CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

RhA - Rhinebeck silty clay loam, 0 to 3 percent slopes

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

RhA - Rhinebeck silty clay loam, 0 to 3 percent slopes

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

EDR

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

- BuB - Burdett silt loam, 3 to 8 percent slopes
- RhA - Rhinebeck silty clay loam, 0 to 3 percent slopes
- Mapped Soil Boundary
- Study Area

0 25 50 100
Feet

Prepared March 21, 2023
Basemap: NYSDOP "2021" orthoimagery map service.

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

BuB - Burdett silt loam, 3 to 8 percent slopes

RhA - Rhinebeck silty clay loam, 0 to 3 percent slopes

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

RhA - Rhinebeck silty clay loam, 0 to 3 percent slopes

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

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Basemap: NYSDOP "2021" orthoimagery map service.

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

RhA - Rhinebeck silty clay loam, 0 to 3 percent slopes

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

- NuC - Nunda silt loam, 8 to 15 percent slopes
- RhA - Rhinebeck silty clay loam, 0 to 3 percent slopes
- Uh - Udorthents, clayey-Urban land complex

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

- NuC - Nunda silt loam, 8 to 15 percent slopes
- RhA - Rhinebeck silty clay loam, 0 to 3 percent slopes
- ScA - Scio silt loam, 0 to 3 percent slopes
- Uh - Udorthents, clayey-Urban land complex

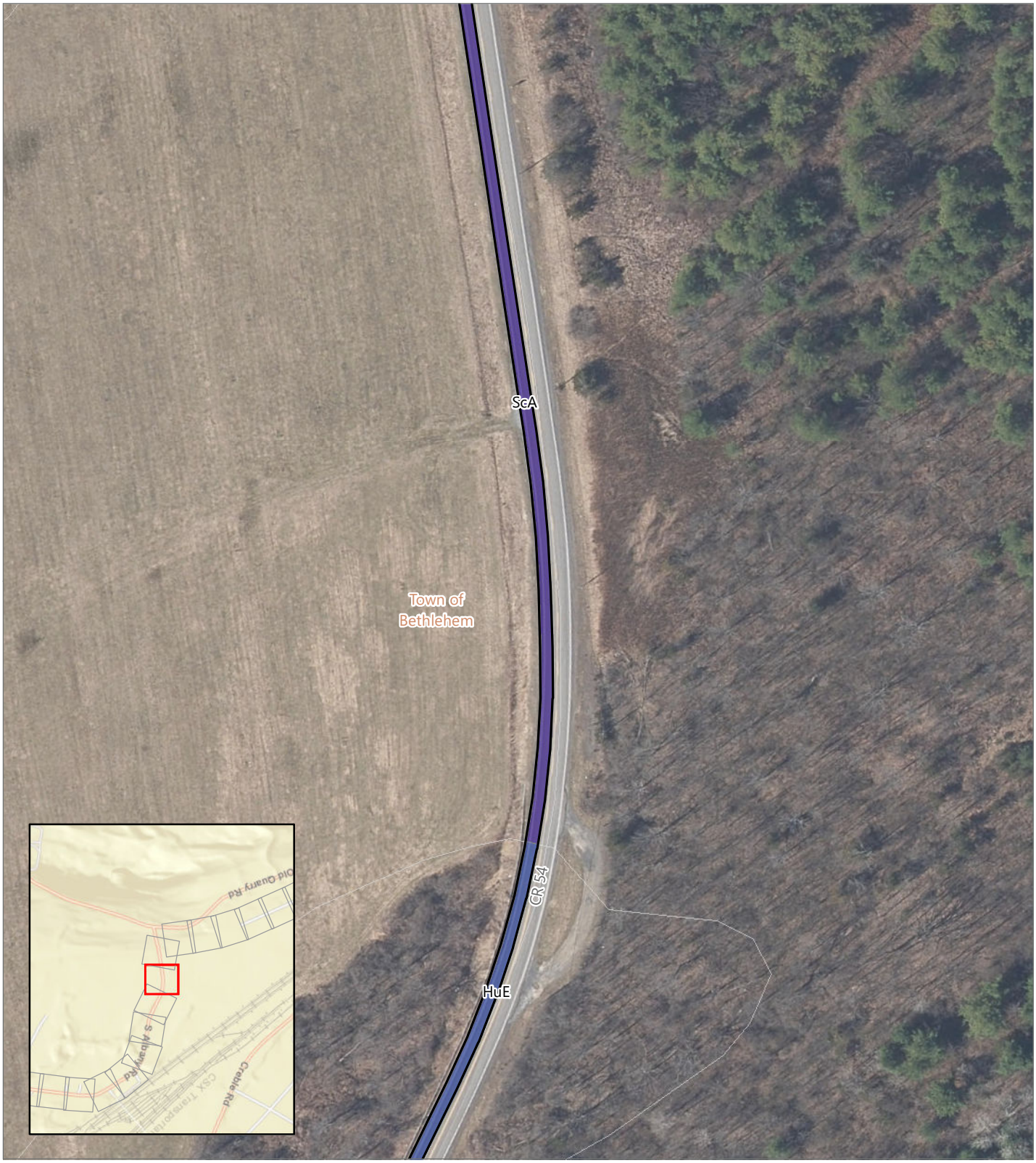
- Mapped Soil Boundary
- Study Area

0 25 50 100

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.



CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

HuE - Hudson silt loam, 25 to 45 percent slopes

ScA - Scio silt loam, 0 to 3 percent slopes

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

HuE - Hudson silt loam, 25 to 45 percent slopes

ScA - Scio silt loam, 0 to 3 percent slopes

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

ScA - Scio silt loam, 0 to 3 percent slopes

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

HuE - Hudson silt loam, 25 to 45 percent slopes

ScA - Scio silt loam, 0 to 3 percent slopes

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

- HuE - Hudson silt loam, 25 to 45 percent slopes
- ScA - Scio silt loam, 0 to 3 percent slopes

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

ScA - Scio silt loam, 0 to 3 percent slopes

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

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CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

ScA - Scio silt loam, 0 to 3 percent slopes

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

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CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

ScA - Scio silt loam, 0 to 3 percent slopes

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

- HuE - Hudson silt loam, 25 to 45 percent slopes
- ScA - Scio silt loam, 0 to 3 percent slopes
- Wa - Wakeland silt loam

- Mapped Soil Boundary
- Study Area

0 25 50 100

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

- HuC - Hudson silt loam, 8 to 15 percent slopes
- HuE - Hudson silt loam, 25 to 45 percent slopes
- ScA - Scio silt loam, 0 to 3 percent slopes
- Wa - Wakeland silt loam

- Mapped Soil Boundary
- Study Area

0 25 50 100

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

- HuB - Hudson silt loam, 3 to 8 percent slopes
- HuC - Hudson silt loam, 8 to 15 percent slopes
- HuE - Hudson silt loam, 25 to 45 percent slopes

- Mapped Soil Boundary
- Study Area

0 25 50 100

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

HuB - Hudson silt loam, 3 to 8 percent slopes

RhA - Rhinebeck silty clay loam, 0 to 3 percent slopes

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

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CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

RhA - Rhinebeck silty clay loam, 0 to 3 percent slopes

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

- Fx - Fluvaquents-Udifluvents complex, frequently flooded
- HuE - Hudson silt loam, 25 to 45 percent slopes
- RhA - Rhinebeck silty clay loam, 0 to 3 percent slopes

- Mapped Soil Boundary
- Study Area

0 25 50 100

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

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CHPE EM&CP

Albany County, New York

SWPPP Report

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- HuE - Hudson silt loam, 25 to 45 percent slopes
- RhA - Rhinebeck silty clay loam, 0 to 3 percent slopes
- RhB - Rhinebeck silty clay loam, 3 to 8 percent slopes

- Mapped Soil Boundary
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Feet

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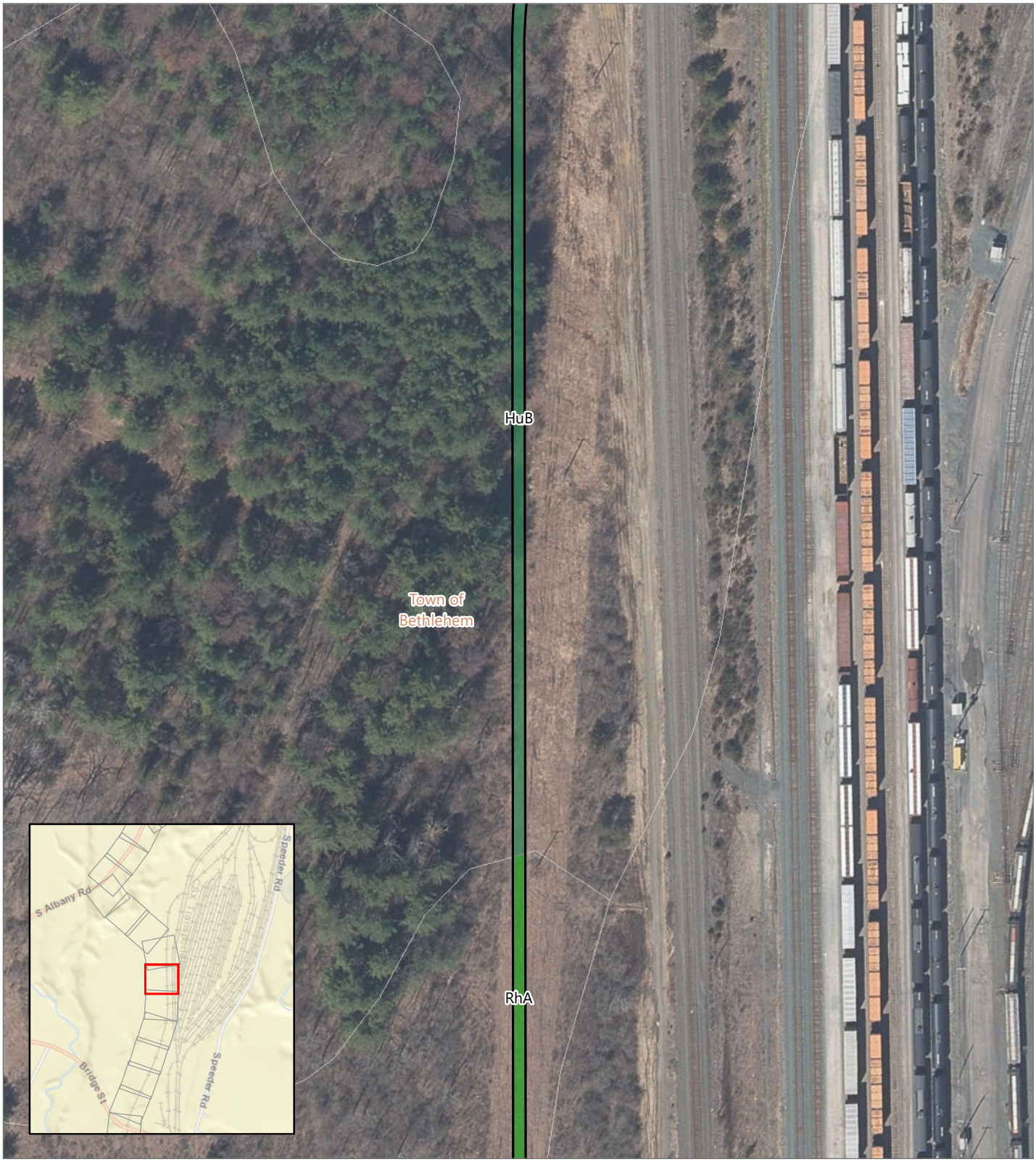

CHPE EM&CP

Albany County, New York

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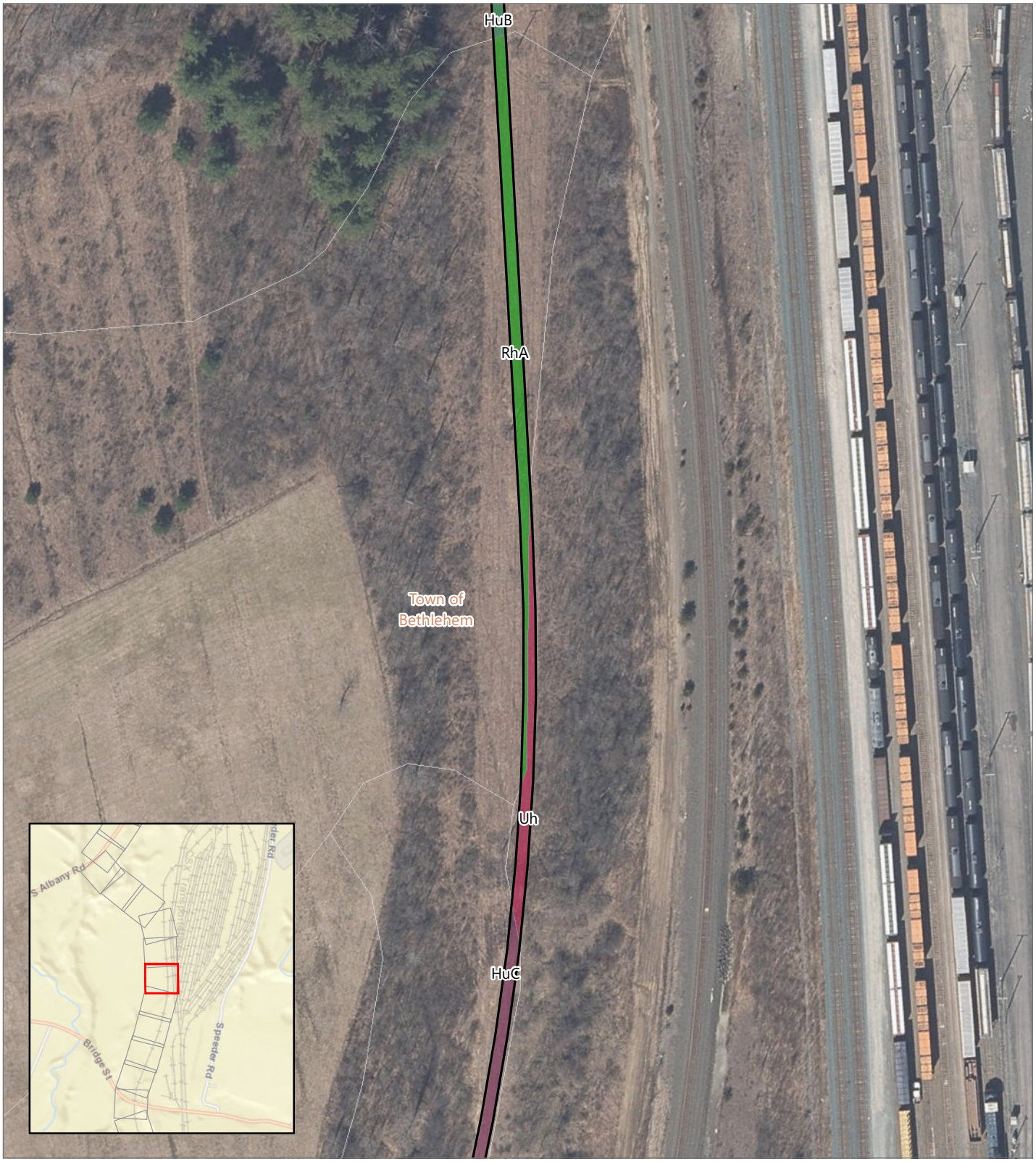

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

- HuB - Hudson silt loam, 3 to 8 percent slopes
- HuC - Hudson silt loam, 8 to 15 percent slopes
- RhA - Rhinebeck silty clay loam, 0 to 3 percent slopes
- Uh - Udorthents, clayey-Urban land complex

- Mapped Soil Boundary
- Study Area

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Albany County, New York

SWPPP Report

Soil Type

- HuC - Hudson silt loam, 8 to 15 percent slopes
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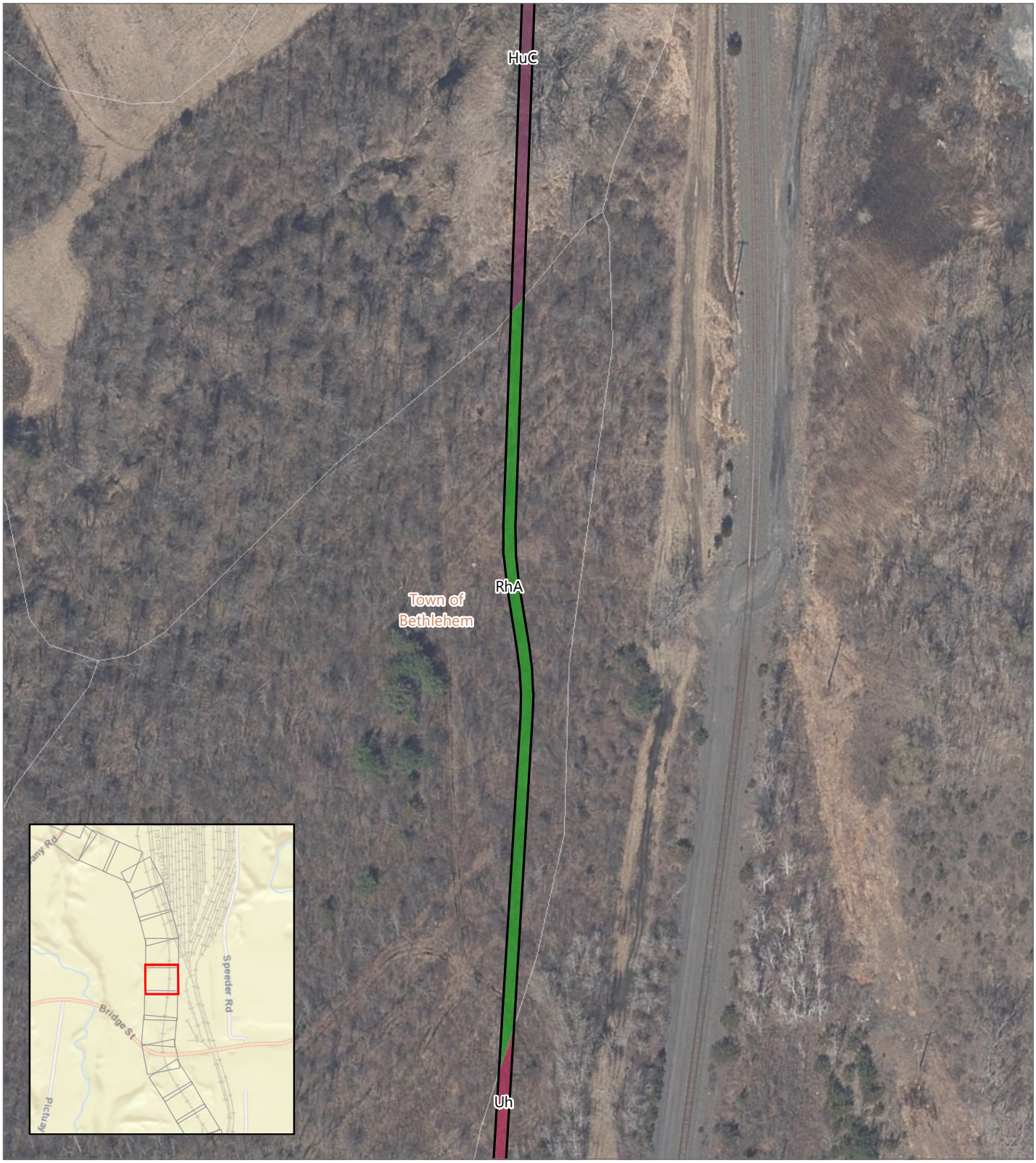

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

- HuC - Hudson silt loam, 8 to 15 percent slopes
- RhA - Rhinebeck silty clay loam, 0 to 3 percent slopes
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- Mapped Soil Boundary
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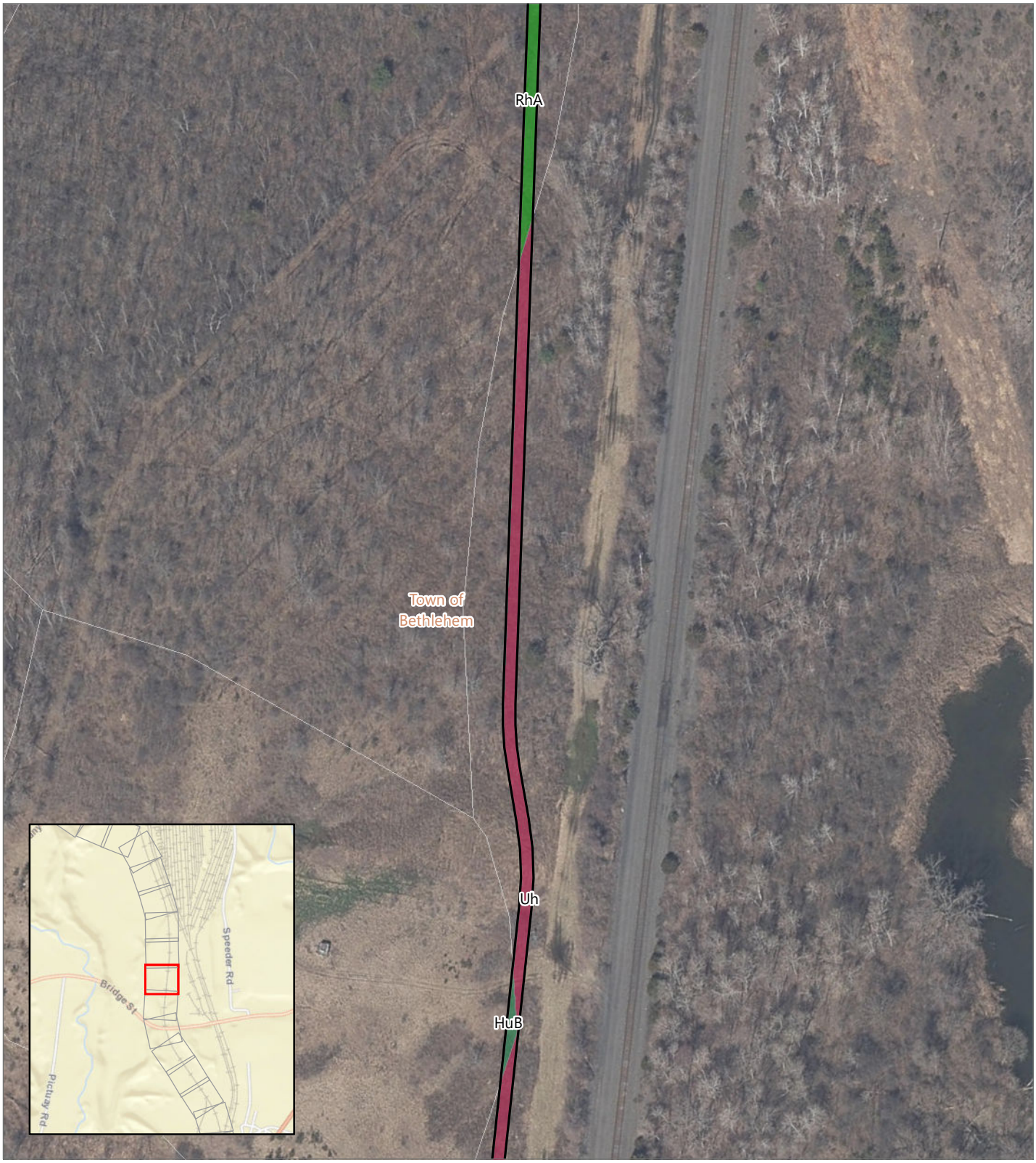


CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

- HuB - Hudson silt loam, 3 to 8 percent slopes
- RhA - Rhinebeck silty clay loam, 0 to 3 percent slopes
- Uh - Udorthents, clayey-Urban land complex

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

- HuB - Hudson silt loam, 3 to 8 percent slopes
- HuE - Hudson silt loam, 25 to 45 percent slopes
- Uh - Udorthents, clayey-Urban land complex

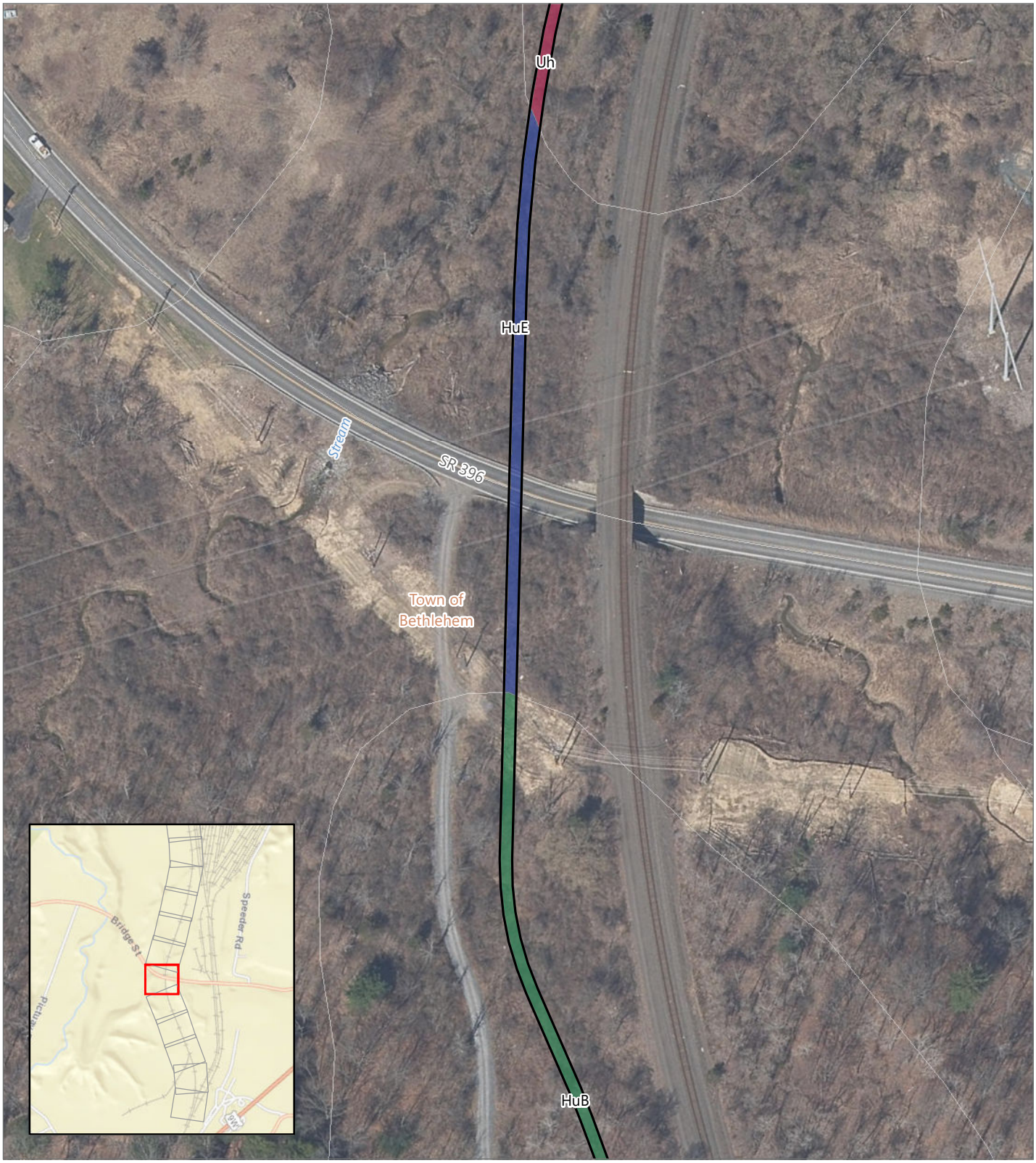
- Mapped Soil Boundary
- Study Area

0 25 50 100

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.



CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

- HuB - Hudson silt loam, 3 to 8 percent slopes
- HuE - Hudson silt loam, 25 to 45 percent slopes
- Uh - Udorthents, clayey-Urban land complex

- Mapped Soil Boundary
- Study Area

0 25 50 100

Feet

Prepared March 21, 2023

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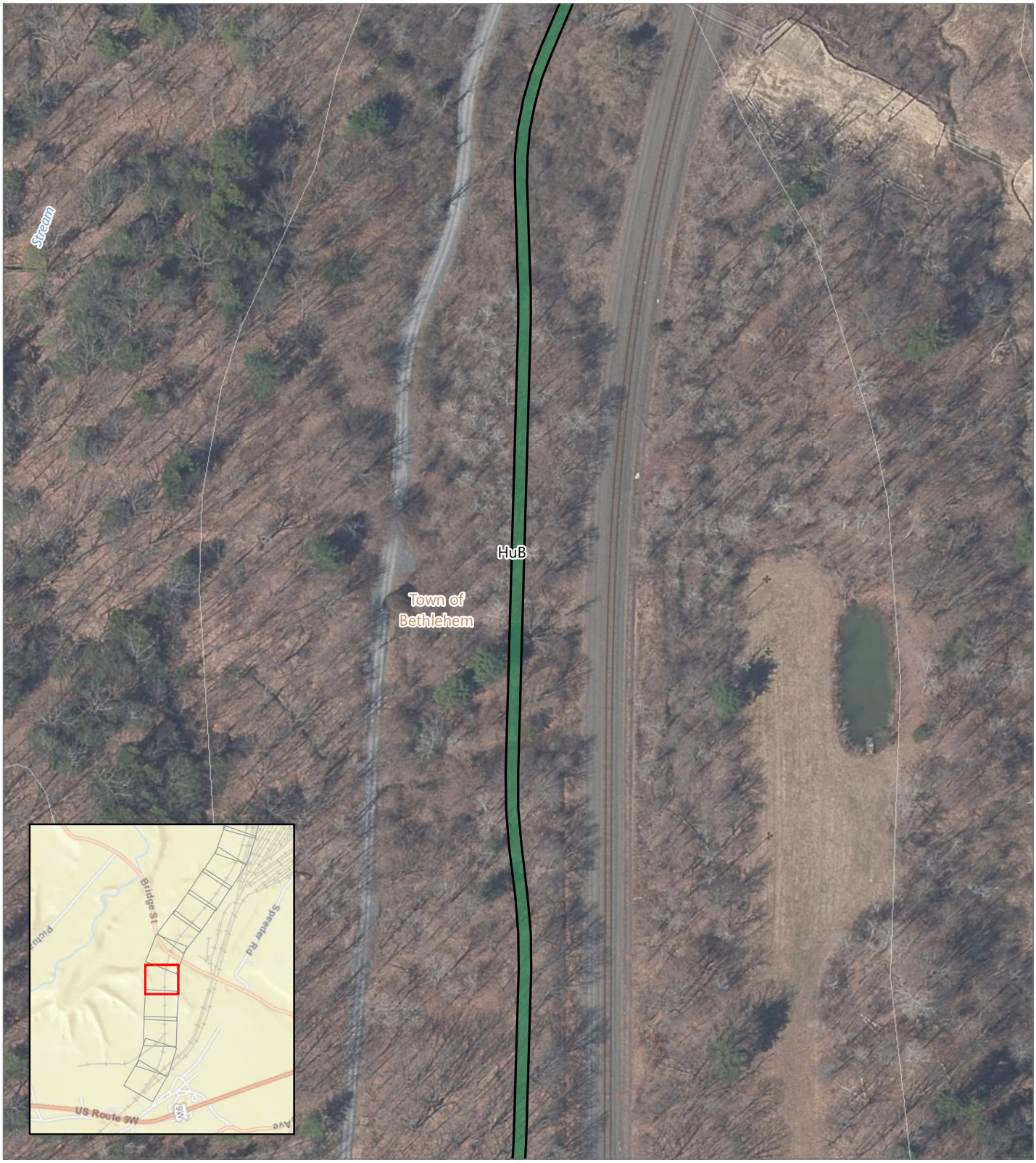


CHPE EM&CP

Albany County, New York

Soil Type

HuB - Hudson silt loam, 3 to 8 percent slopes

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

SWPPP Report

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

HuB - Hudson silt loam, 3 to 8 percent slopes

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

- CoB - Burdett silt loam, 3 to 8 percent slopes
- HuB - Hudson silt loam, 3 to 8 percent slopes

- Mapped Soil Boundary
- Study Area

0 25 50 100

Feet

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

- CoB - Burdett silt loam, 3 to 8 percent slopes
- EnA - Elnora loamy fine sand, 0 to 3 percent slopes
- HuB - Hudson silt loam, 3 to 8 percent slopes
- St - Stafford loamy fine sand

- Mapped Soil Boundary
- Study Area

0 25 50 100

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

CHPE EM&CP

Albany County, New York

SWPPP Report

Soil Type

EnA - Elnora loamy fine sand, 0 to 3 percent slopes

St - Stafford loamy fine sand

Mapped Soil Boundary

Study Area

0 25 50 100

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

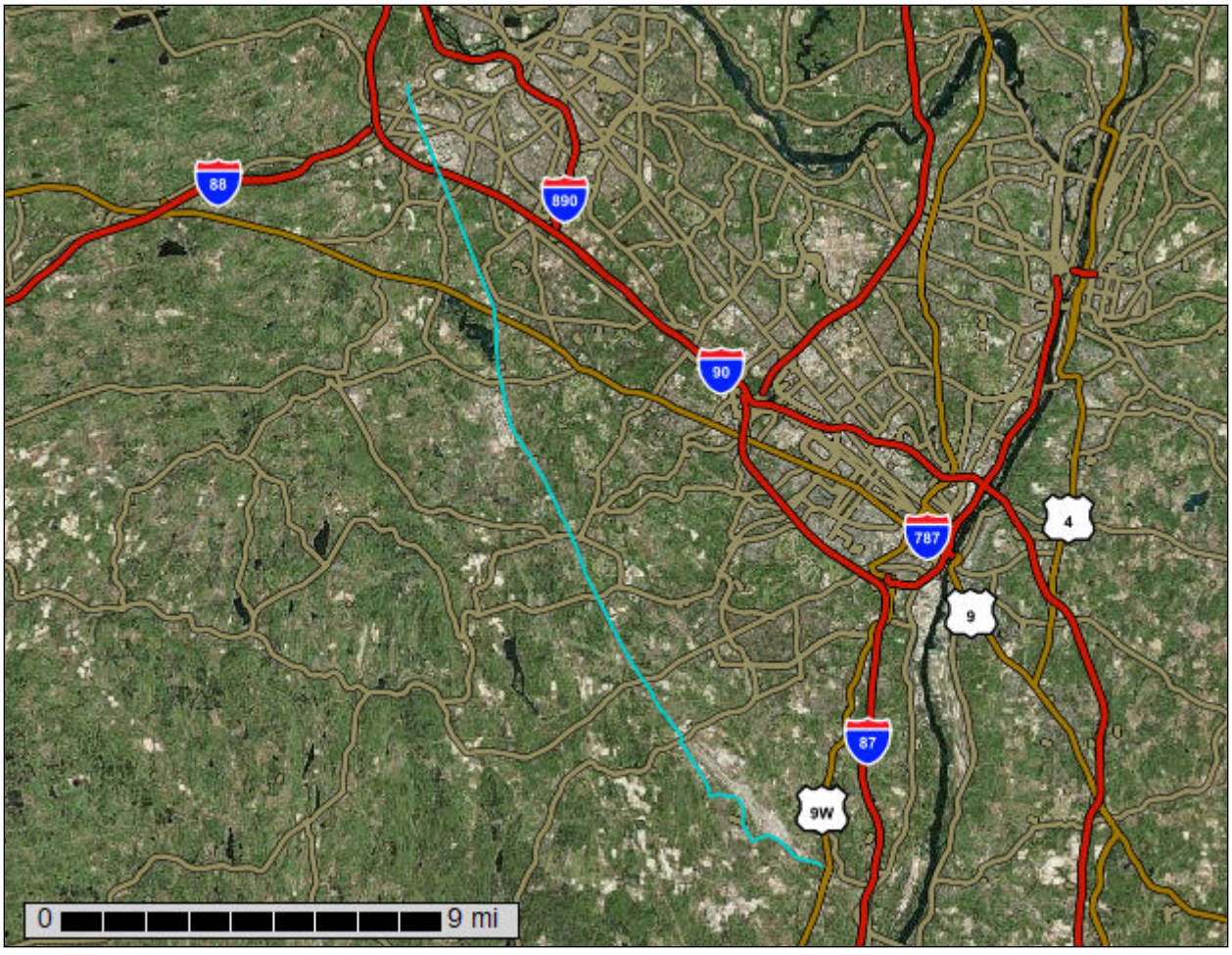
United States Department of Agriculture

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 Albany County, New York, and Schenectady County, New York



March 22, 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).

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.

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Contents

Preface..... 2
Soil Map..... 6
Soil Map.....7
Legend.....8
Map Unit Descriptions..... 10
Albany County, New York.....12
Br—Birdsall mucky silt loam.....12
BuA—Burdett silt loam, 0 to 3 percent slopes.....13
BuB—Burdett silt loam, 3 to 8 percent slopes.....14
CeA—Castile gravelly loam, 0 to 3 percent slopes..... 15
ChB—Chenango gravelly silt loam, loamy substratum, 3 to 8 percent slopes.....17
ChC—Chenango gravelly silt loam, loamy substratum, rolling..... 18
CkB—Chenango channery silt loam, fan, 3 to 8 percent slopes..... 19
ClB—Claverack loamy fine sand, 3 to 8 percent slopes..... 20
CoB—Colonie loamy fine sand, 3 to 8 percent slopes.....22
CoC—Colonie loamy fine sand, rolling.....23
CoD—Colonie loamy fine sand, hilly.....24
Cs—Cosad loamy fine sand.....26
ElA—Elmridge fine sandy loam, 0 to 3 percent slopes..... 27
ElB—Elmridge fine sandy loam, 3 to 8 percent slopes..... 28
EnA—Elnora loamy fine sand, 0 to 3 percent slopes.....30
EnB—Elnora loamy fine sand, 3 to 8 percent slopes.....31
Fx—Fluvaquents-Udifluvents complex, frequently flooded..... 32
Gr—Granby loamy fine sand.....34
HuB—Hudson silt loam, 3 to 8 percent slopes.....36
HuC—Hudson silt loam, 8 to 15 percent slopes.....37
HuD—Hudson silt loam, hilly.....38
HuE—Hudson silt loam, 25 to 45 percent slopes.....40
In—Ilion silt loam.....41
Ma—Madalin silt loam, 0 to 3 percent slopes.....42
NuB—Nunda silt loam, 3 to 8 percent slopes.....44
NuC—Nunda silt loam, 8 to 15 percent slopes..... 45
Ra—Raynham very fine sandy loam.....47
RhA—Rhinebeck silty clay loam, 0 to 3 percent slopes..... 49
RhB—Rhinebeck silty clay loam, 3 to 8 percent slopes..... 50
RkA—Riverhead fine sandy loam, 0 to 3 percent slopes..... 51
RkB—Riverhead fine sandy loam, 3 to 8 percent slopes..... 52
RkC—Riverhead fine sandy loam, 8 to 15 percent slopes.....54
ScA—Scio silt loam, 0 to 3 percent slopes.....55
ScB—Scio silt loam, 3 to 8 percent slopes.....56
Sh—Shaker fine sandy loam.....57
St—Stafford loamy fine sand.....59
SuA—Sudbury fine sandy loam, 0 to 3 percent slopes..... 61

Te—Teel silt loam..... 62
Ug—Udorthents, loamy..... 64
Uh—Udorthents, clayey-Urban land complex..... 64
Uk—Udorthents, loamy-Urban land complex..... 66
UnC—Unadilla silt loam, 8 to 15 percent slopes..... 67
UnD—Unadilla silt loam, 15 to 25 percent slopes..... 68
Ur—Urban land..... 69
VaB—Valois gravelly loam, 3 to 8 percent slopes..... 70
W—Water..... 71
Wa—Wakeland silt loam..... 71
Wo—Wayland soils complex, non-calcareous substratum, 0 to 3 percent slopes, frequently flooded..... 72
Schenectady County, New York..... 75
Ce—Cheektowaga fine sandy loam..... 75
ClA—Claverack loamy fine sand, 0 to 3 percent slopes..... 76
ClB—Claverack loamy fine sand, 3 to 8 percent slopes..... 77
CoC—Colonie loamy fine sand, 3 to 15 percent slopes..... 79
En—Elnora loamy fine sand..... 80
FL—Fluvaquents, loamy..... 81
Gr—Granby loamy fine sand..... 82
HTF—Howard soils, very steep..... 83
HuB—Hudson silty clay loam, 3 to 8 percent slopes..... 85
Ju—Junius loamy fine sand..... 86
Ma—Madalin silty clay loam, 0 to 3 percent slopes..... 88
MrB—Mardin gravelly silt loam, 3 to 8 percent slopes..... 90
OtB—Otisville gravelly loamy sand, 0 to 8 percent slopes..... 91
PsA—Plainfield loamy sand, 0 to 3 percent slopes..... 92
RhA—Rhinebeck silty clay loam, 0 to 3 percent slopes..... 93
RhB—Rhinebeck silty clay loam, 3 to 8 percent slopes..... 95
Wy—Wayland soils complex, 0 to 3 percent slopes, frequently flooded..... 96

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.

Custom Soil Resource Report
Soil Map

Map Scale: 1:174,000 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 2500 5000 10000 15000

Feet
0 5000 10000 20000 30000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

Soil Survey Area: Albany County, New York
Survey Area Data: Version 20, Sep 10, 2022

Soil Survey Area: Schenectady County, New York
Survey Area Data: Version 21, Sep 10, 2022

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

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

Date(s) aerial images were photographed: Jan 1, 1999—Dec 31, 2003

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

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, 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.

Albany County, New York

Br—Birdsall mucky silt loam

Map Unit Setting

National map unit symbol: 9pdr
Elevation: 50 to 1,980 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Birdsall

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Glaciolacustrine deposits comprised mainly of silt and very fine sand

Typical profile

H1 - 0 to 8 inches: mucky silt loam
H2 - 8 to 15 inches: silt loam
H3 - 15 to 64 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Very high (about 12.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Ecological site: F144AY031MA - Very Wet Outwash
Hydric soil rating: Yes

Minor Components

Raynham

Percent of map unit: 10 percent
Landform: Depressions

Hydric soil rating: Yes

Shaker

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

BuA—Burdett silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9pds
Elevation: 400 to 1,600 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

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

Description of Burdett

Setting

Landform: Till plains, hills, drumlinoid ridges
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: A thin silt mantle overlying till that is strongly influenced by shale

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 13 inches: silt loam
H3 - 13 to 43 inches: gravelly silty clay loam
H4 - 43 to 68 inches: gravelly silty clay 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): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

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

Minor Components

Nunda

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

Madalin

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

Ilion

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

BuB—Burdett silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9pdt
Elevation: 400 to 1,600 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

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

Description of Burdett

Setting

Landform: Till plains, hills, drumlinoid ridges
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: A thin silt mantle overlying till that is strongly influenced by shale

Typical profile

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

H3 - 13 to 43 inches: gravelly silty clay loam
H4 - 43 to 68 inches: gravelly silty clay 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): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

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

Minor Components

Ilion

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

Nunda

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

Madalin

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

CeA—Castile gravelly loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9pf0
Elevation: 110 to 1,670 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Castile and similar soils: 85 percent
Minor components: 15 percent

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

Description of Castile

Setting

Landform: Terraces, valley trains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
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 5 inches: gravelly loam
H2 - 5 to 28 inches: gravelly loam
H3 - 28 to 60 inches: very gravelly sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A/D
Ecological site: F140XY022NY - Moist Outwash
Hydric soil rating: No

Minor Components

Chenango

Percent of map unit: 8 percent
Hydric soil rating: No

Busti

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

Unnamed soils

Percent of map unit: 2 percent

ChB—Chenango gravelly silt loam, loamy substratum, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9pf5
Elevation: 200 to 1,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Chenango, loamy substratum, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chenango, Loamy Substratum

Setting

Landform: Terraces, valley trains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
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 11 inches: gravelly silt loam
H2 - 11 to 57 inches: gravelly silt loam
H3 - 57 to 74 inches: very gravelly silt loam

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): 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 5.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F140XY021NY - Dry Outwash
Hydric soil rating: No

Minor Components

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

Unnamed soils
Percent of map unit: 2 percent

Palms
Percent of map unit: 1 percent
Landform: Marshes, swamps
Hydric soil rating: Yes

Carlisle
Percent of map unit: 1 percent
Landform: Marshes, swamps
Hydric soil rating: Yes

Rhinebeck
Percent of map unit: 1 percent
Hydric soil rating: No

ChC—Chenango gravelly silt loam, loamy substratum, rolling

Map Unit Setting
National map unit symbol: 9pf6
Elevation: 200 to 1,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Chenango, loamy substratum, rolling, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chenango, Loamy Substratum, Rolling

Setting
Landform: Terraces, valley trains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
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 11 inches: gravelly silt loam

H2 - 11 to 57 inches: gravelly silt loam
H3 - 57 to 74 inches: very gravelly silt loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 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 5.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: F140XY021NY - Dry Outwash
Hydric soil rating: No

Minor Components

Castile

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

Valois

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

Unnamed soils

Percent of map unit: 1 percent

Chautauqua

Percent of map unit: 1 percent
Hydric soil rating: No

CkB—Chenango channery silt loam, fan, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9pf8
Elevation: 110 to 1,900 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Chenango, fan, and similar soils: 85 percent
Minor components: 15 percent

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

Description of Chenango, Fan

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
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 11 inches: channery silt loam
H2 - 11 to 57 inches: channery silt loam
H3 - 57 to 74 inches: very channery silt loam

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): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F140XY021NY - Dry Outwash
Hydric soil rating: No

Minor Components

Castile

Percent of map unit: 8 percent
Hydric soil rating: No

Unnamed soils

Percent of map unit: 7 percent

CIB—Claverack loamy fine sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9pfb
Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 41 inches

Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Claverack

Setting

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

Typical profile

H1 - 0 to 9 inches: loamy fine sand
H2 - 9 to 26 inches: loamy fine sand
H3 - 26 to 60 inches: silty clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

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

Minor Components

Elnora

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

Colonie

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

Elmridge

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

Unnamed soils
Percent of map unit: 2 percent

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

Stafford
Percent of map unit: 1 percent
Hydric soil rating: No

CoB—Colonie loamy fine sand, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 9pfd
Elevation: 150 to 1,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Colonie and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colonie

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

Typical profile
H1 - 0 to 7 inches: loamy fine sand
H2 - 7 to 68 inches: loamy fine sand
H3 - 68 to 74 inches: loamy fine 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 to very high (1.98 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

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

Minor Components

Unnamed soils

Percent of map unit: 7 percent

Elnora

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

Claverack

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

CoC—Colonie loamy fine sand, rolling

Map Unit Setting

National map unit symbol: 9pff
Elevation: 150 to 1,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Colonie, Rolling

Setting

Landform: Deltas, beach ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy glaciofluvial or eolian deposits

Typical profile

H1 - 0 to 7 inches: loamy fine sand
H2 - 7 to 68 inches: loamy fine sand
H3 - 68 to 74 inches: loamy fine sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (1.98 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: F101XY005NY - Dry Outwash
Hydric soil rating: No

Minor Components

Unnamed soils

Percent of map unit: 9 percent

Claverack

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

Granby

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

CoD—Colonie loamy fine sand, hilly

Map Unit Setting

National map unit symbol: 9pfg
Elevation: 150 to 1,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Colonie, Hilly

Setting

Landform: Deltas, beach ridges

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy glaciofluvial or eolian deposits

Typical profile

H1 - 0 to 7 inches: loamy fine sand
H2 - 7 to 68 inches: loamy fine sand
H3 - 68 to 74 inches: loamy fine sand

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (1.98 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

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

Minor Components

Unnamed soils

Percent of map unit: 5 percent

Elnora

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

Unadilla

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

Stafford

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

Hudson

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

Cs—Cosad loamy fine sand

Map Unit Setting

National map unit symbol: 9pfj
Elevation: 200 to 800 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

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

Description of Cosad

Setting

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

Typical profile

H1 - 0 to 9 inches: loamy fine sand
H2 - 9 to 18 inches: loamy fine sand
H3 - 18 to 26 inches: loamy sand
H4 - 26 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 18 to 40 inches to strongly contrasting textural stratification
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F101XY006NY - Moist Outwash

Hydric soil rating: No

Minor Components

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

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

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

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

Unnamed soils
Percent of map unit: 2 percent

ElA—Elmridge fine sandy loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 9pfl
Elevation: 80 to 330 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Elmridge and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elmridge

Setting
Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Loamy over clayey glaciolacustrine or marine deposits

Typical profile
H1 - 0 to 9 inches: fine sandy loam
H2 - 9 to 20 inches: fine sandy loam

H3 - 20 to 60 inches: clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 18 to 40 inches to strongly contrasting textural stratification
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: F144AY018NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Shaker, somewhat poorly drained

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

Unnamed soils

Percent of map unit: 4 percent

Claverack

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

Shaker, poorly drained

Percent of map unit: 2 percent
Hydric soil rating: Yes

Cosad

Percent of map unit: 1 percent
Hydric soil rating: No

ElB—Elmridge fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9pfm
Elevation: 20 to 390 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Elmridge and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elmridge

Setting

Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Loamy over clayey glaciolacustrine or marine deposits

Typical profile

H1 - 0 to 9 inches: fine sandy loam
H2 - 9 to 20 inches: fine sandy loam
H3 - 20 to 60 inches: clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 18 to 40 inches to strongly contrasting textural stratification
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: F144AY018NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Shaker

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

Claverack

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

Unnamed soils

Percent of map unit: 2 percent

EnA—Elnora loamy fine sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9pfn
Elevation: 50 to 430 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Elnora

Setting

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

Typical profile

H1 - 0 to 11 inches: loamy fine sand
H2 - 11 to 27 inches: fine sand
H3 - 27 to 65 inches: loamy fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

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

Minor Components

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

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

Unnamed soils
Percent of map unit: 4 percent

Granby
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

EnB—Elnora loamy fine sand, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 9pfp
Elevation: 80 to 440 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Elnora and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elnora

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

Typical profile
H1 - 0 to 11 inches: loamy fine sand
H2 - 11 to 27 inches: fine sand
H3 - 27 to 65 inches: loamy fine sand

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): High (1.98 to 5.95 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A/D
Ecological site: F144AY027MA - Moist Sandy Outwash
Hydric soil rating: No

Minor Components

Stafford

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

Colonie

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

Unnamed soils

Percent of map unit: 4 percent

Granby

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

Fx—Fluvaquents-Udifluvents complex, frequently flooded

Map Unit Setting

National map unit symbol: 9pfw
Elevation: 100 to 3,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Fluvaquents, frequently flooded, and similar soils: 45 percent
Udifluvents, frequently flooded, and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fluvaquents, Frequently Flooded

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Alluvium with highly variable texture

Typical profile

H1 - 0 to 5 inches: gravelly silt loam
H2 - 5 to 70 inches: very gravelly sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: NoneFrequent
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Ecological site: F101XY003NY - Low Floodplain Depression
Hydric soil rating: Yes

Description of Udifluvents, Frequently Flooded

Setting

Landform: Flood plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium with a wide range of texture

Typical profile

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

Properties and qualities

Slope: 0 to 3 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 high (0.06 to 5.95 in/hr)
Depth to water table: About 24 to 72 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent

Available water supply, 0 to 60 inches: Moderate (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A
Ecological site: F101XY002NY - Low Floodplain
Hydric soil rating: No

Minor Components

Unnamed soils

Percent of map unit: 10 percent

Medihemists

Percent of map unit: 5 percent
Landform: Marshes, swamps
Hydric soil rating: Yes

Hydraquents

Percent of map unit: 4 percent
Landform: Marshes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Unnamed soils, shallow

Percent of map unit: 1 percent

Gr—Granby loamy fine sand

Map Unit Setting

National map unit symbol: 9pfx
Elevation: 600 to 1,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Granby

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy glaciofluvial deposits or sandy glaciolacustrine deposits

Typical profile

H1 - 0 to 11 inches: loamy fine sand
H2 - 11 to 25 inches: fine sand
H3 - 25 to 60 inches: sand

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): High to very high (5.95 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: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Ecological site: F101XY010NY - Wet Lake Plain Depression
Hydric soil rating: Yes

Minor Components

Adrian

Percent of map unit: 5 percent
Landform: Marshes, swamps
Hydric soil rating: Yes

Unnamed soils

Percent of map unit: 3 percent

Stafford

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

Medihemists

Percent of map unit: 3 percent
Landform: Swamps, marshes
Hydric soil rating: Yes

Hydraquents

Percent of map unit: 2 percent
Landform: Marshes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Fluvaquents

Percent of map unit: 2 percent

Landform: Flood plains
Hydric soil rating: Yes

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

HuB—Hudson silt loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 9pg5
Elevation: 300 to 1,800 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Hudson and similar soils: 90 percent
Minor components: 10 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 11 inches: silt loam
H2 - 11 to 16 inches: silty clay loam
H3 - 16 to 31 inches: silty clay
H4 - 31 to 60 inches: 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: 15 percent
Available water supply, 0 to 60 inches: High (about 9.7 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

Minor Components

Rhinebeck

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

Unnamed soils

Percent of map unit: 2 percent

Madalin

Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

Claverack

Percent of map unit: 1 percent
Hydric soil rating: No

HuC—Hudson silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9pg6
Elevation: 300 to 1,800 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hudson and similar soils: 90 percent
Minor components: 10 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 11 inches: silt loam
H2 - 11 to 16 inches: silty clay loam
H3 - 16 to 31 inches: silty clay
H4 - 31 to 60 inches: 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: 15 percent
Available water supply, 0 to 60 inches: High (about 9.7 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
Hydric soil rating: No

Minor Components

Rhinebeck

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

Unnamed soils

Percent of map unit: 4 percent

Madalin

Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

HuD—Hudson silt loam, hilly

Map Unit Setting

National map unit symbol: 9pg7
Elevation: 300 to 1,800 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Hudson, hilly, and similar soils: 85 percent

Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hudson, Hilly

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 11 inches: silt loam
H2 - 11 to 16 inches: silty clay loam
H3 - 16 to 31 inches: silty clay
H4 - 31 to 60 inches: 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
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C/D
Ecological site: F144AY018NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Unnamed soils

Percent of map unit: 6 percent

Rhinebeck

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

Unnamed soils, eroded

Percent of map unit: 4 percent

HuE—Hudson silt loam, 25 to 45 percent slopes

Map Unit Setting

National map unit symbol: 9pg8
Elevation: 300 to 1,800 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Hudson and similar soils: 85 percent
Minor components: 15 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 11 inches: silt loam
H2 - 11 to 16 inches: silty clay loam
H3 - 16 to 31 inches: silty clay
H4 - 31 to 60 inches: clay

Properties and qualities

Slope: 25 to 45 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: High (about 9.7 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

Minor Components

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

Unnamed soils
Percent of map unit: 5 percent

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

Udifluvents
Percent of map unit: 1 percent
Hydric soil rating: No

Fluvaquents
Percent of map unit: 1 percent
Landform: Flood plains
Hydric soil rating: Yes

In—Ilion silt loam

Map Unit Setting
National map unit symbol: 9pg9
Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Ilion and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ilion

Setting
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy till derived from calcareous dark shale

Typical profile
H1 - 0 to 12 inches: silt loam
H2 - 12 to 32 inches: silty clay loam
H3 - 32 to 60 inches: gravelly silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: F101XY014NY - Wet Till Depression
Hydric soil rating: Yes

Minor Components

Madalin

Percent of map unit: 4 percent
Landform: Depressions
Hydric soil rating: Yes

Unnamed soils

Percent of map unit: 4 percent

Burdett

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

Ma—Madalin silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2spk0
Elevation: 230 to 930 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Madalin

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Brown clayey glaciolacustrine deposits derived from calcareous shale

Typical profile

Ap - 0 to 8 inches: silt loam
Btg1 - 8 to 16 inches: silty clay loam
Btg2 - 16 to 25 inches: silty clay
Btg3 - 25 to 33 inches: silty clay
C - 33 to 79 inches: stratified silt to clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 0 to 8 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: F101XY010NY - Wet Lake Plain Depression
Hydric soil rating: Yes

Minor Components

Rhinebeck

Percent of map unit: 5 percent
Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Canandaigua

Percent of map unit: 4 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave

Hydric soil rating: Yes

Fonda

Percent of map unit: 4 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Cosad

Percent of map unit: 2 percent
Landform: Lake plains
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

NuB—Nunda silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9ph2
Elevation: 400 to 1,600 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Nunda

Setting

Landform: Till plains, hills, drumlinoid ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: A silty mantle over loamy till derived from calcareous shale and siltstone

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 20 inches: silt loam
2B/E - 20 to 28 inches: silt loam
2Bt - 28 to 44 inches: silty clay loam

2C - 44 to 64 inches: clay 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): Moderately low to moderately high (0.03 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: 5 percent
Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

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

Minor Components

Unnamed soils

Percent of map unit: 5 percent

Burdett

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

Angola

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

Ilion

Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

NuC—Nunda silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9ph3
Elevation: 400 to 1,600 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Nunda and similar soils: 90 percent
Minor components: 10 percent

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

Description of Nunda

Setting

Landform: Till plains, hills, drumlinoid ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: A silty mantle over loamy till derived from calcareous shale and siltstone

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 20 inches: silt loam
2B/E - 20 to 28 inches: silt loam
2Bt - 28 to 44 inches: silty clay loam
2C - 44 to 64 inches: clay 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): Moderately low to moderately high (0.03 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: 5 percent
Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

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

Minor Components

Burdett

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

Angola

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

Unnamed soils

Percent of map unit: 1 percent

Ilion

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

Ra—Raynham very fine sandy loam

Map Unit Setting

National map unit symbol: 9phg
Elevation: 50 to 500 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Raynham, poorly drained, and similar soils: 50 percent
Raynham, somewhat poorly drained, and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Raynham, Poorly Drained

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Glaciolacustrine, eolian, or old alluvial deposits, comprised mainly of silt and very fine sand

Typical profile

H1 - 0 to 11 inches: very fine sandy loam
H2 - 11 to 24 inches: very fine sandy loam
H3 - 24 to 60 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: High (about 11.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F101XY010NY - Wet Lake Plain Depression
Hydric soil rating: Yes

Description of Raynham, Somewhat Poorly Drained

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Glaciolacustrine, eolian, or old alluvial deposits, comprised mainly of silt and very fine sand

Typical profile

H1 - 0 to 11 inches: very fine sandy loam
H2 - 11 to 24 inches: very fine sandy loam
H3 - 24 to 60 inches: 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): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: High (about 11.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F101XY010NY - Wet Lake Plain Depression
Hydric soil rating: No

Minor Components

Unnamed soils, somewhat poorly drained

Percent of map unit: 8 percent

Scio

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

Birdsall

Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

Unnamed soils

Percent of map unit: 2 percent

Shaker

Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

Cosad

Percent of map unit: 1 percent
Hydric soil rating: No

RhA—Rhinebeck silty clay loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9phh
Elevation: 80 to 1,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Rhinebeck and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rhinebeck

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile

H1 - 0 to 7 inches: silty clay loam
H2 - 7 to 34 inches: silty clay
H3 - 34 to 64 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: 15 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: 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

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

RhB—Rhinebeck silty clay loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 9phj
Elevation: 80 to 1,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition
Rhinebeck and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rhinebeck

Setting
Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile
H1 - 0 to 7 inches: silty clay loam
H2 - 7 to 34 inches: silty clay
H3 - 34 to 64 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: 15 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: C/D
Ecological site: F144AY018NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Raynham

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

Madalin

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

Claverack

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

RkA—Riverhead fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9phk
Elevation: 130 to 950 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Riverhead and similar soils: 85 percent
Minor components: 15 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 11 inches: fine sandy loam
H2 - 11 to 25 inches: fine sandy loam
H3 - 25 to 31 inches: loamy fine sand
H4 - 31 to 65 inches: gravelly fine 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 4.8 inches)

Interpretive groups

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

Minor Components

Sudbury

Percent of map unit: 7 percent
Hydric soil rating: No

Colonie

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

Unnamed soils

Percent of map unit: 4 percent

RkB—Riverhead fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9phl
Elevation: 0 to 1,380 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Riverhead

Setting

Landform: Terraces, deltas
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 11 inches: fine sandy loam
H2 - 11 to 25 inches: fine sandy loam
H3 - 25 to 31 inches: loamy fine sand
H4 - 31 to 65 inches: gravelly fine 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 4.8 inches)

Interpretive groups

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

Minor Components

Sudbury

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

Colonie

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

Unadilla

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

Scio

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

RkC—Riverhead fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9phm
Elevation: 110 to 1,280 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Riverhead and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Riverhead

Setting

Landform: Terraces, deltas
Landform position (two-dimensional): Shoulder
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 11 inches: fine sandy loam
H2 - 11 to 25 inches: fine sandy loam
H3 - 25 to 31 inches: loamy fine sand
H4 - 31 to 65 inches: gravelly fine sand

Properties and qualities

Slope: 8 to 15 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 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: F101XY005NY - Dry Outwash
Hydric soil rating: No

Minor Components

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

Unnamed soils
Percent of map unit: 3 percent

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

ScA—Scio silt loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 9phn
Elevation: 100 to 1,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Scio and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scio

Setting
Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Glaciolacustrine deposits, eolian deposits, or old alluvium, comprised mainly of silt and very fine sand

Typical profile
H1 - 0 to 8 inches: silt loam
H2 - 8 to 65 inches: silt loam

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None

Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.4 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F144AY026CT - Moist Silty Outwash
Hydric soil rating: No

Minor Components

Unnamed soils
Percent of map unit: 5 percent

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

Raynham
Percent of map unit: 5 percent
Hydric soil rating: Yes

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

ScB—Scio silt loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 9php
Elevation: 100 to 1,000 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Scio and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scio

Setting
Landform: Lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Glaciolacustrine deposits, eolian deposits, or old alluvium, comprised mainly of silt and very fine sand

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 65 inches: silt 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): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B/D
Ecological site: F144AY026CT - Moist Silty Outwash
Hydric soil rating: No

Minor Components

Raynham

Percent of map unit: 5 percent
Hydric soil rating: Yes

Elmridge

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

Unadilla

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

Unnamed soils

Percent of map unit: 5 percent

Sh—Shaker fine sandy loam

Map Unit Setting

National map unit symbol: 9phq
Elevation: 130 to 1,310 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Shaker, poorly drained, and similar soils: 50 percent

Shaker, somewhat poorly drained, and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Shaker, Poorly Drained

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy over clayey glaciolacustrine or glaciomarine deposits

Typical profile

H1 - 0 to 11 inches: fine sandy loam
H2 - 11 to 31 inches: fine sandy loam
H3 - 31 to 62 inches: clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 18 to 40 inches to strongly contrasting textural stratification
Drainage class: 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 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F101XY010NY - Wet Lake Plain Depression
Hydric soil rating: Yes

Description of Shaker, Somewhat Poorly Drained

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy over clayey glaciolacustrine or glaciomarine deposits

Typical profile

H1 - 0 to 11 inches: fine sandy loam
H2 - 11 to 31 inches: fine sandy loam
H3 - 31 to 62 inches: clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 18 to 40 inches to strongly contrasting textural stratification

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: 1 percent
Available water supply, 0 to 60 inches: Low (about 5.0 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F101XY010NY - Wet Lake Plain Depression
Hydric soil rating: No

Minor Components

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

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

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

Unnamed soils
Percent of map unit: 5 percent

St—Stafford loamy fine sand

Map Unit Setting
National map unit symbol: 9phr
Elevation: 130 to 430 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Stafford and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stafford

Setting

Landform: Beach ridges, deltas
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Sandy glaciofluvial or glaciolacustrine deposits

Typical profile

H1 - 0 to 12 inches: loamy fine sand
H2 - 12 to 30 inches: loamy fine sand
H3 - 30 to 60 inches: fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (1.98 to 19.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A/D
Ecological site: F101XY006NY - Moist Outwash
Hydric soil rating: No

Minor Components

Elnora

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

Granby

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

Unnamed soils

Percent of map unit: 5 percent

Colonie

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

SuA—Sudbury fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9phs
Elevation: 50 to 970 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Sudbury

Setting

Landform: Outwash plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits

Typical profile

H1 - 0 to 11 inches: fine sandy loam
H2 - 11 to 20 inches: fine sandy loam
H3 - 20 to 29 inches: loamy sand
H4 - 29 to 48 inches: loamy sand
H5 - 48 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: F144AY027MA - Moist Sandy Outwash
Hydric soil rating: No

Minor Components

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

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

Unnamed soils
Percent of map unit: 2 percent

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

Unadilla
Percent of map unit: 1 percent
Hydric soil rating: No

Colonie
Percent of map unit: 1 percent
Hydric soil rating: No

Te—Teel silt loam

Map Unit Setting
National map unit symbol: 9phv
Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Teel and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Teel

Setting
Landform: Flood plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Silty alluvium

Typical profile
H1 - 0 to 8 inches: silt loam

H2 - 8 to 29 inches: silt loam
H3 - 29 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F101XY002NY - Low Floodplain
Hydric soil rating: No

Minor Components

Wakeland

Percent of map unit: 5 percent
Landform: Flood plains
Hydric soil rating: No

Hamlin

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

Raynham

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

Scio

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

Unnamed soils

Percent of map unit: 2 percent

Rhinebeck

Percent of map unit: 1 percent
Hydric soil rating: No

Wayland

Percent of map unit: 1 percent
Landform: Flood plains
Hydric soil rating: Yes

Ug—Udorthents, loamy

Map Unit Setting

National map unit symbol: 9pj1
Elevation: 0 to 1,640 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents, loamy, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents, Loamy

Typical profile

H1 - 0 to 4 inches: loam
H2 - 4 to 70 inches: channery loam

Properties and qualities

Slope: 0 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 high (0.06 to 5.95 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 5.5 inches)

Minor Components

Unnamed soils

Percent of map unit: 10 percent

Uh—Udorthents, clayey-Urban land complex

Map Unit Setting

National map unit symbol: 9pj2
Elevation: 20 to 310 feet
Mean annual precipitation: 36 to 41 inches

Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents, clayey, and similar soils: 40 percent
Urban land: 30 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents, Clayey

Typical profile

H1 - 0 to 18 inches: silty clay
H2 - 18 to 72 inches: stratified silt loam to clay

Properties and qualities

Slope: 0 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 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Description of Urban Land

Typical profile

H1 - 0 to 6 inches: variable

Minor Components

Scio

Percent of map unit: 10 percent
Hydric soil rating: No

Hudson

Percent of map unit: 10 percent
Hydric soil rating: No

Rhinebeck

Percent of map unit: 7 percent
Hydric soil rating: No

Madalin

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

Uk—Udorthents, loamy-Urban land complex

Map Unit Setting

National map unit symbol: 9pj3
Elevation: 0 to 1,440 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents, loamy, and similar soils: 40 percent
Urban land: 30 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents, Loamy

Typical profile

H1 - 0 to 4 inches: loam
H2 - 4 to 70 inches: channery loam

Properties and qualities

Slope: 0 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): Moderately low to high (0.06 to 5.95 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 5.5 inches)

Minor Components

Nunda

Percent of map unit: 10 percent
Hydric soil rating: No

Valois

Percent of map unit: 10 percent
Hydric soil rating: No

Riverhead

Percent of map unit: 9 percent
Hydric soil rating: No

Ilion

Percent of map unit: 1 percent

Landform: Depressions
Hydric soil rating: Yes

UnC—Unadilla silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9pj6
Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Unadilla

Setting

Landform: Lake plains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Glaciolacustrine deposits, eolian deposits, or old alluvium, comprised mainly of silt and very fine sand

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 64 inches: silt loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F144AY024NY - Well Drained Eolian Outwash
Hydric soil rating: No

Minor Components

Hudson
Percent of map unit: 7 percent
Hydric soil rating: No

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

Raynham
Percent of map unit: 3 percent
Hydric soil rating: Yes

UnD—Unadilla silt loam, 15 to 25 percent slopes

Map Unit Setting
National map unit symbol: 9pj7
Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition
Unadilla and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Unadilla

Setting
Landform: Lake plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Glaciolacustrine deposits, eolian deposits, or old alluvium, comprised mainly of silt and very fine sand

Typical profile
H1 - 0 to 9 inches: silt loam
H2 - 9 to 64 inches: silt loam

Properties and qualities
Slope: 15 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F144AY024NY - Well Drained Eolian Outwash
Hydric soil rating: No

Minor Components

Hudson

Percent of map unit: 8 percent
Hydric soil rating: No

Colonie

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

Riverhead

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

Ur—Urban land

Map Unit Setting

National map unit symbol: 9pj8
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Typical profile

H1 - 0 to 6 inches: variable

Minor Components

Unnamed soils

Percent of map unit: 10 percent

Udorthents

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

VaB—Valois gravelly loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9pjc
Elevation: 600 to 1,750 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Valois

Setting

Landform: Valley sides, lateral moraines, end moraines
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from sandstone, siltstone, and shale

Typical profile

H1 - 0 to 8 inches: gravelly loam
H2 - 8 to 30 inches: gravelly loam
H3 - 30 to 46 inches: gravelly loam
H4 - 46 to 60 inches: very gravelly loam

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): Moderately high to high (0.57 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: 2 percent
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F101XY012NY - Till Upland
Hydric soil rating: No

Minor Components

Chenango
Percent of map unit: 10 percent
Hydric soil rating: No

Unnamed soils
Percent of map unit: 5 percent

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

W—Water

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

Wa—Wakeland silt loam

Map Unit Setting
National map unit symbol: 9pjh
Elevation: 340 to 950 feet
Mean annual precipitation: 36 to 41 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 100 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition
Wakeland and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wakeland

Setting
Landform: Flood plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Silty alluvium

Typical profile
H1 - 0 to 9 inches: silt loam
H2 - 9 to 62 inches: silt 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): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 12 to 36 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very high (about 12.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C
Ecological site: F144AY015NY - Wet Silty Low Floodplain
Hydric soil rating: No

Minor Components

Wayland

Percent of map unit: 5 percent
Landform: Flood plains
Hydric soil rating: Yes

Teel

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

Raynham

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

Unnamed soils

Percent of map unit: 3 percent

Rhinebeck

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

Wo—Wayland soils complex, non-calcareous substratum, 0 to 3 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2srgt
Elevation: 160 to 1,970 feet
Mean annual precipitation: 31 to 70 inches
Mean annual air temperature: 43 to 52 degrees F
Frost-free period: 105 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Wayland and similar soils: 60 percent
Wayland, very poorly drained, and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wayland

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty and clayey alluvium derived from interbedded sedimentary rock

Typical profile

Ap - 0 to 9 inches: silt loam
Bg - 9 to 21 inches: silt loam
Cg1 - 21 to 28 inches: silt loam
Cg2 - 28 to 47 inches: silt loam
Cg3 - 47 to 54 inches: silt loam
Cg4 - 54 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 13.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F140XY015NY - Wet Low Floodplain
Hydric soil rating: Yes

Description of Wayland, Very Poorly Drained

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty and clayey alluvium derived from interbedded sedimentary rock

Typical profile

A - 0 to 9 inches: mucky silt loam

Bg - 9 to 21 inches: silt loam
Cg1 - 21 to 28 inches: silt loam
Cg2 - 28 to 47 inches: silt loam
Cg3 - 47 to 54 inches: silt loam
Cg4 - 54 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: NoneFrequent
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 13.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F140XY015NY - Wet Low Floodplain
Hydric soil rating: Yes

Minor Components

Holderton

Percent of map unit: 10 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Schenectady County, New York

Ce—Cheektowaga fine sandy loam

Map Unit Setting

National map unit symbol: bd3p
Elevation: 200 to 800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Cheektowaga

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy deltaic deposits over clayey glaciolacustrine deposits

Typical profile

H1 - 0 to 9 inches: fine sandy loam
H2 - 9 to 18 inches: loamy fine sand
H3 - 18 to 26 inches: loamy fine sand
H4 - 26 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
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: 10 percent
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: F101XY007NY - Wet Outwash
Hydric soil rating: Yes

Minor Components

Palms
Percent of map unit: 5 percent
Landform: Swamps, marshes
Hydric soil rating: Yes

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

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

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

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

ClA—Claverack loamy fine sand, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: bd3s
Elevation: 600 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Claverack and similar soils: 75 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Claverack

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

Typical profile

H1 - 0 to 11 inches: loamy fine sand
H2 - 11 to 30 inches: loamy fine sand
H3 - 30 to 60 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

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

Minor Components

Cheektowaga

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

CIB—Claverack loamy fine sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: bd3t
Elevation: 600 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Claverack

Setting

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

Typical profile

H1 - 0 to 11 inches: loamy fine sand
H2 - 11 to 30 inches: loamy fine sand
H3 - 30 to 60 inches: silty clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

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

Minor Components

Colonie

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

Junius

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

Cheektowaga

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

Plainfield

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

Elnora

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

CoC—Colonie loamy fine sand, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 1qcvw
Elevation: 150 to 1,000 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Colonie and similar soils: 75 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colonie

Setting

Landform: Deltas, beach ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy glaciofluvial or eolian deposits

Typical profile

H1 - 0 to 6 inches: loamy fine sand
H2 - 6 to 70 inches: fine sand
H3 - 70 to 110 inches: fine sand

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (1.98 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: F101XY005NY - Dry Outwash
Hydric soil rating: No

En—Elnora loamy fine sand

Map Unit Setting

National map unit symbol: bd42
Elevation: 230 to 620 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Elnora

Setting

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

Typical profile

H1 - 0 to 9 inches: loamy fine sand
H2 - 9 to 48 inches: loamy fine sand
H3 - 48 to 60 inches: loamy fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 14 to 24 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): 2w
Hydrologic Soil Group: A/D
Ecological site: F101XY006NY - Moist Outwash
Hydric soil rating: No

FL—Fluvaquents, loamy

Map Unit Setting

National map unit symbol: bd44
Elevation: 300 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Fluvaquents

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Alluvium with highly variable texture

Typical profile

H1 - 0 to 5 inches: gravelly silt loam
H2 - 5 to 70 inches: very gravelly silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 19.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: NoneFrequent
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F101XY003NY - Low Floodplain Depression
Hydric soil rating: Yes

Minor Components

Granby

Percent of map unit: 5 percent

Landform: Depressions
Hydric soil rating: Yes

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

Wayland
Percent of map unit: 5 percent
Landform: Flood plains
Hydric soil rating: Yes

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

Saprists
Percent of map unit: 3 percent
Landform: Swamps, marshes
Hydric soil rating: Yes

Aquents
Percent of map unit: 2 percent
Landform: Flood plains
Hydric soil rating: Yes

Gr—Granby loamy fine sand

Map Unit Setting
National map unit symbol: bd49
Elevation: 600 to 1,000 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition
Granby and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Granby

Setting
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy glaciofluvial deposits or sandy glaciolacustrine deposits

Typical profile

H1 - 0 to 11 inches: loamy fine sand
H2 - 11 to 26 inches: loamy fine sand
H3 - 26 to 60 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 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: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Ecological site: F101XY010NY - Wet Lake Plain Depression
Hydric soil rating: Yes

Minor Components

Palms

Percent of map unit: 5 percent
Landform: Swamps, marshes
Hydric soil rating: Yes

Plainfield

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

Junius

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

Cheektowaga

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

Elnora

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

HTF—Howard soils, very steep

Map Unit Setting

National map unit symbol: bd4c

Elevation: 230 to 1,030 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Howard

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, containing significant amounts of limestone

Typical profile

H1 - 0 to 9 inches: gravelly silt loam
H2 - 9 to 19 inches: very gravelly sandy loam
H3 - 19 to 60 inches: very gravelly sandy loam
H4 - 60 to 64 inches: stratified very gravelly loamy sand

Properties and qualities

Slope: 25 to 70 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: F101XY005NY - Dry Outwash
Hydric soil rating: No

Minor Components

Palmyra

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

Mohawk

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

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

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

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

HuB—Hudson silty clay loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: bd4q
Elevation: 300 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Hudson and similar soils: 75 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 6 inches: silty clay loam
H2 - 6 to 12 inches: silty clay loam
H3 - 12 to 26 inches: silty clay
H4 - 26 to 60 inches: stratified clay to silt 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): 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 9.6 inches)

Interpretive groups

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

Minor Components

Rhinebeck

Percent of map unit: 8 percent
Hydric soil rating: No

Odessa

Percent of map unit: 7 percent
Hydric soil rating: No

Unnamed soils

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

Churchville

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

Ju—Junius loamy fine sand

Map Unit Setting

National map unit symbol: bd4y
Elevation: 100 to 650 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Junius, Poorly Drained

Setting

Landform: Deltas on lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave

Across-slope shape: Linear
Parent material: Calcareous sandy glaciolacustrine or deltaic deposits

Typical profile

H1 - 0 to 10 inches: loamy fine sand
H2 - 10 to 48 inches: loamy fine sand
H3 - 48 to 60 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 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 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F101XY006NY - Moist Outwash
Hydric soil rating: Yes

Description of Junius, Somewhat Poorly Drained

Setting

Landform: Deltas on lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Calcareous sandy glaciolacustrine or deltaic deposits

Typical profile

H1 - 0 to 10 inches: loamy fine sand
H2 - 10 to 48 inches: loamy fine sand
H3 - 48 to 60 inches: 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): High (1.98 to 5.95 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D

Ecological site: F101XY006NY - Moist Outwash
Hydric soil rating: No

Minor Components

Granby
Percent of map unit: 7 percent
Landform: Depressions
Hydric soil rating: Yes

Cheektowaga
Percent of map unit: 7 percent
Landform: Depressions
Hydric soil rating: Yes

Claverack
Percent of map unit: 6 percent
Hydric soil rating: No

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

Ma—Madalin silty clay loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 2spjz
Elevation: 330 to 1,200 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Madalin and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Madalin

Setting
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Brown clayey glaciolacustrine deposits derived from calcareous shale

Typical profile
Ap - 0 to 7 inches: silty clay loam

Bg - 7 to 9 inches: silty clay loam
Btg1 - 9 to 21 inches: clay
Btg2 - 21 to 30 inches: silty clay
Cg - 30 to 79 inches: stratified silt to clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 0 to 7 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Ecological site: F101XY010NY - Wet Lake Plain Depression
Hydric soil rating: Yes

Minor Components

Rhinebeck

Percent of map unit: 5 percent
Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Canandaigua

Percent of map unit: 4 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Fonda

Percent of map unit: 4 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Barre

Percent of map unit: 2 percent
Landform: Depressions

Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

MrB—Mardin gravelly silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: bd5k
Elevation: 800 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Mardin

Setting

Landform: Drumlinoid ridges, till plains, hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Loamy till derived mainly from acid sedimentary rock

Typical profile

H1 - 0 to 2 inches: gravelly silt loam
H2 - 2 to 27 inches: gravelly loam
H3 - 27 to 47 inches: gravelly silt loam
H4 - 47 to 60 inches: gravelly silt loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 14 to 27 inches to fragipan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C
Ecological site: F140XY024NY - Moist Dense Till
Hydric soil rating: No

Minor Components

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

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

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

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

OtB—Otisville gravelly loamy sand, 0 to 8 percent slopes

Map Unit Setting
National map unit symbol: bd65
Elevation: 260 to 740 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition
Otisville and similar soils: 80 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Otisville

Setting
Landform: Terraces, outwash plains, deltas
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits

Typical profile
H1 - 0 to 7 inches: gravelly loamy sand
H2 - 7 to 36 inches: very gravelly loamy sand
H3 - 36 to 60 inches: stratified very gravelly sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 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): 4s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

PsA—Plainfield loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: bd6j
Elevation: 720 to 1,150 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Plainfield

Setting

Landform: Terraces, outwash plains, deltas
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy glaciofluvial or deltaic deposits

Typical profile

H1 - 0 to 8 inches: loamy sand
H2 - 8 to 32 inches: coarse sand
H3 - 32 to 78 inches: coarse sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained

Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 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 3.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F101XY005NY - Dry Outwash
Hydric soil rating: No

Minor Components

Otisville

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

Alton

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

Colonie

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

Elnora

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

RhA—Rhinebeck silty clay loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: bd6p
Elevation: 80 to 1,000 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

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

Description of Rhinebeck

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile

H1 - 0 to 13 inches: silty clay loam
H2 - 13 to 28 inches: silty clay
H3 - 28 to 70 inches: stratified silt loam to 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 8.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F101XY009NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

Madalin

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

Churchville

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

Fonda

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

Hudson

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

Odessa

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

RhB—Rhinebeck silty clay loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: bd6q
Elevation: 80 to 1,000 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

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

Description of Rhinebeck

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile

H1 - 0 to 13 inches: silty clay loam
H2 - 13 to 28 inches: silty clay
H3 - 28 to 70 inches: stratified silt loam to 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 8.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F101XY009NY - Moist Lake Plain
Hydric soil rating: No

Minor Components

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

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

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

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

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

Wy—Wayland soils complex, 0 to 3 percent slopes, frequently flooded

Map Unit Setting
National map unit symbol: 2srgv
Elevation: 160 to 1,970 feet
Mean annual precipitation: 31 to 68 inches
Mean annual air temperature: 43 to 52 degrees F
Frost-free period: 105 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition
Wayland and similar soils: 60 percent
Wayland, very poorly drained, and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wayland

Setting
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Silty and clayey alluvium derived from interbedded sedimentary rock

Typical profile

A - 0 to 6 inches: silt loam
Bg1 - 6 to 12 inches: silt loam
Bg2 - 12 to 18 inches: silt loam
C1 - 18 to 46 inches: silt loam
C2 - 46 to 72 inches: silty clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 12.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F139XY009OH - Wet Floodplain
Hydric soil rating: Yes

Description of Wayland, Very Poorly Drained

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty and clayey alluvium derived from interbedded sedimentary rock

Typical profile

A - 0 to 6 inches: mucky silt loam
Bg1 - 6 to 12 inches: silt loam
Bg2 - 12 to 18 inches: silt loam
C1 - 18 to 46 inches: silt loam
C2 - 46 to 72 inches: silty clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: NoneFrequent
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 12.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F139XY009OH - Wet Floodplain
Hydric soil rating: Yes

Minor Components

Wakeville

Percent of map unit: 10 percent
Landform: Flood plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Appendix D

Historic Resource Plan

HARTGEN
archeological associates inc

SUPPLEMENTAL CULTURAL RESOURCES MANAGEMENT PLAN

Champlain Hudson Power Express HVDC Transmission Line Project
CSX: Rotterdam to Bethlehem (Segment 8, Package 5A)

[REDACTED- Public Version]

Lake Champlain to New York City
Schenectady and Albany Counties, New York

HAA 4268-83
SHPO 09PR03910

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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:	*Towns of Bethlehem, Guilderland, New Scotland, Rotterdam, Village of Voorheesville.*
County:	*Schenectady and Albany Counties*

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.* *This Supplemental CRMP addresses Project activities in Package 5A, Segment 8, Rotterdam to Bethlehem.*
Report Authors:	*Matt Lesniak, and 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 Segment 8 Activities 4
2.3 Objectives 4
2.4 Segment Overview 4
2.4.1 Splice Locations and Vaults 5
2.4.2 HDD 6
2.4.3 Access Roads 9
2.4.4 Deviations/Excursions from Permitted Route 10
2.4.5 Bridge Attachment 11
2.5 Historic/Archeological Properties within/along the Cable Route 14
2.5.1 Schenectady General Reserve Depot (USN 09305.000276) 14
2.5.2 NYSM/LP 6479 (vicinity) 14
2.5.3 Golub Late Archaic Site (09305.000255) (vicinity) 14
2.5.4 NYSM 7330, Army Depot Vicinity 14
2.5.5 NYSM 2780 (A720 and A722) 14
2.5.6 Coss High Bluff Sites (00106.0000405) (00106.000407) 14
2.5.7 Prehistoric Site (00106.000113) "Parker Site" and Black Creek Site-NYSM 346 15
3 Construction Timeline 15
4 Cultural Resource Management Plan 15
4.1 Objective 15
4.2 Heritage Areas, Special Events, and Other Resources 16
4.3 Project Preservation Officer (PPO) 16
4.4 Identification of Historic Properties 16
4.5 Reporting Requirements 17
4.6 Barriers and Other Protective Measures 17
4.7 Programmatic Allowances 18
4.7.1 Transportation Facilities 18
4.7.2 Ground Disturbing Activities 18
4.7.3 Temporary Staging and Temporary Facilities 19
4.7.4 Utilities, Lighting, and Maintenance Facilities 19
4.7.5 Pre-Construction Due Diligence and Testing 19
4.7.6 Hazard and Hazardous Waste Removal 19
4.7.7 Environmentally Sensitive Area (ESA) Protection and Mitigation 19
4.7.8 Drainage Improvements 20
4.7.9 Signage and Surveillance 20
4.7.10 Easements and Right of Way 20
4.8 Treatment Measures 20
4.8.1 Data Recovery 21
4.8.2 Certified Local Government or Historic Preservation Board/Commission Priority Project Sponsorship 21
4.8.3 Digital Photography Package 21
4.8.4 National Park Service Heritage Documentation (HABS/HAER/HALS) 21
4.8.5 Public Interpretation 22
4.9 Property Owner Requests 22
5 Archeological Monitoring Methodology 22
5.1 Objective 22
5.2 Monitoring 22
5.3 Notification 23
5.4 Determination of Eligibility 23

5.5 Determination of Effects, Mitigation Efforts and Dispute Resolution 23
5.6 Data Recovery Mitigation Strategy 23
5.7 Alternative Archeological Mitigation 24
6 Communication 24
7 Deliverables 24
7.1 Periodic Updates 24
7.2 Annual Report 25
8 Summary of Recommended Effort 25
9 Bibliography 27

Appendix 1: Cultural Resources Management Plan (TRC 2021)
Appendix 2: SHPO Human Remains Protocol 2021

Table List

Table 1. CHPE Packages, Routes, and Locations. 3
Table 2. Splice Locations and Vaults within Segment 8, Package 5A. 5
Table 3. HDD Locations within Segment 8, Package 5A. 7
Table 4. Temporary Off-Site AccessRoads, Segment 8, Package 5A. 10
Table 5. Areas of deviation from permitted route in Segment 8, Package 5A 11
Table 6. Bridge Attachment in Segment 8, Package 5A. 12
Table 7. Project Activities near or within Known Archeological Sites and Historic Properties 15
Table 8. Project Contacts 24
Table 9. Archeological Recommendations for Segment 8/Package 5A. 26

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
DPS –New York Department of Public Service 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
LOW –Limits of Work
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 to provide a Supplemental Cultural Resources Management Plan (CRMP) to the Final CRMP developed by TRC (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 cable route from Rotterdam, Schenectady County to the southern portion of the Town of Bethlehem in Albany County.

The Project has received approvals by the U.S. Department of Energy (DOE), and the U.S. Army Corps of Engineers, with consultation from the New York State Historic Preservation Office (NYSHPO). The goal of the Supplemental CRMP is to provide a framework in which potential impacts to 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 during construction. This management plan will also create a comprehensive framework for identifying and undertaking 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 the relevant information for Phase I of construction into one succinct document This document provided detailed procedures for unanticipated discoveries, monitoring during construction-related ground disturbance, and monitoring during post-construction operations; all stipulations of the CRMP remain applicable. In the event of a conflict between this document and that provided in Appendix 1, the CRMP (TRC 2021) will prevail.

This Supplemental CRMP has been developed in response to Programmatic Agreement Stipulation IV(B) and Stipulation II(C) (8 – 11 and 19) and to assist Project compliance with Section 106 of the National Historical Preservation Act. The supplemental plan 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 Cultural Resources Management Plan (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 (TRC 2021) 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 Historic 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).

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 (TRC 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 Montréal, 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 throughout New York State. Installation of this transmission line will occur primarily beneath the ground within roadway and railroad right of way. Direct impacts to streams and waterbodies are avoided 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 Cultural Resource Management Plan.

The bolded reports include portions of the most current Project (Segment 8) and provide relevant background information.

- Hartgen. 2010a. Pre-Phase IA Archaeological Screening: Champlain Hudson Power Express.
- **Hartgen. 2010b. Phase IA Literature Review and Archeological 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; the width of the APE varies. For the overall cable route, the Project is divided into 14 terrestrial packages with their associated EM&CP submittals (Table 1). The current plan addresses Package 5A, Segment 8.

Table 1. CHPE Packages, Routes, and Locations.

EM&CP Construction Segment	EM&CP Design Packages	Location Description	Segment Length (miles)	Anticipated EM&CP Filing with DPS	Anticipated Start of Construction
OVERLAND SEGMENTS					
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 Rail Yard 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 EM&CP	3,4B,5B,6	Fort Edward, Bethlehem, Coxsackie	N/A	November 11, 2022	February 2023
MARINE SEGMENTS					
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	April/May 2023
18	Package 11	Lake Champlain (Pre-Lay Mattressing)	96	March 2023	August 2023
TBD	TBD	Lake Champlain (Cable Installation)	96	December 2023	TBD
19	Package 12	Hudson River (Pre-Lay Mattressing)	89.1	April 2023	August 2023
20	Package 13	Hudson River (Cable Installation)	89.1	December 2023	June 2024
21	Package 14	Harlem River	6.3	December 2023	June 2024
22	Package 22	Converter Station, Astoria Complex (Queens)	N/A	January 31, 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 (TRC 2021). The CRMP (TRC 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* (TRC 2021). 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 3.6 Reporting Requirements).

2.2 Segment 8 Activities

2.3 Objectives

For each component of the segment (Splice locations and vaults, HDD, work areas, access roads, etc.), the components 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 had 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 5 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 in another format acceptable to OPRHP. As appropriate, reports will contain text, tables, color maps and photographs, shovel test records, and an artifact inventory.

2.4 Segment Overview

This segment extends from the Town of Rotterdam on the CSX Railroad right-of-way (Selkirk Subdivision, Schenectady MP 9.4) to the southern portion of the Town of Bethlehem (Castleton Subdivision, Selkirk MP 0.0). The construction activities in this segment include both open trench (typically in the railroad ROW) and ductbank excavations (typically in roadway ROWs). The trenches will typically be 4.5 feet in depth and 2.4 feet in width at the base. The open trenches will be backfilled with sand around the conduit and flowable fill above. The duct bank excavations will be placed in concrete with flowable fill above and appropriate subbases, bases and asphalt pavement repair (Figure 1).

Disturbance beyond the typical trench cuts include the location of Splice vaults and boring/receiving pits for HDD installation. These are discussed in detail below relative to potential archeological resources and previous evaluation and assessment.

2.4.1 Splice Locations and Vaults

Various Splice vaults (or open pit splice locations) will also be installed to connect the cable segments together into an integrated whole. The Splices will generally be about 15 by 40 feet in size, but will also include a work area, crane pad, and associated access ways. In all, 33 Splice locations and vaults will be installed in the Package 5A portion of the Project (Splices 155 to 184, and 158.A, 163.A, and 167.A, and 168 to 184). All, or portions, of the majority of Splice locations and vaults include crane pads, and associated work areas that fall outside the permitted route. Additionally, most are largely undisturbed. As a result, all but nine of these locations have been recommended for testing or monitoring (Table 2).

Table 2. Splice Locations and Vaults within Segment 8, Package 5A.

Item	Station Number	Activity	Notes/Recommendations
Splice 155	50027+50	Town of Rotterdam Near NYSM/LP 6479. Largely within permitted route, appears sloped and disturbed.	None.
Splice 156	50055+00	Area of deviation in current work/ laydown yard. Town of Princetown.	None (prior disturbance).
Splice 157	50087+00	Splice box, filling to level portion of area, adjacent work area outside permitted route. Mostly within areas of previous disturbance or wet. Town of Rotterdam.	Test or monitor.*
Splice 158	50097+25	Splice, filling to level portion of area, adjacent work area outside permitted route. Town of Rotterdam. No apparent disturbance.	Test or monitor.*
Splice 158.A	50127+85	Splice box, filling to level portion of area, adjacent work area outside of permitted route. Town of Guilderland. No apparent disturbance.	Test or monitor.*
Splice 159	50158+45	Work area outside of permitted route. Town of Guilderland.	Test or monitor.*
Splice 160	50181+20	Work area outside of permitted route, appears mostly wet. Town of Guilderland.	None.
Splice 161	50208+20	Town of Guilderland. Work area outside of permitted area, very sloped.	None.
Splice 162	50238+20	Town of Guilderland. Work area outside of permitted route. Sloped.	None.
Splice 163	50262+70	Town of Guilderland. Vault and pad fully within railroad ROW. Work area extends slightly outside permitted work area. No apparent ground disturbance.	Test or monitor (work area).*
Splice 163.A	50276+70	Within NYSM 2780, vault and pad fully within permitted route. Work area slightly extends outside permitted route. No apparent ground disturbance. Town of Guilderland.	Test or monitor (portions outside permitted route).*
Splice 164	50302+20	Town of Guilderland. Splice and cable within permitted route, work area extends beyond. No apparent disturbance.	Test or monitor.*
Splice 165	50329+75	Town of Guilderland. Fill required for work area, appears partially disturbed.	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.

Item	Station Number	Activity	Notes/Recommendations
Splice 166	50349+25	Town of Guilderland, 600 feet from Normanskill, work are outside permitted route.	Test or monitor.*
Splice 167	50373+25	Town of Guilderland. Within permitted route.	None.
Splice 167.A	50404+75	Town of Guilderland. Within permitted route, previously disturbed.	None.
Splice 168	50433+00	Town of Guilderland. Outside permitted route, but within industrial complex, previously disturbed.	None.
Splice 169	50465+50	Town of Guilderland. Outside permitted route, but within industrial complex, previously disturbed.	None.
Splice 170	50487+25	Town of Guilderland. Splice within permitted route, work area extends beyond.	Test or monitor (work area). *
Splice 171	50519+25	Town of Guilderland. Splice within permitted route, work area extends beyond.	Test or monitor (work area). *
Splice 172	50542+75	Town of Guilderland. Within permitted route.	None.
Splice 173	50574+65	Within permitted route.	None.
Splice 174	50593+25	Town of Guilderland. Work extends slightly outside permitted route, previously disturbed.	None.
Splice 175	50634+00	Village of Voorheesville. Within permitted route.	None.
Splice 176	50652+00	Village of Voorheesville. Splice within permitted route, work area extends beyond.	Test or monitor (work area). *
Splice 177	50684+00	Town of New Scotland, largely within permitted route.	None.
Splice 178	50711+00	Town of New Scotland. Work area outside permitted route.	Test or monitor (work area). *
Splice 179	50742+50	Town of New Scotland. Work area extends outside permitted route, within former lumberyard, disturbed.	None.
Splice 180	50766+50	Town of New Scotland. Work area extends outside permitted route, appears undisturbed.	Test or monitor (work area).*
Splice 181	50798+00	Town of New Scotland. Work area partially extends beyond permitted route.	Test or monitor (work area).*
Splice 182	50828+00	Town of New Scotland. Work area partially extends beyond permitted route.	Test or monitor (work area).*
Splice 183	50856+00	Town of New Scotland. Outside of permitted route.	Test or monitor. *
Splice 184	50887+00	Town of New Scotland. Partially outside of permitted route but appears disturbed.	None.

2.4.2 HDD

In the Package 5A portion of Segment 8, additional HDDs will be required to avoid and minimize impacts to various drainage crossings and road crossings.

The HDD cables (once drilled beneath the surface greater than 10 feet) are no longer considered a ground disturbing activity, as such those portions of the cable installed via HDD, even if outside the permitted route are not considered for archeological testing or monitoring. However, the receiving and boring pits at both ends of the drilled cables are considered for their potential to affect archeological resources. This also includes their

* 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.

related temporary work areas which will be graded and covered with aggregate (similar to the access roads discussed below).

In all, 18 locations have been identified: HDD 71 to 73, 73.A & 74, 75, 75.A.A, 75.A, 75.B, 76 & 76.A, 77 to 78, 79.B, 80, 80.A, 81, 82 and 83, 84, 84.A, 84.B, 85, 87, and 87.A.A (note 86 has been eliminated) (Table 3). In all, 11 of the HDD pits or associated work areas are recommended for archeological testing or monitoring.

Table 3. HDD Locations within Segment 8, Package 5A.

Item	Station Number (Approx.)	Activity	Notes/Recommendations
HDD 71	50005+15 to 50024+00	Drilling beneath Princetown Rd, Philips Rd, and Poentic Kill; also crosses from east side of CSX tracks to west side. Town of Rotterdam. Disturbed and inside permitted route.	None (prior disturbance).
HDD 72	50043+00 to 50048+50	Crosses Mariaville Road. Work area on south end extends 30 feet outside permitted route. Town of Rotterdam.	None (prior disturbance).
HDD 73	50065+00 to 50070+00	Crosses beneath Duanesburg Rd., pits and work areas in locations of previous disturbance. Town of Rotterdam.	None (prior disturbance).
HDD 73.A & 74	50100+00 to 50121+00	Crosses beneath the utility corridor and I-90. Town of Rotterdam and Guilderland.	Test or monitor.* (Shared work areas with Splice 158)
HDD 75	50146+00 to 50154+00	Under Guilderland Avenue (Route 158), pits and work area largely within permitted route. Southern work area shared with work area for Splice 159.	None.
HDD 75A.A	50168+50 to 50175+50	Stream crossing. Both pit and work area within permitted route.	None.
HDD 75.A	50210+50 to 50233+00	Town of Guilderland. HDD under wetlands and stream. Work areas and southern boring pit outside of permitted route.	Test or monitor (work areas and southern boring pit).*
HDD 75.B	50290+50 to 50298+00	Town of Guilderland. HDD under stream. Northern area extends outside of permitted route. The southern pit slightly outside permitted route, and sloped.	Test or monitor (northern HDD).*
HDD 76 & 76.A	50307+00 to 50327+50	Town of Guilderland. Crosses beneath Route 20 (Western Turnpike), a railroad branch, and a pond. Northern boring pit in disturbed area. Southern pit work area extends outside permitted area	Test or monitor (southern HDD work area).*
HDD 77	50332+50 to 50346+50	Town of Guilderland. Southern HDD set-up extends outside west edge of railroad ROW, between ROW and reservoir.	Test or monitor (southern HDD pit work area).*
HDD 78	50382+50 to 50402+00	Town of Guilderland. Crosses wetland, NY Route 146, railroad siding, and Black Creek. Both boring pits, work areas previously disturbed.	None (prior disturbance).

* 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.

Item	Station Number (Approx.)	Activity	Notes/Recommendations
HDD 79.B	50409+50 to 50422+00	Town of Guilderland. Under railroad sidetracks. Both boring pits and work areas, inside industrial complex, previously disturbed.	None (prior disturbance).
HDD 80	50443+00 to 50461+50	Town of Guilderland. Crosses beneath railroad spur. Both boring pits and work areas in locations previously disturbed.	None (prior disturbance).
HDD 80.A	50551+00 to 50572+00	Town of Guilderland. Part of work area falls outside of permitted route, in a location of slope and disturbance between railroad and local road.	None (prior disturbance).
HDD 81	50578+00 to 50588+50	Village of Voorheesville. HDD under North Main Street, and beneath CSX to the east side of the ROW. Northern boring pit within permitted route and previously disturbed. Southern pit and work area also disturbed.	None (prior disturbance).
HDD 82 and 83	50599+50 to 50616+00	Village of Voorheesville, crosses Vly Creek and NY Route 85A. Northern boring pit and work area disturbed and sloped. Southern boring pit and work area largely within permitted route.	None (prior disturbance and slope).
HDD 83.A	50674+00 to 50681+00	Town of New Scotland, HDD under stream. Work areas extend slightly outside of permitted route.	None.
HDD 84	50687+00 to 50698+00	Town of New Scotland, under stream. Northern work area outside permitted route Southern pit and work area in disturbed equipment storage facility.	Test or monitor (northern work area).*
HDD 84.A	50729+00 to 50739+00	Town of New Scotland, under New Scotland South Road (Route 308), boring pits and work area largely within permitted route, southern area within former lumberyard, disturbed.	None.
HDD 84.B	50777+00 to 50788+00	Town of New Scotland. Under Game Farm Road, northern and southern boring pits within permitted route, southern work area fall outside.	Test or monitor (southern HDD pit work area). *
HDD 85	50807+50 to 50823+00	Town of New Scotland. Crosses NY Route 443, and some drainages. Small portions fall outside of permitted route.	None.
HDD 87	50830+50 to 50842+50	Town of New Scotland. Crosses to southwest side of railroad tracks. Northern work area outside of permitted route. Entire southern portion outside of permitted route but within RR ROW.	Test or monitor (north work area, all of southern set up).*

* 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.

Item	Station Number (Approx.)	Activity	Notes/Recommendations
HDD 87.A.A	50890+50 to 50897+00	Town of Bethlehem. Under small stream and culvert. Northern and southern boring pits and work areas slightly outside of permitted route. Southern within railroad yard, disturbed.	None.

2.4.3 Access Roads

In Package 5A, 24 access ways have been identified, including both temporary access "roads" and "routes" (Table 4) Off-site temporary access roads begin at or near existing public roadways and join the cable route, typically at splice or HDD locations. The access roads, 12 in all (5A-01, 5A-03 to 5A-6 to 5A-11, 5A-13 to 5A-15) will be constructed largely outside of the permitted route. Improvements include clearing of vegetation, grading, and the installation of aggregate and riprap (light stone fill) between 9 and 32 inches in thickness on a compacted subgrade. Engineers are also considering utilizing timber mats or similar treatment, which will require clearing and minimal grading of less than 6 inches. If this option is selected, then a pedestrian survey in advance of construction is recommended over testing or monitoring. Alternatively, a pedestrian survey and testing of the area(s) may be employed to identify areas of archeological sensitivity and timber mats, or similar treatment may be used to avoid impacts to potential archeological sites.

Otherwise, testing or monitoring recommended for three Temporary Off-Site Access Roads:

- 5A-05-RD, Sta 50345+00—3,800 feet in total.
- 5A-10-RD, Sta 50550+00—200 feet in total.
- 5A-14-RD, Sta 50829+00—400 feet in total.

Additional access ways include temporary Off-Site access routes, 12 in all. These require no additional construction activities or improvements as part of the Project, since they will be in existing paved areas like private accessways, parking lots and storage areas.

Table 4. Temporary Off-Site AccessRoads, Segment 8, Package 5A.

Temporary Off-Site Access Roads	Station# (Approx.)	Location	Notes/Recommendations
5A-01-RD	50041+00	Kellar Avenue, Town of Rotterdam. About 100 ft extension of existing street into ROW.	None (prior disturbance).
5A-03-RD	50146+00	Between railroad grade and Guilderland Avenue, Town of Guilderland. Portion outside permitted route is sloped, most within permitted route. 700 feet.	None (slope).
5A-04-RD	50253+00	West Old State Road, Town of Guilderland, 400 feet. Within area previously disturbed by bridge and railroad.	None (prior disturbance).
5A-05-RD	50345+00	Begins at Western Turnpike Road ends at Splice 166. Town of Guilderland. Road is primarily outside of permitted route extending over 3,800 feet. Near Normanskill (Creek).	Test or monitor.* Ares not sloped or disturbed.
5A-06-RD	50333+00	Fuller Station Road over railroad tracks, steep slopes. Town of Guilderland, 400 feet. Near Coss High Bluff Prehistoric Site (00106.000407).	None (sloped).
5A-08-RD	50371+50	Town of Guilderland, between existing access road and railroad, disturbed. 300 feet.	None (disturbed).
5A-09-RD	50473+50	Town of Guilderland, 200 feet, short transition between route and industrial park.	None (disturbed).
5A-10-RD	50550+00	Town of New Scotland, between School Road and HDD 80.A, 200 feet in total.	Test or monitor.*
5A-11-RD	50649+00	Town of New Scotland, between Locust Drive and cable route. About 275 feet along retention pond, likely disturbed.	None (disturbed).
5A-12-RD	50701+50	From Off-site access Rte 5A-11 to HDD 84 work area. Existing equipment storage facility, previously disturbed.	None (disturbed).
5A-13-RD	50808+00	Town of New Scotland. About 300 feet, along Delaware Turnpike (Route 443) partially within existing access road and permitted route.	None (disturbed).
5A-14-RD	50829+00	Town of New Scotland, Waldenmaier Road to HDD 87 work area. Near edge of field, crosses ATV tracks. No apparent disturbance. About 400 feet.	Test or monitor.*
5A-15-RD	50843+00	From CR 308 (Unionville-Feura Bush Rd) to RR ROW and former sidetrack. See also deviations, Splices 183 and 184, HDDs 87 and 87A. Towns of New Scotland and Bethlehem.	None (disturbed), but see Splices 183, 84 and HDDs 87 and 87.A.

2.4.4 Deviations/Excursions from Permitted Route

Due to other design and engineering constraints, particularly wetlands and other environmental factors, the proposed cable route, as well as temporary access roads parallel to the railroad ROW deviates outside of the area previously archeologically considered.

For the purposes of the EM&CP, 22 deviations, known as "Excursions," have been identified. Most of these are associated with the HDD work areas and/or Splice locations. As such, they have been addressed for cultural resources in the section above. In all, six Excursions S8-5, 13, 15, 20, 21, and 22 are discussed here (Table 5).

* 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.

Archeological testing or monitoring is recommended for one excursion: S8-22 (50837+00 to 50901+00), cable and/or temporary access road outside of permitted route and along old sidetrack, Town of New Scotland.

Table 5. Areas of Deviation from Permitted Route in Segment 8, Package 5A.

Excursion	Station	Proposed activities	Observations	Archeological Recommendations
S8-5	50135+00 to 50142+00 (HDD 75)	Parallel temporary access road and cable installation.	Town of Guilderland. Within or near wetlands or sloped.	None (wet and sloped).
S8-13	50348+00 to 50357+00 (includes Splice 166)	Short parallel temporary access road.	Town of Guilderland. Within or near wetlands, sloped.	None (wet and sloped).
S8-15	50463+00 to 50493+00	Parallel temporary access road and cable installation.	Town of Guilderland. Within or near wetlands.	None (wet).
S8-20	50664+00 to 50670+00	Slightly outside permitted route, wet and sloped.	South of Voorheesville, Town of New Scotland north and south of Youmans Road.	None (wet and sloped on north side).
S8-21	50677+00 to 50688+00	Parallel access road slightly outside permitted route, wet area. (see Splice 177 and HDD 84).	South of Youmans Road, Town of New Scotland.	None (wet).
S8-22	50837+00 to 50900+67	Cable and temporary access road outside of permitted route	Partially along old sidetrack, some areas previously disturbed. Town of Bethlehem.	Test or monitor.* Portions outside of old sidetrack (50854 to 50586).

2.4.5 Bridge Attachment

In this segment a portion of the cable will be installed on the existing substructure of the CSX bridge over the Normanskill (Table 6). The bridge has not been evaluated for the National Register. The nearby dam for the Watervliet Reservoir is reported as both a structure and archeological site. It appears that the dam has been determined not eligible for the National Register according to CRIS. To the east, downstream of the dam, the French's Mill Road Bridge is, however, considered eligible for the National Register. No impacts are anticipated to the dam or road bridge. The Project will complete a determination of eligibility with respect to the CSX railroad bridge and continue consultation with NYSHPO. In addition, archeological testing or monitoring is recommended for the work areas associated with the bridge attachments, as they lie in an archeologically sensitive area.

* 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 6. Bridge Attachment in Segment 8, Package 5A.

Bridge Attachment	50358+80 to 50363+50	Town of Guilderland. Attaching cable to existing substructure of railroad bridge over Normanskill (Creek). Work areas on both sides of bridge. Within NYSM 2780.	Test or monitor.*
Bridge Attachment	50358+80 to 50363+50	Town of Guilderland. CSX railroad bridge over Normanskill, designed for double tracks occupied by single track. Riveted Warren through-truss bridge, early 20th century, partial concrete abutments and combined steel and stone piers.	Effects determination prior to initiating work at this location.

* 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.

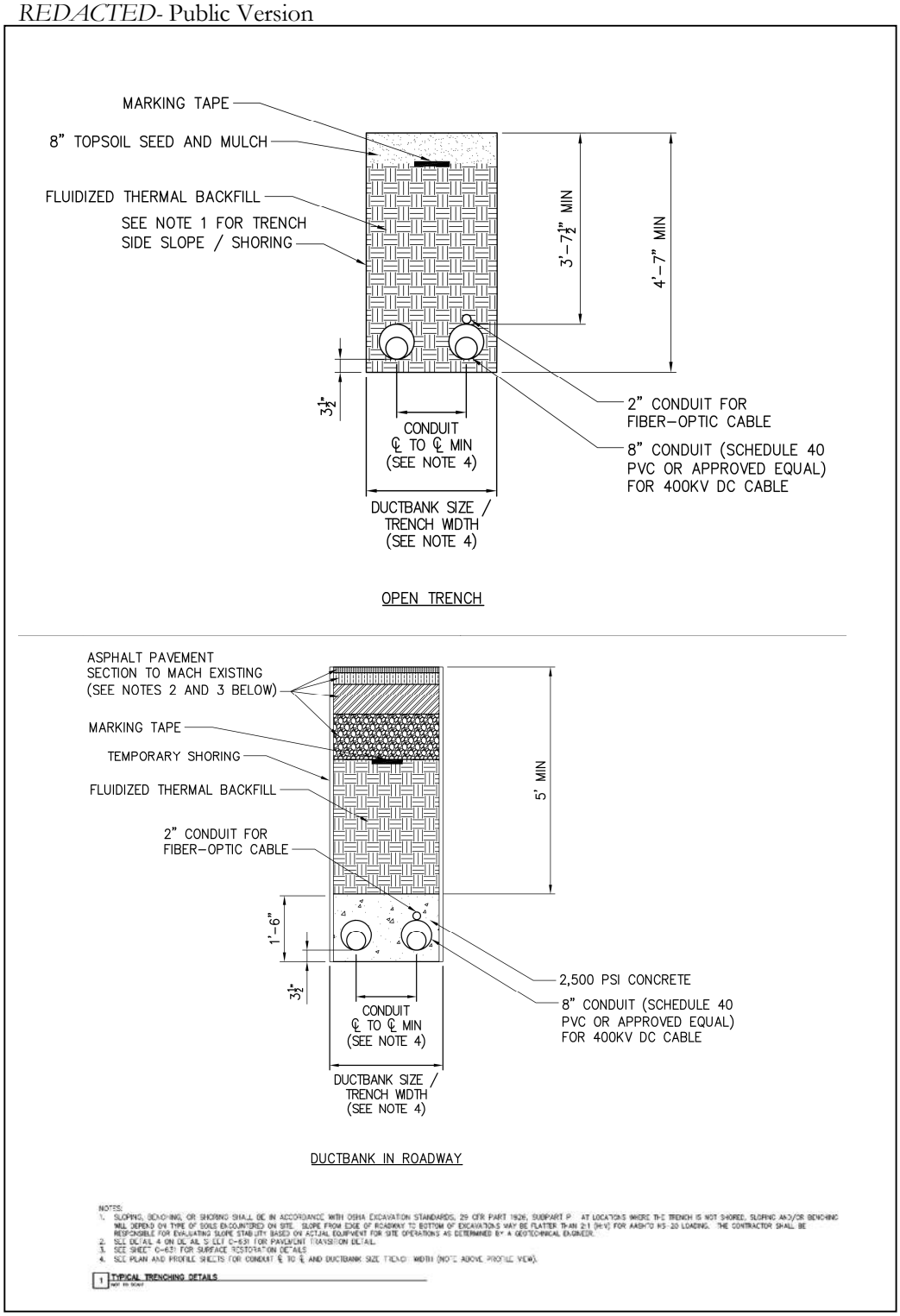

Figure 1. Typical open trench (railroad) and duct bank (roadway) installation of the cable illustrated.

2.5 Historic/Archeological Properties within/along the Cable Route

In all, there are eight archeological sites (two sites are likely duplicates) within or in the immediate vicinity of the Project in Segment 8, Package 5A. In addition, one property immediately adjacent to the cable route has been determined National Register-eligible, the Schenectady General Reserve Depot (USN 09305.000276). The sites and properties and potential Project effects are discussed in more detail below (Table 7).

2.5.1 Schenectady General Reserve Depot (USN 09305.000276)

With respect to National Register-eligible historic properties, only one is adjacent to this portion of the cable route. The Schenectady General Reserve Depot (USN 09305.000276) was determined eligible in 2009 by the NYSHPO. The property is not well defined or mapped, but simply referred to as 900 Rotterdam Industrial Park Road. The former military depot opened in 1918 to support American efforts in World War I. A military presence remained until 2006. The depot grew and changed over time and was utilized again as a supply depot during WW II and the Korean War, as well as Civilian Conservation Corps camps. In the aftermath of WW II, it served as an American Graves Redistribution Center, one of 15 in US. The military housing at the depot has been separately determined eligible. The property is adjacent to the current route and will not be directly impacted by the construction.

2.5.2 NYSM/LP 6479 (vicinity)

The cable route passes near this very broadly delineated archeological site. There is no associated information with the recordation form, but since this is a New York State Museum (NYSM) site it is assumed to be precontact in date. It is an area of elevated sensitivity, rather than direct observation of archeological material. The site is mapped near the cable route. The NYSHPO has not made a determination of eligibility for the site.

2.5.3 Golub Late Archaic Site (09305.000255) (vicinity)

This precontact Archaic site was located by systematic archeological testing in 2000. The material consisted of a Late Archaic projectile point, a bifacial tool, and debitage. The site lies in the Town of Rotterdam. The NYSHPO has not made a determination of National Register eligibility for the site, although the site was recommended as not eligible by the excavators after Phase II investigation (Hartgen Archeological Associates 2020).

2.5.4 NYSM 7330, Army Depot Vicinity

This is another site with little data or details. It appears to lie just to the east of the current cable route. No testing or monitoring are recommended for this site, as most of this portion of the route is previously disturbed. The NYSHPO has not made a determination of National Register eligibility for the site.

2.5.5 NYSM 2780 (A720 and A722)

This site has two, discontinuous locations on the Project in the Town of Guilderland. Little is known about the site, or why it was divided into two separate loci. It is also likely precontact in date, and perhaps are areas of elevated archeological sensitivity rather than discrete archeological expression. Portions of the cable route pass through the mapped site polygons. The NYSHPO has not made a determination of National Register eligibility for the site.

2.5.6 Coss High Bluff Sites (00106.0000405) (00106.000407)

These sites were two of the many recorded archeological that resulted from a systematic Phase IB reconnaissance. The cluster of sites was recommended as an archeological district, but the NYSHPO has yet to create such a designation (Hudson Mohawk Archaeological Consultants 2008).

There are a number of precontact sites in the general vicinity. Coss High Bluff Isolated Find 1 Prehistoric Site consisted of a single precontact artifact (00106.0000405). The Coss High Bluff Prehistoric Site (00106.000407)

consists of a small assemblage of precontact materials, described as "near the base of the railroad embankment" (Hudson Mohawk Archaeological Consultants 2008). The sites' names refer to the David Coss farm where the sites are located. The NYSHPO has not made a determination of National Register eligibility for the site.

2.5.7 Prehistoric Site (00106.000113) "Parker Site" and Black Creek Site-NYSM 346

These may be the same site with two different site forms and slightly different mapped areas. Neither of the site are the result of modern archeological survey, and the source material for their locations is unclear. The NYSHPO has not made a determination of National Register eligibility for the sites.

Table 7. Project Activities near or within Known Archeological Sites and Historic Properties.

Resources	Location	Conditions	Recommendation
Schenectady General Reserve Depot (USN 09305.000276)	Town of Rotterdam	Adjacent to Project.	None.
NYSM/LP 6479 (vicinity)	Town of Rotterdam	Prior disturbance.	None.
NYSM/LP 6479 (vicinity)	Town of Rotterdam	Sloped.	None.
NYSM 7330, Army Depot Vicinity (vicinity)	Town of Rotterdam	Previously disturbed.	None.
Golub Late Archaic Site (09305.000255 (vicinity)	Town of Rotterdam	Undisturbed.	Test or monitor.*
NYSM 2780 (northern locus)	Town of Guilderland.	Undisturbed.	Test or monitor.*
NYSM 2780 (southern locus)	Town of Guilderland.	Undisturbed.	Test or monitor.* (Except HDD 78)
Coss High Bluff Isolated Find 1 Prehistoric Site (00106.0000405), nearby	Town of Guilderland.	Undisturbed.	Test or monitor.*
Coss High Bluff Prehistoric Site (00106.000407), vicinity	Town of Guilderland.	Undisturbed.	Test or monitor.* (See also NYSM 2780, southern locus)
Prehistoric Site (00106.000113) and Black Creek Site-NYSM 346	Town of Guilderland.	Previously disturbed.	None.

3 Construction Timeline

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

4 Cultural Resource Management Plan

4.1 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.

* 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.

TRC created a CRMP for the permitting process, with an overall permitting CRMP created in 2015, and subsequent revisions and addendums in 2021. 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. No areas of archeological monitoring have been previously identified in this portion of the Project.

The CRMP also adheres to the Best Practices Management Plan (BMP) developed by the Certificate Holder, Transmission Developers Inc., in 2012 as agreed upon with the Department of Public Services and other stakeholders.

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.

4.2 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. If a heritage area or special event is identified, the Project will coordinate mitigation measures which may include restrictions on workspace or access to sites, scheduling considerations, or work hour reductions.

4.3 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 the cultural resources present in different areas, as well as understanding the potential for unknown cultural deposits. It is the responsibility of the PPO to implement the CRMP and ensure that the requirements and conditions of the CRMP are met. Table 8 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, CRMP (2021), 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.

4.4 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 the agreement is in effect.

4.5 Reporting Requirements

The CRMP (2021) establishes a requirement for annual reporting concerning activities conducted under the CRMP (2021): *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* (TRC 2021).

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).

4.6 Barriers and Other Protective Measures

No additional protective measures with respect to cultural resources have been identified or requested by stakeholders for the current segments 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.

4.7 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
- 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

4.7.1 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.

4.7.2 Ground Disturbing Activities

A. Ground disturbing activities withing 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).

4.7.3 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.

4.7.4 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.

4.7.5 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.

4.7.6 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.

4.7.7 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 an 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.

4.7.8 Drainage Improvements

A. Erosion control measures including best management practices of the 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.

4.7.9 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.

4.7.10 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.

4.8 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.

4.8.1 Data Recovery

Data recovery and reporting is the preferred mitigation for archeological sites. Implementation of this Treatment Measure will follow protocol contained in 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 in more detail below.

4.8.2 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

4.8.3 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

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.

4.8.4 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.National Park Service.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.

4.8.5 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).

4.9 Property Owner Requests

The Project may accommodate property owner requests, including privately and publicly held properties, which 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.

5 Archeological Monitoring Methodology

5.1 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.

5.2 Monitoring

The Consulting Archeologist will observe the contractor's excavations within designated areas as indicated by station numbers in the Supplement CRMPs (Table 9). On the basis of such observations, the Consulting Archeologist 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 Consulting Archeologist 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 Consulting Archeologist may direct the Contractor's workers in the use of machinery on a 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 Consulting Archeologist will inspect excavation areas, soil profiles, backdirt piles, and will collect artifact and soil samples as appropriate. The Consulting Archeologist 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 archeologist is available to observe the work.

5.3 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 Consulting Archeologist will notify the on-site Supervisor and request a halt to construction activities near the find. The Consulting Archeologist shall notify the Project Preservation Officer (PPO), who shall in turn notify the NYSHPO, other stakeholders and Tribal Nations, as appropriate within 24 hours of the initial reporting of the finds, per the Certificate Conditions 110 and 111. 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. Per 36 CFR Part 800.13(b)(3), NYSHPO, other stakeholders and Tribal Nations will have 48 hours from the time of notification to respond.

5.4 Determination of Eligibility

The NYSHPO will make a determination of National Register 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 36 CFR Part 800.13(b)(3).

5.5 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).

5.6 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 CRMP (2021) 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 notification to proceed is provided from 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.

5.7 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.

6 Communication

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

Table 8. Project Contacts.

Agency/Organization	Role	Contact person	Contact information
Kiewit Corporation	Project Preservation Officer	Ashley L. Bushey	Ashley.Bushey@Kiewit.com 802.349.6388
CHA Consulting, Inc.	Consulting Engineer	Chris Einstein	ceinstein@chacompanies.com 518.453.4505
U.S. Department of Energy	Stakeholder	Melissa Pauley	melissa.pauley@hq.doe.gov
U.S. Army Corps of Engineers	Stakeholder	Stephan Ryba	Stephan.a.ryba@usace.army.mi l
New York State Historic Preservation Office (NYSHPO)	Stakeholder	Nancy Herter	Nancy.herter@parks.ny.gov 518.268.2179
New York DPS	Stakeholder	Matthew Smith	matthew.smith@dps.ny.go v
Hartgen Archeological Associates	Consulting Archeologist	Matthew Kirk	mkirk@hargen.com 518.283.0534 518.300.5940
Transmission Developers Inc.	Applicants/Owner	Ayokunle "Kunle" Kafi, PE, CEM	Ayokunle.kafi@transmissiondevelopers.com 347.920.6550
Delaware Nation	Tribal Nation	Carissa Speck	(405) 247-2448, Ext. 1403 cspeck@delawarenation-nsn.gov
Delaware Tribe of Indians	Tribal Nation	Susan Bachor	610.761.7452 sbachor@delawaretribe.org
Shinnecock Nation	Tribal Nation	Jeremy Dennis	631.283.6143 adminoffice@shinnecock.org jeremynative@gmail.com
St. Regis Mohawk Tribe	Tribal Nation	Darren Bonaparte	518.358.2272, ext. 2163 darren.bonaparte@srmt-nsn.gov
Stockbridge-Munsee Community	Tribal Nation	Jeff Bendremer	413.884.6029 thpo@mohican-nsn.gov
National Park Service	Stakeholder	Kathy Schlegel	215.597.1726 kathy_schlegel@nps.gov
Advisory Council on Historic Preservation	Stakeholder	Stephanie Stevens	202.354.2102 stephanie_stephens@nps.go v

7 Deliverables

7.1 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.

7.2 Annual Report

The CA will provide an annual report detailing the activities completed under the CRMP (2021) to the DOE and NYSHPO for as long as the CRMP is in effect. This report will be completed and submitted on or before January 10th 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.

8 Summary of Recommended Effort

In Package 5A of Segment 8 a number of additional archeological field/monitoring efforts are recommended (Table 9). These include activities at splice locations, HDDs, and access roads that fall outside of the permitted route, as well as several deviation areas of Excursions.

In Package 5A, 24 access ways have been identified, including both temporary access "roads" and "routes." Engineers are also considering utilizing timber mats or similar treatment, which will require clearing and minimal grading of less than 6 inches. If this option is selected, then a pedestrian survey in advance of construction is recommended over testing or monitoring. Testing or monitoring is recommended for three Temporary Off-Site Access Roads: 5A-05-RD, Sta 50345+00, 5A-10-RD, Sta 50550+00, and 5A-14-RD, Sta 50829+00.

In all, 22 segments of this section deviate outside of the permitted cable route and are known as "Excursions." Of these, eight were not in areas already associated with work areas for HDDs and Splices previously analyzed for archeological sensitivity. Excursion S8-22 which parallels an old sidetrack should be archeologically tested or monitored during construction. No other excursions require archeological work.

In this segment a portion of the cable will be installed on the existing substructure of the CSX bridge over the Normanskill. The bridge has not been evaluated for the National Register. The nearby dam for the Watervliet Reservoir is reported as both a structure and archeological site. It appears that the dam has been determined not eligible for the National Register according to CRIS. To the east, downstream of the dam, the French's Mill Road Bridge is, however, considered eligible for the National Register. No impacts are anticipated to the dam or road bridge.

The Project will complete a determination of eligibility with respect to the CSX railroad bridge and continue consultation with NYSHPO.

Table 9. Archeological Recommendations for Segment 8/Package 5A.

Item	Station Number	Notes/Recommendations
Splice 155	50027+50	Test or monitor. *
Splice 157	50087+00	Test or monitor. *
Splice 158	50097+25	Test or monitor. *
HDD 73.A & 74	50100+00 to 50121+00	Test or monitor. *
Splice 158.A	50127+85	Test or monitor. *
Splice 159	50158+45	Test or monitor. *
Splice 160	50181+20	Test or monitor (work area).*
HDD 75.A	50210+50 to 50233+00	Test or monitor (work areas and southern pit).*
Splice 162	50238+20	Test or monitor (work area).*
Splice 163	50262+70	Test or monitor (work area).*
Splice 163.A	50276+50	Test or monitor (portions outside permitted route). *
HDD 75.B	50290+50 to 50298+00	Test or monitor (southern work area). *
Splice 164	50302+20	Test or monitor.*
HDD 76 & 76.A	50307+00 to 50327+50	Test or monitor (southern HDD pit work area). *
Splice 165	50329+75	Test or monitor. *
HDD 77	50332+50 to 50346+50	Test or monitor (southern HDD pit work area).*
Splice 166	50349+25	Test or monitor.*
Bridge Attachment	50358+80 to 50363+50	Test or monitor.*
Bridge Attachment	50358+80 to 50363+50	Effects determination prior to initiating work.
Splice 170	50487+25	Test or monitor (work area).*
Splice 171	50519+25	Test or monitor (work area).*
Splice 176	50652+00	Test or monitor.*
HDD 84	50687+00 to 50698+00	Test or monitor (northern work area).*
Splice 178	50711+00	Test or monitor (work area).*
Splice 180	50766+50	Test or monitor (work area).*
HDD 84.B	50777+00 to 50788+00	Test or monitor (southern work areas).*
Splice 181	50798+00	Test or monitor (work area).*
Splice 182	50828+00	Test or monitor (work area).*
HDD 87	50830+50 to 50842+50	Test or monitor (north work area and all southern).*
Splice 183	50856+00	Test or monitor.*
5A-05-RD	50345+00	Test or monitor.*
5A-10-RD	50550+00	Test or monitor.*
5A-14-RD	50829+00	Test or monitor. *
S8-22	50837+00 to 50901+00	Test or monitor those portions outside old sidetrack. (50854 to 50586). *

* 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.

9 Bibliography

Hartgen Archeological Associates
2020 Phase I Cultural Resources Survey – Volume 1: New York, IGTS Enhancment by Compression Project, Towns of Athens and Dover, Greene and Dutchess Counties, New York, HAA #5443-31.

Hartgen Archeological Associates, Inc.
2010 Phase IA Literature Review and Archeological Sensitivity Assessment, Champlain-Hudson Power Express.

Hudson Mohawk Archaeological Consultants
2008 Phase IA Literature Review and Archaeological Sensitivity Assessment & Phase IB Archaeological Field Survey and Reconnaissance, Normanskill Hydroelectric Facility Project, Watervliet Reservoir and Dam Expansion, Town of Guilderland, Albany County, New York, On file at NYSOPRHP, Peebles Island, NY. .

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

Appendix 1: Cultural Resources Management Plan (TRC 2021)

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.

HARTGEN
archeological associates inc

SUPPLEMENTAL CULTURAL RESOURCES MANAGEMENT PLAN

Champlain Hudson Power Express HVDC Transmission Line Project
CSX: Selkirk Railyard Bypass (Segment 9, Package 5B)

[REDACTED-Public Version]

Lake Champlain to New York City
Albany County, New York

HAA 4268-83
SHPO 09PR03910

Submitted to:
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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 of Bethlehem*
County:	*Albany County*

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 Supplemental CRMP focuses on Segment 9, Package 5B in the Town of Bethlehem.*
Report Authors:	*Matt Lesniak, and 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 Description of the Project 4
3 Package 5B Activities 4
3.1 Supplemental CRMP Objectives 4
3.2 Overview 4
3.2.1 HDD 6
3.2.2 Splice Locations and Vaults 7
3.2.3 Access Routes and Roads 7
3.2.4 Deviations from Permitted Route 8
3.3 Historic Properties 8
3.4 Construction Timeline 10
4 Cultural Resource Management Plan 10
4.1 Objective 10
4.2 Heritage Areas, Special Events, and Other Resources 10
4.3 Project Preservation Officer (PPO) 10
4.4 Identification of Historic Properties 11
4.5 Barriers and Other Protective Measures 11
4.6 Reporting Requirements 11
4.7 Programmatic Allowances 12
4.7.1 Transportation Facilities 12
4.7.2 Ground Disturbing Activities 13
4.7.3 Temporary Staging and Temporary Facilities 13
4.7.4 Utilities, Lighting, and Maintenance Facilities 13
4.7.5 Pre-Construction Due Diligence and Testing 13
4.7.6 Hazard and Hazardous Waste Removal 13
4.7.7 Environmentally Sensitive Area (ESA) Protection and Mitigation 14
4.7.8 Drainage Improvements 14
4.7.9 Signage and Surveillance 14
4.7.10 Easements and Right of Way 14
4.8 Treatment Measures 14
4.8.1 Data Recovery 15
4.8.2 Certified Local Government or Historic Preservation Board/Commission Priority Project Sponsorship 15
4.8.3 Digital Photography Package 15
4.8.4 National Park Service Heritage Documentation (HABS/HAER/HALS) 16
4.8.5 Public Interpretation 16
4.9 Property Owner Requests 16
5 Archeological Monitoring Methodology 16
5.1 Objective 16
5.2 Monitoring 16
5.3 Notification 17
5.4 Determination of Eligibility 17
5.5 Determination of Effects, Mitigation Efforts and Dispute Resolution 17
5.5.1 Data Recovery Mitigation Strategy 17
5.5.2 Alternative Archeological Mitigation 18
6 Deliverables 19
6.1 Periodic Updates 19
6.2 Annual Report 19
7 Summary of Recommended Effort 20

8 Bibliography 22

Appendix 1: Champlain Hudson Power Express Cultural Resources Management Plan (TRC 2021)
Appendix 2: SHPO Human Remains Protocol 2021

Table List

Table 1. CHPE Packages, Routes, and Locations. 3
Table 2. Proposed Activities along Package 5B Cable Installation at the Selkirk Railyard Bypass 6
Table 3. Access Roads and Routes in Package 5B, Selkirk Railyard Bypass. 8
Table 4. Areas of Excursion from Permitted Route. 8
Table 5 Project Contacts 19
Table 6. Resources and Recommendations in Package 5B of Segment 9, Selkirk Railyard Bypass. 21

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
DPS –New York Department of Public Service
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 to provide a Supplemental Cultural Resources Management Plan (CRMP) to the CRMP developed by TRC (2021) (Appendix 1) for the proposed Champlain Hudson Power Express (Project) located over multiple counties through New York. This Supplemental CRMP addresses the overland portion of route in Albany County meant to bypass the Selkirk Railyard, in the Town of Bethlehem, known as Segment 9, Package 5B. This portion of the project extends from NY Route 32 (Indian Fields Road) at its western end, to the vicinity of NY Route 9W, near the unincorporated hamlet of Selkirk, totaling 5.31 miles.

The Project has received approvals by the U.S. Department of Energy (DOE), and the U.S. Army Corps of Engineers, with consultation from the New York State Historic Preservation Office (NYSHPO). The goal of the Supplemental CRMP is to provide a framework for managing potential impacts to known, relevant historical properties and archeological sites (determined to be eligible for or listed in the National Register of Historic Places). Sites discovered during construction activities will also be managed in the Supplemental CRMP's framework. In addition, this management plan will create a comprehensive framework for identifying and undertaking 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 Resources 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 the relevant information for Phase I of construction into one succinct document The CRMP (TRC 2021) provided detailed procedures for unanticipated discoveries, monitoring during construction-related ground disturbance, and monitoring during post-construction operations; all stipulations of the CRMP remain applicable. In the event of a conflict between this document and that provided in Appendix 1, the CRMP (TRC 2021) will prevail.

This Supplemental CRMP has been developed in response to Programmatic Agreement Stipulation IV(B) and Stipulation II(C)(8 – 11 and 19) and to assist Project compliance with Section 106 of the National Historical Preservation Act. The supplemental plan 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 Cultural Resources Management Plan (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 Historic 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).

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 (TRC 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 Montréal, 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 throughout New York State. Installation of this transmission line will occur primarily beneath the ground within roadway and railroad right of way. Direct impacts to streams and waterbodies are avoided 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 Cultural Resource Management Plan.

The bolded reports include portions of the most current Project (Segment 9/Package 5B) and provide relevant background information.

- Hartgen. 2010a. Pre-Phase IA Archaeological Screening: Champlain Hudson Power Express.
- **Hartgen. 2010b. Phase IA Literature Review and Archeological 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; the width of the APE varies. For the overall cable route, the Project is divided into 14 terrestrial packages with their associated EM&CP submittals (Table 1).

Table 1. CHPE Packages, Routes, and Locations.

EM&CP Construction Segment	EM&CP Design Packages	Location Description	Segment Length (miles)	Anticipated EM&CP Filing with DPS	Anticipated Start of Construction
OVERLAND SEGMENTS					
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 Rail Yard 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 EM&CP	3,4B,5B,6	Fort Edward, Bethlehem, Coxsackie	N/A	November 11, 2022	February 2023
MARINE SEGMENTS					
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	April/May 2023
18	Package 11	Lake Champlain (Pre-Lay Mattressing)	96	March 2023	August 2023
TBD	TBD	Lake Champlain (Cable Installation)	96	December 2023	TBD
19	Package 12	Hudson River (Pre-Lay Mattressing)	89.1	April 2023	August 2023
20	Package 13	Hudson River (Cable Installation)	89.1	December 2023	June 2024
21	Package 14	Harlem River	6.3	December 2023	June 2024
22	Package 22	Converter Station, Astoria Complex (Queens)	N/A	January 31, 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 (TRC 2021). The CRMP (TRC 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* (TRC 2021). 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 3.6 Reporting Requirements).

2.2 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; the width of the APE varies. For the overall cable route, the Project is divided into 14 Packages with their associated EM&CP submittals (Table 1).

This Supplemental CRMP addresses the overland portion of route in Albany County meant to bypass the Selkirk Railyard, in the Town of Bethlehem, known as Segment 9, Package 5B. This portion of the project extends from NY Route 32 (Indian Fields Road) at its western end, to the vicinity of NY Route 9W, near the unincorporated hamlet of Selkirk, totaling about 5.31 miles.

3 Package 5B Activities

3.1 Supplemental CRMP Objectives

Each component of the segment (Splice locations and vaults, HDD, work areas, access roads, etc.) was 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.

3.2 Overview

This package includes the cable route through the Town of Bethlehem, Albany County. The construction activities in this segment include both open trench and ductbank excavations. The trenches will typically be 4.5 feet in depth and 2.4 feet in width at the base. The open trenches will be backfilled with sand around the conduit

and flowable fill above. The duct bank excavations will be placed in concrete with flowable fill above and with appropriate subbases, bases and asphalt pavement repair (Table 2).

Disturbance beyond the typical trench cuts include the location of splices, and boring/receiving pits for HDD installation (Table 2). These are discussed in detail below relative to potential archeological resources and previous evaluation and assessment.

Table 2. Proposed Activities along Package 5B Cable Installation at the Selkirk Railyard Bypass.

Item	Station Number	Activity	Notes/Recommendations
Begin Package	51005+00	-	None.
Splice 185	51018+00	Within roadway. Work area has previous disturbance.	None.
Splice 186	51050+00	Within roadway. Work area in road shoulder.	None.
Splice 187	51080+00	Along excursion, work area outside of extant unimproved road.	Testing or monitoring (work area). *
Splice 188	51104+25	Within roadway. Work area in paved parking lot.	None.
HDD 87.B	51105+95 to 51120+50	South Albany Road. Both pits and work areas within permitted route and areas of prior disturbance.	None.
Splice 189	51136+49	Within permitted route along roadway. Work area extends slightly outside of permitted route in wet area.	None.
Splice 190	51168+75	Within roadway. Work area extends outside of slightly outside permitted route.	None.
HDD 88	51179+00 to 51194+00	Crosses under Coeymans Creek, west to east. West end HDD work area (51177+00 to 51179+50) is 60 ft wide and is about 600 ft from the creek. East end HDD work area (51194+00 to 51197+00) is 75 ft wide and is about 815 ft from the creek. Both HDD work areas are located outside of the permitted route.	Determination of eligibility for farm complex at 398 South Albany Rd (19th century in date), and archeological monitoring or testing for work areas that extend outside of permitted route.*
Splice 191	51198+00	Outside of permitted route.	Determination of eligibility for farm complex at 398 South Albany Rd (19th century in date), and archeological monitoring or testing. *
HDD 89	51201+50 to 51225+50	Crosses a drainage (Coeymans Creek). Railroad ROW is wide in the area, both HDD work areas are fully within permitted route.	None.
Splice 192	51229+00	Within permitted route and disturbed railroad ROW. Work area is also in disturbed area.	None.
HDD 90	51235+00 to 51246+50	Crosses Bridge Street and a stream (Coeymans Creek). Both HDD work areas remain within the permitted route.	None.
Splice 193	51260+25	Within permitted route and railroad ROW. Work areas are also in the ROW.	None.
End of Package	51279+06	-	None.

3.2.1 HDD

In the Package 5B portion of Segment 9, additional HDD will be required to avoid and minimize impacts to various drainage crossings and road crossings. In all, four locations have been identified: HDD 87B, 88 to 90 (Table 2). HDD 88 lies within a 19th-century farm complex for which a determination of eligibility for the National Register has not been made. It is recommended that NYSHPO be consulted on the eligibility of the

* 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.

property and the potential effects prior to construction. It does not appear that any Project impacts will be permanent or character altering.

A portion of the HDD 88 work area will extend outside of the permitted route and therefore archeological monitoring or testing is recommended. No other archeological work is recommended for the remaining HDDs.

3.2.2 Splice Locations and Vaults

Various Splice vaults (or open pit splice locations) will also be installed to connect the cable segments together into an integrated whole. The splices will generally be about 15 by 40 feet in size, but will also include a work area, crane pad, and associated access ways. In all, nine splice locations have been identified (Splices 185-193). Archeological testing or monitoring is recommended for the work areas that extend beyond the permitted route at Splices 187 and 191. Splice 191 will also be placed on a 19th-century farm complex at 398 South Albany Road that has yet to be evaluated for eligibility for the National Register. The Project effects will be temporary and will not alter the overall character of the farm. Consultation with NYSHPO regarding the status of the property is recommended.

3.2.3 Access Routes and Roads

In Package 5B, three temporary "routes" and "roads" for construction have been identified. Off-site temporary access roads begin at or near existing public roadways and join the cable route, typically at Splice or HDD locations. Improvements include clearing of vegetation, grading, and the installation of aggregate and rip-rap (light stone fill) between 9 and 32 inches thick atop a compacted subgrade. Engineers are also considering utilizing timber mats or similar treatment, which will require clearing and minimal grading of less than 6 inches.

Four temporary Off-Site access roads are proposed (Table 3). 5B-01-Rd will be located east of South Albany Road, north of Blue Diamond Way. The access road connects South Albany Road to the CSX ROW west of the rail yards at the location of HDD 88 and Splice 191. The road extends 3,500 feet in length.

The second access road, 5B-02-Rd, extends from an access road within the Selkirk Rail yard, along the edge of the yard, and finally along an existing access road west of the yards. The access road terminates at Splice 192. The third access road connects an existing access road with the proposed 5B-01. And finally, 5B-04 is a very short road that connects an existing access road with South Albany Road.

An additional access way includes a temporary Off-Site access route. This requires no additional construction activities or improvements as part of the Project since it will be in an existing paved area. No archeological testing or monitoring is recommended for this component of the Project.

Table 3. Access Roads and Routes in Package 5B, Selkirk Railyard Bypass.

Access Road	Station Number	Activity	Notes/Recommendations
5B-01-Rd	51167+00 & 51196+45 (loop)	Approx. 3,500 ft long. Existing stone and earthen road/haul path, extends northeast from South Albany Road at 51167+00, progresses east to rejoin the cable route at 51196+45.	None (prior disturbance).
5B-02-Rd	51226+35	Approx. 1,700 feet long. It primarily utilizes existing access roads, within and along the rail yard.	None (prior disturbance).
5B-03-Rd	NA	Connects existing access road to 5B-01, approx. 1,800 ft long.	None (prior disturbance).
5B-04-Rd	51083+50	Very short road between the existing access road and South Albany Road.	None (prior disturbance).

3.2.4 Deviations from Permitted Route

Due to other design and engineering constraints, particularly wetlands and other environmental factors, the proposed cable route deviates slightly outside of the area previously permiteed. These deviations are often, but not always, associated with portions of the route which will be outside of existing road and railroad ROWs.

These include two relatively short segments (Table 4). Only deviation excursion S9-2 will require archeological testing or monitoring due to high archeological sensitivity.

Table 4. Areas of Excursion from Permitted Route.

Deviation Zone Excursion	Station Number	Description	Notes/Recommendations
S9-1	51000+00 to 51003+00	200 feet between Indian Fields Road and commercial property. Appears disturbed.	None.
S9-2	51197+00 to 51200+00	Undisturbed, wooded area.	Testing or monitoring*.

3.3 Historic Properties

Within this segment of the Project, there is one known historic property and another that will be directly impacted by the Project but for which a determination of eligibly has not been made. The Vanderzee-Tryon House (00102.000563) fronts on Old Quarry Road, but the rear of the property lies along West Yard Road where the cable and an associated splice (186) will be placed within the roadbed and shoulder. A temporary easement will be required along the edge of the Project, but no direct impacts are anticipated.

The farmhouse and associated property are part of an 18th-century farmstead that features stone residential architecture. The one and one-half story house, which is gable-ended, was constructed of rubble laid limestone in the vernacular tradition of pre-Revolutionary period. The house was likely built for Peter Houghteling prior to 1770.

The farm complex at 398 South Albany Road, south and east of the Vanderzee-Tryon House, will be directly impacted by the construction of a temporary access road, an HDD pit and associated work area. A relatively short portion of the cable will be installed in an open trench at the farm (Station 51177+00 to 51179+35). It is recommended that NYSHPO be consulted with respect to the farm's eligibility for the National Register of Historic Places and the potential effects of the Project, should the farm be considered eligible. Currently, it is anticipated that only temporary effects to the property will occur, primarily limited to the northwest corner of the property and along the rear of the parcel near the CSX Selkirk Rail Yard.

* 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.

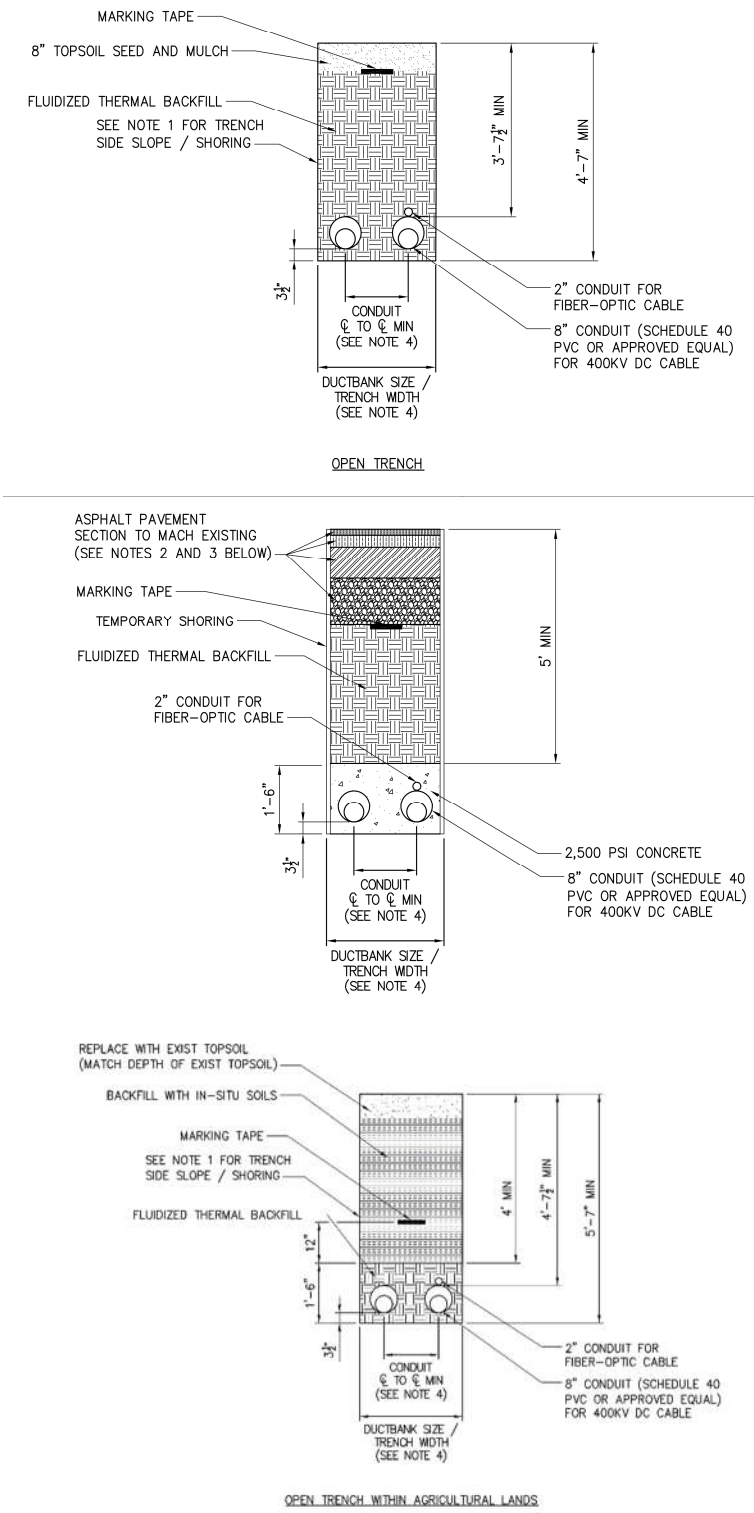


Figure 1. Typical open trench, open trench in agricultural lands, and duct bank (roadway) installation of the cable illustrated.

3.4 Construction Timeline

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

4 Cultural Resource Management Plan

4.1 Objective

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

TRC created a CRMP (2021) for the permitting process. The plan provides guidance for those monitoring activities not indicated in the CRMP (TRC 2021) which specifically addressed previously identified sites within or along the permitted route, and also dealt with 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 with 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.

4.2 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. If a heritage area or special event is identified, the Project will coordinate mitigation measures which may include restrictions on workspace or access to sites, scheduling considerations, or work hour reductions.

4.3 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 the cultural resources present in different areas, as well as understanding the potential for unknown cultural deposits. It is the responsibility of the PPO to implement the CRMP and ensure that the requirements and conditions of the CRMP are met. Table 5 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 document and recover 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.

4.4 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 (TRC 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 the agreement is in effect.

4.5 Barriers and Other Protective Measures

No additional protective measures with respect to cultural resources have been identified or requested by stakeholders for Segment 9 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.

4.6 Reporting Requirements

The CRMP (TRC 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 (TRC 2021) 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* (TRC 2021).

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 (TRC 2021).

4.7 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 (TRC 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, and a 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
- 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

4.7.1 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.

4.7.2 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 form 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).

4.7.3 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.

4.7.4 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.

4.7.5 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.

4.7.6 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.

4.7.7 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.

4.7.8 Drainage Improvements

A. Erosion control measures best management practices including 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.

4.7.9 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.

4.7.10 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 subterranean activities when no surface rights or access is conferred.

4.8 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.

4.8.1 Data Recovery

Data recovery and reporting is the preferred mitigation for archeological sites. Implementation of this Treatment Measure will follow protocol contained in CRMP (TRC 2012) 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 in more detail below.

4.8.2 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. 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

4.8.3 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

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.

4.8.4 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.National Park Service.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.

4.8.5 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 (TRC 2021).

4.9 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.

5 Archeological Monitoring Methodology

5.1 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 creates 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.

5.2 Monitoring

The Consulting Archeologist will observe the contractor's excavations within designated areas as indicated by station numbers in the Supplemental CRMPs (Table 6). On the basis of such observations, the Consulting

Archeologist 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. The Consulting Archeologist may request the on-site supervisor for time to evaluate significant finds, deposits, or other archeological materials in an effort to assess their eligibility for the National Register.

The Consulting Archeologist 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 Consulting Archeologist will inspect excavation areas, soil profiles, backdirt piles, and will collect artifact and soil samples as appropriate. The Consulting Archeologist 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 Consulting Archeologist is available to observe the work.

5.3 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 Consulting Archeologist will notify the on-site Supervisor and request a halt to construction activities near the find. The Consulting Archeologist shall notify the Project Preservation Officer (PPO), who shall in turn notify the NYSHPO, other stakeholders and Tribal Nations, as appropriate, within 24 hours of the initial reporting of the finds, per the Certificate Conditions 110 and 111. 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. Per 36 CFR Part 800.13(b)(3), NYSHPO, other stakeholders and Tribal Nations will have 48 hours from the time of notification to respond.

5.4 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 36 CFR Part 800.13(b)(3).

5.5 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 (TRC 2021).

5.5.1 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, 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 CRMP (TRC 2021) 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 notification to proceed is provided from 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.

5.5.2 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. 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.

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

Table 5 Project Contacts.

Agency/Organization	Role	Contact person	Contact information
Kiewit Corporation	Project Preservation Officer	Ashley L. Bushey	Ashley.Bushey@Kiewit.com 802.349.6388
CHA Consulting, Inc.	Consulting Engineer	Chris Einstein	ceinstein@chacompanies.com 518.453.4505
U.S. Department of Energy	Stakeholder	Melissa Pauley	melissa.pauley@hq.doe.gov
U.S. Army Corps of Engineers	Stakeholder	Stephan Ryba	Stephan.a.ryba@usace.army.mi l
New York State Historic Preservation Office (NYSHPO)	Stakeholder	Nancy Herter	Nancy.herter@parks.ny.gov 518.268.2179
New York DPS	Stakeholder	Matthew Smith	matthew.smith@dps.ny.go v
Hartgen Archeological Associates	Consulting Archeologist	Matthew Kirk	mkirk@hargen.com 518.283.0534 518.300.5940
Transmission Developers Inc.	Applicants/Owner	Ayokunle "Kunle" Kafi, PE, CEM	Ayokunle.kafi@transmissiondevelopers.com 347.920.6550
Delaware Nation	Tribal Nation	Carissa Speck	(405) 247-2448, Ext. 1403 cspeck@delawarenation-nsn.gov
Delaware Tribe of Indians	Tribal Nation	Susan Bachor	610.761.7452 sbachor@delawaretribe.org
Shinnecock Nation	Tribal Nation	Jeremy Dennis	631.283.6143 adminoffice@shinnecock.org jeremynative@gmail.com
St. Regis Mohawk Tribe	Tribal Nation	Darren Bonaparte	518.358.2272, ext. 2163 darren.bonaparte@srmt-nsn.gov
Stockbridge-Munsee Community	Tribal Nation	Jeff Bendremer	413.884.6029 thpo@mohican-nsn.gov
National Park Service	Stakeholder	Kathy Schlegel	215.597.1726 kathy_schlegel@nps.gov
Advisory Council on Historic Preservation	Stakeholder	Stephanie Stevens	202.354.2102 stephanie_stephens@nps.go v

6 Deliverables

6.1 Periodic Updates

The PPO in coordination with 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.

6.2 Annual Report

The CA will provide an annual report detailing the activities completed under the CRMP to the DOE and NYSHPO for as long as the CRMP is in effect. This report will be completed and submitted on or before January 10th 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.

7 Summary of Recommended Effort

In Package 5B of Segment 9, there are three splice locations (primarily their work areas) and one HDD location for which additional archeological field/monitoring efforts are recommended (Table 6). One of the locations (HDD 88) is along a branch or tributary of Coeymans Creek, a watercourse which was identified in the Phase IA survey as worthy of archeological investigation (TRC 2020). In the TRC report, the stream specified was mistakenly named the Onesquethaw Creek, a tributary of Coeymans Creek located upstream of the Selkirk Railyard Bypass. Note that there are as many as two other crossings of the same drainage, but the cable will cross those locations either by means of HDD (89 and 90) or placed in the roadway embankment about 7 feet above the existing culvert.

Deviation S9-2 is a short segment of cable that will be placed near the work areas for HDD 88 and Splice 191. This will be situated at the north portion of the property at 398 South Albany Road. The farmhouse is thought to date to about 1830. It has no determination of eligibility according to CRIS. Additional consultation with NYSHPO will be taken.

The National Register-eligible Vanderzee-Tryon House and Barns (00102.000563) includes an 18th-century, stone farmhouse and associated farm outbuildings. A portion of the property will be utilized for a temporary easement needed to install the cable within the shoulder of West Yard Road. No direct impacts are anticipated to the property and no additional protection measures are recommended.

Table 6. Resources and Recommendations in Package 5B of Segment 9, Selkirk Railyard Bypass.

Resources	Activity	Stations	Location	Conditions	Recommendation
Vanderzee-Tryon House and Barns (00102.000563. 18th-century, stone farmhouse and associated farm complex.	Cable Route and Splice 186	51039+00 to 51059+00	Southwest side of West Yard Road, property fronts on 190 Old Quarry Road to the southwest.	Cable within shoulder of road, temporary easement extends into property.	The property has been determined National Register-eligible. No direct impacts are anticipated. No further work recommended.
Sensitive area	Splice 187	51080+00	Within permitted route outside of roadway.	Work area extends outside of permitted route.	Testing or monitoring (work area). *
Sensitive area	HDD 88	51179+00 to 51194+00	Crosses under Coeymans Creek, west to east. West end HDD work area (51177+00 to 51179+50) is 60 ft wide. East end HDD work area (51194+00 to 51196+00) is 75 ft wide.	Both HDD work areas are located outside of the permitted route.	Determination of eligibility for 19th-century farm complex at 398 South Albany Rd, and archeological monitoring or testing for work areas that extend outside of permitted route.*
Sensitive area	Splice 191 and Deviation S9-2	51197+00 to 51200+00	Immediately west of Selkirk Railyard.	Cable route and parts of the splice's work areas are outside the permitted route and outside railroad ROW.	Determination of eligibility for 19th-century farm complex at 398 South Albany Rd. Monitoring or testing for work areas that extend outside of permitted route. *

* 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.

8 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
2020 *Phase IA Archaeological Assessment of the Champlain-Hudson Alternative Routes, New York*, OPRHP, Waterford NY. Submitted to Transmission Developers Inc.

Appendix 1: Champlain Hudson Power Express Cultural Resources Management Plan (TRC 2021)

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.

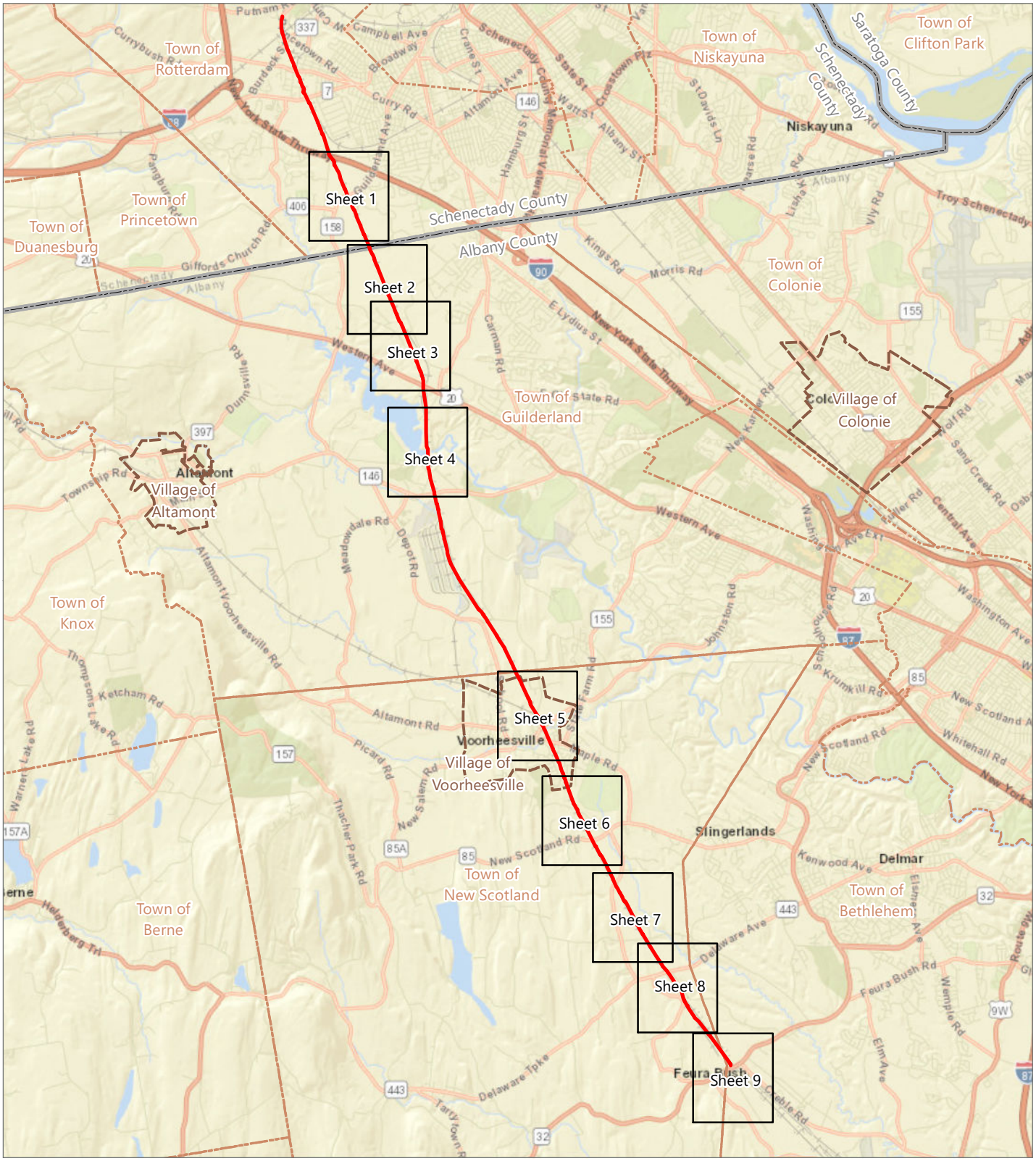
- The SHPO recommends that burial information is not released to the public to protect burial sites from possible looting.

Appendix E

Receiving Waters Maps

Receiving Waters - Package 5A

Sheet Index



CHPE EM&CP

Albany and Schenectady Counties, New York

SWPPP Report

Package 5A

0 0.5 1 2

Miles

Prepared March 21, 2023

Basemap: Esri "World Street Map" map service

EDR

CHPE EM&CP

Albany and Schenectady Counties, New York

SWPPP Report

NYSDEC Mapped Stream

- Class A, B, C(TS), or C(T) Stream
- Class C Stream
- Package 5A

0 250 500 1,000

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

EDR

CHPE EM&CP

Albany and Schenectady Counties, New York

SWPPP Report

NYSDEC Mapped Stream

- Class C Stream
- Waterbody
- Package 5A

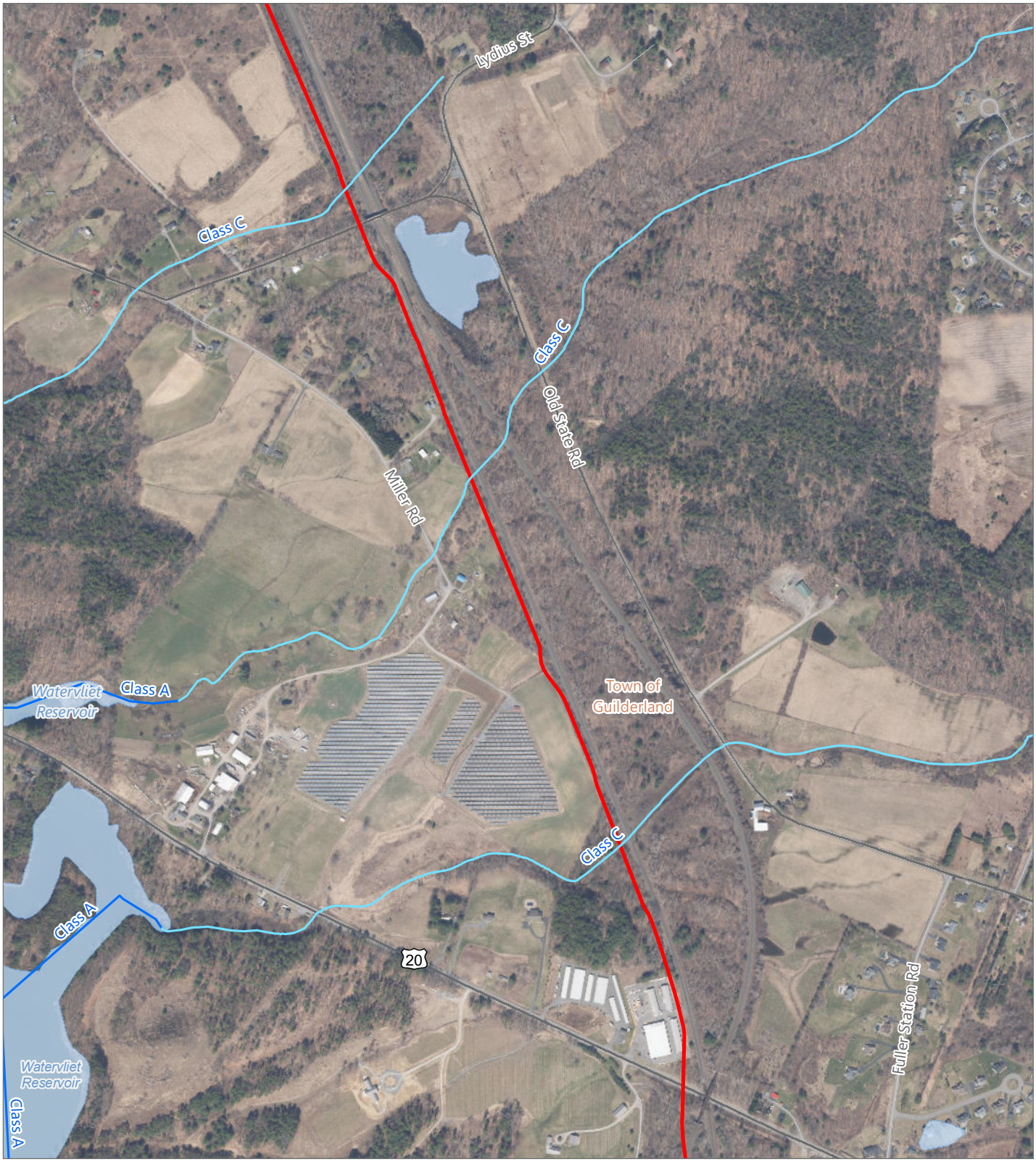
0 250 500 1,000

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

EDR



CHPE EM&CP

Albany and Schenectady Counties, New York

SWPPP Report

NYSDEC Mapped Stream

- Class A, B, C(TS), or C(T) Stream
- Class C Stream
- Waterbody
- Package 5A

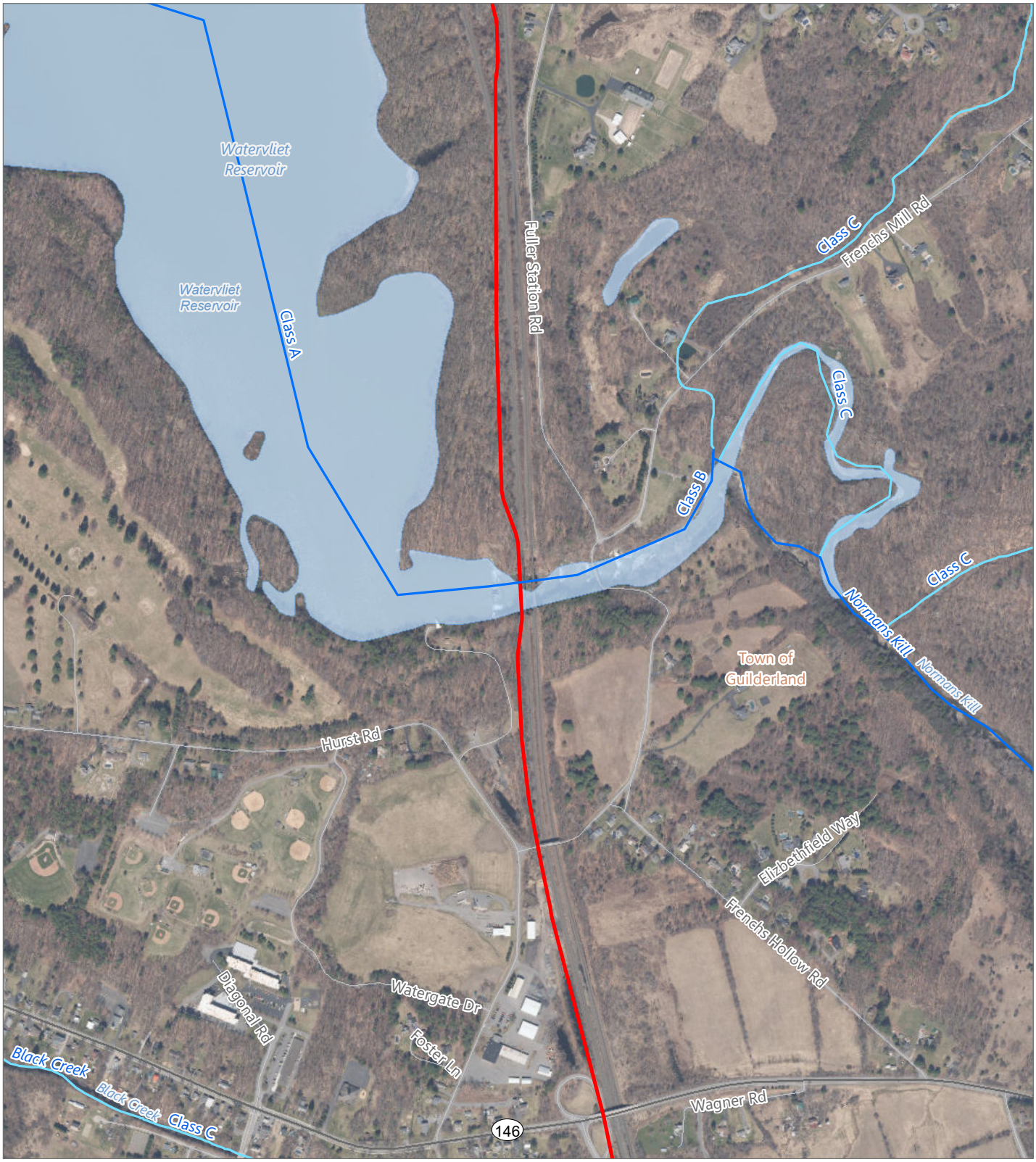
0 250 500 1,000

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

EDR



CHPE EM&CP

Albany and Schenectady Counties, New York

SWPPP Report

NYSDEC Mapped Stream

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- Class C Stream
- Waterbody
- Package 5A

0 250 500 1,000

Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

Receiving Waters - Package 5A

CHPE EM&CP

Albany and Schenectady
Counties, New York

SWPPP Report

NYSDEC Mapped Stream

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- Class C Stream
- Waterbody
- Package 5A

0 250 500 1,000
Feet

Prepared March 21, 2023
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EDR

CHPE EM&CP

Albany and Schenectady Counties, New York

SWPPP Report

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Feet

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CHPE EM&CP

Albany and Schenectady
Counties, New York

SWPPP Report

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Feet

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CHPE EM&CP

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Feet

Prepared March 21, 2023
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EDR

Receiving Waters - Package 5A

CHPE EM&CP

Albany and Schenectady
Counties, New York

SWPPP Report

NYSDEC Mapped Stream

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- Waterbody
- Package 5A

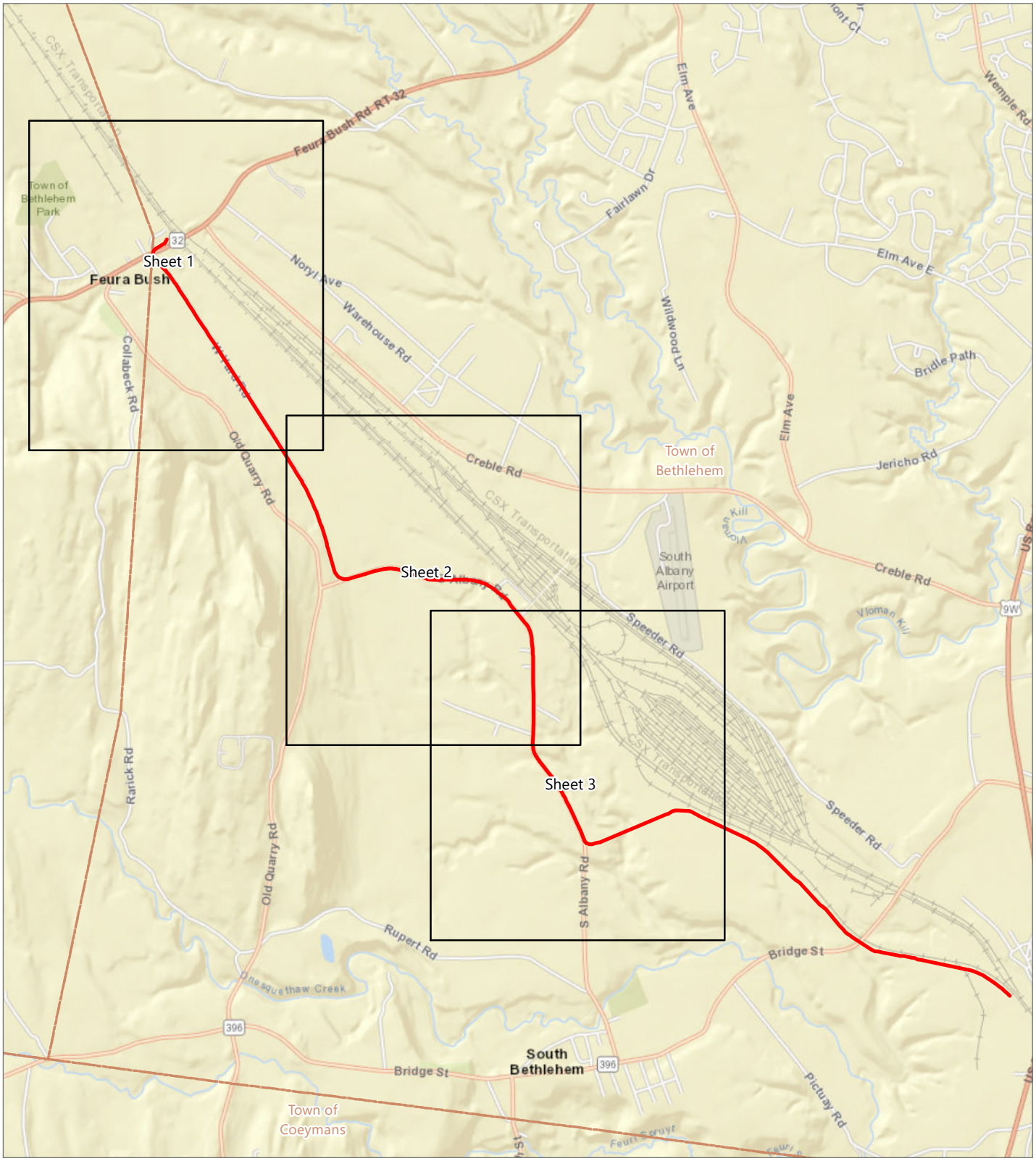
0 250 500 1,000
Feet

Prepared March 21, 2023
Basemap: NYSDOP "2021" orthoimagery map service.

EDR

Receiving Waters - Package 5B

Sheet Index



CHPE EM&CP

Albany County, New York

Package 5B

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Feet

SWPPP Report

Prepared March 21, 2023

Basemap: Esri "World Street Map" map service

EDR

Receiving Waters - Package 5B

CHPE EM&CP

Albany County, New York

SWPPP Report

NYSDEC Mapped Stream

- Class C Stream
- Waterbody
- Package 5B

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Feet

Prepared March 21, 2023

Basemap: NYSDOP "2021" orthoimagery map service.

EDR