44 inches

*Mean annual air temperature:* 45 to 50 degrees F

*Frost-free period:* 135 to 170 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Hudson and similar soils:* 50 percent

*Vergennes and similar soils:* 30 percent

*Minor components:* 20 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):* Riser

*Down-slope shape:* Concave

*Across-slope shape:* Convex

*Parent material:* Clayey and silty glaciolacustrine deposits

**Typical profile**

*H1 - 0 to 7 inches:* silty clay loam

*H2 - 7 to 30 inches:* silty clay loam

*H3 - 30 to 60 inches:* silty clay

**Properties and qualities**

*Slope:* 15 to 25 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

## Custom Soil Resource Report

*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 20 percent  
*Available water supply, 0 to 60 inches:* High (about 9.3 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* C/D  
*Ecological site:* F144AY018NY - Moist Lake Plain  
*Hydric soil rating:* No

### Description of Vergennes

#### Setting

*Landform:* Lake plains  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Riser  
*Down-slope shape:* Concave  
*Across-slope shape:* Convex  
*Parent material:* Clayey calcareous glaciolacustrine, glaciomarine, or estuarine deposits

#### Typical profile

*H1 - 0 to 6 inches:* silty clay loam  
*H2 - 6 to 34 inches:* clay  
*H3 - 34 to 60 inches:* stratified silty clay to silty clay loam to silt loam to very fine sandy loam

#### Properties and qualities

*Slope:* 15 to 25 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Moderately well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Low to moderately low (0.00 to 0.06 in/hr)  
*Depth to water table:* About 12 to 36 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Available water supply, 0 to 60 inches:* Low (about 5.7 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4e  
*Hydrologic Soil Group:* D  
*Ecological site:* F142XB005VT - Clayplain  
*Hydric soil rating:* No

### Minor Components

#### Rhinebeck

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

#### Burdett

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



**Kingsbury**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

**Elmridge**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

**KrA—Kingsbury and Rhinebeck soils, 0 to 3 percent slopes**

**Map Unit Setting**

*National map unit symbol: 9sgx*

*Elevation: 80 to 1,000 feet*

*Mean annual precipitation: 36 to 44 inches*

*Mean annual air temperature: 45 to 50 degrees F*

*Frost-free period: 135 to 170 days*

*Farmland classification: Farmland of statewide importance*

**Map Unit Composition**

*Kingsbury and similar soils: 40 percent*

*Rhinebeck and similar soils: 30 percent*

*Minor components: 30 percent*

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

**Description of Kingsbury**

**Setting**

*Landform: Lake plains*

*Landform position (two-dimensional): Footslope*

*Landform position (three-dimensional): Tread*

*Down-slope shape: Concave*

*Across-slope shape: Linear*

*Parent material: Calcareous, clayey glaciomarine deposits or glaciolacustrine deposits*

**Typical profile**

*H1 - 0 to 7 inches: clay loam*

*H2 - 7 to 14 inches: silty clay loam*

*H3 - 14 to 36 inches: clay*

*H4 - 36 to 70 inches: stratified silty clay loam to silt loam to very fine sandy loam*

**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): Low to moderately low (0.00 to 0.06 in/hr)*

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

*Frequency of flooding: None*

## Custom Soil Resource Report

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 10 percent

*Available water supply, 0 to 60 inches:* Moderate (about 8.5 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* D

*Ecological site:* F144AY018NY - Moist Lake Plain

*Hydric soil rating:* No

### 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 7 inches:* silt loam

*H2 - 7 to 19 inches:* silty clay loam

*H3 - 19 to 32 inches:* silty clay

*H4 - 32 to 60 inches:* silty clay

#### 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 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:* 10 percent

*Available water supply, 0 to 60 inches:* Moderate (about 8.2 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* C/D

*Ecological site:* F144AY018NY - Moist Lake Plain

*Hydric soil rating:* No

### Minor Components

#### Madalin

*Percent of map unit:* 5 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

#### Covington

*Percent of map unit:* 5 percent

*Landform:* Depressions

*Hydric soil rating:* Yes



**Hudson**

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

**Shaker**

*Percent of map unit: 5 percent*  
*Landform: Depressions*  
*Hydric soil rating: Yes*

**Elmridge**

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

**Vergennes**

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

**KrB—Kingsbury and Rhinebeck soils, 3 to 8 percent slopes**

**Map Unit Setting**

*National map unit symbol: 9sgy*  
*Elevation: 80 to 1,000 feet*  
*Mean annual precipitation: 36 to 44 inches*  
*Mean annual air temperature: 45 to 50 degrees F*  
*Frost-free period: 135 to 170 days*  
*Farmland classification: Farmland of statewide importance*

**Map Unit Composition**

*Kingsbury and similar soils: 45 percent*  
*Rhinebeck and similar soils: 30 percent*  
*Minor components: 25 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Kingsbury**

**Setting**

*Landform: Lake plains*  
*Landform position (two-dimensional): Footslope*  
*Landform position (three-dimensional): Tread*  
*Down-slope shape: Concave*  
*Across-slope shape: Linear*  
*Parent material: Calcareous, clayey glaciomarine deposits or glaciolacustrine deposits*

**Typical profile**

*H1 - 0 to 7 inches: clay loam*  
*H2 - 7 to 14 inches: silty clay loam*  
*H3 - 14 to 36 inches: clay*  
*H4 - 36 to 70 inches: stratified silty clay loam to silt loam to very fine sandy loam*

**Properties and qualities**

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Somewhat poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Low to moderately low (0.00 to 0.06 in/hr)  
*Depth to water table:* About 6 to 18 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 10 percent  
*Available water supply, 0 to 60 inches:* Moderate (about 8.5 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3w  
*Hydrologic Soil Group:* D  
*Ecological site:* F144AY018NY - Moist Lake Plain  
*Hydric soil rating:* No

**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 7 inches:* silt loam  
*H2 - 7 to 19 inches:* silty clay loam  
*H3 - 19 to 32 inches:* silty clay  
*H4 - 32 to 60 inches:* silty clay

**Properties and qualities**

*Slope:* 3 to 8 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:* 10 percent  
*Available water supply, 0 to 60 inches:* Moderate (about 8.2 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3w  
*Hydrologic Soil Group:* C/D  
*Ecological site:* F144AY018NY - Moist Lake Plain  
*Hydric soil rating:* No



**Minor Components**

**Covington**

*Percent of map unit: 5 percent*

*Landform: Depressions*

*Hydric soil rating: Yes*

**Elmridge**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

**Hudson**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

**Vergennes**

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

**Madalin**

*Percent of map unit: 5 percent*

*Landform: Depressions*

*Hydric soil rating: Yes*

**Mh—Medisaprists-Hydraquents, tidal marsh**

**Map Unit Setting**

*National map unit symbol: 9shz*

*Elevation: 10 to 2,400 feet*

*Mean annual precipitation: 36 to 44 inches*

*Mean annual air temperature: 45 to 50 degrees F*

*Frost-free period: 135 to 170 days*

*Farmland classification: Not prime farmland*

**Map Unit Composition**

*Medisaprists and similar soils: 45 percent*

*Hydraquents and similar soils: 30 percent*

*Minor components: 25 percent*

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

**Description of Medisaprists**

**Setting**

*Landform: Marshes*

*Landform position (two-dimensional): Toeslope*

*Landform position (three-dimensional): Talf*

*Down-slope shape: Concave*

*Across-slope shape: Concave*

*Parent material: Organic material*

## Custom Soil Resource Report

### Typical profile

*H1 - 0 to 51 inches:* muck  
*H2 - 51 to 60 inches:* silt loam

### Properties and qualities

*Slope:* 0 to 1 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 very high (0.06 to 19.98 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 supply, 0 to 60 inches:* Very high (about 20.5 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8w  
*Hydrologic Soil Group:* A/D  
*Hydric soil rating:* Yes

## Description of Hydraquents

### Setting

*Landform:* Marshes  
*Landform position (two-dimensional):* Toeslope  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave

### Typical profile

*H1 - 0 to 9 inches:* silty clay loam  
*H2 - 9 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 high (0.06 to 5.95 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 supply, 0 to 60 inches:* Moderate (about 7.3 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 8w  
*Hydrologic Soil Group:* C/D  
*Hydric soil rating:* Yes

## Minor Components

### Canandaigua

*Percent of map unit:* 5 percent



## Custom Soil Resource Report

*Landform:* Depressions

*Hydric soil rating:* Yes

### **Fluvaquents**

*Percent of map unit:* 5 percent

*Landform:* Flood plains

*Hydric soil rating:* Yes

### **Madalin**

*Percent of map unit:* 5 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

### **Alden**

*Percent of map unit:* 5 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

### **Carlisle**

*Percent of map unit:* 5 percent

*Landform:* Marshes, swamps

*Hydric soil rating:* Yes

## **NaC—Nassau channery silt loam, rolling**

### **Map Unit Setting**

*National map unit symbol:* 9sj5

*Elevation:* 600 to 1,800 feet

*Mean annual precipitation:* 36 to 44 inches

*Mean annual air temperature:* 45 to 50 degrees F

*Frost-free period:* 135 to 170 days

*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Nassau and similar soils:* 80 percent

*Minor components:* 20 percent

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

### **Description of Nassau**

#### **Setting**

*Landform:* Benches, till plains, ridges

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Channery loamy till derived mainly from local slate or shale

#### **Typical profile**

*Oi - 0 to 1 inches:* slightly decomposed plant material

*H1 - 1 to 4 inches:* channery silt loam

## Custom Soil Resource Report

*H2 - 4 to 19 inches: extremely channery silt loam*

*H3 - 19 to 23 inches: unweathered bedrock*

### Properties and qualities

*Slope: 5 to 15 percent*

*Depth to restrictive feature: 10 to 20 inches to lithic bedrock*

*Drainage class: Somewhat excessively 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: More than 80 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Available water supply, 0 to 60 inches: Very low (about 2.2 inches)*

### Interpretive groups

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 4e*

*Hydrologic Soil Group: D*

*Ecological site: F144AY033MA - Shallow Dry Till Uplands*

*Hydric soil rating: No*

### Minor Components

#### Lordstown

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

#### Arnot

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

#### Oquaga

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

#### Tuller

*Percent of map unit: 5 percent*

*Hydric soil rating: No*

## NrC—Nassau channery silt loam, rolling, very rocky

### Map Unit Setting

*National map unit symbol: 9sj6*

*Elevation: 600 to 1,800 feet*

*Mean annual precipitation: 36 to 44 inches*

*Mean annual air temperature: 45 to 50 degrees F*

*Frost-free period: 135 to 170 days*

*Farmland classification: Not prime farmland*

### Map Unit Composition

*Nassau and similar soils: 70 percent*

*Minor components: 30 percent*



## Custom Soil Resource Report

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

### Description of Nassau

#### Setting

*Landform:* Benches, till plains, ridges

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Channery loamy till derived mainly from local slate or shale

#### Typical profile

*Oi - 0 to 1 inches:* slightly decomposed plant material

*H1 - 1 to 4 inches:* channery silt loam

*H2 - 4 to 19 inches:* extremely channery silt loam

*H3 - 19 to 23 inches:* unweathered bedrock

#### Properties and qualities

*Slope:* 8 to 15 percent

*Depth to restrictive feature:* 10 to 20 inches to lithic bedrock

*Drainage class:* Somewhat excessively 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:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Very low (about 2.2 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* D

*Ecological site:* F144AY033MA - Shallow Dry Till Uplands

*Hydric soil rating:* No

### Minor Components

#### Rock outcrop

*Percent of map unit:* 10 percent

*Hydric soil rating:* Unranked

#### Arnot

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Tuller

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Lordstown

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Oquaga

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

## **NrD—Nassau channery silt loam, hilly, very rocky**

### **Map Unit Setting**

*National map unit symbol:* 9sj7  
*Elevation:* 600 to 1,800 feet  
*Mean annual precipitation:* 36 to 44 inches  
*Mean annual air temperature:* 45 to 50 degrees F  
*Frost-free period:* 135 to 170 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

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

### **Description of Nassau**

#### **Setting**

*Landform:* Benches, till plains, ridges  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Channery loamy till derived mainly from local slate or shale

#### **Typical profile**

*Oi - 0 to 1 inches:* slightly decomposed plant material  
*H1 - 1 to 4 inches:* channery silt loam  
*H2 - 4 to 19 inches:* extremely channery silt loam  
*H3 - 19 to 23 inches:* unweathered bedrock

#### **Properties and qualities**

*Slope:* 15 to 25 percent  
*Depth to restrictive feature:* 10 to 20 inches to lithic bedrock  
*Drainage class:* Somewhat excessively 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:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Very low (about 2.2 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* D  
*Ecological site:* F144AY033MA - Shallow Dry Till Uplands  
*Hydric soil rating:* No

### Minor Components

#### Valois

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Lordstown

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Arnot

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Rock outcrop

*Percent of map unit:* 5 percent

*Hydric soil rating:* Unranked

#### Tuller

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Oquaga

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

### NrE—Nassau channery silt loam, steep, very rocky

#### Map Unit Setting

*National map unit symbol:* 9sj8

*Elevation:* 600 to 1,800 feet

*Mean annual precipitation:* 36 to 44 inches

*Mean annual air temperature:* 45 to 50 degrees F

*Frost-free period:* 135 to 170 days

*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Nassau and similar soils:* 70 percent

*Minor components:* 30 percent

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

#### Description of Nassau

##### Setting

*Landform:* Benches, till plains, ridges

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Channery loamy till derived mainly from local slate or shale



## Custom Soil Resource Report

### Typical profile

*Oi* - 0 to 1 inches: slightly decomposed plant material  
*H1* - 1 to 4 inches: channery silt loam  
*H2* - 4 to 19 inches: extremely channery silt loam  
*H3* - 19 to 23 inches: unweathered bedrock

### Properties and qualities

*Slope*: 25 to 45 percent  
*Depth to restrictive feature*: 10 to 20 inches to lithic bedrock  
*Drainage class*: Somewhat excessively 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*: More than 80 inches  
*Frequency of flooding*: None  
*Frequency of ponding*: None  
*Available water supply, 0 to 60 inches*: Very low (about 2.2 inches)

### Interpretive groups

*Land capability classification (irrigated)*: None specified  
*Land capability classification (nonirrigated)*: 7s  
*Hydrologic Soil Group*: D  
*Ecological site*: F144AY033MA - Shallow Dry Till Uplands  
*Hydric soil rating*: No

### Minor Components

#### Rock outcrop

*Percent of map unit*: 10 percent  
*Hydric soil rating*: Unranked

#### Lordstown

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

#### Arnot

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

#### Oquaga

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

#### Tuller

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

## RhA—Riverhead loam, 0 to 3 percent slopes

### Map Unit Setting

*National map unit symbol*: 9sjx  
*Elevation*: 590 to 1,970 feet  
*Mean annual precipitation*: 36 to 44 inches

## Custom Soil Resource Report

*Mean annual air temperature:* 45 to 50 degrees F

*Frost-free period:* 135 to 170 days

*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Riverhead and similar soils:* 75 percent

*Minor components:* 25 percent

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

### Description of Riverhead

#### Setting

*Landform:* Deltas, terraces

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy glaciofluvial deposits overlying stratified sand and gravel

#### Typical profile

*H1 - 0 to 8 inches:* loam

*H2 - 8 to 24 inches:* sandy loam

*H3 - 24 to 60 inches:* loamy sand

#### 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):* High (1.98 to 5.95 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 4.2 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2s

*Hydrologic Soil Group:* A

*Ecological site:* F144AY023CT - Well Drained Outwash

*Hydric soil rating:* No

### Minor Components

#### Tioga

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Udifluvents

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Chenango

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Elmridge

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**Hudson**

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

**RhB—Riverhead loam, 3 to 8 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 9sjy

*Elevation:* 590 to 1,970 feet

*Mean annual precipitation:* 36 to 44 inches

*Mean annual air temperature:* 45 to 50 degrees F

*Frost-free period:* 135 to 170 days

*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Riverhead and similar soils:* 75 percent

*Minor components:* 25 percent

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

**Description of Riverhead**

**Setting**

*Landform:* Deltas, terraces

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy glaciofluvial deposits overlying stratified sand and gravel

**Typical profile**

*H1 - 0 to 8 inches:* loam

*H2 - 8 to 24 inches:* sandy loam

*H3 - 24 to 60 inches:* loamy sand

**Properties and qualities**

*Slope:* 3 to 8 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

*Available water supply, 0 to 60 inches:* Low (about 4.2 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2s

*Hydrologic Soil Group:* A



## Custom Soil Resource Report

*Ecological site:* F140XY021NY - Dry Outwash

*Hydric soil rating:* No

### Minor Components

#### Elmridge

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Tioga

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Hudson

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Chenango

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Udifuluents

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

## TwE—Tunkhannock and Chenango gravelly loams, 25 to 50 percent slopes

### Map Unit Setting

*National map unit symbol:* 9skf

*Elevation:* 600 to 2,000 feet

*Mean annual precipitation:* 36 to 44 inches

*Mean annual air temperature:* 45 to 50 degrees F

*Frost-free period:* 135 to 170 days

*Farmland classification:* Not prime farmland

### Map Unit Composition

*Tunkhannock and similar soils:* 45 percent

*Chenango and similar soils:* 35 percent

*Minor components:* 20 percent

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

### Description of Tunkhannock

#### Setting

*Landform:* Valley trains, terraces

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Riser

*Down-slope shape:* Convex

*Across-slope shape:* Convex

## Custom Soil Resource Report

*Parent material:* Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from reddish sandstone, siltstone, and shale

### Typical profile

*H1 - 0 to 7 inches:* gravelly loam

*H2 - 7 to 25 inches:* very gravelly loam

*H3 - 25 to 60 inches:* stratified extremely gravelly sand

### Properties and qualities

*Slope:* 25 to 45 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

*Available water supply, 0 to 60 inches:* Low (about 4.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7e

*Hydrologic Soil Group:* A

*Ecological site:* F140XY021NY - Dry Outwash

*Hydric soil rating:* No

## Description of Chenango

### Setting

*Landform:* Valley trains, terraces

*Landform position (two-dimensional):* Backslope

*Landform position (three-dimensional):* Riser

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from sandstone, shale, and siltstone

### Typical profile

*H1 - 0 to 4 inches:* gravelly loam

*H2 - 4 to 11 inches:* gravelly loam

*H3 - 11 to 26 inches:* very gravelly loam

*H4 - 26 to 60 inches:* stratified sand to gravel

### Properties and qualities

*Slope:* 25 to 45 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat excessively 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:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 1 percent

*Available water supply, 0 to 60 inches:* Low (about 3.9 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

## Custom Soil Resource Report

*Land capability classification (nonirrigated): 7e*  
*Hydrologic Soil Group: A*  
*Ecological site: F140XY021NY - Dry Outwash*  
*Hydric soil rating: No*

### Minor Components

#### Barbour

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

#### Wellsboro

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

#### Riverhead

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

#### Basher

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

## Ur—Udorthents, loamy

### Map Unit Setting

*National map unit symbol: 9skh*  
*Elevation: 160 to 1,970 feet*  
*Mean annual precipitation: 36 to 44 inches*  
*Mean annual air temperature: 45 to 50 degrees F*  
*Frost-free period: 135 to 170 days*  
*Farmland classification: Not prime farmland*

### Map Unit Composition

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

### Description of Udorthents

#### Typical profile

*H1 - 0 to 4 inches: gravelly silt loam*  
*H2 - 4 to 70 inches: gravelly silt loam*

#### Properties and qualities

*Slope: 0 to 8 percent*  
*Depth to restrictive feature: More than 80 inches*  
*Drainage class: Somewhat excessively drained*  
*Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high*  
*(0.06 to 5.95 in/hr)*  
*Depth to water table: About 36 to 72 inches*



## Custom Soil Resource Report

*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Available water supply, 0 to 60 inches:* Low (about 5.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* A  
*Hydric soil rating:* No

### Minor Components

#### Wellsboro

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

#### Valois

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

#### Volusia

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

#### Tunkhannock

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

## W—Water

### Map Unit Setting

*National map unit symbol:* 9sl3  
*Mean annual precipitation:* 36 to 44 inches  
*Mean annual air temperature:* 45 to 50 degrees F  
*Frost-free period:* 135 to 170 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Water:* 100 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

Appendix D

Historic Resource Plan

## SUPPLEMENTAL CULTURAL RESOURCES MANAGEMENT PLAN

Champlain Hudson Power Express HVDC Transmission Line Project  
Segment 11, Packages 7A: CSX Catskill, Greene County

[REDACTED-Public Version]

HAA 4268-83  
SHPO 09PR03910

**Submitted to:**

KIEWIT ENGINEERING GROUP INC.  
10055 Trainstation Circle  
Lone Tree, CO 80124

**Prepared by:**

Hartgen Archeological Associates, Inc.

1744 Washington Avenue Ext.  
Rensselaer, New York 12144  
p +1 518 283 0534  
f +1 518 283 6276  
e [hartgen@hartgen.com](mailto:hartgen@hartgen.com)

[www.hartgen.com](http://www.hartgen.com)

An ACRA Member Firm  
[www.acra-crm.org](http://www.acra-crm.org)

March 2023



## MANAGEMENT SUMMARY

SHPO Number: 09PR03910  
Involved Agencies: U.S. Department of Energy, U.S. Army Corps of Engineers, NYSHPO  
Phase of survey: Cultural Resources Management Plan (Supplemental)

## LOCATION INFORMATION

Municipality: Town and Village of Catskill  
County: Greene

## CULTURAL RESOURCE MANAGEMENT PLAN OVERVIEW

Objective: *The purpose of this Supplemental Cultural Resources Management Plan is to synthesize data sets into one document, and to provide OPRHP/DPS contact information for identified roles within the original Cultural Resource Management Plan drafted by TRC in 2015 and finalized in 2021.*

*The plan also proposes Programmatic Allowances and an Archeological Monitoring Plan to assist with ongoing review and compliance as stipulated in the Programmatic Agreement between DOE and NYSHPO in 2021.*

*The current CRMP focuses on Package 7A, Segment 12 which will primarily be located within the Town and Village of Catskill along CSX rail lines and public roadways.*

Report Authors: Matt Lesniak, Matthew Kirk, MA, RPA  
Date of Report: March 2023

## TABLE of CONTENTS

CULTURAL RESOURCES MANAGEMENT PLAN.....	1
1 Introduction.....	1
2 Project Information.....	2
2.1 Description of the Project.....	2
2.2 Supplemental CRMP Objectives.....	4
3 Segment 11, Package 7A Activities.....	4
3.1 Splices Locations and Vaults.....	5
3.2 HDD Locations.....	6
3.3 Off-Site Access Roads.....	7
3.4 Deviation Areas.....	8
4 Identified Archeological Resources.....	9
4.1 Greene County Waste Parcel 1 (904.000089) and Parcel 2 (03904.000090).....	9
4.2 NYSM Site 3397.....	9
4.3 Willow Site (03940.001143).....	9
4.4 LBD Precontact Site (03940.001156).....	10
4.5 Foundation Sites Along US Route 9W.....	10
4.6 Streeke Shelter (NYSM 475).....	10
4.7 Embought Rd. Site, Site 8 (03904.000030).....	10
4.8 ICC Prehistoric Site 1 (03904.000093) and 2 (03904.000094).....	10
4.9 Gardiner Cemetery (Site 33)(03904.000043).....	10
4.10 Summary.....	10
4.11 Construction Timeline.....	12
5 Cultural Resource Management Plan.....	12
5.1 Objective.....	12
5.2 Project Preservation Officer (PPO).....	12
5.3 Heritage Areas, Special Events, and Other Resources.....	13
5.4 Identification of Historic Properties.....	13
5.5 Barriers and Other Protective Measures.....	13
5.6 Reporting Requirements.....	13
5.7 Programmatic Allowances.....	14
5.7.1 Transportation Facilities.....	15
5.7.2 Ground Disturbing Activities.....	15
5.7.3 Temporary Staging and Temporary Facilities.....	15
5.7.4 Utilities, Lighting, and Maintenance Facilities.....	15
5.7.5 Pre-Construction Due Diligence and Testing.....	15
5.7.6 Hazard and Hazardous Waste Removal.....	16
5.7.7 Environmentally Sensitive Area (ESA) Protection and Mitigation.....	16
5.7.8 Drainage Improvements.....	16
5.7.9 Signage and Surveillance.....	16
5.7.10 Easements and Right of Way.....	16
5.8 Treatment Measures.....	16
5.8.1 Data Recovery.....	17
5.8.2 Certified Local Government or Historic Preservation Board/Commission Priority Project Sponsorship.....	17
5.8.3 Digital Photography Package.....	17
5.8.4 National Park Service Heritage Documentation (HABS/HAER/HALS).....	18
5.8.5 Public Interpretation.....	18
5.9 Property Owner Requests.....	18
6 Archeological Monitoring Methodology.....	18
6.1 Objective.....	18
6.2 Monitoring.....	19
6.3 Notification.....	19

6.4	Determination of Eligibility .....	19
6.5	Determination of Effects, Mitigation Efforts and Dispute Resolution.....	19
6.5.1	Data Recovery Mitigation Strategy .....	20
6.5.2	Alternative Archeological Mitigation.....	20
7	Communication.....	20
8	Deliverables.....	21
8.1	Periodic Updates.....	21
8.2	Annual Report.....	21
9	Summary of Recommended Archeological Effort.....	21
10	Bibliography.....	23

Appendix 1: Champlain Hudson Power Express Cultural Resources Management Plan (CRMP)

Appendix 2: SHPO Human Remains Protocol 2021

## Table List

Table 1.	CHPE Packages, Routes, and Locations. ....	3
Table 2.	Splice Locations and Vaults and HDD Areas within Segment 7A. ....	5
Table 3.	HDD Areas within Segment 7A. ....	7
Table 4.	Off-Site Access Roads for Package 7A.....	8
Table 5.	Deviations from Permitted Route and Archeological Recommendations.....	9
Table 6	Project Activities Near or Within Known Archeological Sites.....	11
Table 7.	Project Contacts.....	20
Table 8.	Resources and Recommendations in Package 7A of Segment 11, Town and Village of Catskill. ....	22



## **LIST OF ACRONYMS**

ACHP – Advisory Council on Historic Preservation  
AMP – Archeological Monitoring Plan  
APE – Area of Potential Effect  
BMP – Best Practices Management Plan (2012)  
CA – Consulting Archeologist  
CHPE, LLC – Champlain Hudson Power Express, LLC  
CRMP – Cultural Resources Management Plan  
CRIS – Cultural Resource Inventory System (NYSHPO)  
DOE – U.S. Department of Energy  
GIS – Geographic Information System  
GPS – Global Positioning System  
Hartgen – Hartgen Archeological Associates, Inc.  
HDD- horizontal directional drilling  
HVAC – high-voltage alternating current  
HVDC – high-voltage direct current  
MOA – Memorandum of Agreement  
MP – mile post, railroad  
MW – megawatt  
NHPA – National Historic Preservation Act  
NRE – National Register-eligible  
NYAC – New York Archaeological Council  
NYSHPO – New York State Historic Preservation Officer  
NYSM – New York State Museum  
OPRHP – Office of Parks, Recreation and Historic Preservation  
PPO – Project Preservation Officer  
ROW – Right-of-Way  
TRC – TRC Companies, Inc

## CULTURAL RESOURCES MANAGEMENT PLAN

### 1 Introduction

Hartgen Archeological Associates, Inc. (Hartgen) has been retained provide a Supplemental Cultural Resources Management Plan (CRMP) to the Final CRMP developed by TRC and finalized in 2021 (Appendix 1) for the proposed Champlain Hudson Power Express (Project) located over multiple counties through New York. The current phase of work focuses on the overland portion in Greene County starting at the northern end of the Town of Catskill just north of the village, through the village, and ending in the southeastern portion of the town where the route returns to the Hudson River between the small hamlets of Alsen and Cementon.

The Project has received approvals by the U.S. Department of Energy (DOE), the U.S. Army Corps of Engineers, with consultation from the NYSHPO. The goal of the CRMP is to provide a framework in which potential impacts to all relevant historical properties and archeological sites (determined to be eligible for or listed in the National Register of Historic Places) known to exist or may be discovered are to be managed. This management plan will also create a comprehensive framework for identifying and undertaking any additional archeological work that may be required prior to and during the construction of the Project.

TRC Companies, Inc. (TRC) created a draft comprehensive Cultural Resource Management Plan in 2015, finalized in 2021 to include three additional reports. This management plan is referred to throughout the current document (Appendix 1), with this document serving to fully incorporate all the relevant information for Phase I of construction into one succinct document. In the event of a conflict between this document and that provided in Appendix 1, the CRMP (TRC 2021) will prevail.

This plan was enacted to comply with Section 106 of the National Historical Preservation Act and will be reviewed by the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) as well as the aforementioned federal agencies. This plan was established according to the New York Archaeological Council's *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections* (1994), which are endorsed by OPRHP.

*The Programmatic Agreement Among The U.S. Department of Energy, And The New York State Historic Preservation Officer For Managing Historic Properties That May Be Affected By Authorizing The Construction, Operation, Connection And Maintenance Of The Champlain Hudson Power Express HVDC Transmission Line Project* (Programmatic Agreement), executed in 2021, stipulates completion of a CRMP to create procedures for the consideration and management of historic properties within the Champlain Hudson Power Express HVDC Transmission Line Project (Project).

Stipulation IV(B) within the Programmatic Agreement specifies the CRMP will be applied in lieu of Section 106 implementing regulations 36 CFR Part 800.4 – 800.6 to satisfy requirements of compliance with Section 106 of the National Historical Preservation Act (16 U.S.C. 470) related to identification of historic properties (36 CFR Part 800 800.4), assessment of adverse effects (36 CFR Part 800 800.5), and resolution of adverse effects (36 CFR Part 800.6).

This Supplemental CRMP has been developed to in response to Programmatic Agreement Stipulation IV(B) and Stipulation II(C)(8 – 11 and 19). The CRMP (2021) document provided detailed procedures for unanticipated discoveries, monitoring during construction-related ground disturbance, and monitoring during post-construction operations; all stipulations of the CRMP (2021) remain applicable.

Current design and engineering requirements indicate effects to historic and landscape resources may also require consideration throughout Project execution; this Supplemental CRMP supports streamlined coordination and consultation with NYSHPO through agreement on programmatic allowances and treatments. This Supplemental CRMP provides structure and process for implementing requirements of the Programmatic Agreement and the CRMP (2021).

## 2 Project Information

The Project involves the construction of approximately 339 miles of a high voltage direct current underground and underwater transmission line, running from Montreal, Canada to Queens, New York. This transmission line will bring 1,250 megawatts of hydropower to replace the use of fossil fuels, reducing carbon emissions and helping achieve renewable and clean energy in New York State. This proposed Project will provide enough power for more than 1 million homes through New York State. Installation of this transmission line will occur primarily beneath the ground within roadway and railroad right of way. Streams and waterbodies are crossed through means such as attaching to existing infrastructures (bridges and culverts) or incorporating the use of horizontal directional drilling (HDD).

Several archeological reports by Hartgen and TRC examined and detailed the sensitivity and potential of the APE. These resources have been utilized in the creation of the Supplemental Cultural Resource Management Plan, along with data retrieved from the NYSHPO CRIS website, historic maps and aerials, and other data sources as relevant.

The bolded report includes portions of the current segment of the Project and provide relevant background information.

- Hartgen. 2010a. Pre-Phase IA Archaeological Screening: Champlain Hudson Power Express.
- Hartgen. 2010b. Phase IA Literature Review and Archaeological Sensitivity Assessment: Champlain-Hudson Power Express.
- Hartgen. 2012. Phase IB Archaeological Field Reconnaissance and Phase II Archaeological Site Evaluation: Champlain Hudson Power Express, Canadian Pacific Railway Segment.
- Hartgen. 2013a. GIS Analysis: Archeological Sites within APE Archeological Sites Intersected by a 50-ft wide Construction Corridor Along the November 2012 CHPE/TDI Centerline.
- Hartgen. 2013b. GIS Analysis NRHP Properties within APE National Register of Historic Place Eligible (NRE) and Listed (NRL) Properties Intersected by a 50-ft wide Construction Corridor along the November 2012 CHPE/TDI Centerline.
- Hartgen. 2013c. GIS Analysis Underwater Resources within APE Underwater Anomalies and Sites within Lake Champlain and the Hudson River Intersected by a 50-ft wide Construction Corridor along the November 2012 CHPE/TDI Centerline.
- **TRC. 2020a. Phase IA Archeological Assessment of Champlain-Hudson Alternative Routes, New York.**
- TRC. 2020b. Phase IA Archeological Assessment of Champlain Hudson Astoria Converter Station and Astoria Preferred Alternative Route, Boroughs of Queens, New York.
- TRC. 2020c. Phase IA Archeological Assessment of Champlain-Hudson Power Express Project, Harlem Rail Yard Preferred Alternative, Boroughs of Queens, New York.
- TRC. 2021. Phase IA Archaeological Assessment of the Champlain-Hudson New Scotland Converter Station, New Scotland, Albany County, New York.
- TRC. 2022. Phase IA Archaeological Survey letter for the Stony Point Horizontal Directional Drill (HDD), Stony Point, Rockland County, New York.

### 2.1 Description of the Project

The area of potential effects (APE) includes portions of the Project that will be directly altered by the proposed undertaking. The overall APE encompasses 339 linear miles with varying widths.

This Project is divided into various segments (Table 1), with this addendum CRMP addressing the overland portion of route in Greene County. The current phase of work focuses on the overland portion in Greene County starting at the northern end of the Town of Catskill just north of the village, through the village, and ending in the southeastern portion of the town where the route returns to the Hudson River between the small hamlets of Alsen and Cementon.



Table 1. CHPE Packages, Routes, and Locations.

Construction Segment	EM&CP Design Packages	Location Description	Segment Length (miles)	Anticipated EM&CP Filing with DPS	Anticipated Start of Construction
<b>OVERLAND SEGMENTS</b>					
1, 2	1A/1B	Putnam to Dresden/ Dresden to Whitehall	17.6	April 15, 2022	November 2022
3	1C/2	Whitehall to Fort Ann Fort Ann to Kingsbury	20.8	December 23, 2022	May 2023
4, 5	3	Kingsbury to Milton	26.5	March 2023	June 2023
6	4A	Milton to Ballston	10.2	April 2023	July 2023
7	4B	Ballston to Schenectady/Rotterdam	9.6	March 2023	July 2023
8	5A	Rotterdam to Bethlehem	16.99	December 21, 2022	May 2023
9	5B	Selkirk Bypass	5.31	December 21, 2022	May 2023
10	6	Ravena to Catskill	20.9	April 2023	June 2023
11	7A	Catskill to Germantown	8.6	March 2023	July 2023
12	7B	Stony Point to Haverstraw	7.6	April 2023	July 2023
13, 14, 15	8	Queens	2.13	April 2023	June 2023
Laydown Yards	3,5B,6	Fort Edward, Bethlehem, Coxsackie	N/A	November 11, 2022	February 2023
<b>MARINE SEGMENTS</b>					
16	9	Transitional HDD (Stony Point)	N/A	September 29, 2022	September 2023
17	10	3 Transitional HDDs (Putnam, Catskill, Clarkstown)	N/A	December 14, 2022	June 2023
18	11	Lake Champlain (Pre-Lay Mattressing)	96	March 2023	August 2023
TBD	TBD	Lake Champlain (Cable Installation)	96	December 2023	TBD
19	12	Hudson River (Pre-Lay Mattressing)	89.1	April 2023	August 2023
20	13	Hudson River (Cable Installation)	89.1	December 2023	June 2024
21	14	Harlem River	6.3	December 2023	June 2024
22	TBD	Converter Station, Astoria Complex, (Queens)	N/A	March 2023	June 2023
23	TBD	Astoria Rainey Cable HVAC System, (Queens)	3.5	TBD	TBD

Changes in the APE, including those necessary to avoid known historic and archeological resources, may be required to accommodate Project implementation. Changes to the APE will follow methodology outlined in the CRMP (2021). The CRMP (2021) states: *If the corridor is changed or if a construction zone wider than 55 feet (terrestrial) or 50 feet (in-water) is required to build the Project, then the APE will be adjusted accordingly. All additional efforts to identify, assess, and manage cultural resources shall use the same guidance as that stipulated in the CRMP. It shall be the responsibility of the PPO and his/her designee to work with the appropriately trained archaeologist to ensure that survey and assessment of new APE construction areas is completed before construction takes place.* Changes in the APE and associated survey and

reporting will be provided to Signatories of the Programmatic Agreement in conjunction with annual reporting requirements (Section 5.6 Reporting Requirements).

## **2.2 Supplemental CRMP Objectives**

For each component of the segment (Slice Locations and Vaults, HDD, work areas, access roads, etc.) were evaluated to determine whether the proposed work lies within the permitted route (APE) or outside the permitted route. Areas outside the permitted route were further evaluated to determine whether the areas have been previously disturbed (lacking archeological potential) or undisturbed (having archeological potential). Recommendations are proposed for either archeological monitoring during construction in the manner described in Section 4, or archeological testing.

Archeological testing may be utilized in advance of construction. Testing would be conducted by the excavation of 40 cm tests placed at 50-foot intervals within the areas defined below. Excavated soil would be passed through 0.25-inch hardware mesh when feasible and examined for both precontact (Native American) and historic artifacts. The stratigraphy of each test would be recorded including the depth, soil description, and artifact content. The location of each shovel test would be plotted on the project map. Test excavations will be photographed.

The testing shall adhere to the New York Archaeological Council's *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections* (1994), which are endorsed by OPRHP. The investigation shall be overseen by an Archeologist as defined under the Secretary of the Interior's Professional Qualification Standards outlined in *Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines as Amended and Annotated* and required under Title 36 of the Code of Federal Regulations, Section 61 (36 CFR 61).

The survey report(s) shall be prepared according to OPRHP's *State Historic Preservation Office (SHPO) Phase I Archaeological Report Format Requirements* (2005) or another format acceptable to OPRHP. As appropriate, reports will contain text, tables, color maps and photographs, shovel test records, and an artifact inventory.

## **3 Segment 11, Package 7A Activities**

Within this package there are 15 proposed Splice locations and vaults (230-244), 10 HDD segments (112-113, 115, 118-123), and a Transition Vault between the terrestrial and river route. This cable route follows CSX ROW north of the village of Catskill, and local roads through the village and then transitions back to the CSX rail line until its terminus along Alpha Boulevard (a cement plant access road) near the hamlet of Alsen in the Town of Catskill.

The cable trench will be placed in an open trench along the railroad ROW and within a ductbank for those portions within other public ROWs (Figure 1). The trench will be about 3 feet wide and at least 5 feet deep for the ductbanks. The open trenches will taper towards the bottom starting at about 6 feet in width and ending at about 3 feet. The depth of open trenches will be about 5 feet.

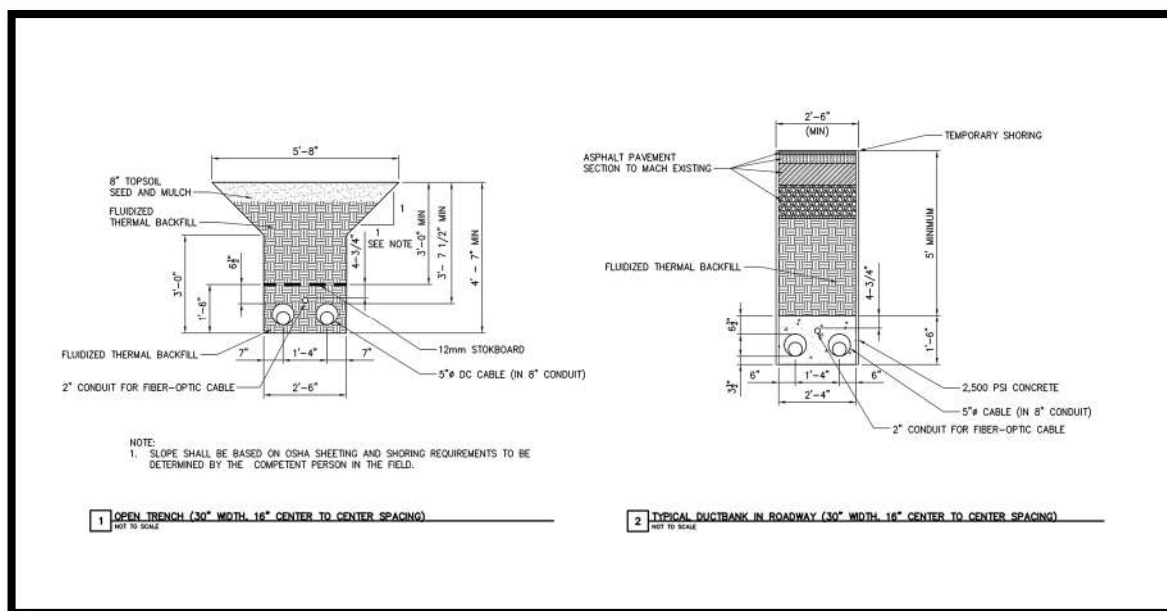


Figure 1. Typical open trench (railroad) and duct bank (roadway) installation of the cable illustrated.

### 3.1 Splices Locations and Vaults

Various splices will be installed to connect the cable segments together into an integrated whole. The splice vaults, only at Splice 323, will generally be about 15 by 40 feet in size (Figure 2). In most instances, the splice will be within an open trench.

Most splices are within the permitted route; however, several work areas fall outside of the permitted area and these are carefully evaluated with respect to their archeological sensibility, slope, wetlands, prior disturbances.

In all, 15 splice locations and vaults are proposed (Table 3). Archeological recommendations and current ground conditions are noted in the table below. Six locations are recommended for either archeological testing or monitoring.

Table 2. Splice Locations and Vaults and HDD Areas within Segment 7A.

Description	Station Number	Activity	Notes/Recommendations
Splice 230	70019+35	Splice within permitted route work area outside.	Test or Monitor* within work area only.
Splice 231	70051+32	Outside permitted route, appears undisturbed.	Test or Monitor.*
Splice 232	70074+83	Outside permitted route. Splice and work area steeply sloped and within road shoulder.	None.
Splice 233	70105+88	Outside permitted route, on steep slope and areas of prior disturbance.	None.
Splice 234	70129+35	Within RR ROW, work area outside. Sloped landscape.	None.
Splice 235	70151+18	Outside permitted route, in area of disturbance, storage yard.	None.

\* The area may be shovel-tested by a qualified archeologist prior to construction or monitored by a qualified archeologist during construction, see Sections 2.2 and 6, respectively.



Description	Station Number	Activity	Notes/ Recommendations
Splice 236	70170+75	Outside permitted route, level and undisturbed.	Test or Monitor.*
Splice 237	70203+13	Within permitted route. Work area extends outside. Level and undisturbed.	Test or Monitor,* work area only.
Splice 238	70234+06	Partially within permitted route, work area extends beyond. Some disturbance and sloping landscape.	None.
Splice 239	70266+24	Within permitted route, work area extends beyond.	Test or Monitor,* work area only.
Splice 240	70298+02	Outside permitted route, along railroad cut, and two extant access roads, previously disturbed.	None.
Splice 241	70327+90	Well outside permitted route. Within former cement plant, prior disturbance.	None.
Splice 242	70359+87	Within permitted route. Work area in wetland.	None.
Splice 243	70390+91	Outside of permitted route, within area of previous disturbance.	None.
Splice 244	70422+86	Outside permitted route with associated parking area.	Test or Monitor*.

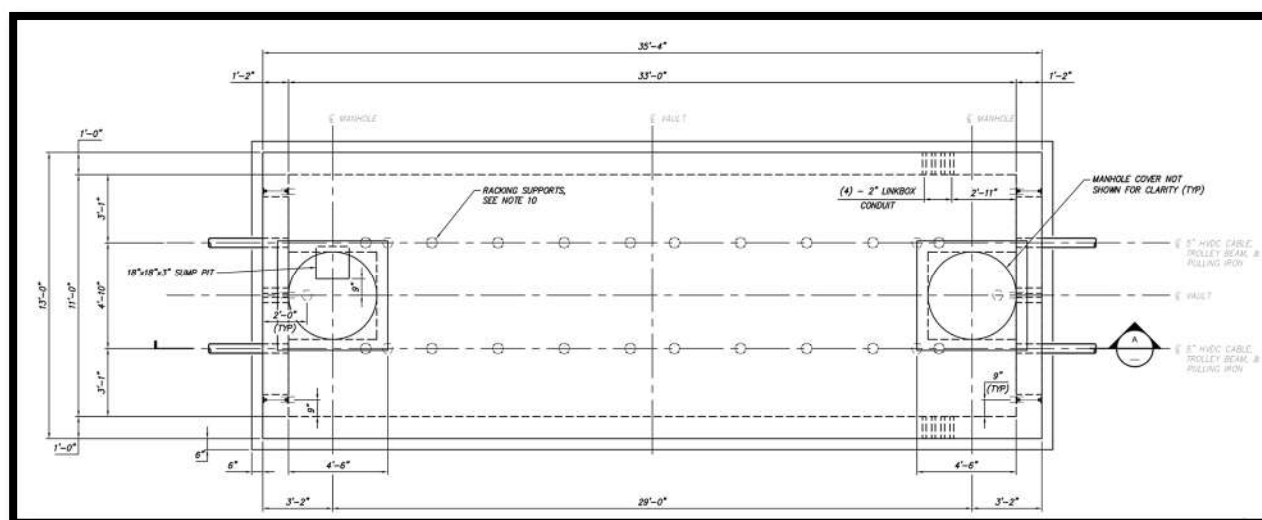


Figure 2. Plan of Proposed Splice Vault.

### 3.2 HDD Locations

In all, 10 HDD locations are proposed in Segment 7A (HDD 111b, 112 to 113, HDD 115, 117 to 120, HDD-122 to 123) as well a Transition vault near the Hudson (Table 3). The HDD areas will include a boring and receiving pit at each end of the drilled cable, typically 5-foot by 10-foot and 5 feet deep. Each pit will also have a temporary work area, typically 150 feet by 150 feet. The work areas for HDD 111.B, 112 and 120 are

The area may be shovel-tested by a qualified archeologist prior to construction or monitored by a qualified archeologist during construction, see Sections 2.2 and 6, respectively.

recommended for archeological testing or monitoring The Transition vault will be within a transshipment point at a former cement complex and is heavily disturbed.

Table 3. HDD Areas within Segment 7A.

Description	Station Number	Activity	Notes/ Recommendations
HDD 111.B	70002+15 to 70009+80	HDD avoids difficult topography. Boring pits within permitted route. Work areas extend outside. Northern work area is level and undisturbed. Southern area is steeply sloped.	Test or Monitor* northern HDD work area.
HDD 112	70036+23 to 70045+85	HDD avoids wetlands and steep slopes. Boring pits within permitted route. Work areas extend outside. Appears undisturbed.	Test or Monitor* both HDD work areas.
HDD 113	70055+20 to 70060+25	HDD under RR tracks to west side and under SR 23. Northern pit and work area sloped. Southern in disturbed parking area.	None.
HDD 115	70085+30 to 70098+80	Under Allen Street, Main Street, Catskill Creek and Willow Lane. Northern pit in disturbed road shoulder. Southern pit in parking area previously disturbed.	None.
HDD 117	70112+45 to 70119+80	HDD under RR. Both pits and work areas in industrial complexes previously disturbed or within the cut for the railroad grade.	None.
HDD 118	70137+25 to 70145+75	Under Route 9W bridge. Both pits and work areas in disturbed parking lot.	None.
HDD 119	70160+25 to 70168+65	On east side of RR, under stream. Northern pit in wet area, work area is sloped. Southern pit on steep slope.	None.
HDD 120	70172+35 to 70187+05	Under stream and steep ravine. Work areas extend outside permitted route.	Test or Monitor* both HDD work areas.
HDD 122	70339+60 to 70350+40	Under abandoned yard tracks of cement plant. Both areas disturbed, and/or wet.	None.
HDD 123	70372+0 to 70380+50	Under abandoned cement plant works. Area disturbed.	None.
Transition Vault 2	70454+25	Within former stock yard for cement plant. Previously disturbed.	None.

### 3.3 Off-Site Access Roads

The Project proposes to utilize off-site access roads from public roadways to the location of the installed cable (Table 4). These access roads are perpendicular to the cable, those parallel to the cable are discussed in the deviation areas noted below. Most of these are within existing informal access roads or unimproved farm lanes.

Four of these areas are considered previously disturbed and no archeological testing or monitoring is recommended. Archeological testing or monitoring is recommended for the Off-Site Access Road at Station 70258+00 which will connect Route 9W to the rail line. The area appears sloped and occupies an informal access road for about 500 feet in length. However, the road is immediately adjacent to the Streeke Shelter site (NYSM 475) and archeological testing or monitoring in the undisturbed portions of the road are appropriate to help avoid and protect the site.

Finally, Off-Site Access Road at Station 70337+00 also connects Route 9W to the rail line ROW. It too will follow along an existing informal access road about 450 feet in length. The proposed access road is immediately

---

\* The area may be shovel-tested by a qualified archeologist prior to construction or monitored by a qualified archeologist during construction, see Sections 2.2 and 6, respectively.

adjacent to Site 03904.000043, the Gardiner Cemetery (Site 33). The family cemetery was utilized between about 1844 and 1897 by the Gardiner family whose farm was nearby.



Figure 3. The Gardiner Family Cemetery off US Route 9W, along a proposed access road near Station 70337+00.

The cemetery contains over a dozen headstones and is currently denoted with a pole and chain fence. The cemetery will be protected with additional fencing, signage, and clear call-outs on construction sheets to avoid and protect the cemetery.

Table 4. Off-Site Access Roads for Package 7A.

Description	Station Number	Activity	Notes/Recommendations
Access Road- Depot Road	70110+00	Within existing private drive.	None.
Access Road - West Bridge St.	70145+00	Within storage yard and along existing paved private drive.	None.
Access Road- Rte 9W	70210+00	Utilizing existing access road. About 250 feet in length.	None.
Access Road- Rte 9W	70258+00	Appears sloped and is an informal access road. About 500 feet in length.	Test or Monitor*
Access Road- Rte 9W	70337+00	Along existing informal access road. About 450 feet in length. Adjacent to (03904.000043). Gardiner Cemetery (Site 33).	Site protection measures.
Access Road-Rte 9W	70348+00	Uses existing access road.	None.

### 3.4 Deviation Areas

There are a number of small deviations from the permitted cable route. For this discussion, deviation areas identified are typically longer and often include the construction of a temporary access road parallel to the tracks, with the cable installed at a distance from the tracks. In all, there are 9 identified deviation areas. Six areas are within public roadways or placed within disturbed areas, such as the former cement plants along US Route 9W south of the Village of Catskill or have extreme slope (Table 5). These require no additional archeological measures.

Three deviation areas are within areas of high archeological sensitivity, especially for precontact deposits. To the south of the Village of Catskill, deviation areas in fields and undisturbed wooded section are recommended for archeological testing or monitoring, those within the disturbed, former cement facilities are not recommended any additional work.

---

\* The area may be shovel-tested by a qualified archeologist prior to construction or monitored by a qualified archeologist during construction, see Sections 2.2 and 6, respectively.

Table 5. Deviations from Permitted Route and Archeological Recommendations.

Description	Station Number	Activity	Notes/ Recommendations
S11-1	70000+00 to 70055+00	Parallel access road and work areas.	Test or Monitor.*
S11-2	70058+50 to 70101+50	Splice and HDD Route under Catskill Creek.	None.
S11-3	70104+50 to 70106+75	Temporary access roads and work areas outside permitted route. In disturbed and steeply sloped areas.	None.
S11-4	70111+50 to 70115+50	Temporary access road and work areas for HDD 117. In disturbed and sloped areas.	None.
S11-5	70150+00 to 70166+00	Temporary access road outside permitted route.	Test or Monitor.*
S11-6	70223+00 to 70230+00	Temporary access road and cable route outside permitted area. Appears undisturbed, but sloping.	None.
S11-7	70276+00 to 70307+00	Largely along existing access road	Test or Monitor.* (70284+00 to 70289+00)
S11-8	70318+50 to 70338+00	Within former cement plant.	None.
S11-9	70448+00 to 70449+00	Within former cement plant/transshipment point.	None.

## 4 Identified Archeological Resources

In total, 17 archeological sites have been reported in the immediate vicinity of the proposed cable route of Package 7A. Of these, 10 are precontact archeological sites, and the remaining are historic sites, primarily the foundations of former farmhouses along Route 9W. The exception to this is the Gardner Family Cemetery (03904.000043) which is still extant along the east side of Route 9W. Only three sites have a formal evaluation for eligibility for the National Register, all three are considered not eligible. All of the remaining sites have yet to be formally considered and their status remains undetermined.

### 4.1 Greene County Waste Parcel 1 (904.000089) and Parcel 2 (03904.000090)

These two precontact sites were also identified as part of systematic archeological survey. Both are broad scatters of precontact material with several distinct loci. Parcel 2 is the closer of the two to the cable route and is immediately adjacent to the cable route to the east.

### 4.2 NYSM Site 3397

This site is defined as a broad area of precontact sensitivity around the Catskill Creek. This may be associated with Native American “villages” reported by Arthur C. Parker in 1922. These sites were often recorded by locals and reported to Parker who included them in his larger New York survey.

### 4.3 Willow Site (03940.001143)

The Willow Site was identified by a systematic archeological survey along US Route 9W. This small precontact site was the subject of a Phase II investigation. After which, NYSHPO determined the site is not eligible for the National Register.

---

\* The area may be shovel-tested by a qualified archeologist prior to construction or monitored by a qualified archeologist during construction, see Sections 2.2 and 6, respectively.



#### **4.4 LBD Precontact Site (03940.001156)**

This site was recently reported from a professional archeological survey. It contained a small assemblage of precontact material, and NYSHPO determined that the site is not eligible for the National Register. The site was within 100 feet of the cable route but has since been destroyed.

#### **4.5 Foundation Sites Along US Route 9W**

As part of a road widening project completed in the 1970s, a large archeological survey was conducted south of the Village of Catskill along US Route 9W. As part of this survey, many of the former farmsteads along the road, which were eventually abandoned and sold to cement and limestone mining operations, were located based on historical maps and pedestrian survey. Six of these sites lie between US Route 9W and the railroad ROW. The sites include:

- Burget Foundation Site 1 (303904.000033), stone foundation.
- Sax Foundation Site 14 (03904.000034), stone foundation.
- Rightmeyer Foundation Site 15 (03904.000035), stone foundation.
- Burhan Or Acker Foundation Site 17 (03904.000036), unknown.
- C.A. Post Foundation Site 20 (03904.000037), stone foundation.
- Martin House Foundation & Barn, Site 32 (03904.000042), cellar hole.

#### **4.6 Streeke Shelter (NYSM 475)**

There is no information associated with the site inventory form for the Streeke Shelter site. It is presumed to be a rockshelter with precontact materials, but it is unclear. While this site lies well west of the cable route, as mapped.

#### **4.7 Embought Rd. Site, Site 8 (03904.000030)**

This was one of the few precontact sites reported from the US Route 9W widening project conducted in the mid-1970s. The site was located based on surface reconnaissance and shovel testing.

#### **4.8 ICC Prehistoric Site 1 (03904.000093) and 2 (03904.000094)**

This pair of archeological sites was identified by a professional archeological survey in the late 1990s. Both were small assemblages of lithic debris from stone tool-making.

#### **4.9 Gardiner Cemetery (Site 33)(03904.000043)**

This site is an extant family cemetery that is still maintained by a local cement plant. The cemetery was used between about 1840 and the turn of the 20<sup>th</sup> century by the Gardner family. The Gardiners included several generations of farmers who also sold fruit trees. The site is along a proposed access road for the Project.

#### **4.10 Summary**

Four of the previously identified sites are located near areas of Package 7A activities that are outside of the permitted route.

Table 6. Project Activities Near or Within Known Archeological Sites.

Resource	Activity	Location	Condition/Site Info.	Recommendation
904.000089 Greene County Waste Parcel 1	Cable route, deviation.	East of RR ROW.	Eight loci of lithic workshops.	None.
03904.000090 Greene County Waste Parcel 2	Cable route is to the west.	East of RR ROW.	Wide-spread lithic scatter noted on surface.	Test or Monitor.*
NYSM Site 3397	Cable route.	Within Project along both side of Catskill Creek.	No additional site information.	None.
03940.001143 Willow Site	HDD under area of site.	East of RR ROW along Route 9W.	In brushy area along roadside.	Previously determined not eligible. None.
03940.001156 LBD Precontact Site	East of RR ROW.	Southeast of RR ROW.	Small lithic scatter.	Site is developed. None.
03904.000033 Burget Foundation Site 13	Cable route.	On west side of RR ROW.	Field stone foundation.	None.
03904.000034 Sax Foundation Site 14	Cable route.	On west side of RR.	Field stone foundation.	None.
03904.000035 Rightmeyer Foundation Site 15	Cable route.	On west side of RR.	Field stone foundation.	None.
03904.000036 Burhan or Acker Foundation Site 17	Cable route.	On west side of RR ROW.	No archeological expression identified.	None.
NYSM 475 Streeke Shelter	Near access road.	West side of tracks, no additional information.	Possible rockshelter site. Exact location unclear.	Test or Monitor.*
03904.000037 C.A. Post Foundation Site 20	Cable route.	On west side of RR ROW.	Stone foundation.	None.
03904.000030 Embought Rd. Site, Site 8 (Precontact)	Cable route.	East of RR tracks.	No archeological expression identified.	Test or Monitor.*
03904.000093 ICC Prehistoric Site 1	Cable route.	Immediately adjacent to cable route.	Small lithic scatter.	Test or Monitor.*
03904.000094 ICC Prehistoric Site 2	Cable route.	East of RR ROW.	Small lithic scatter.	None.
03904.000042 Martin House Foundation & Barn, Site 32	Cable route.	East of RR ROW.	Cellar hole.	None.
03904.000043 Gardiner Cemetery (Site 33)	Along proposed access road.	East of Rte 9W, west of RR ROW.	Well-marked cemetery.	Site protection measures.

\* The area may be shovel-tested by a qualified archeologist prior to construction or monitored by a qualified archeologist during construction, see Sections 2.2 and 6, respectively.

#### **4.11 Construction Timeline**

The construction timeline is November 2022 to December 2025 for the entire Project.

### **5 Cultural Resource Management Plan**

#### **5.1 Objective**

It is the objective of this CRMP to demonstrate a comprehensive plan for the encounter of cultural resources during the construction and installation of the transmission line, as well as the various other components affiliated with it.

TRC created a final CRMP for the permitting process, with an overall permitting CRMP created in 2015, and subsequent revisions and addendums in 2021. The plan provides guidance for those monitoring activities not indicated in the original cultural resource management plan (CRMP) (2021) which specifically addressed previously identified sites within or along the permitted route; and, unanticipated discoveries when an archeologist is not present.

No areas of monitoring have been previously identified in the current segment of the Project. This current report serves as the supplemental CRMP for the now planned construction activities, tasked in synthesizing the previously reported data into one document and identifying roles and points of contact for communication ease.

Currently the Consulting Archeologist (CA) for the terrestrial portion of the Project is Matthew Kirk, Hartgen Archeological Associates, Inc. The Project Preservation Officer (PPO) is Ashley L. Bushey from the construction team, Kiewit.

#### **5.2 Project Preservation Officer (PPO)**

Hartgen will act as the Consulting Archeologists (CA) for the purpose of this effort. The CA will work closely with the Project Preservation Officer (PPO); the PPO or their designee will be present for all ground disturbing activities, and will have “stop-work” authority. The PPO will be part of the prime construction management team, Kiewit Corporation.

It is the responsibility of the CA to train this individual as a PPO and to provide a hands-on workshop for construction personnel, as designated by the PPO. The PPO and the construction team should have an understanding of cultural resources present in different areas, as well as an understanding of the potential for unknown cultural deposits. It is the responsibility of the PPO to implement the CRMP (2021) and ensure that the requirements and conditions of the CRMP are met. Table 7 includes the necessary contact information.

The PPO will have the authority to cease excavation or construction work. In the event of encountering cultural materials or human remains, it is the responsibility of the PPO to halt construction activities and contact and coordinate with the CA to visit the location of the discoveries as quickly as possible. Unanticipated discoveries, such as human remains, will follow the protocols developed by OPRHP in 2021 in consultation and coordination with the state’s Tribal entities. This protocol supersedes previous iterations presented in the BMP, original CRMP, and other related documents and plans (Appendix 2).

In the event of these discoveries, the CA will have up to three workdays to excavate and remove cultural material from the APE before the construction continues. The CA, in consultation with the PPO and the NYSHPO, may request additional archeological field assistance to complete the necessary work in a timely manner. It is the responsibility of the PPO to work with the appropriately trained archeologists to ensure that the survey and assessment of any change in the APE is completed prior to construction taking place.

### **5.3 Heritage Areas, Special Events, and Other Resources**

As part of the Section 106 process, the federal agency solicited comment and feedback from Tribal Nations that have expressed an interest in the regions in which the Project is to be constructed. As part of that endeavor, no traditional cultural properties were identified within or immediately adjacent to the Project. No other heritage areas or special events have been identified within this segment of the Project. The Certificate Holder, and its assignees, continues to solicit information from the public and other stakeholders to identify such areas, should they exist. No such areas, events, or properties have been identified in this segment of the Project.

### **5.4 Identification of Historic Properties**

Changes in the APE or modifications to work proposed within the APE will prompt review of the subject location(s) for historic properties. The review will include archeological survey as specified in the CRMP (2021) in addition to completion of a files search that will include previous survey data through New York CRIS and may be supplemented with local assessor records, historic topographic maps, historic aerial images, Sanborn Fire Insurance and other historic maps, and other resources as available.

Properties are typically considered to hold historic potential when they meet or exceed 50 years of age. The Project may elect to consider the historic potential of properties approaching this age threshold to accommodate anticipated construction horizons. The Project will complete a survey evaluation for properties that meet or exceed the age threshold for historic potential, have no existing determination of NRHP eligibility or a determination ten or more years old, and may be affected by Project activities. The evaluation will be completed by a cultural resource specialist who meets or exceeds the Secretary of the Interior's Professional Qualification Standards (SOI Standards) in a discipline appropriate for the subject site; archeological sites will be evaluated by professionals who meet or exceed the SOI Standards in the area of archeology; architectural and landscape sites will be evaluated by professionals who meet or exceed the SOI Standards in the area of Architectural History. Survey evaluations will be subject to quality assurance review by a professional other than the author(s) who meets or exceeds applicable SOI Standards. Survey information will be input into the New York CRIS system prior to submission of annual reports on January 10 of each calendar year this agreement is in effect.

### **5.5 Barriers and Other Protective Measures**

Protective measures have been identified in this CRMP for the Gardner Family Cemetery along a proposed access road. No other barrier or protective measures have been requested by stakeholders for this of the Project. If portions of the Project are altered, additional assessment, which may include desktop review, pedestrian survey, and/or archeological shovel tests, will be required to determine the presence or absence of cultural resources. Should cultural resources be identified, the Certificate Holder will avoid these resources if possible. Protective measures may include installation of temporary fencing and/or site delineation on Facility maps. Should an archeological site be impacted by Project activities, mitigation will include notification procedures and data recovery as stipulated in the Section 4.0 of the CRMP, and/or other treatment measures determined through consultation with NYSHPO, Tribal Nations, and consulting parties.

### **5.6 Reporting Requirements**

The CRMP (2021) establishes a requirement for annual reporting concerning activities conducted under the CRMP: *The PPO will prepare an annual report to the DOE and NYSHPO (and any of the other signatory or consulting parties listed in the Programmatic Agreement), which summarizes activities conducted under this CRMP on an annual basis for as long as this CRMP is in effect (i.e., through post-construction monitoring). The report will be completed and submitted on or before January 10 of each year. The CRMP may be updated and/or revised as appropriate to improve its implementation so long as concurrence is reached by the parties involved is achieved. The annual report will include a summary of all historic properties and archaeological resources that may have been encountered during construction and how they were treated. Post-construction reports will identify which cultural resources were monitored and provide a summary of resource conditions and whether looting or other forms of ground disturbance were noted.*



The PPO will establish and maintain:

- A system of tracking archeological monitoring reports;
- Application of Program Comments, Exemptions, or Program Alternatives;
- Application of Programmatic Allowances;
- Implementation of Treatment Measures;
- Potential changes to APE;
- Annual report that summarizes the above items stipulated by the CRMP (2021).

## 5.7 Programmatic Allowances

Activities considered Programmatic Allowance are not exempt from archeological monitoring and remain subject to unanticipated discovery protocols, including stop-work provisions, as contained in the CRMP (2021).

Programmatic Allowances include actions where historic properties will not be affected or effects to historic properties hold limited potential to diminish historic integrity. Where Programmatic Allowance(s) are applicable, the action will not require independent consultation with the State Historic Preservation Office (SHPO).

Application of Programmatic Allowances requires review by Project Preservation Officer (PPO). The PPO must complete:

- Memorandum to file containing a verbal description of work proposed, verbal description and map of geographic area subject to the work proposed;
- Summary of file search and/or literature review conducted to identify potential historic properties;
- Description of historic properties affected (if any);
- Justification for the application of one or more Programmatic Allowances.

The Project will maintain a tracking system of memoranda applying Programmatic Allowances, which will be communicated to NYSHPO and the Programmatic Agreement signatories in an annual report.

In addition to the Programmatic Allowances contained in this document, the Project may include application of relevant Section 106 Program Comments and program alternatives including but not limited to:

- Program Comment for Actions Affecting Post-1945 Concrete and Steel Bridges (*Federal Register*, Vol. 77, No. 222, November 16, 2012)  
[https://www.achp.gov/sites/default/files/program\\_comments/2017-01/program%20comment%20concrete%20and%20steel%20bridges.pdf](https://www.achp.gov/sites/default/files/program_comments/2017-01/program%20comment%20concrete%20and%20steel%20bridges.pdf)
- Program Comment to Exempt Consideration of Effects to Rail Properties within Rail Rights-of-Way (*Federal Register* Vol. 84, No. 125, June 28, 2019)  
<https://www.govinfo.gov/content/pkg/FR-2019-06-28/pdf/2019-13779.pdf>
- Advisory Council on Historic Preservation (ACHP) Exemption Regarding Historic Preservation Review Process for Effect to the Interstate Highway System (*Federal Register* Vol 70, No. 46, March 10, 2005)  
[https://www.achp.gov/sites/default/files/exemptions/2017-01/final\\_interstate\\_exemption\\_notice.pdf](https://www.achp.gov/sites/default/files/exemptions/2017-01/final_interstate_exemption_notice.pdf)

5.7.1 Transportation Facilities

- A. Resurfacing existing roadways and/or replacement in-kind of highway signals, signage, or appurtenances when approved by the owner of the transportation facility.
- B. Replacement in-kind of railroad signals, crossing materials, and other railroad features or appurtenances when approved by the owner of the transportation facility.
- C. Installation of utility attachments on bridges in areas with existing utility attachments.

5.7.2 Ground Disturbing Activities

- A. Ground disturbing activities within areas of documented previous disturbance.
- B. Ground disturbing activities within non-historic and non-contributing properties or features when no vertical improvements are proposed. Vertical improvements may consist of, but are not limited to, buildings, structures, and other forms of infrastructure with height above ground and constructed by the project.
- C. Ground disturbing activities within historic and contributing properties when action is discrete (including but not limited to edges of agricultural fields, wooded areas, lawns, or curbs), where no contributing or potentially contributing buildings, structures, objects, sites, or features are present (including but not limited to slate sidewalks, hitching posts, carriage steps, mature trees, fences, retaining walls, and other landscaping dating to the historic period of 50 years or more in age).

5.7.3 Temporary Staging and Temporary Facilities

- A. Temporary staging or stockpiling within existing parking areas.
- B. Temporary staging or stockpiling within transportation rights of way.
- C. Temporary staging or stockpiling within areas with documented previous ground disturbance when the ground is returned to pre-construction appearance, including contours and vegetation.
- D. Installation of temporary construction support facilities when the ground is returned to pre-construction appearance, including contours and vegetation.
- E. Location of temporary construction trailers not requiring a foundation or pad.

5.7.4 Utilities, Lighting, and Maintenance Facilities

- A. Installation of underground utilities using directional bore drilling or similar method.
- B. Replacement, repair, and/or maintenance of existing underground utilities in-kind when work occurs within the existing utility footprint.
- C. Installation, replacement, or upgrade to lighting within transportation rights of way and/or at Project locations requiring routine maintenance.
- D. Establishing maintenance facilities within Project easements or right of way no more than 10-feet high with a footprint no more than 120 square feet when facility is not located within a State Register of Historic Places (SRHP) or National Register of Historic Places (NRHP) historic district.

5.7.5 Pre-Construction Due Diligence and Testing

- A. Conducting geotechnical testing, hazardous materials sampling, seismic or vibration testing or monitoring, or drill samples.
- B. Wetland testing and delineation.
- C. Wildlife surveys and inventories.
- D. Property line and ownership verification surveys.
- E. Utility location surveys.

**5.7.6 Hazard and Hazardous Waste Removal**

- A. Removal of debris related to weather or storm damage, or present as a result of modern dumping.
- B. Hazardous waste removal.

**5.7.7 Environmentally Sensitive Area (ESA) Protection and Mitigation**

- A. Installation of temporary fencing to protect areas of cultural, biological, or other environmentally sensitive area from the effects of construction.
- B. Obtaining credits in/ from and existing wetland mitigation bank.
- C. Vegetation or landscaping to support habitat mitigation when the subject action affects less than one-half acre and does not occur within an archeologically sensitive area, as defined by the Supplemental CRMP.

**5.7.8 Drainage Improvements**

- A. Erosion control measures including best management practices placement of rip rap within non-historic channels, and emergency erosion control measures.
- B. Re-grading or re-establishing existing drainage channels.
- C. Temporary drainage systems including culvert placement and grading, provided the area is returned to pre-construction appearance.
- D. Replacement or up-sizing corrugated metal pipe (CMP), concrete box culvert (CBC), reinforced concrete pipe (RCP), and plastic pipe culverts where no architectural headwalls or wingwalls are present or where these features, if present, will remain in place.

**5.7.9 Signage and Surveillance**

- A. Installation, maintenance, repair, or removal of security systems.
- B. Installation of signage not located within a NRHP district.
- C. Replacement of existing signs; including within a NRHP district when replacement is in-kind and at the same location as the sign to be replaced.
- D. Maintenance, repair, or removal of signage.
- E. Installation of less than 100 linear feet of security fence within Project easements or right of way when not located within a SRHP or NRHP historic district.

**5.7.10 Easements and Right of Way**

- A. Acquisition of easements or right of way from non-historic properties and when not located within a State Register of Historic Places (SRHP) or National Register of Historic Places (NRHP) historic district.
- B. Acquisition of easements or right of way for sub-terranean activities when no surface rights or access is conferred.

**5.8 Treatment Measures**

When Project actions do not qualify as Programmatic Allowances, the Project will complete an evaluation of the potential for actions to diminish the historic integrity of historic or archeological resources, as defined in 36 CFR Part 800.5(a)(1). The Project may reference applicable National Register Bulletins, published by the National Park Service, to support the evaluation. Project actions found to diminish integrity as defined in 36 CFR Part 800.5(a)(1) will require Treatment Measures. The Project will complete a memorandum documenting eligibility of the resource(s), application of the criteria of adverse effect, avoidance measures considered, efforts to minimize the effect, coordination with property owner(s) or local government(s) in selection of Treatment

Measures if applicable, and rationale for application of the selected Treatment Measure, if applicable. A separate Memorandum of Agreement (MOA) will not be required when one or more of the following Treatment Measures are selected. If the Project action is determined not to diminish integrity, further action will not be required.

The Project will maintain a tracking system of memoranda and Treatment Measures, which will be communicated to NYSHPO and the Programmatic Agreement signatories in the annual report.

This section will not apply to designated National Historic Landmark properties, as consultation with the Department of the Interior is required (36 CFR Part 800.10), generally conducted via consultation with the National Park Service.

#### 5.8.1 Data Recovery

Data recovery and reporting is the preferred mitigation for archeological sites. Implementation of this Treatment Measure will follow protocol contained in the CRMP (2021) Section 4.0 Project Effects and Management Measures. Additional details concerning data recovery for resources identified during archeological monitoring or that are unanticipated discoveries are outlined below.

#### 5.8.2 Certified Local Government or Historic Preservation Board/Commission Priority Project Sponsorship

The Project crosses through several Certified Local Government (CLGs) jurisdictions. CLG programs are a division of municipal or county government to create and implement local-level historic preservation planning and programming. Many CLGs maintain a formal historic preservation plan containing goals and priority projects for preservation activities within their jurisdiction. Whether or not a CLG maintains a formal historic preservation plan, all are required to maintain a system of identification and documentation of historic properties, sometimes referred to as historic survey. Communities may also maintain a Historic Preservation Board, Commission, or similar entity and choose not to become a CLG. Each program will formally or informally document preservation priorities within their jurisdictions, often identifying lack of funding as a significant barrier to implementation.

Site-specific mitigation often has limited value to advancement of historic preservation, community. To create broader impact to the historic properties and the communities they serve, the Project may coordinate with CLGs or Historic Preservation Boards/Commissions to sponsor one or more of the priority projects identified within that entity's jurisdiction and not necessarily within the Project APE.

Example projects include, but are not limited to, historic surveys, State or National Register Nominations, historic context documentation, completion (or update) of a strategic preservation plan, completion of a strategic historic survey plan, archeological or architectural history field schools, historic preservation technical trainings or workshops, workshops related to historic preservation tax credits, and more.

New York CLGs are listed on the NYSHPO website at: <https://parks.ny.gov/shpo/certified-local-governments/listing.aspx>

#### 5.8.3 Digital Photography Package

Prior to implementation of the work necessitating implementation of Treatment Measures, a digital photography package will be prepared by an individual meeting the Secretary of the Interior's Professional Qualification Standards. The photography package will include images demonstrating the property in its setting and context, images showing each exterior building elevation, images showing the spatial relationships of building(s) and features of the site, and appropriate detail images. A map showing photograph locations and view direction will be included. A photography log will be included containing photograph numbers, cardinal direction viewpoint, historic resource name and number (if applicable), street address (if applicable), city or



town, county, state, and image description. The digital photography package will follow the National Park Service photography standards for the National Register of Historic Places:

[https://www.nps.gov/subjects/nationalregister/upload/Photo\\_Policy\\_update\\_2013\\_05\\_15\\_508.pdf](https://www.nps.gov/subjects/nationalregister/upload/Photo_Policy_update_2013_05_15_508.pdf)

Copies of the photography package on archival CD will be provided to NYSHPO, local Historic Preservation Board or Commission, and/or interested local or state repositories. One set of archivally produced, archivally labelled photographs will be provided to the NYSHPO.

#### 5.8.4 National Park Service Heritage Documentation (HABS/HAER/HALS)

Prior to implementation of the work necessitating implementation of Treatment Measures, the property subject to the work will be documented to National Park Service standards using the appropriate heritage documentation form: Historic American Building Survey (HABS), Historic American Engineering Record (HAER), or Historic American Landscape Survey (HALS). Work will be completed by a Cultural Resource Specialist who meets or exceeds the Secretary of the Interior's Professional Qualification Standards. The appropriate level of documentation (Level I, Level II, Level III) will be selected based on the Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation, as published in the Federal Register July 21, 2003: [https://www.NationalParkService.gov/hdp/standards/standards\\_regs.pdf](https://www.NationalParkService.gov/hdp/standards/standards_regs.pdf)

The Project will follow HABS/HAER/HALS Standards & Guidelines published by National Park Service Heritage Documentation Programs. The Project will coordinate with the National Park Service Northeast Region to obtain an applicable HABS/HAER/HALS. The Project will complete comment resolution with the National Park Service Northeast Region and submit final documentation for transmittal to the Library of Congress.

#### 5.8.5 Public Interpretation

Public interpretation will be designed and produced, which may include print or digital media, on-site or off-site signage, workshops or technical trainings, or other means of engaging and educating interested public regarding historic properties. If the public interpretation involves physical signage, installation will require agreements from the landowner accepting the sign(s) including responsibility for maintenance.

Completion of public interpretation as a Treatment Measure will be executed independent of the commitment to provide \$5,000 in educational investment included in the CRMP (2021).

#### 5.9 Property Owner Requests

The Project may accommodate property owner requests, including privately and publicly held properties, that may exceed Project needs or requirements. If a property owner request accommodated by the Project escalates permitting, consultation, or Treatment Measure requirements, the subject property owner will assume responsibility for associated costs.

## 6 Archeological Monitoring Methodology

### 6.1 Objective

The objective of the archeological monitoring is to identify and document archeological deposits that may be encountered in areas that were previously inaccessible for archeological survey or not considered during the initial resource assessment, specifically in those areas outside of the originally permitted route. The monitoring methodology is established to create an efficient and streamlined notification process and means to determine the potential eligibility of resources for inclusion on the National Register, and for the creation and adoption of timely and effective mitigation strategies.

## **6.2 Monitoring**

The Archeological Monitor will observe the contractor's excavations within designated areas as indicated by station numbers in the Supplement CRMPs. On the basis of such observations, the Archeological Monitor may request a short-term cessation of work in the vicinity of a potential archeological site or find in order to record information or to evaluate exposed archeological deposits. Within the course of observation, the Archeological Monitor may request from the on-site supervisor time to evaluate significant finds, deposits, or other archeological materials in an effort to assess their eligibility for the National Register.

The Archeological Monitor may direct the Contractor's workers in the use of machinery on a very limited basis to assist in the exposure of material of archeological importance. This assistance will comprise work which would otherwise be done without archeological involvement, but where archeological direction can ensure that significant material is not disturbed.

The Archeological Monitoring will inspect excavation areas, soil profiles, backdirt piles, and will collect artifact and soil samples as appropriate. The Archeological Monitor will map and document archeological deposits using field notes, photography, and measured scale drawings. The locations of archeological deposits will be mapped with a submeter GPS unit.

Archeological monitoring and associated site or find evaluation time will vary depending on the type of site or find encountered. Typical stop-work requests to complete archeological evaluation will be accommodated within one hour or less, often within fifteen minutes. Stop-work will be limited to an area within 50 feet of the potential archeological find; work may continue outside the area of the potential archeological find provided work occurs in an area not subject to archeological monitoring or an additional Archeological Monitor is available to observe the work.

## **6.3 Notification**

For archeological finds that may be National Register-eligible but cannot be adequately recorded during a short cessation of work (typically one hour or less per find) and cannot be otherwise avoided, the Archeological Monitor will notify the on-site Supervisor and request a halt to construction activities. The Archeological Monitor shall notify the Project Preservation Officer (PPO), who shall in turn notify the NYSHPO, other stakeholders and Tribal Nations, as appropriate within 24 hours (as per the Certificate of Condition 110) of the initial reporting of the finds. During this time, work in the immediate vicinity of the find must halt and the area of concern fenced or otherwise protected from construction activities. Once the area is secured, activity adjacent to the find may continue during the consultation process.

## **6.4 Determination of Eligibility**

The NYSHPO will make a determination of eligibility for the archeological resource based on the information provided by the Archeological Monitor and PPO. The NYSHPO shall receive this information from electronic communications and respond within 48 hours, per the Certificate of Conditions.

## **6.5 Determination of Effects, Mitigation Efforts and Dispute Resolution**

It is expected that potential archeological finds will be located within a relatively narrow construction corridor with limited means for avoidance. When a site is determined eligible for inclusion on the National Register, avoidance is not possible, and continued construction requires disturbance of the site, the resulting Section 106 determination of effect will be Adverse Effect. Determinations of Adverse Effect require mitigation treatment to resolve; a separate Memorandum of Agreement will not be required when mitigation treatments contained within this document, or a CRMP associated with the area of the subject archeological site, is selected. Dispute resolution among the parties will be guided by the CRMP (2021).

### 6.5.1 Data Recovery Mitigation Strategy

Data recovery mitigation strategy will be outlined in a brief plan that provides guidance on the level of effort expected, square meters of excavation, sampling percentage, and number of anticipated feature excavations. The strategy will provide a schedule for the proposed recovery/documentation efforts with the understanding, including options to expedite the process, which may include 10-hour working days and additional crew. The mitigation plan shall also include a protocol for artifact collection, processing, cataloging, analyses, and final curation of materials, as outlined in the original CRMP (Section 4.3). The data recovery plan will be provided to NYSHPO, Tribes, and other stakeholders prior to implementation; these parties will have up to 15 days to review and provide comment. Data recovery can begin as soon as approvals are granted by NYSHPO. The PPO will notify the NYSHPO, Tribes, and other stakeholders of the completion of the fieldwork and that portion of the project shall be cleared to resume construction.

### 6.5.2 Alternative Archeological Mitigation

Alternative archeological mitigation efforts that contemplate non-traditional excavation and or data recovery methods may be appropriate considering the circumstances. Numerous treatment methods may be selected including but not limited to off-site archeology, non-invasive archeology in the vicinity, and other appropriate strategies may also be considered. Factors that may influence such decisions include the Project's constraints (in terms of construction corridor width and depth), weather and soil conditions, hazardous work environments, other health and safety concerns, and Project schedule.

## 7 Communication

Through the many moving parts of this Project, efficient and immediate contact and consultation will be vital. The Project contacts are listed in Table 7 below:

Table 7. Project Contacts.

Agency/Organization	Role	Contact person	Contact information
Kiewit Corporation	Project Preservation Officer	Ashley L. Bushey	<a href="mailto:Ashley.Bushey@Kiewit.com">Ashley.Bushey@Kiewit.com</a> 802.349.6388
CHA Consulting, Inc.	Consulting Engineer	Chris Einstein	<a href="mailto:ceinstein@chacompanies.com">ceinstein@chacompanies.com</a> 518.453.4505
U.S. Department of Energy	Stakeholder	Melissa Pauley	<a href="mailto:melissa.pauley@hq.doe.gov">melissa.pauley@hq.doe.gov</a>
U.S. Army Corps of Engineers	Stakeholder	Stephan Ryba	<a href="mailto:Stephan.a.ryba@usace.army.mil">Stephan.a.ryba@usace.army.mil</a>
New York State Historic Preservation Office (NYSHPO)	Stakeholder	Nancy Herter	<a href="mailto:Nancy.herter@parks.ny.gov">Nancy.herter@parks.ny.gov</a> 518.268.2179
New York DPS	Stakeholder	Matthew Smith	<a href="mailto:matthew.smith@dps.ny.gov">matthew.smith@dps.ny.gov</a>
Hartgen Archeological Associates	Consulting Archeologist	Matthew Kirk	<a href="mailto:mkirk@hargen.com">mkirk@hargen.com</a> 518.283.0534 518.300.5940
Transmission Developers Inc.	Applicants/Owner	Ayokunle "Kunle" Kafi, PE, CEM	<a href="mailto:Ayokunle.kafi@transmissiondevelopers.com">Ayokunle.kafi@transmissiondevelopers.com</a> 347.920.6550
Delaware Nation	Tribal Nation	Carissa Speck	(405) 247-2448, Ext. 1403 <a href="mailto:cspeck@delawarenation-nsn.gov">cspeck@delawarenation-nsn.gov</a>
Delaware Tribe of Indians	Tribal Nation	Susan Bachor	610.761.7452 <a href="mailto:sbachor@delawaretribe.org">sbachor@delawaretribe.org</a>
Shinnecock Nation	Tribal Nation	Jeremy Dennis	631.283.6143 <a href="mailto:adminoffice@shinnecock.org">adminoffice@shinnecock.org</a> <a href="mailto:jeremynative@gmail.com">jeremynative@gmail.com</a>
St. Regis Mohawk Tribe	Tribal Nation	Darren Bonaparte	518.358.2272, ext. 2163 <a href="mailto:darren.bonaparte@srmt-nsn.gov">darren.bonaparte@srmt-nsn.gov</a>

Agency/Organization	Role	Contact person	Contact information
Stockbridge-Munsee Community	Tribal Nation	Jeff Bendremer	413.884.6029 <a href="mailto:thpo@mohican-nsn.gov">thpo@mohican-nsn.gov</a>
National Park Service	Stakeholder	Kathy Schlegel	215.597.1726 <a href="mailto:kathy_schlegel@nps.gov">kathy_schlegel@nps.gov</a>
Advisory Council on Historic Preservation	Stakeholder	Stephanie Stevens	202.354.2102 <a href="mailto:stephanie_stephens@nps.gov">stephanie_stephens@nps.gov</a>

## 8 Deliverables

### 8.1 Periodic Updates

The PPO in coordination and under the guidance of the CA will provide periodic (bimonthly) updates on the progress of cable installation via email to the stakeholders. The communication will include project progress, discussion of unanticipated cultural resources, and the schedule for future work.

### 8.2 Annual Report

The CA will provide an annual report detailing the activities completed under the Supplemental CRMP to the DOE and NYSHPO for as long as the CRMP (2021) is in effect. This report will be completed and submitted on or before January 10<sup>th</sup> each year. This report will include a summary of all historic properties and archeological resources that may have been encountered during construction and how they were treated. Post construction reports will identify which cultural resources were monitored and provide a summary of resource conditions and whether forms of disturbance were noted.

## 9 Summary of Recommended Archeological Effort

In Package 7A of Segment 11, there are 16 Splice locations and vaults proposed, six are within areas of high archeological sensitivity and recommended for archeological testing or monitoring (Table 8). Ten HDDs are proposed, most of the pits are within the permitted route but three work areas extend beyond and therefore testing or monitoring is recommended.

Two Off-Site Access Roads will be placed near known archeological sites. Archeological testing or monitoring efforts are recommended for the Access Road proposed between US Route 9W and the CSX ROW near Station 70258+00. Another Off-Site Access Road further south that will also connect US Route 9W and the CSX ROW near Station 70337+00 passes immediately adjacent to a known family cemetery (Gardiner Cemetery, 03904.000043). Site protection measures are warranted here in the form of additional fencing, signage, and call-outs on the construction sheets.

Nine deviation areas in which a temporary access road will be placed parallel to the cable route but outside of the permitted route have been identified. Three are near archeological sites or high sensitivity areas, and therefore archeological testing or monitoring is recommended.

In all, 15 areas have been identified for additional archeological testing or monitoring. Another area contains a family cemetery that is well-marked, but additional protective measures are warranted to ensure the protection and preservation of the site/cemetery. In total, 14 areas are recommended for site protection measures or additional archeological efforts (Table 8).



Table 8. Resources and Recommendations in Package 7A of Segment 11, Town and Village of Catskill.

<b>Activity</b>	<b>Stations</b>	<b>Location/Activity</b>	<b>Conditions</b>	<b>Resources</b>	<b>Recommendation</b>
S11-1	70000+00 to 70055+00	Parallel access road and work areas.	Appears undisturbed.	High Sensitivity and Greene County Waste Parcel 2 (03904.000090)	Test or Monitor.*
HDD 111.B	70002+15 to 70009+80	HDD avoids difficult topography. Boring pits within permitted route. Work areas extend outside.	Northern work area is level and undisturbed. Southern area is steeply sloped.	High Sensitivity.	Test or Monitor* northern HDD work area.
Splice 230	70019+35	Outside permitted route along with work area.	Appears undisturbed.	High Sensitivity.	Test or Monitor.*
HDD 112	70036+23 to 70045+85	HDD avoids wetlands and steep slopes. Boring pits within permitted route. Work areas extend outside.	Appears undisturbed.	High Sensitivity.	Test or Monitor* both HDD work areas.
Splice 231	70051+32	Outside permitted route.	Appears undisturbed.	High Sensitivity.	Test or Monitor.*
S11-5	70150+00 to 70166+00	Temporary access road outside permitted route.	Appears undisturbed.	High Sensitivity.	Test or Monitor.*
Splice 236	70170+75	Outside permitted route.	Level and undisturbed.	High Sensitivity.	Test or Monitor.*
HDD 120	70172+35 to 70187+05	Work areas for pits extend outside permitted route. Under stream and ravine.	Appears undisturbed.	High Sensitivity.	Test or Monitor.*
Splice 237	70203+13	Within permitted route. Work area extends outside.	Level and undisturbed.	High Sensitivity.	Test or Monitor.*
Access Road- Rte 9W	70258+00	Access road from US Route 9W to CSX ROW.	Appears sloped and is an informal access road. East side of tracks is undisturbed.	High Sensitivity	Test or Monitor.*
Splice 239	70266+42	Within permitted route, work area extends beyond.	Appears undisturbed.	High Sensitivity	Test or Monitor work area only.*
S11-7	70276+00 to 70307+00	Largely along existing access road.	Likely disturbed.	High Sensitivity	Test or Monitor.* (70284+00 to 70289+00)
Splice 241	70327+90	Outside permitted route along CSX ROW.	Appears undisturbed.	High Sensitivity.	Test or Monitor.*
Access Road Rte 9W	70337+00	Access road from US Route 9W to CSX ROW.	Along an existing informal access road.	(03904.000043). Gardiner Cemetery (Site 33).	Site protection measures.
Splice 244	70424+86	Outside permitted route with associated parking area, along CSX ROW.	Appears undisturbed.	High Sensitivity.	Test or Monitor.*

\* The area may be shovel-tested by a qualified archeologist prior to construction or monitored by a qualified archeologist during construction, see Sections 2.2 and 6, respectively.

## **10 Bibliography**

New York Archaeological Council (NYAC)

- 1994 *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State*. NYAC, n.p.

TRC

- 2021 Champlain Hudson Power Express HVDC Transmission Line Project, Cultural Resources Management Plan (Final), on file at OPRHP, Peebles Island, New York.

## **Appendix 1: Champlain Hudson Power Express Cultural Resources Management Plan (CRMP)**

**THIS DOCUMENT IS CONSIDERED PRIVILEGED AND CONFIDENTIAL AND NOT INCLUDED**



## **Appendix 2: SHPO Human Remains Protocol 2021**

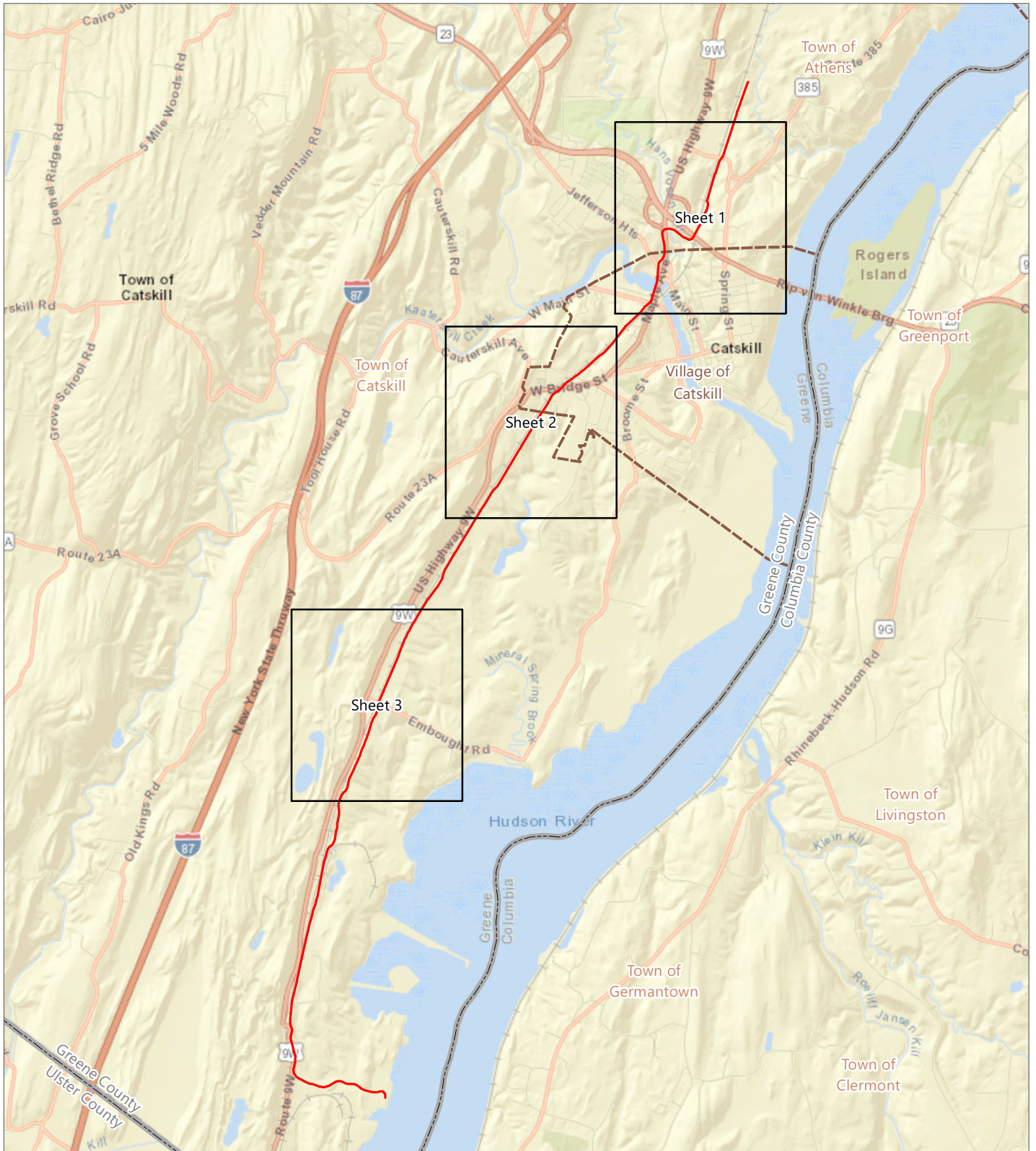
**State Historic Preservation Office/  
New York State Office of Parks, Recreation and Historic Preservation  
Human Remains Discovery Protocol  
(January 2021)**

If human remains are encountered during construction or archaeological investigations, the New York State Historic Preservation Office (SHPO) recommends that the following protocol is implemented.

- Human remains shall be treated with dignity and respect. Should human remains or suspected human remains be encountered, work in the general area of the discovery shall stop immediately and the location shall be secured and protected from damage and disturbance.
- If skeletal remains are identified and the archaeologist is not able to conclusively determine if they are human, the remains and any associated materials shall be left in place. A qualified forensic anthropologist, bioarchaeologist or physical anthropologist shall assess the remains in situ to help determine if they are human.
- If the remains are determined to be human, law enforcement, the SHPO, the appropriate Indian Nations, and the involved state and federal agencies shall be notified immediately. If law enforcement determines that the burial site is not a criminal matter, no skeletal remains or associated materials shall be removed until appropriate consultation takes place.
- If human remains are determined to be Native American, they shall be left in place and protected from further disturbance until a plan for their avoidance or removal is developed. Please note that avoidance is the preferred option of the SHPO and the Indian Nations. The involved agency shall consult SHPO and the appropriate Indian Nations to develop a plan of action. Photographs of Native American human remains and associated materials should not be taken without consulting with the involved Indian Nations.
- If human remains are determined to be non-Native American, the remains shall be left in place and protected from further disturbance until a plan for their avoidance or removal is developed. Please note that avoidance is the preferred option of the SHPO. The involved agency shall consult SHPO and other appropriate parties to develop a plan of action.
- The SHPO recommends that burial information is not released to the public to protect burial sites from possible looting.

Appendix E

Receiving Waters Maps



**CHPE EM&CP**

Greene County, New York

— Package 7A

**SWPPP Report**







**CHPE EM&CP**

Albany and Greene Counties, New York

**SWPPP Report**

NYSDEC Mapped Stream

— Class C or D Stream

— Waterbody

— Package 7A

