Champlain Hudson Power Express

Segment 7 – Package 4B

Stormwater Pollution Prevention Plan

Town of Glenville,
Village of Scotia,
& Town of Rotterdam
Schenectady County
New York

KC Engineering Project Number: 120174

Prepared for:

Kiewit Construction
470 Chestnut Ridge Road
Woodcliff Lake, New Jersey 07677

Prepared by:

KC Engineering and Land Surveying ,P.C.
7 Penn Plaza, Suite 1604
New York 10001

July 2023

TABLE OF CONTENTS

LIST OF APPENDICES:

LIST OF TABLES:

1.0 PROJECT INFORMATION

Project Name and Location	Owner and Operator Name and Address
Champlain Hudson Power Express Segment 7 – Package 4B Schenectady, New York	Kiewit Construction 470 Chestnut Ridge Road Woodcliff Lake, New Jersey 07677

2.0 PROJECT DESCRIPTION

2.1 Purpose and Extent of Proposed Development

The proposed Champlain Hudson Power Express (CHPE) project involves the construction of ±339 miles of high voltage direct current underground and underwater transmission line from Montreal, Canada to Queens, New York. To be consistent with Section 1.0 of EM&CP narrative. It will bring 1,250 megawatts (MW) of renewable energy into New York by May 2026 to replace the use of fossil fuels and reduce carbon emissions. The proposed project will provide enough power for more than 1 million homes, along with numerous environmental and economic benefits to millions of residents in New York State communities.

The first ±105.5 miles segment of the CHPE installation work from Montreal, Canada to Putnam, New York will be covered under a different SWPPP and design plans by others. This SWPPP has been prepared to cover the next ±145.5 miles of upland cable installation of a High Voltage Direct Current (HVDC) transmission cable via direct burial in conduit or installed using trenchless horizontal directional drilling (HDD). The remaining ±88 miles of the transmission line will be installed underwater and covered under the SWPPPs of other packages.

Specifically, the proposed ±9.66 miles of upland cable installation work for Segment 7 – Package 4B begins in the in the Village of Scotia and ends in Town of Rotterdam, Schenectady County, NY (see Figure 1 – Site Location Map in Appendix A). Proposed work consists of installing two 8-inch-diameter PVC casings and one 2-inch diameter PVC casing. All trenching activities and directional drilling work will be located within public roadway and railroad Right-Of-Ways (ROWs). All temporary construction storage and staging areas will also be

accomplished within the grounds of the existing ROWs or agreement with private landowners.

Table 1 - Overland and Marine Segments: Project Construction Sequencing and Scheduling

Table 1.1 – Overland and Marine Segments/Packages: Project Construction and Sequencing and Scheduling

EM&CP		Location Description	Segment Length (miles)	Anticipated (or Actual) Filing with DPS	PSC Approval of EM&CP	Anticipated Start of Construction
Construction Segment	Design Package					
OVERLAND SEGMENTS						
1, 2	Package 1A/ Package 1B	Putnam to Dresden/ Dresden to Whitehall	17.6	(April 15, 2022)	October 13, 2022	November 2022
3	Package 1C/2	Whitehall to Fort Ann/ Fort Ann to Kingsbury	20.8	(December 23, 2022)	May 18, 2023	May 2023
8	Package 5A	Rotterdam to Bethlehem	16.99	(December 21, 2022)	June 22, 2023	July 2023
9	Package 5B	Selkirk Bypass	5.31	(December 21, 2022)	June 22, 2023	July 2023
4, 5	Package 3	Kingsbury to Milton	26.5	(April 24, 2023)	TBD	August 2023
10	Package 6	Ravena to Catskill	20.9	August 2023	TBD	October 2023
13, 14, 15	Package 8	Queens	2.13	July 2023	TBD	September 2023
6	Package 4A	Milton to Ballston	10.2	July 2023	TBD	September 2023
7	Package 4B	Ballston to Schenectady/Rotterdam	9.6	July 2023	TBD	September 2023
11	Package 7A	Catskill to Germantown	23.84	(March 30, 2023)	TBD	August 2023
12	Package 7B	Stony Point to Haverstraw	7.6	(April 28, 2023)	TBD	August 2023
Laydown Yards EM&CP	Package 3, 5B, 6	Fort Edward, Bethlehem, Coxsackie	N/A	(November 11, 2022)	February 21, 2023	March 2023
MARINE SEGMENTS						
16	Package 9	Transitional HDD (Stony Point)	N/A	(September 29, 2022)	March 20, 2023	September 2023
17	Package 10	3 Transitional HDDs (Putnam, Catskill, Congers)	N/A	(December 14, 2022)	April 20, 2023	May 2023
18A	Package 11A	Lake Champlain (Pre-Lay Mattressing)	96	(April 4, 2023)	TBD	August 2023
18B	Package 11B	Lake Champlain (Cable Installation)	96	November 2023	TBD	May 2024
19	Package 12	Hudson River (Pre-Lay Mattressing)	89.1	July 2023	TBD	September 2023
20	Package 13	Hudson River (Cable Installation)	89.1	December 2023	TBD	July 2024
21	Package 14	Harlem River	6.3	December 2023	TBD	July 2024

NEW YORK CITY INTERCONNECTION						
22	TBD	Converter Station, Astoria Complex (Queens)	N/A	(January 31, 2023)	May 18, 2023	June 2023
23	TBD	Astoria Rainey Cable HVAC System (Queens)	3.5	November, 2023	TBD	August 2024

Site restoration of disturbed areas such as pavements, wetlands, lawn areas are addressed on the plan sheets, detail sheets, and erosion and sediment control plans. Limits of proposed disturbances and restoration areas are identified on the plans and reference site specific details regarding the required restoration. Once the construction activity is completed, all disturbed grounds will be topsoiled, seeded, and stabilized. The proposed grading of the roads and side slopes on site will have minimal ground disturbance to the greatest extent practical while maintaining existing drainage patterns.

Land disturbance for this project will be limited to trenching activities and directional drilling work will be located within public roadway and railroad ROWs to facilitate the cable installation. Existing site drainage patterns will be maintained. Construction and temporary stabilization of each site will be sequenced to avoid disturbing 5 acres or more at one time within one watershed. Land disturbance will be limited to the areas of each segment of trench and directional drilling work such that initiation of within any one place will be contingent on the completion and stabilization of a previous land disturbance. It is assumed that multiple crews will be performing installation across the limit of the project. Due to the linear nature of the project, sections of the disturbed areas will be stabilized as the cable installation work progresses along the alignment. As such a 5-acre waiver for disturbance will not be required.

The proposed project contains no increase in impervious area, and it is not anticipated to contribute a significant pollutant load within the watershed or to downstream waterbodies. As such, peak flow mitigation and water quality treatment are not required by the State Pollutant Discharge Elimination System (SPDES) General Permit for Construction Activities (GP-0-20-001) and are not included as a part of this project, and post construction stormwater management practices are not proposed. Based on the Appendix B Table 1 of the SPDES General Permit GP-0-20-001, any construction activities that involves only installation of underground, linear utilities, such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains, will require a SWPPP that only includes ESC and weekly field inspections during construction. Erosion and sediment control plans and details have been developed and will be implemented during construction in order to stabilize disturbed areas.

This SWPPP has been prepared in accordance with the criteria presented in the SPDES General Permit GP-0-20-001, the New York State Stormwater Management Design Manual (January 2015), and the New York State Standards and Specifications for Erosion and Sediment Control (July 2016). This SWPPP was prepared to cover the construction work Segment 7 – Package 4B of a multi-phase project. Updates to the SWPPP will occur with subsequent project phases and Erosion and Sedimentation plans will be developed for future phases as they occur. The anticipated start of construction work for Segment 7 – Package 4B is September 2023.

Table 2 – Nature of Construction Project

The nature of this construction project is checked below:	
	New construction with proposed standard Stormwater Management Practices (SMPs), Green Infrastructures, and ESC measures.
	Redevelopment with increase in impervious areas with proposed standard Stormwater Management Practices (SMPs) and ESC measures.
X	Redevelopment with no increase in impervious areas with proposed ESC measures only and no Stormwater Management Practices (SMPs).

KC Engineering will coordinate and obtain permits for the various State and local entities including the New York State Department of Transportation (NYSDOT), and both County and local municipalities for the various road and highway crossings, or general work in the ROW. Please see table below regarding expected construction permits that KC Engineering anticipates being required in addition to NYSDOT required permits.

Table 3 – Required Highway Permits

Required Highway Work Permits for Land Segment 7
Schenectady County
Village of Scotia
Town of Glenville
Town of Rotterdam

2.2 Project Disturbance Area

The total land disturbance acreage is calculated based on the length and width (±10 feet) for trenching activities and directional drilling work located within public roadway and railroad ROWs. Detailed disturbance and limit of work are depicted on the Erosion and Sediment Control plan sheets, found in Appendix E.

Table 4 – Project Disturbance Area

Land Segment	**Location Description**	**Total Disturbed Area (Acres)**	**Existing Imervious Area within Disturbance (Acres)**	**Proposed Impervious Area within Disturbance (Acres)**
7	Town of Glenville	5.77	4.62	4.62
	Village of Scotia	1.56	1.25	1.25
	Town of Rotterdam	4.03	3.22	3.22

*Note: Assumed ±80% total disturbed area is impervious. This project involves restoration / replacement of existing impervious surfaces impacted during construction. No increase in impervious area is proposed.

2.3 Description and Limitations of On-Site Soils

The soil disturbance for the proposed work is limited to the total land disturbance acreage listed for each design phase. Based on a review of the United States Department of Agriculture (UDSA) Soil Survey of Rockland County, New York, the original soils on the project site are listed and described in Appendix B for USDA Soils Maps. A summary of the soil composition is shown in Table 5.

Table 5 - Soil Analysis Summary

Land Segment	Design Package	Location	Hydrological Soil Group				
			A	B	C	D	N/A
7	4B	Town of Glenville	64%	0%	16%	10%	10%
		Village of Scotia	74%	19%	0%	7%	0%
		Town of Rotterdam	39%	17%	3%	39%	2%

The Natural Resource Conservation Service (NRCS, formerly known as the SCS), as part of their soil classification system, assigns each soil series to a Hydrologic Soil Group (HSG). The HSG is a four-letter index intended to indicate the minimum rate of infiltration obtained after prolonged wetting, and to indicate the relative potential for a soil type to generate runoff. The infiltration rate is the rate at which water enters the soil at the soil surface. The HSG also indicates the transmission rate – the rate at which water moves within the soil. Soil scientists define the four groups as follows:

- HSG 'A' (sand, loamy sand, or sandy loam): Soils have low runoff potential and high infiltration rates even when thoroughly wetted. They consist chiefly of deep, well to excessively drained sands or gravels and have a high rate of water transmission (> than 0.30 inches/hour).

- HSG 'B' (silt loam or loam): Soils have moderate infiltration rates when thoroughly wetted, and consist chiefly of moderately deep to deep, moderately well to well drained soils with moderately fine to fine texture. These soils have a moderate rate of water transmission (0.15 to 0.30 inches/hour).

- HSG 'C' (sandy clay loam): Soils have low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water, and soils with moderately fine to fine texture. These soils have a low rate of water

transmission (0.05 to 0.15 inches/hour).

- HSG 'D' (clay loam, silty clay loam, sandy clay, silty clay, or clay): Soils have high runoff potential. They have very low infiltration rates when thoroughly wetted and consist chiefly of clay soils with a high swelling potential, soils with a permanent high-water table, soils with a clay pan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a very low rate of water transmission (< 0.05 inches/hour).
- If a soil is classified to a dual hydrologic group (A/D, B/D, or C/D), the first letter represents drained conditions and the second letter represents undrained conditions.

2.4 Historic Places

The Cultural Resources Management Plan (CRMP) is included in Appendix O of the EM&CP.

3.0 SEQUENCE OF MAJOR ACTIVITIES

This SWPPP presents erosion and sediment controls, both temporary and permanent, to assist the operator in compliance with the project's SPDES General Permit for construction activity. To the degree practicable, all temporary erosion and sediment control mitigation measures shall be installed immediately before associated project areas are disturbed in anticipation of all soil disturbing activities to follow. Based upon New York State Department of Environmental Conservation (NYSDEC) regulations, the owner or operator of a construction activity shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a regulated, traditional land use control MS4, the MS4 (provided the MS4 is not the owner or operator of the construction activity). The Village of Scotia and Town of Rotterdam are currently MS4 communities located in the proposed project Segment 7 – Package 4B work area.

It is the responsibility of the Contractor to ensure that all soils removed from the project site are spoiled in a manner consistent with all local, state, and federal regulations. Appropriate erosion and sediment controls shall be installed at all spoil sites. Additionally, the Contractor is responsible for coordinating the application for a GP-0-20-001 permit (and development of an associated SWPPP) if disturbance associated with any soil spoils area is greater than 0.4 hectares (1 acre). GP-0-20-001 applications must be signed by the owner of the lands on which soils are spoiled. Disturbances associated with offsite spoil areas do not contribute to the total disturbances associated with onsite activities.

Construction activities shall be scheduled by the Contractor with the intent to minimize the amount of disturbed soil exposed at any one time by area and length of time. In general, once work has been started on a particular phase or structure, this work shall be completed to the extent possible, before work on another phase or structure is started. The Contractor must submit a schedule of construction activities for approval by the Engineer prior to any disturbance to the site.

The project will be carried out as outlined as follow, while maintaining the amount of disturbed soil in compliance with the NYSDEC limit.

Construction Sequence (Disturbance acreage will vary)

1. Establish work area and Contractor staging areas.
2. Install stabilized construction entrance and temporary erosion and sediment control measures (installed in progressive phases).
3. Perform initial clearing to remove vegetation (where required).
4. Place temporary timber mattings through accessible wetland areas (where required).
5. Perform excavation to facilitate trenching.
6. Perform conduit, splice box, handhole, etc. installation.
7. Backfill trench in accordance with project details and specifications.
8. Within HDD areas set up laydown, staging and excavate pits.
9. Restore HDD disturbed areas in accordance with the plans.
10. Within pavement areas, restore pavement to pre-existing grade, mill and overlay areas as depicted on the plans.
11. Restore signage, guiderail, mailboxes etc. and staging/access roads impacted by construction to pre-existing condition.
12. Remove temporary timber mattings through wetland areas and apply appropriate seed mixture where necessary.
13. When all disturbed areas have been stabilized, remove all temporary sediment and erosion control measures.

3.1 Name of Receiving Waters

Based on the existing topography on the project site, runoff is generally conveyed overland towards existing ditches, culverts, wetlands, and streams onsite and offsite. All the receiving waters in Schenectady County, are not listed as 303(d) segments impaired by construction related pollutants (Appendix E of the GP-0-20-001 permit) and not identified as an enhanced phosphorus watershed (Appendix C of the GP-0-20-001 permit).

The water quality of surface waters in New York State is classified by the New York State Department of Environmental Conservation as A, B, C, or D, with special classifications for water supply sources (AA). A "T" used with the classification indicates the stream supports, or may support, a trout population. Water quality standards are also provided. The standards apply the same classification system but, in some cases, are more stringent in an effort to eventually improve the water quality. The higher standard is most often used to reflect the existence or the potential for breeding trout (designation of (T) as discussed above). All surface waters with a Classification and/or a Standard of C (T), or better, are regulated by the State. A summary of the stream classifications is shown in Table 6. Locations of the receiving waters are shown on figures and maps in Appendix C.

Table 6 – Summary of Receiving Waters and Stream Classifications

Approximate Alignment Station	Receiving Waterbody / Stream Name	NYSDEC Stream Classification	Waterbody Field ID	303(d) Segment Impaired
45023+00 C-401	Unnamed Tributary to Mohawk River	Unmapped	C-PA-S6	No
45050+00 C-402	Unnamed Tributary to Mohawk River	Unmapped	C-PA-S5	No
45055+00 C-402	Unnamed Tributary to Mohawk River	Unmapped	C-PA-S4	No
45060+50 C-403	Unnamed Tributary to Mohawk River	Unmapped	C-PA-S3	No
45102+00 C-404	Unnamed Tributary to Mohawk River	C/C(T)	C-PA-S2	No
45127+50 C-405	Unnamed Tributary to Mohawk River	Unmapped	C-PA-S1	No
45141+50 C-405	Unnamed Tributary to Mohawk River	Unmapped	C-PA-S7	No
45146+00 C-405	Unnamed Tributary to Mohawk River	C/C	C-PA-S8	No
45175+25 C-406	Unnamed Tributary to Mohawk River	C/C(T)	C-PA-S9	No
45178+00 C-406	Unnamed Tributary to Mohawk River	Unmapped	C-PA-S10	No
45318+00 C-411	Mohawk River	A/A	Mohawk River	No
45378+50 C-413	Unnamed Tributary to Mohawk River	Unmapped	12-8 S-1	No
45387+25 C-413	Unnamed Tributary to Mohawk River	Unmapped	12-8 S-2	No
45417+00 C-414	Unnamed Tributary to Mohawk River	Unmapped	12-8 S-3	No

4.0 CONTROLS

4.1 Pre-Construction

Prior to construction, the Owner shall have the Contractors and subcontractors identify at least one (1) person from their company who meets the requirements of a Trained Contractor. A Trained Contractor will be responsible for installing, constructing, repairing, and replacing the erosion and sediment control (ESC) practices.

In addition, the Trained Contractor will be responsible for the implementation of the Stormwater Pollution Prevention Plan (SWPPP) and the inspection and maintenance in accordance with New York Standards and Specification for Erosion & Sediment Control (Blue Book). The Owner's Representative shall ensure that at least one (1) Trained Contractor shall inspect the site's ESC practices daily to ensure these facilities are operational. Pre-construction requirements to be followed by the /owner and Contractor prior to the commencement of any construction activities are described in Appendix F.

4.2 Timing of Controls/Measures

The erosion and sediment control measures shall be constructed prior to clearing or grading of any portion of the project. Where land disturbance is necessary, temporary seeding or mulching must be used on areas which will be exposed for more than 7 days. Permanent stabilization should be performed as soon as possible after completion of grading. As project areas are stabilized, the accumulated sediment shall be removed from the stabilized area. Erosion control devices shall remain in place until disturbed areas are permanently stabilized. The soil stabilization measures selected shall be in conformance with the most current version of the technical standard, New York Standards and Specifications for Erosion and Sediment Control (Blue Book).

4.3 Erosion and Sediment Controls/ Stabilization Practice

Applicable erosion and sediment control measures and details are included in Appendix E. Specific final stabilization methods are provided within the plan set.

4.3.1 Temporary Stabilization

Topsoil stockpiles, staging areas and disturbed pervious portions of the project area where construction activity temporarily ceases for at least 7 days shall be stabilized with temporary seed and mulch or with an approved stabilization method per the NYSDEC Standards and Specifications for Erosion Control no later than 7 days from the last construction activity in that area.

Temporary seed shall be ryegrass applied at the rates specified below:

- If seeding in spring, summer, or early fall, then seed with annual or winter rye at a rate of 30 lbs per acre. If the area is to remain stabilized over the winter into the following spring, use winter rye only.
- If seeding in late fall or early winter, use certified Aroostook winter rye (cereal rye) at a rate of 90 lbs per acre.

Any seeding method may be used that will provide uniform application of seed to the area and result in relatively good soil to seed contact. Area must be free of large rocks and debris and seeded within 24 hours of disturbance or scarification of the soil surface will be necessary prior to seeding. Fertilizer or lime is not typically used for temporary plantings.

Mulch shall be applied in conjunction with seeding and applied at the rate of 90 lbs per 1000 square feet. Mulch shall be reapplied as necessary. Areas of the project area, which are to be paved, shall be temporarily stabilized by applying temporary gravel subbase until pavement can be applied.

Sediment control fencing shall be installed around the site where depicted on the attached plan sheets. Prior to commencing any earthwork, a stabilized construction entrance shall be installed as indicated on the attached plans. This entrance shall be utilized as the exclusive construction entrance and exit to the construction areas. Construction traffic shall be limited to the construction entrance.

4.3.2 Permanent Stabilization

Disturbed portions of the project area where construction activities permanently cease shall be stabilized with permanent seed no later than 14 days after the last construction activity. Permanent seed mix shall be in accordance with the project specifications and plans. Construction and maintenance of erosion and siltation control measures are in accordance with the New York Standards and Specifications for Erosion and Sediment Control.

Where construction activity is complete over areas to be permanently vegetated, stabilize with permanent seeding. Verify seeding dates with engineer. If an engineer determines that seed cannot be applied due to climate, topsoil shall not be spread, and mulching shall be applied to the exposed surface to stabilize soils until the next recommended seeding period. Other project impervious areas shall be permanently stabilized with pavement, concrete, gravel or building structures.

4.4 Winter Operations

If construction activities proceed through the winter season, access points should be enlarged and stabilized to provide for snow stockpiling. Drainage structures should be kept open and free of potential snow and ice dams. Inspection and maintenance are necessary to ensure the function of these practices during runoff events. For sites where construction activities temporarily cease, temporary and/or permanent soil stabilization measures shall be installed within seven (7) days from the date the soil disturbing activity ceased. Disturbed areas should be stabilized with seed and mulch, or other approved methods, even if the ground is covered by significant amounts of snow.

4.4.1 Winter Shutdown

Site inspections (by the qualified inspector) may be decreased to a minimum of one (1) time every thirty (30) days for sites where soil disturbing activities have been temporarily suspended and all disturbed areas have been temporarily stabilized with an approved method. Inlet protection should be installed and/or repaired before shutdown of the site. The owner or operator shall provide written notification to the respective DEC regional

office and impacted MS4 prior to reducing the frequency of any site inspections.

4.4.2 Final Site Inspection

The qualified inspector shall perform a final inspection of the site to certify that:

- All disturbed areas have achieved final stabilization;
- Temporary erosion and sediment control practices have been removed; and
- Post-construction stormwater management practices (if required) have been constructed in conformance with the SWPPP.

Upon satisfactory completion of the final site inspection, the qualified inspector shall sign the appropriate sections of the Notice of Termination (NOT) form included in Appendix I.

4.5 Other Controls

4.5.1 Waste Disposal

The certificate holders must adhere to CSX Transportation's (CSX) waste management policies. All waste must be removed from the project site within 90 days. It is policy of CSX that all materials discarded by or on behalf of CSX will be managed in accordance with local, state, and federal regulations as well as CSX's best management practices (BMP) and sustainability goals. To ensure that these goals are achieved, CSX has mechanisms in place to monitor waste management activities, capture the information necessary to ensure total compliance with local, state, and federal requirements all the time, and track progress in the CSX sustainability program.

Prior to disposal, recycling, or reuse, a CSX authorization number for transportation and disposal of all waste types (ie hazardous, non-hazardous, special, etc.) must be obtained form the CSX Manager Environmental Programs and included on the disposal manifest or Bill of Lading (BOL).

In addition to waste disposal, as required by New York state law, within two (2) hours of discovery of a spill , the NYSDEC shall be notified at the NYSWDEC Spill Hotline 1-800-457-7362 unless the spill meets all the following criteria:

1. The quantity is known to be less than five gallons; and
2. The spill is contained and under control of the spiller; and
3. The spill has not and will not reach New York State water and land (soil); and
4. The spill is cleaned up within two hours of discovery.

Solid Waste - Materials will be collected and stored in a secured area until removal and disposal by a licensed solid waste management company. All trash and construction debris from the project area will be disposed of in a portable container unit (dumpster). No waste materials will be buried. All personnel will be instructed regarding the correct procedure for waste disposal. Notices stating these practices will be posted in the project trailer and the individual who manages day-to-day project operations will be responsible for seeing that these procedures are followed.

Petroleum Impacted Waste – During the excavation activities, there is the potential that petroleum impacted soils may be encountered. In the event that field evidence of contamination is identified during the project, potentially contaminated soils will be segregated and stockpiled on polyethylene sheeting and covered in a predetermined staging area. The potentially impacted, stockpiled soils will then be sampled to determine if the soils are suitable for use as clean backfill. In the event that the soils are not suitable for re-use, the contaminated soil will be properly characterized and disposed of at an off-site NYSDEC permitted facility in accordance with the Soil and Materials Management Plan, included in Appendix L of the EM&CP. The excavation will then be backfilled with clean, imported fill.

Laydown yards are described in the laydown yard EM&CP. Refer to Table 5.1 of the laydown yard EM&CP for potential pollutant sources, estimated quantities, and storage descriptions at the laydown yards and within the construction corridor. Petroleum Bulk Storage (PBS) or Chemical Bulk Storage (CBS) registrations will be filled for the tanks at each laydown yard as describe din the laydown yard EM&CP. Bulk Storage of chemicals is not anticipated at HDD locations or along other areas of the route. If petroleum impacted soils are discovered during the excavation activities, the NYSDEC Spill Hotline must be called (1-800-457-7362) and Department of Public Service (DPS) shall be notified.

Hazardous Waste - All hazardous waste materials shall be disposed of in a manner specified by local or state regulations or by the manufacturer. Project personnel shall be instructed in these practices and the individual who manages day-to-day project operations shall be responsible for seeing that these practices are followed.

Sanitary Waste - Any sanitary waste from portable units shall be collected from the portable units by a licensed sanitary waste management contractor, as required by NYSDEC regulations.

4.5.2 Soil Reuse and Disposal

The certificate holders must adhere to CSX's soil management policies. CSX requires soil generated from its property to either be properly disposed in a CSX approved disposal facility or

reused on CSX property. The management of soils generated from CSX property should be planned for and properly permitted (as applicable) prior to initiating any work on CSX property.

Soil Reuse – CSX Environmental Department must review and approve reuse of soil on CSX property.

Soil Disposal – If the soil cannot be reused on CSX property, it must be properly disposed on at a CSX approved disposal facility. CSX prohibits any contractor from taking soil for off property reuse. CSX Environmental Department will handle waste characterization and profiling into an approved disposal facility. CSX prohibits any environmental sampling on its property unless granted through a written Environmental Right of Entry or approved in writing by the CSX Environmental Department.

4.5.3 Sediment Tracking by Vehicles

Stabilized construction entrances shall be installed as depicted on the attached site plans and maintained as necessary to help reduce vehicular tracking of sediment. The entrances shall be cleaned of sediment and redressed when voids in the crushed stone become filled and vehicular tracking of sediment is occurring. Dump trucks hauling materials to and from the construction project area shall be covered with a tarpaulin to reduce dust. Any sediment and debris tracked from work area along project adjacent roadways shall be immediately removed with a street sweeper or equivalent sweeping method. Further, sweeping of streets adjacent to disturbed areas shall be performed prior to the end of each work day (at a minimum) when tracking of sediment is occurring.

4.5.4 Non-Stormwater Discharges

Non-stormwater discharges are not expected to exit the project area during construction.

4.6 Certification of Compliance with Federal, State, and Local Regulations

The stormwater pollution prevention plan reflects the New York State requirements for

stormwater management and erosion and sediment control. To ensure compliance, this plan was prepared in accordance with New York State Standards (Blue Book). There are no other applicable State or Federal requirements for sediment and erosion plans (or permits), or stormwater management plans (or permits).

5.0 POST-CONSTRUCTION STORMWATER MANAGEMENT

The proposed project has been designed in accordance with the New York State Stormwater Management Design Manual (January 2015) and the State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities (GP-0-20-001). Based on the Appendix B Table 1 of the SPDES General Permit GP-0-20-001, any construction activities that involves only installation of underground, linear utilities, and vegetated open space projects (i.e. recreational parks, lawns, meadows, fields) that do not alter hydrology from pre to post development conditions, will require a SWPPP that only includes ESC and weekly field inspections during construction.

Hence, the proposed project contains no increase in impervious area, and it is not anticipated to contribute a significant pollutant load within the watershed or to downstream waterbodies. As such, peak flow mitigation and water quality treatment are not included as a part of this project, and post construction stormwater management practices are not proposed. Detailed erosion and sediment control measures have been developed and will be implemented during construction in order to stabilize disturbed areas.

5.1.1 Floodplains

Based on a review of the FEMA Flood Insurance Rate Maps for Schenectady County, NY, various portions of the proposed CHPE project Segment 7 – Package 4B work are located within the approximate 100-year flood plain area Zone A (see FEMA FIRM maps in Appendix D). Due to the linear nature of the proposed project, the sections of work located within the approximate 100- year flood plain are located at the existing crossings with streams and waterbodies. Temporary soil disturbance at these locations will be minimized with trenching activities and directional drilling work. The disturbed areas will be stabilized as the cable installation work progresses along the alignment and will have no impact to the flood plains. No new impervious surfaces will be added, and no grading changes will be made, thus, the base flood elevations will not be impacted within the proposed project work area.

6.0 MAINTENANCE/INSPECTION PROCEDURES

6.1 Erosion and Sediment Control Inspection and Maintenance Practices

These are the minimum required inspection and maintenance practices that shall be used to maintain erosion and sediment controls:

6.1.1 Owner/Operator Inspection Requirements

- Prior to construction activity the owner/operator shall have contractors and subcontractors identify a trained individual responsible for the implementation of the SWPPP. The trained individual must be on-site on a daily basis when soil disturbing activities are occurring. During each work day, all erosion control devices will be inspected in each work area and repaired (if necessary) to ensure proper functioning.
- Inlet protection will be provided to prevent sediment-laden runoff from entering adjacent drainage systems. Within State highway right-of-way, inlet protection will be provided in accordance with the Highway Design Manual and the highway work permit issued be NYSDOT. Alternatively, with approval of DPS and NYSDEC, silt sacks may be used. Inlet protection will be inspected after every major rain event.
- The owner/operator shall inspect the erosion and sediment control measures as identified in the SWPPP to ensure that they are being maintained in effective operating conditions at all times. Where soil disturbing activities temporarily cease (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the owner/operator can stop conducting inspections. The owner/operator shall resume inspections when soil disturbing activities begin again.
- Where soil disturbing activities have ceased with partial project completion, the owner/operator can stop conducting inspections when disturbed areas have reached final stabilization. All post construction stormwater management practices required for the completed areas shall have been constructed in conformance with the SWPPP and be fully operational. Final stabilization means that all soil disturbance activities have ceased and a uniform, no vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

- The owner/operator shall notify the Department of Public Services (DPS) and the DEC Regional Office's stormwater contact person and Local DPS Office prior to any reduction in the frequency of site inspections.
- The owner/operator shall retain copies of the NOI, NOI acknowledgment letter, SWPPP, MS4 SWPPP acceptance form and any inspection reports submitted in conjunction with this permit and records, or all data used to complete the NOI to be covered by this permit for a period of at least five (5) years from the date that the site is finally stabilized. Copies of the NOI and NOI acknowledgment letter are included in Appendix I.

6.1.2 Qualified Inspector Inspection Requirements

- The qualified inspector is defined as a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), licensed Landscape Architect, or other Department endorsed individual(s). It may also mean someone working under the direct supervision of the licensed Professional Engineer or licensed Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means the person has received four (4) hours of training endorsed by the Department and shall receive four (4) hours of training every three (3) years after the initial training.
- A site inspection shall be conducted at least once every seven (7) days by the qualified inspector when soil disturbing activities are occurring, and within 24 hours of a 0.5-inch rainfall event. A copy of the "Stormwater Construction Site Inspection Reports" is included in Appendix G of this plan.
- If any repairs or corrective actions are necessary, it is the responsibility of the qualified inspector to notify the owner/operator and appropriate contractor within one business day. The contactor shall begin implementing the corrective action within one business day of being notified.
- All inspection forms must be signed by a qualified inspector.
- For construction sites where soil disturbing activities are temporarily suspended, temporary stabilization measures shall be applied and the qualified inspector shall conduct a site inspection at least once every thirty (30) calendar days.

- Where soil disturbing activities have ceased with partial project completion the qualified inspector can stop conducting inspections when disturbed areas have reached final stabilization and all post construction stormwater management practices required for the completed areas have been constructed in conformance with the SWPPP and are fully operational.
- Where soil disturbing activities are not resumed within two (2) years, from the date of shut down of partial project completion, the qualified inspector shall perform a final inspection and certify that all disturbed areas have achieved final stabilization, all temporary and permanent erosion control measures have been removed, and post-construction stormwater management practices have been constructed in conformance with the SWPPP. Qualified inspector shall sign the "Final Stabilization" and "Post-Construction Stormwater Management Practice" certification statements on the Notice of Termination (NOT).

6.1.3 General Requirements

- A copy of the SPDES General Permit (GP-0-20-001), the signed Notice of Intent (NOI), NOI acknowledgement letter, SWPPP, MS4 SWPPP Acceptance Form, and inspection reports shall be maintained onsite until the site has achieved final stabilization.
- During construction it may be necessary to remove surface or subsurface water from work areas. Where dewatering of the trench is necessary, the discharges of water from the excavated trench will be pumped into a portable sediment tank. The intakes of the hoses used to withdraw the water from the trench will be elevated and screened to minimize pumping of the deposited sediments. Soil excavated from the hole shall be stockpiled separately within a straw bale/ silt fence barrier to prevent siltation into surrounding areas.
- Where there is not sufficient room in the right-of-way to utilize a portable sediment tank, commercial sediment filter bags may be used to remove sediments from dewatering effluent. The dewatering hose will be connected to a filter bag placed on the ground surface within a stabilized areas (e.g., vegetated, or permeable surface such as aggregate). Once passed through that filter bag, the dewatering effluent will be discharged onto a vegetated area. Additional erosion and sedimentation controls may be installed as determined by the Environmental Inspector. Sediment filter bags will be inspected regularly. The filter bag and accumulated sediment shall be disposed of in an upland location at least 100 feet from a wetland or waterbody or disposed of

offsite in a state approved solid waste disposal facility.

- Trapped sediment collected during dewatering activities shall be graded on the right-of-way in areas where it cannot be washed into the adjacent stream, wetland, or other sensitive resource. Dewatering structures will be removed as soon as possible following the completion of dewatering activities.
- Any contaminated waters removed from a work site may not be discharged without a SPDES permit or must be discharged at a wastewater treatment plant following chemical analysis.
- Built up sediment shall be removed from any silt fence when it has reached one-third the height of the fence / dike.
- Sediment fencing shall be inspected for depth of sediment, and tears, to see if fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
- The construction entrance shall be cleaned of sediment and redressed when voids in the crushed stone become filled and vehicular tracking of sediment is occurring.
- Dust shall be controlled on access points and other disturbed areas subject to surface dust movement and blowing.
- Inspection must verify that all practices are adequately operational, maintained properly and that sediment is removed from all control structures.
- Inspection must look for evidence of soil erosion on the site, potential of pollutants entering drainage systems, problems at the discharge points, and signs of soil and mud transport from the site to the public road.
- For work occurring in national grid property, national grid shall be copied on all local MS4 approvals as well as all SWPPP inspection reports.

6.1.4 Dewatering Methods

All the procedures related to dewatering methods are described in the section 4.4.6 of the Environmental Management and Construction Plan (EM&CP) and Soil and Materials Management Plan in Appendix L of the EM&CP.

The construction Contractor or applicable subcontractor will be responsible for providing a dewatering system for construction that is of adequate size and capacity to lower and maintain the groundwater at the specified level. The dewatering system will meet the following requirements:

a) Utilize portable sediment tanks with elevated and screened intake hoses to withdraw water from the trench and to minimize pumping of deposited sediment. Where not practicable (ie. Due to space within the Road/Highway ROW) commercial sediment filter bags may be used. A dewatering hose will be connected to a filter bag placed on the ground surface within a stabilized area. As needed additional erosion and sediment controls may be installed as determined by the Environmental Inspector. Sediment filter bags will be inspected regularly and disposed of in upland locations at least one hundred (100) feet from a wetland or waterbody or disposed of at an off-site disposal location. A Sediment Dewatering Bag detail is provided on the Grading and Erosion and Sediment Control Drawings (Sheet C-602 of Appendix F) to show the general design of one of the methods that may be utilized by the construction Contractor.

b) Trapped sediment collected during dewatering activities shall be managed as excavated soil materials as described in the Soil and Materials Management Plan in Appendix L of the EM&CP.

c) Include standby pumps and power sources for continuous operation.

d) Consist of wellpoints, deep wells, cut-off walls, riser pipes, swing joints, header lines, valves, pumps, discharge lines, and all other necessary fittings, accessories, and equipment for a complete operating system; and

e) Provide groundwater reading wells or piezometers (“observation wellpoints”) to monitor the groundwater level as indicated on the approved Plan and Profile Drawings in (Appendix F) or as directed by the design Engineer.

The dewatering system will be kept in continuous operation from the time excavation is started in the dewatering area (or before if required by site conditions to lower groundwater to the elevations specified on the Plan and Profile Drawings) until the time backfilling is completed at least two (2) feet above the normal groundwater level. All water removed from the excavation will be conveyed in a closed conduit. No trench excavations will be used as temporary drainage ditches. All water removed from the excavation will be disposed of by the construction Contractor in a manner that does not endanger public health, property, or any portion of the Project under construction or

completed. If contaminated water is encountered during dewatering, the procedures described in the Soil and Materials Management Plan (Appendix L of the EM&CP) will be followed. Water disposal will not cause erosion or sedimentation to occur in existing wetland and stream resources areas, or other swales or water bodies.

6.1.5 Dust Control

The Certificate Holders and all Contractors will take appropriate measures to minimize fugitive dust and airborne debris from construction activity associated with Segment 7 construction. Dust control will be controlled as needed based on site conditions. Only plain water will be used for dust suppression. Stabilized construction entrances for dust control will be consistent with NYSDEC stabilized construction entrance requirements. All applicable regulations and standards related to dust control will be followed per the New York State Standards and Specifications for Erosion and Sediment Control ("Blue Book") for dust control, pages 2.25.

7.0 INVENTORY FOR POLLUTION PREVENTION PLAN

The materials or substances listed below are expected to be within the project area during construction:

- Bituminous asphalt
- Compost filter sock
- Fertilization / seeding materials
- HDD fluid
- Hydraulic fluid conductor
- Lumber
- Matting
- Pavement parking paint
- Petroleum-based products
- Portland cement concrete
- PVC pipe
- PVC pipe assembly primer
- PVC pipe assembly glue
- Rolled matting
- Stoine
- Silt fence fabric

8.0 SPILL PREVENTION

The following are the material management practices that shall be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff.

8.1 Good Housekeeping

The following good housekeeping practices shall be followed within project areas during construction:

- An effort shall be made to store only enough products required to do the job.
- All materials stored within project areas shall be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
- Products shall be kept in their original containers with the original manufacturer's label.
- Substances shall not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of a product shall be used up before disposing of the container.
- Manufacturers' recommendations for proper use and disposal shall be followed.
- The contractors shall inspect daily to ensure proper use and disposal of materials.
- Any excess debris or materials shall be cleaned up daily be the contractors before leaving the site.

8.2 Hazardous Products

All the procedures related to hazardous materials and waste are described in the Spill Prevention Control & Countermeasures Plan (SPCC) in Appendix K of the EM&CP.

8.3 Product Specific Practices

The following product-specific practices shall be followed within the project areas:

PETROLEUM PRODUCTS

All project related vehicles shall be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products shall be stored in tightly sealed containers which are clearly labeled. Any asphalt substances used during construction shall be applied

according to the manufacturer's recommendations.

Petroleum and Chemical handling procedures are outlined in the SPCC. These procedures will be used to minimize the potential for spills of petroleum and hazardous substances, or other materials, that have the potential to pollute the environment and the response measures that will be implemented to contain, clean-up and dispose of any spilled substances during construction. The Certificate Holder will keep required parties appraised of on-site chemicals and waste stored within one hundred (100) feet of their CI or service area. These required parties include Local Fire Departments, Emergency Management Teams, and owners and operators of Co-Located Infrastructure (Certificate Conditions CC#34).

In accordance with amended Certificate Conditions (CC#114), in general, and to the maximum extent practicable, refueling of equipment, storage mixing. or handling of open containers or pesticides, chemicals labeled "toxic," or petroleum products, shall not be conducted within one hundred (100) feet of a stream or waterbody or wetland. Requirements for refueling within 100 feet of wetlands or streams will be allowed under certain circumstances identified below, subject to the practices set forth in approved EM&CP.

1. Refueling of hand equipment will be allowed within 100 feet of wetlands or streams when secondary containment is used. Secondary containment will be constructed of an impervious material capable of holding the hand equipment to be refueled and at least 110% of the fuel storage container capacity. Fuel tanks of hand-held equipment will be initially filled in an upland location greater than feet from wetlands or streams in order to minimize the amount of refueling within these sensitive areas. Crews will have sufficient spill containment equipment on hand at the secondary containment location to provide prompt control and cleanup in the event of a release.
2. Refueling of equipment in the vicinity of wetlands will be avoided, but when necessary, it will be allowed within a 100 feet buffer. Fuel tanks of such equipment will be initially filled in an upland location greater than 100 feet from wetlands or streams in order to minimize the amount of refueling within these sensitive areas. Absorbent pads or portable basins will be deployed under the refueling operation. In addition, the fuel nozzle will be wrapped in an absorbent pad

and the nozzle will be placed in a secondary containment vessel (e.g., bucket) when moving the nozzle from the fuel truck to the equipment to be refueled. All equipment operating within 100 feet of a wetland or stream will have sufficient spill containment equipment on board to provide prompt control and cleanup in the event of a release.

3. Field personnel and Contractors Shall be trained in spill response procedures, including the deployment and maintenance of spill response materials.

FERTILIZERS

Fertilizers used shall be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer shall be worked into the soil to limit exposure to stormwater. Fertilizers shall be stored in a covered or other contained area.

PAINTS

All containers shall be tightly sealed and stored when not required for use. Excess paint shall not be discharged to the storm sewer system but shall be properly disposed of according to manufacturer's instructions or State regulations.

CONCRETE TRUCKS

Protect all waters from contamination by deleterious materials such as wet concrete, gasoline, solvents, epoxy resins or other materials used during construction (2012 BMPs, Section 18). This will be accomplished primarily by preventing the storage or refueling of vehicles within 100 feet of streams and wetlands, properly maintaining and checking construction equipment for leaks, properly containing concrete washouts, and in most cases avoiding direct impacts to streams and other waterbodies.

After placement of concrete, wash water used to clean the concrete truck will be directed to a concrete washout structure at designated areas only. These concrete washout area(s) will be located a minimum of one hundred (100) feet from all wetlands, waterbodies, and drainage structures. Self-installed or prefabricated containers that meets the guidelines of the New York State Standards and

Specifications for Erosion and Sediment Control, may be used, and are intended to capture the wash water to allow for evaporation or off-site disposal. Washout structures or containers will be inspected after each use to determine if they are filled to seventy-five (75) percent of capacity and to make sure that the plastic linings are intact and not leaking. Material in washout structures or containers will be removed when they reach seventy-five (75) percent capacity.
Concrete washouts shall not be established under National Grid overhead facilities.

WATERCOURSE PROTECTION

All the procedures related to stream and watercourse protection are described in Section 9.1 of the EM&CP.

8.4 Spill Control Practices

Spill response and mitigation procedures will be implemented in the case of any accidental spills of chemical, fuel, or other toxic materials, as identified in Section 5.0 of the Environmental Management and Construction Plan (EM&CP). The spill response and cleanup procedures are outlined and described in the Spill Prevention, Control and Countermeasures Plan (SPCC).

The Certificate Holders shall notify DPS Staff and the New York State Department of Environmental Conservation ("NYSDEC") immediately of any petroleum product spills. The Certificate Holders shall also notify owners and operators of CI of any petroleum product spills within one hundred (100) feet of their CI, provided however that in the case of CI located within CNY, the Certificate Holders shall advise CI owners and operators of petroleum product spills within three hundred (300) feet of such facilities.

All spills on National Grid property, regardless of volume, location, or timely cleanup shall be reported to National Grid Environmental Compliance. The contact number is 518-227-7508.

9.0 UPDATING THE SWPPP

The SWPPP shall be updated/revised as conditions merit or as directed by the regulating authority. The attached inspection forms included with this document allows for the certification of any updates/revisions. The SWPPP shall be amended when modifications to the design, construction, operation, or maintenance of the project have been or will occur which could have an effect on the potential for discharge of pollutants in stormwater runoff. Amendments shall be documented within Appendix G of this SWPPP.

10.0 SWPPP CERTIFICATION

Contracting Firm Information:

_____

Contracting Firm

_____

Address

_____

City/Town ***State*** ***Zip***

Site Location:

Champlain Hudson Power Express Segment 6 – Package 4A
Schenectady County and Saratoga County, New York

Contractor's Certification

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

_____ _____

Signature (Contractor/Subcontractor) ***Date***

_____

For

_____

Responsible For

_____ _____

Signature (Trained Contractor) ***Date***

_____

For

_____

Responsible For

_____ _____

Signature (Contractor/Subcontractor) ***Date***

_____

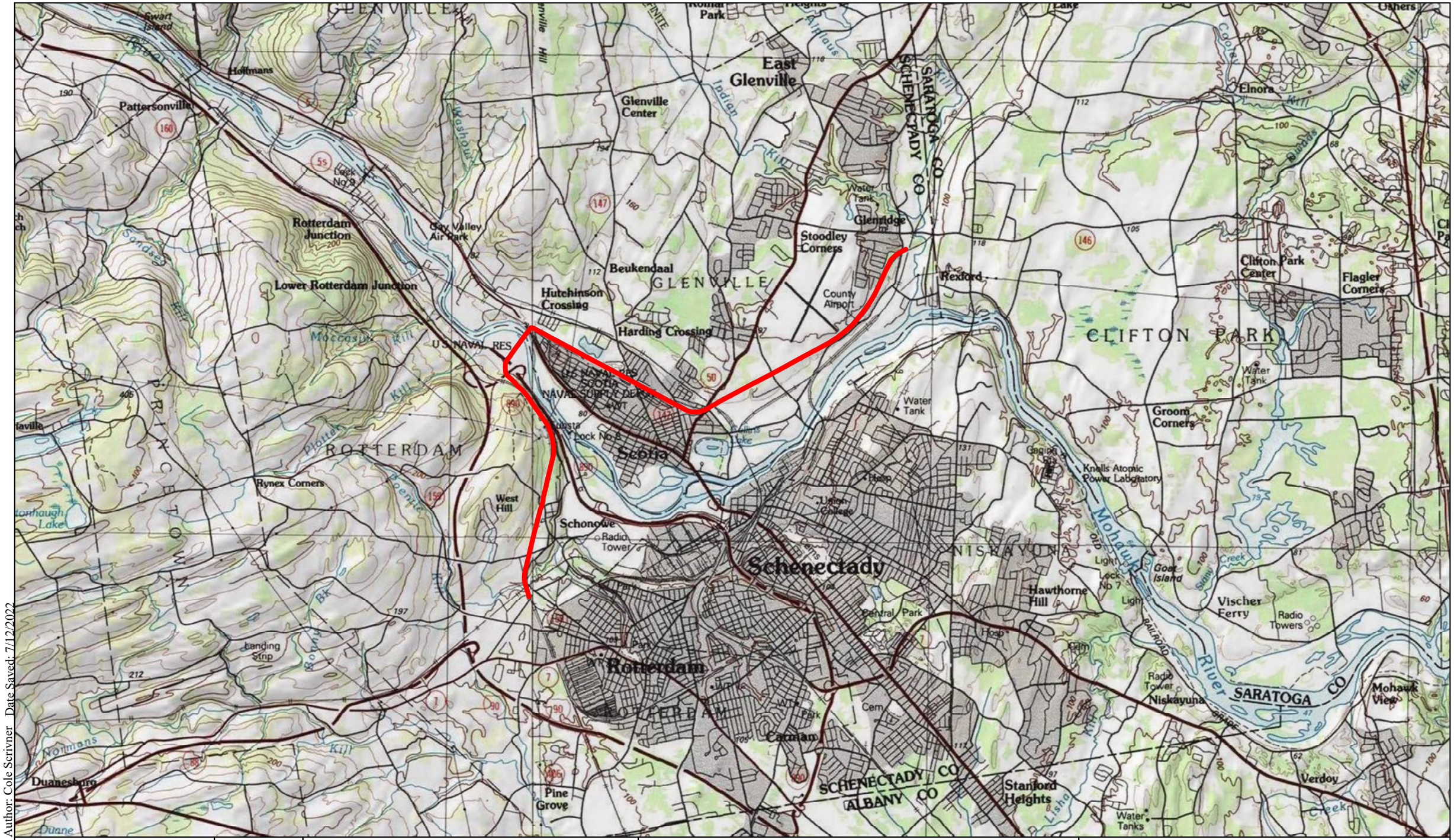
For

_____

Responsible For

Signature (Trained Contractor)	***Date***
For	
Responsible For	

APPENDIX A
FIGURES



Author: Cole Scrivner Date Saved: 7/12/2022

N

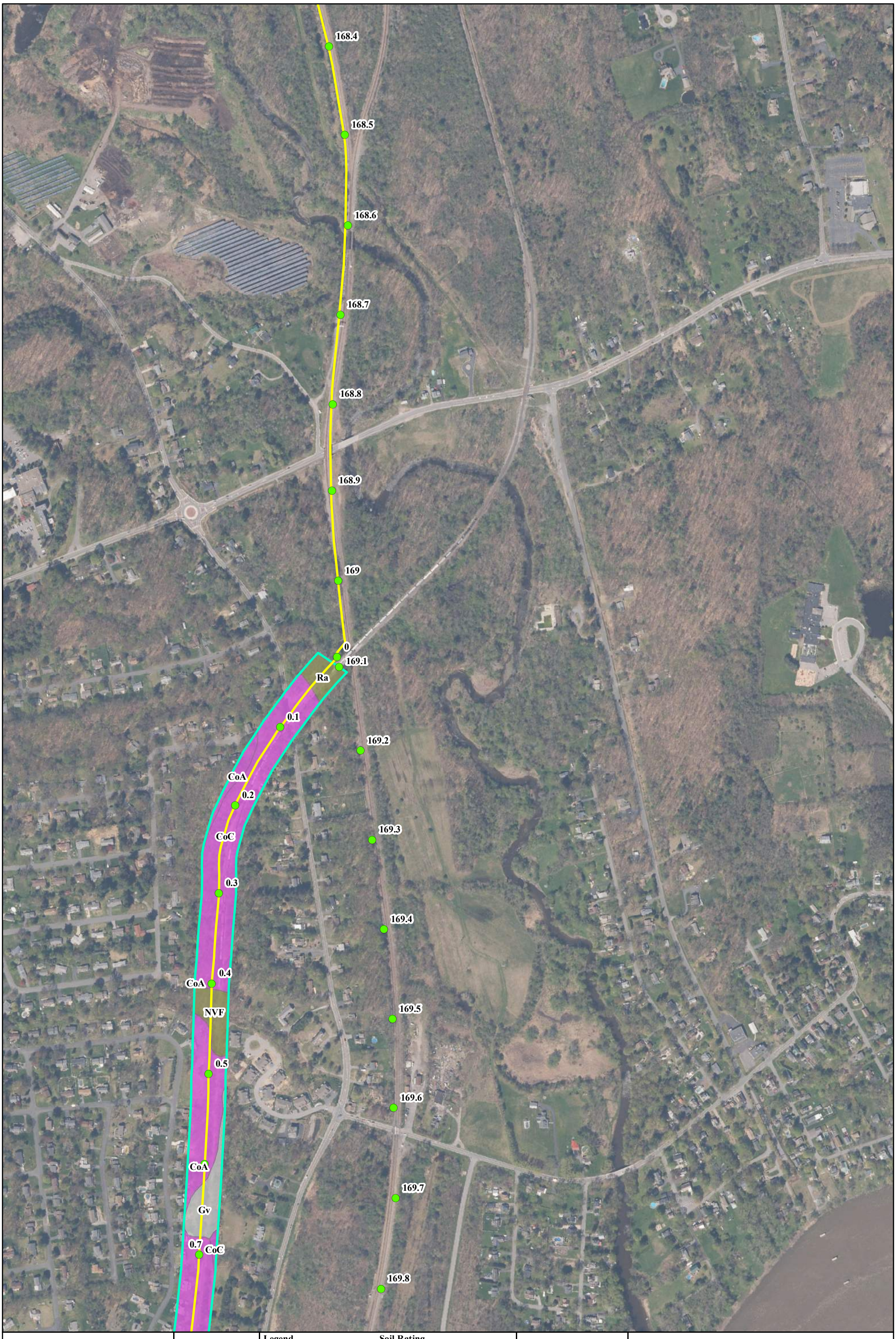
Legend

Package 4B Segment 7 Project Corridor

0 3 6 Miles

Figure 1 - Champlain Hudson Power Express
Package 4B Segment 7
USGS Project Location Map

APPENDIX B
NRCS SOIL MAP



CHA

Page 1 of 7

Legend

- Consolidated Route
- 100 ft. Buffer (AOI)
- Mile Marker

Soil Rating

A	C
A/D	C/D
B	D
B/D	Not rated

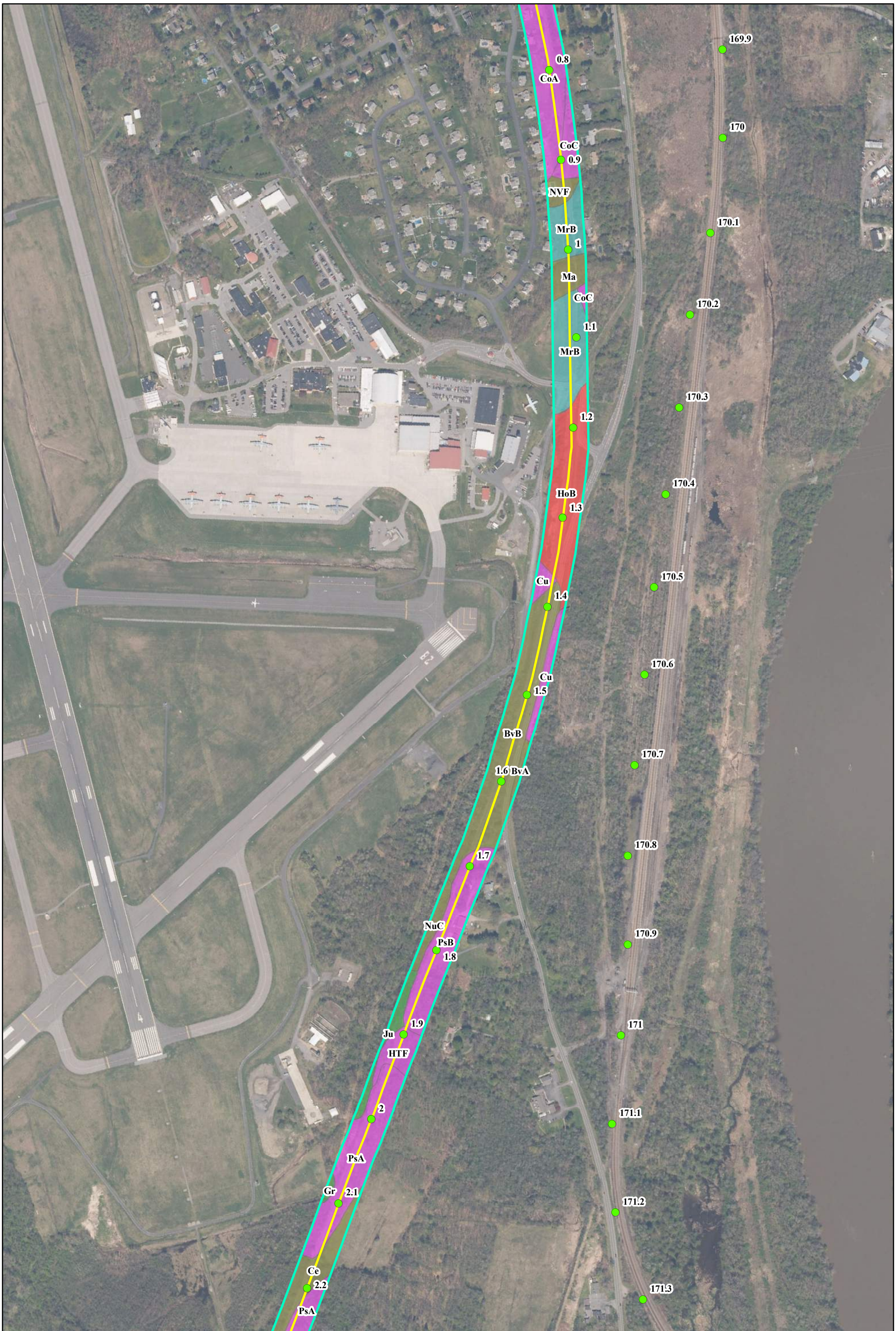
0 250 500

Feet

1 in. = 500 ft.

Champlain Hudson Power Express
Package 4B Soils Map

Saratoga/Schenectady County, New York



CHA

Page 2 of 7

Legend

- Consolidated Route
- 100 ft. Buffer (AOI)
- Mile Marker

Soil Rating

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated

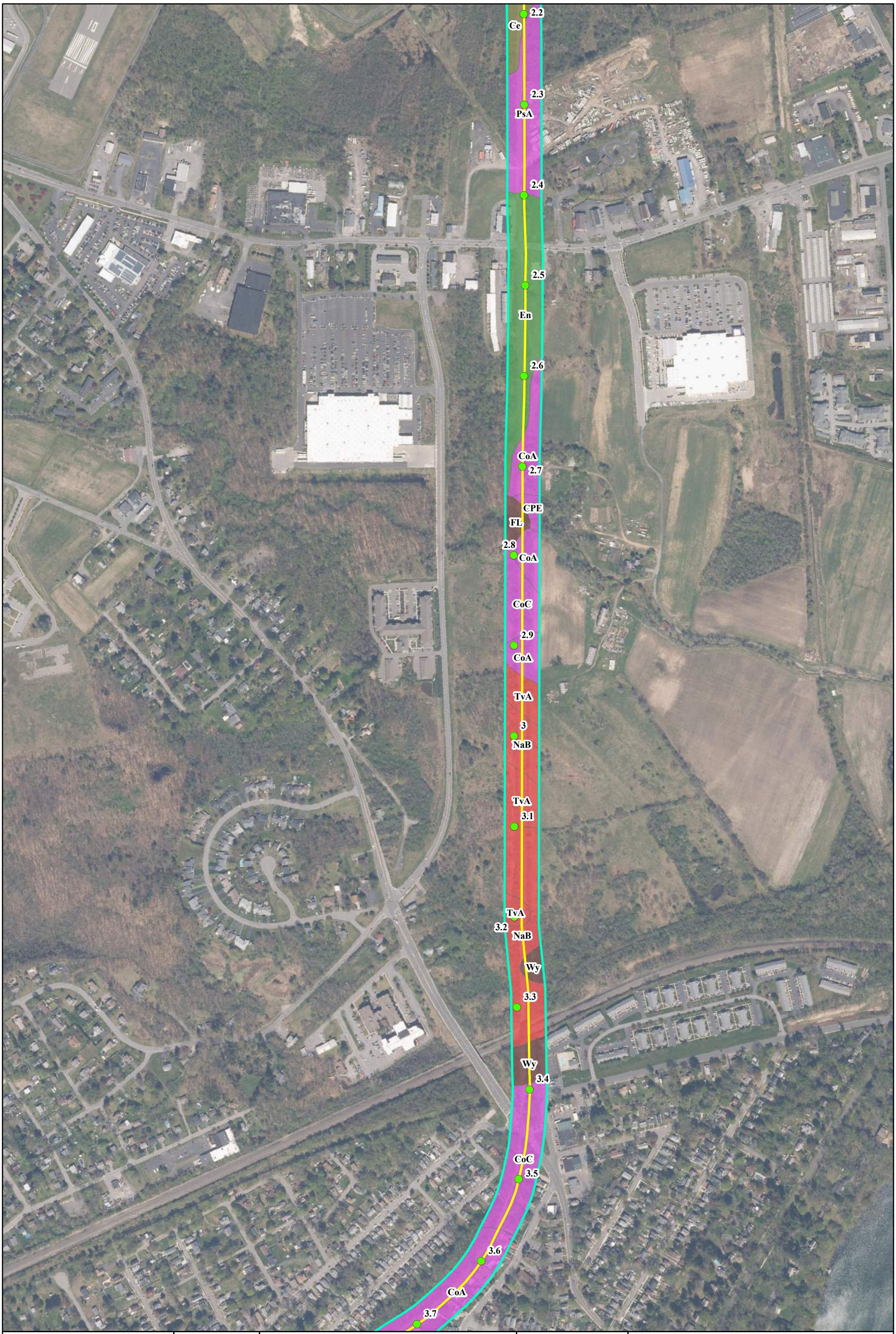
0 250 500

Feet

1 in. = 500 ft.

Champlain Hudson Power Express Package 4B Soils Map

Schenectady County, New York



CHA

Legend

- Consolidated Route
- 100 ft. Buffer (AOI)
- Mile Marker

Soil Rating

A	C
A/D	C/D
B	D
B/D	Not rated

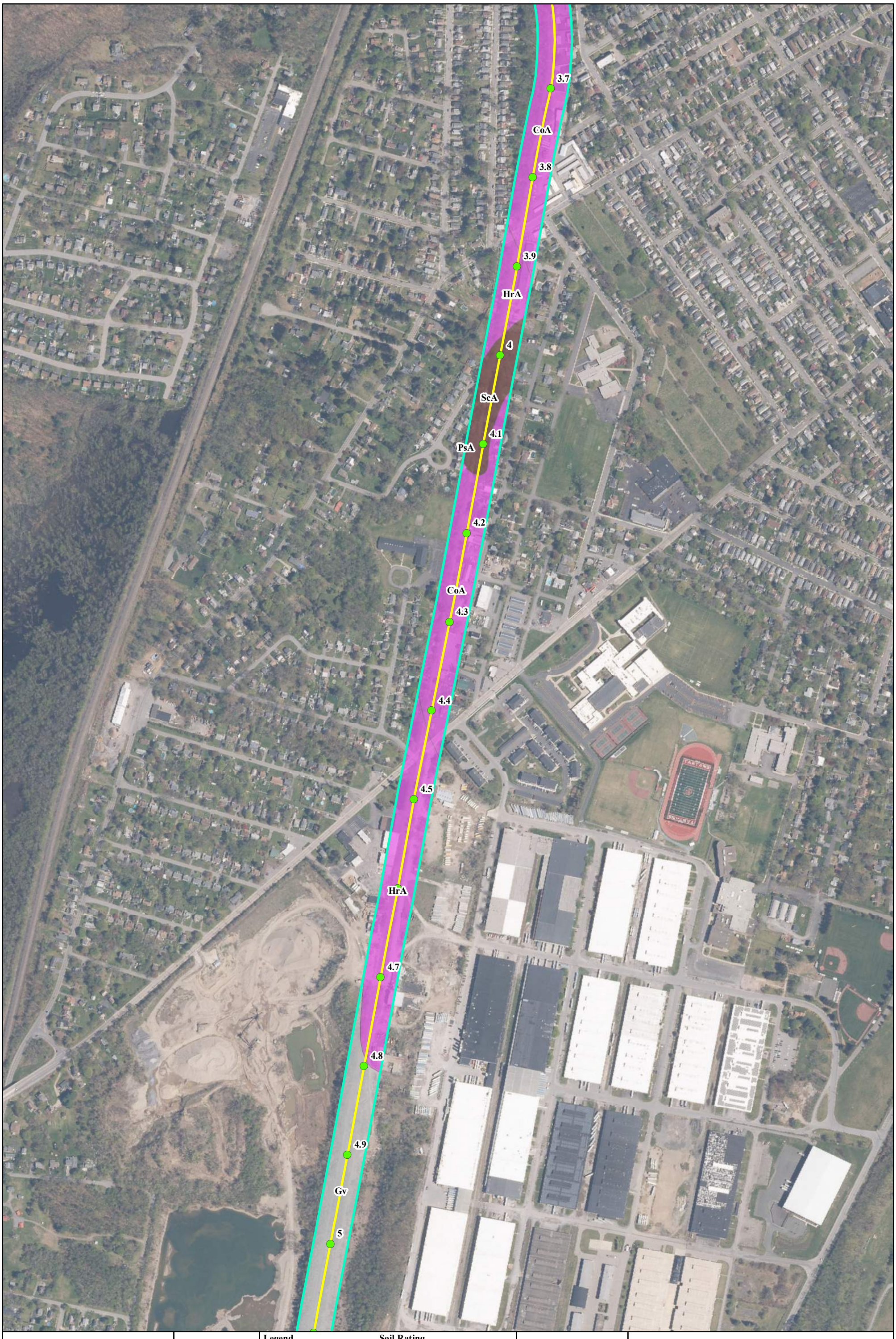
0 250 500

Feet

1 in. = 500 ft.

Champlain Hudson Power Express
Package 4B Soils Map

Schenectady County, New York



CHA

Page 4 of 7

Legend

- Consolidated Route
- 100 ft. Buffer (AOI)
- Mile Marker

Soil Rating

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated

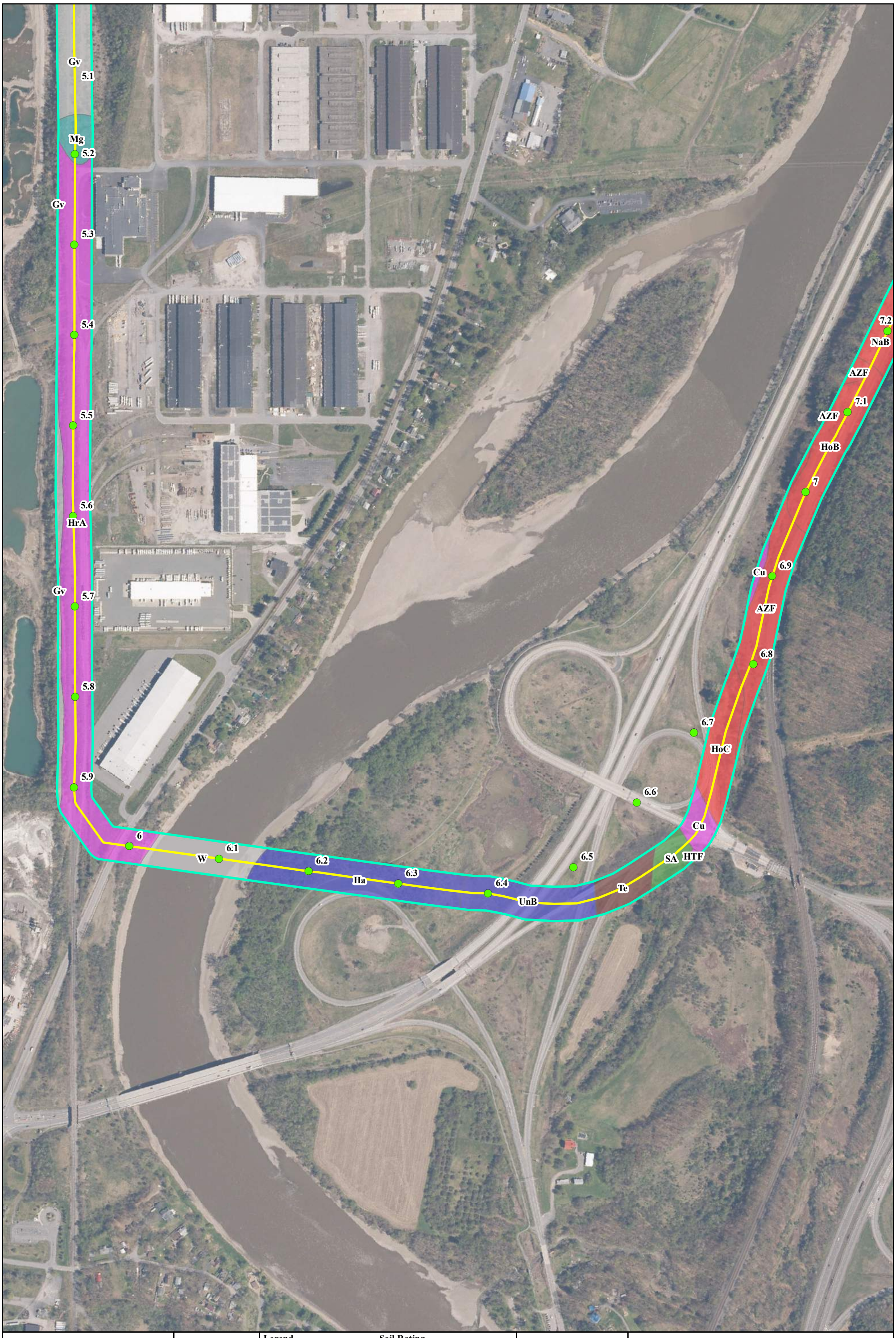
0 250 500

Feet

1 in. = 500 ft.

Champlain Hudson Power Express
Package 4B Soils Map

Schenectady County, New York



CHA

Page 5 of 7

Legend

- Consolidated Route
- 100 ft. Buffer (AOI)
- Mile Marker

Soil Rating

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated

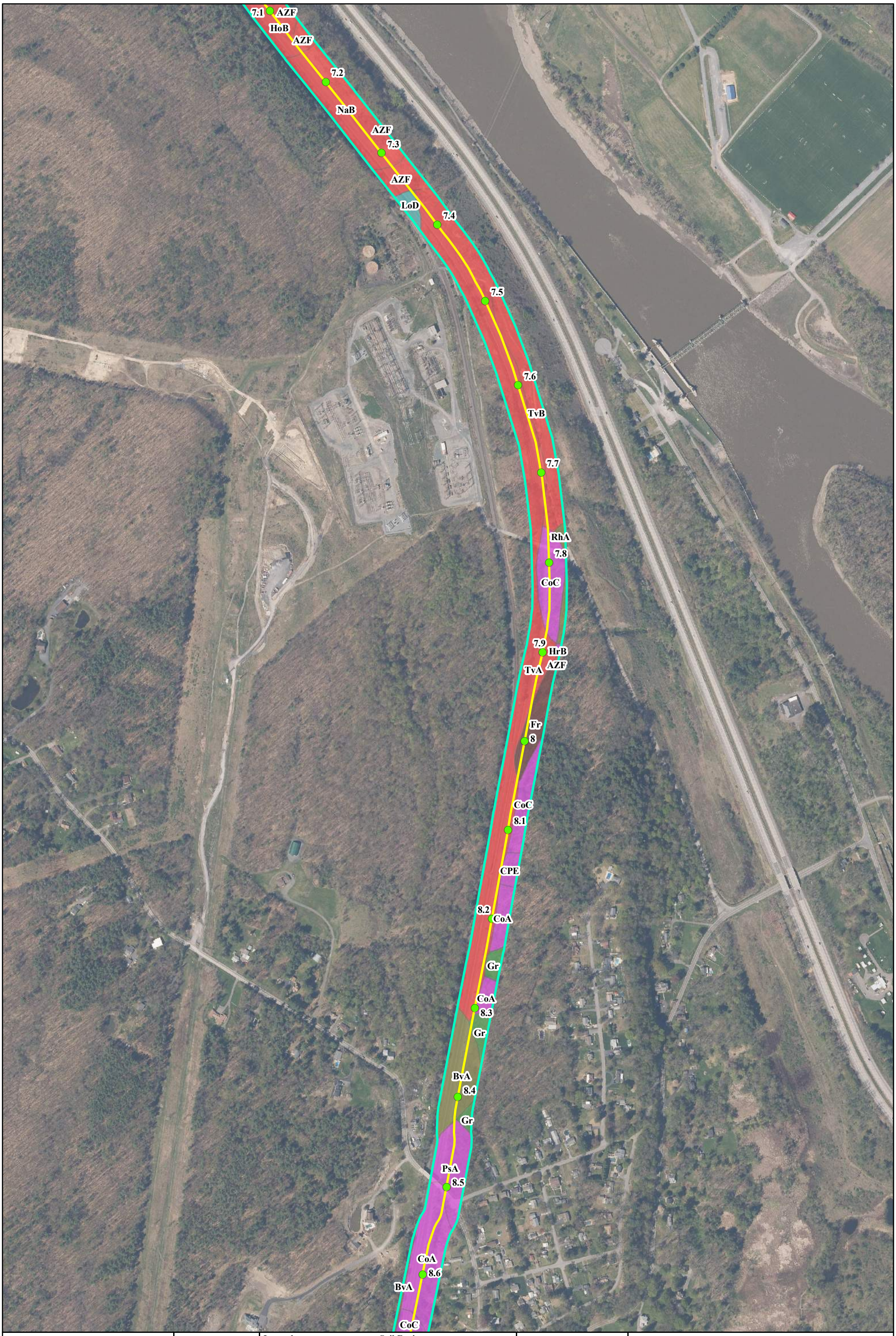
0 250 500

Feet

1 in. = 500 ft.

Champlain Hudson Power Express
Package 4B Soils Map

Schenectady County, New York



Legend

- Consolidated Route
- 100 ft. Buffer (AOI)
- Mile Marker

Soil Rating

A	C
A/D	C/D
B	D
B/D	Not rated

0 250 500
Feet

1 in. = 500 ft.

Champlain Hudson Power Express
Package 4B Soils Map

Schenectady County, New York

8.6
CoA
BvA
8.7
CoA
CoC
8.8
OtB
8.9
CoA
9
OtB
9.1
PsA
9.2
OtB
9.3
HrA
9.4
OtB
HrD
9.5
HrA
HTF
FL
HTF
9.6
Wy
PsA
HTF
PsA
9.7
177.1
MrB
177.2
177.3
177.4
177.5
176.4
176.5
176.6
176.7
176.8
176.9
177

CHA	N Page 7 of 7	**Legend** Consolidated Route 100 ft. Buffer (AOI) Mile Marker	**Soil Rating** A A/D B B/D C C/D D Not rated	0 250 500 Feet 1 in. = 500 ft.	***Champlain Hudson Power Express*** ***Package 4B Soils Map*** *Schenectady County, New York*

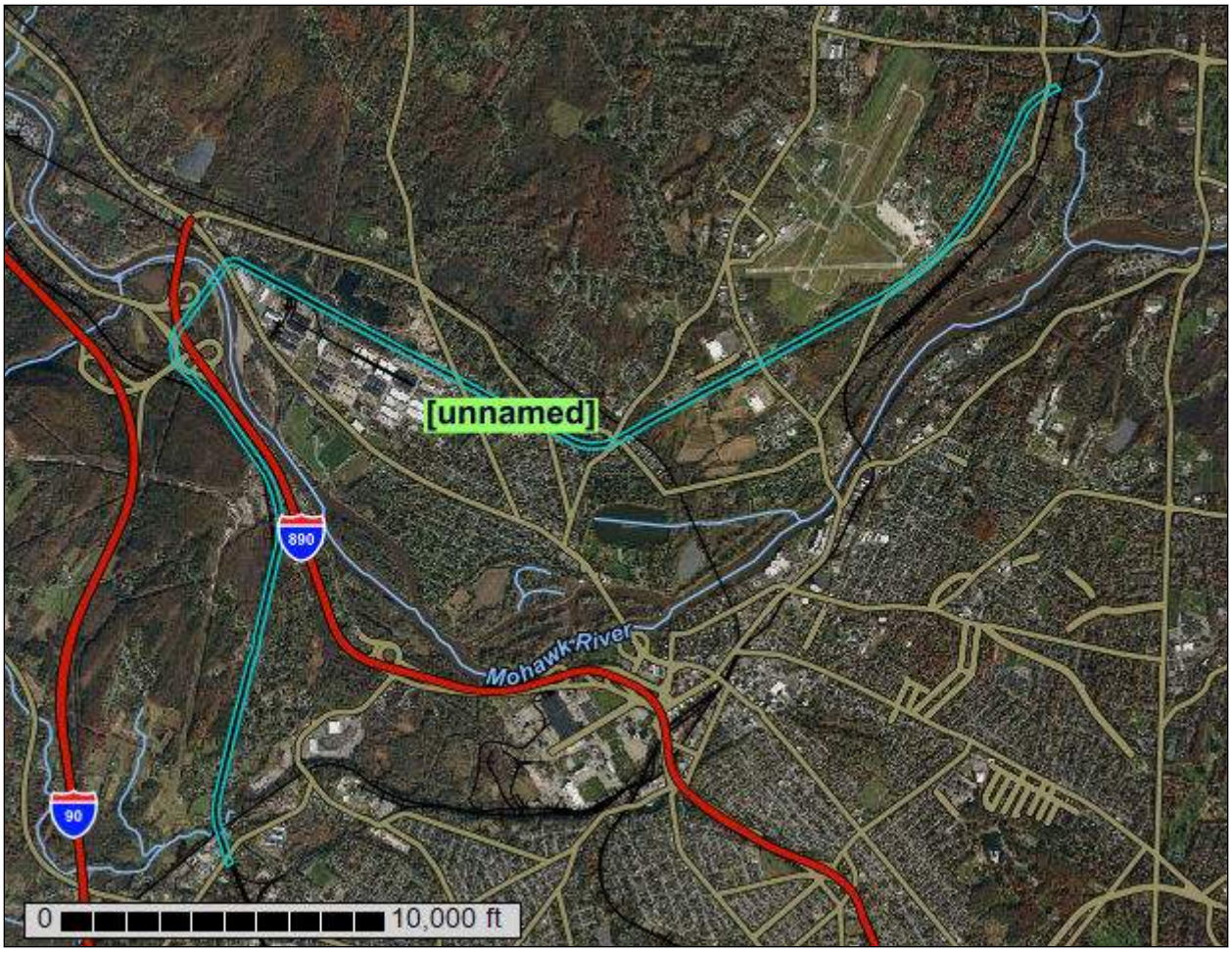
United States Department of Agriculture

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 Schenectady County, New York



June 16, 2022

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.

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

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

Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

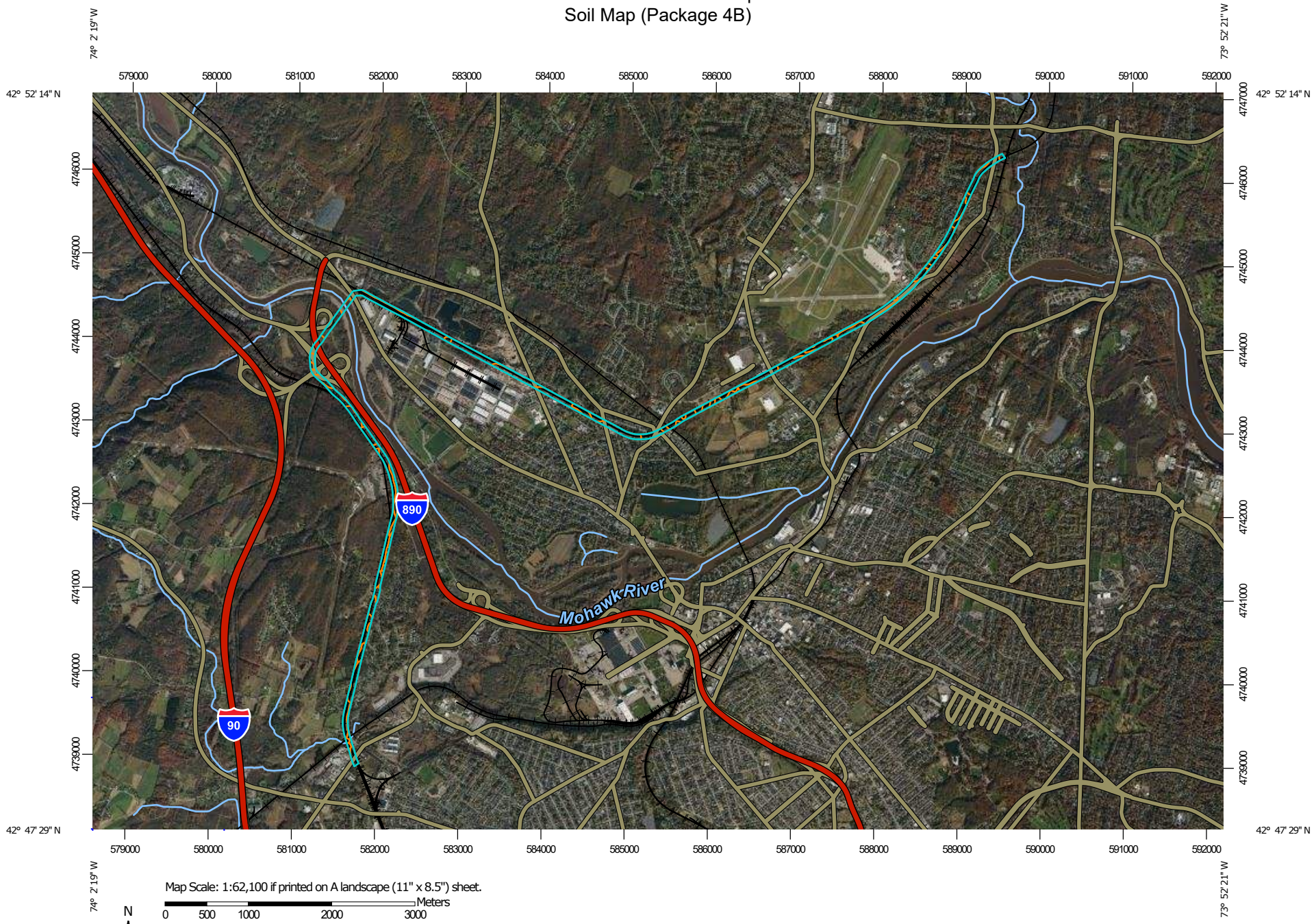
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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

Soil Map

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

Custom Soil Resource Report
Soil Map (Package 4B)



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: Schenectady County, New York
Survey Area Data: Version 20, Sep 1, 2021

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

Date(s) aerial images were photographed: Aug 15, 2021—Nov 8, 2021

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

Map Unit Legend (Package 4B)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AZF	Arnot-Rock outcrop association, very steep	6.1	2.6%
BvA	Burdett-Scriba channery silt loams, 0 to 3 percent slopes	2.9	1.2%
BvB	Burdett-Scriba channery silt loams, 3 to 8 percent slopes	6.2	2.6%
Ce	Cheektowaga fine sandy loam	2.0	0.9%
CoA	Colonie loamy fine sand, 0 to 3 percent slopes	35.8	15.0%
CoC	Colonie loamy fine sand, 3 to 15 percent slopes	23.3	9.8%
CPE	Colonie and Plainfield soils, steep	0.8	0.3%
Cu	Cut and fill land	2.6	1.1%
En	Elnora loamy fine sand	6.1	2.6%
FL	Fluvaquents, loamy	1.3	0.5%
Fr	Fredon silt loam	1.4	0.6%
Gr	Granby loamy fine sand	1.1	0.5%
Gv	Gravel pits	12.3	5.2%
Ha	Hamlin silt loam	5.6	2.3%
HoB	Hornell silt loam, 3 to 8 percent slopes	8.9	3.7%
HoC	Hornell silt loam, 8 to 15 percent slopes	3.1	1.3%
HrA	Howard gravelly silt loam, 0 to 3 percent slopes	29.7	12.5%
HrB	Howard gravelly silt loam, 3 to 8 percent slopes	0.0	0.0%
HrD	Howard gravelly silt loam, 15 to 25 percent slopes	0.5	0.2%
HTF	Howard soils, very steep	1.8	0.7%
Ju	Junius loamy fine sand	0.8	0.3%
LoD	Lordstown gravelly silt loam, 15 to 25 percent slopes	0.4	0.2%
Ma	Madalin silty clay loam, 0 to 3 percent slopes	0.9	0.4%
Mg	Made land	1.1	0.5%
MrB	Mardin gravelly silt loam, 3 to 8 percent slopes	7.5	3.1%
NaB	Nassau channery silt loam, 0 to 8 percent slopes	10.2	4.3%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
NuC	Nunda channery silt loam, 8 to 15 percent slopes	0.7	0.3%
NVF	Nunda soils, very steep	1.8	0.8%
OtB	Otisville gravelly loamy sand, 0 to 8 percent slopes	6.2	2.6%
PsA	Plainfield loamy sand, 0 to 3 percent slopes	18.3	7.7%
PsB	Plainfield loamy sand, 3 to 10 percent slopes	3.9	1.6%
Ra	Raynham silt loam	0.9	0.4%
RhA	Rhinebeck silty clay loam, 0 to 3 percent slopes	0.4	0.2%
SA	Saprists and Aquents	1.1	0.5%
ScA	Scio silt loam, 0 to 3 percent slopes	3.1	1.3%
Te	Teel silt loam	1.7	0.7%
TvA	Tuller-Brockport complex, 0 to 3 percent slopes	16.2	6.8%
TvB	Tuller-Brockport complex, 3 to 8 percent slopes	2.8	1.2%
UnB	Unadilla silt loam, 0 to 8 percent slopes	3.6	1.5%
W	Water	2.9	1.2%
Wy	Wayland soils complex, 0 to 3 percent slopes, frequently flooded	2.1	0.9%
Totals for Area of Interest		**238.3**	**100.0%**

Map Unit Descriptions (Package 4B)

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.

Schenectady County, New York

AZF—Arnot-Rock outcrop association, very steep

Map Unit Setting

National map unit symbol: bd37
Elevation: 1,000 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

Arnot and similar soils: 50 percent
Rock outcrop: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arnot

Setting

Landform: Hills, benches, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from acid sandstone, siltstone, and shale

Typical profile

H1 - 0 to 7 inches: channery silt loam
H2 - 7 to 16 inches: channery silt loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 35 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 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 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F140XY023NY - Shallow Till Uplands
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 35 to 60 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydric soil rating: Unranked

Minor Components

Tuller

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

Nassau

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

Lordstown

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

Manlius

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

BvA—Burdett-Scriba channery silt loams, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: bd3h
Elevation: 210 to 1,600 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

Burdett and similar soils: 50 percent
Scriba and similar soils: 30 percent
Minor components: 20 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 9 inches: channery silt loam
H2 - 9 to 16 inches: channery silt loam
H3 - 16 to 44 inches: very gravelly silty clay loam
H4 - 44 to 60 inches: very 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: 10 percent
Available water supply, 0 to 60 inches: Moderate (about 7.3 inches)

Interpretive groups

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

Description of Scriba

Setting

Landform: Till plains, drumlins
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till dominated by sandstone, with lesser amounts of limestone and shale

Typical profile

H1 - 0 to 7 inches: channery silt loam
H2 - 7 to 15 inches: channery silt loam
Bx - 15 to 43 inches: very gravelly loam
C - 43 to 60 inches: very gravelly loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 12 to 18 inches to fragipan
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 1.8 inches)

Interpretive groups

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

Minor Components

Angola

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

Varick

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

Darien

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

BvB—Burdett-Scriba channery silt loams, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: bd3j
Elevation: 200 to 1,600 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

Burdett and similar soils: 50 percent
Scriba and similar soils: 30 percent
Minor components: 20 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 9 inches: channery silt loam
H2 - 9 to 16 inches: channery silt loam
H3 - 16 to 44 inches: very gravelly silty clay loam
H4 - 44 to 60 inches: very 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: 10 percent
Available water supply, 0 to 60 inches: Moderate (about 7.3 inches)

Interpretive groups

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

Description of Scriba

Setting

Landform: Till plains, drumlins
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till dominated by sandstone, with lesser amounts of limestone and shale

Typical profile

H1 - 0 to 7 inches: channery silt loam
H2 - 7 to 15 inches: channery silt loam
Bx - 15 to 43 inches: very gravelly loam
C - 43 to 60 inches: very gravelly loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 12 to 18 inches to fragipan
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 1.8 inches)

Interpretive groups

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

Minor Components

Darien

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

Ilion

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

Varick

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

Angola

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

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

Madalin

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

Junius

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

Claverack

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

Granby

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

Palms

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

CoA—Colonie loamy fine sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: bd3v
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: All areas are prime farmland

Map Unit Composition

Colonie and similar soils: 75 percent
Minor components: 25 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 6 inches: loamy fine sand
H2 - 6 to 70 inches: fine sand
H3 - 70 to 110 inches: 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 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): 2s
Hydrologic Soil Group: A
Ecological site: F101XY005NY - Dry Outwash
Hydric soil rating: No

Minor Components

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

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

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

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

Junius
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
Minor components: 25 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

Minor Components

Plainfield

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

Elnora

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

Howard

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

Nunda

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

Junius

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

CPE—Colonie and Plainfield soils, steep

Map Unit Setting

National map unit symbol: bd3x
Elevation: 150 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

Colonie and similar soils: 45 percent
Plainfield and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colonie

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

Properties and qualities

Slope: 15 to 50 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): 7e
Hydrologic Soil Group: A
Ecological site: F101XY005NY - Dry Outwash
Hydric soil rating: No

Description of Plainfield

Setting

Landform: Terraces, outwash plains, deltas
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
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: 15 to 50 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): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Hudson

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

Junius

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

Howard

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

Elnora

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

Cu—Cut and fill land

Map Unit Setting

National map unit symbol: 1vggp
Elevation: 180 to 1,380 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

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

Description of Udorthents

Typical profile

H1 - 0 to 4 inches: gravelly loam

H2 - 4 to 70 inches: very gravelly loam

Properties and qualities

Slope: 0 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): 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 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Angola

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

Sun

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

Raynham

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

Hudson

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

Alton

Percent of map unit: 5 percent
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
Minor components: 25 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
Hydric soil rating: No

Minor Components

Plainfield

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

Junius

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

Phelps

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

Claverack

Percent of map unit: 5 percent

Hydric soil rating: No

Colonie

Percent of map unit: 5 percent
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

Hydric soil rating: Yes

Minor Components

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

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

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

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

Fr—Fredon silt loam

Map Unit Setting
National map unit symbol: bd47
Elevation: 250 to 1,200 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
Fredon, poorly drained, and similar soils: 50 percent
Fredon, somewhat poorly drained, and similar soils: 25 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fredon, Poorly Drained

Setting
Landform: Depressions

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

Typical profile

Ap - 0 to 9 inches: silt loam
B21 - 9 to 19 inches: gravelly silt loam
B22 - 19 to 31 inches: very gravelly loam
2C - 31 to 45 inches: stratified very gravelly sand
3C - 45 to 60 inches: stratified silt loam to very fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Description of Fredon, Somewhat Poorly Drained

Setting

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

Typical profile

Ap - 0 to 9 inches: silt loam
B21 - 9 to 19 inches: gravelly silt loam
B22 - 19 to 31 inches: very gravelly loam
2C - 31 to 45 inches: stratified very gravelly sand
3C - 45 to 60 inches: stratified silt loam to very 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): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None

Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Moderate (about 7.3 inches)

Interpretive groups

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

Minor Components

Madalin

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

Phelps

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

Howard

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

Raynham

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

Ilion

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

Minor Components

Cheektowaga

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

Palms

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

Junius

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

Elnora

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

Plainfield

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

Gv—Gravel pits

Map Unit Setting

National map unit symbol: 1vggq
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

Gravel pits: 70 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gravel Pits

Typical profile

H1 - 0 to 6 inches: very gravelly sand
H2 - 6 to 60 inches: very gravelly coarse sand

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Minor Components

Herkimer

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

Ilion

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

Howard

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

Palmyra

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

Fredon

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

Farmington

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

Ha—Hamlin silt loam

Map Unit Setting

National map unit symbol: bd4f
Elevation: 180 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: All areas are prime farmland

Map Unit Composition

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

Description of Hamlin

Setting

Landform: Flood plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Silty alluvium mainly from areas of siltstone, shale, and limestone

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 24 inches: silt loam
H3 - 24 to 37 inches: silt loam
H4 - 37 to 70 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: High (about 11.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

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

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

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

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

Unnamed soils
Percent of map unit: 2 percent

HoB—Hornell silt loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: bd4j
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: Farmland of statewide importance

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

Description of Hornell

Setting
Landform: Till plains, ridges, benches
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey till, or till and residuum, derived from acid shale and siltstone

Typical profile
H1 - 0 to 8 inches: silt loam
H2 - 8 to 27 inches: silty clay
H3 - 27 to 32 inches: silty clay loam

H4 - 32 to 36 inches: weathered bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 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 4.2 inches)

Interpretive groups

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

Minor Components

Brockport

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

Manlius

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

Tuller

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

Angola

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

Varick

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

HoC—Hornell silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: bd4k
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: Farmland of statewide importance

Map Unit Composition

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

Description of Hornell

Setting

Landform: Till plains, ridges, benches
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey till, or till and residuum, derived from acid shale and siltstone

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 27 inches: silty clay
H3 - 27 to 32 inches: silty clay loam
H4 - 32 to 36 inches: weathered bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 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 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Arnot

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

Manlius

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

Lordstown

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

Varick

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

Brockport

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

HrA—Howard gravelly silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: bd4l
Elevation: 210 to 870 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

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: 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, 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: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 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): 2s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

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

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

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

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

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

HrB—Howard gravelly silt loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: bd4m
Elevation: 210 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: All areas are 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: 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, 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: 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: 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): 2s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Palmyra

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

Unnamed soils

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

Phelps

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

Colonie

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

Alton

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

HrD—Howard gravelly silt loam, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: bd4p
Elevation: 230 to 790 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: Terraces, valley trains
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: 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 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): 4e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Phelps

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

Colonie

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

Palmyra

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

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

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

Mohawk
Percent of map unit: 2 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: Terraces, valley trains
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
Hydric soil rating: No

Minor Components

Nunda

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

Mohawk

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

Palmyra

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

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

Cheektowaga

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

Granby

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

LoD—Lordstown gravelly silt loam, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: bd57
Elevation: 750 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

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

Description of Lordstown

Setting

Landform: Benches, ridges, hills
Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived from sandstone and siltstone

Typical profile

H1 - 0 to 7 inches: gravelly silt loam
H2 - 7 to 22 inches: channery silt loam
H3 - 22 to 26 inches: gravelly silt loam
H4 - 26 to 30 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 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 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F140XY027NY - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Nassau

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

Arnot

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

Manlius

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

Brockport

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

Nunda

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

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

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

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

Mg—Made land

Map Unit Setting
National map unit symbol: bd5c
Elevation: 210 to 870 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

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

Description of Udorthents

Typical profile

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

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 19.98 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 0.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Nellis

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

Cheektowaga

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

Copake

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

Ilion

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

Burdett

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

Raynham

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

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: 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: 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

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

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

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

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

NaB—Nassau channery silt loam, 0 to 8 percent slopes

Map Unit Setting
National map unit symbol: bd5w
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: Farmland of statewide importance

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

Description of Nassau

Setting
Landform: Till plains, ridges, benches
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Channery loamy till derived mainly from local slate or shale

Typical profile
H1 - 0 to 8 inches: channery silt loam
H2 - 8 to 15 inches: very channery silt loam
H3 - 15 to 19 inches: unweathered bedrock

Properties and qualities
Slope: 0 to 8 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: D
Ecological site: F144AY033MA - Shallow Dry Till Uplands
Hydric soil rating: No

Minor Components

Hornell

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

Arnot

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

Brockport

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

Manlius

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

Mardin

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

NuC—Nunda channery silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: bd62
Elevation: 400 to 1,600 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

Nunda and similar soils: 75 percent
Minor components: 25 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 7 inches: channery silt loam
H2 - 7 to 25 inches: channery silt loam
H3 - 25 to 42 inches: gravelly silty clay loam
H4 - 42 to 60 inches: gravelly 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 (0.06 to 0.20 in/hr)
Depth to water table: About 15 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Moderate (about 7.8 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

Darien

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

Lansing

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

Mohawk

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

Burdett

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

Angola

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

NVF—Nunda soils, very steep

Map Unit Setting

National map unit symbol: bd5t
Elevation: 400 to 1,600 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

Nunda and similar soils: 75 percent
Minor components: 25 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): Side slope
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 7 inches: channery silt loam
H2 - 7 to 25 inches: channery silt loam
H3 - 25 to 42 inches: gravelly silty clay loam
H4 - 42 to 60 inches: gravelly loam

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 15 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
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

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

Rock outcrop
Percent of map unit: 5 percent
Hydric soil rating: Unranked

Manlius
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
Minor components: 20 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

Minor Components

Elnora

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

Colonie

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

Plainfield

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

Alton

Percent of map unit: 5 percent
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: Deltas, terraces, outwash plains
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
Hydric soil rating: No

Minor Components

Colonie

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

Elnora

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

Alton

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

Otisville

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

PsB—Plainfield loamy sand, 3 to 10 percent slopes

Map Unit Setting

National map unit symbol: bd6k
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: 3 to 10 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): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

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

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

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

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

Ra—Raynham silt loam

Map Unit Setting
National map unit symbol: bd6n
Elevation: 50 to 500 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
Raynham, somewhat poorly drained, and similar soils: 40 percent
Raynham, poorly drained, and similar soils: 40 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Raynham, Somewhat Poorly Drained

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

Typical profile
H1 - 0 to 8 inches: silt loam
H2 - 8 to 23 inches: silt loam
H3 - 23 to 60 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 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: 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
Hydric soil rating: No

Description of Raynham, Poorly Drained

Setting

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

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 23 inches: silt loam
H3 - 23 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 moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 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): 4w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Scio

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

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

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

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

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
Hydric soil rating: No

Minor Components

Hudson

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

Madalin

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

Fonda

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

Churchville

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

Odessa

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

SA—Saprists and Aquents

Map Unit Setting

National map unit symbol: bd6r
Elevation: 10 to 2,400 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

Saprists and similar soils: 45 percent
Aquents and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Saprists

Setting

Landform: Marshes, swamps
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Organic material

Typical profile

H1 - 0 to 70 inches: muck

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (0.20 to 19.98 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 22.7 inches)

Interpretive groups

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

Description of Aquents

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Down-slope shape: Concave
Across-slope shape: Concave

Typical profile

H1 - 0 to 9 inches: gravelly loam
H2 - 9 to 70 inches: gravelly silt loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 5.95 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w

Hydrologic Soil Group: A/D
Hydric soil rating: Yes

Minor Components

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

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

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

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

ScA—Scio silt loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: bd6s
Elevation: 100 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: 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 10 inches: silt loam
H2 - 10 to 33 inches: silt loam
H3 - 33 to 60 inches: stratified very fine sandy loam to silt loam to loamy very 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): 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
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

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

Minor Components

Elnora

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

Raynham

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

Unadilla

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

Rhinebeck

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

Te—Teel silt loam

Map Unit Setting

National map unit symbol: bd6w
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

Teel and similar soils: 75 percent
Minor components: 25 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 13 inches: silt loam
H2 - 13 to 38 inches: silt loam
H3 - 38 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 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 9.7 inches)

Interpretive groups

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

Minor Components

Howard

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

Copake

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

Scio

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

TvA—Tuller-Brockport complex, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: bd6y
Elevation: 210 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

Tuller, somewhat poorly drained, and similar soils: 35 percent
Brockport and similar soils: 30 percent
Tuller, poorly drained, and similar soils: 15 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tuller, Somewhat Poorly Drained

Setting

Landform: Benches, ridges, hills
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till derived mainly from acid sandstone, siltstone, and shale

Typical profile

H1 - 0 to 7 inches: channery silt loam
H2 - 7 to 14 inches: channery silt loam
H3 - 14 to 18 inches: unweathered bedrock

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 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: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Brockport

Setting

Landform: Till plains, ridges, benches
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey till or congeliturbate derived mainly from neutral or calcareous shale

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 22 inches: silty clay
2C - 22 to 28 inches: very channery silty clay loam
2R - 28 to 34 inches: weathered bedrock

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 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 4.9 inches)

Interpretive groups

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

Description of Tuller, Poorly Drained

Setting

Landform: Benches, ridges, hills
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till derived mainly from acid sandstone, siltstone, and shale

Typical profile

H1 - 0 to 7 inches: channery silt loam
H2 - 7 to 14 inches: channery silt loam
H3 - 14 to 18 inches: unweathered bedrock

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Hydric soil rating: Yes

Minor Components

Ilion

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

Arnot

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

Angola

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

Varick

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

TvB—Tuller-Brockport complex, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: bd6z
Elevation: 260 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

Tuller, somewhat poorly drained, and similar soils: 35 percent
Brockport and similar soils: 30 percent
Tuller, poorly drained, and similar soils: 15 percent
Minor components: 20 percent

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

Description of Tuller, Somewhat Poorly Drained

Setting

Landform: Benches, ridges, hills
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till derived mainly from acid sandstone, siltstone, and shale

Typical profile

H1 - 0 to 7 inches: channery silt loam
H2 - 7 to 14 inches: channery silt loam
H3 - 14 to 18 inches: unweathered bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 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: Very low (about 1.4 inches)

Interpretive groups

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

Description of Brockport

Setting

Landform: Till plains, ridges, benches
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey till or congeliturbate derived mainly from neutral or calcareous shale

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 22 inches: silty clay
2C - 22 to 28 inches: very channery silty clay loam
2R - 28 to 34 inches: weathered bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 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 4.9 inches)

Interpretive groups

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

Description of Tuller, Poorly Drained

Setting

Landform: Benches, ridges, hills
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till derived mainly from acid sandstone, siltstone, and shale

Typical profile

H1 - 0 to 7 inches: channery silt loam
H2 - 7 to 14 inches: channery silt loam
H3 - 14 to 18 inches: unweathered bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Hydric soil rating: Yes

Minor Components

Varick

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

Arnot

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

Angola

Percent of map unit: 5 percent

Hydric soil rating: No

Ilion

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

UnB—Unadilla silt loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: bd71
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

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

Description of Unadilla

Setting

Landform: Lake plains
Landform position (two-dimensional): Summit
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 28 inches: very fine sandy loam
C - 28 to 50 inches: very fine sandy loam
2C - 50 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: 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: 1 percent
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

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

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

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

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

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

W—Water

Map Unit Setting
National map unit symbol: 1qcvx
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
Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

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

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

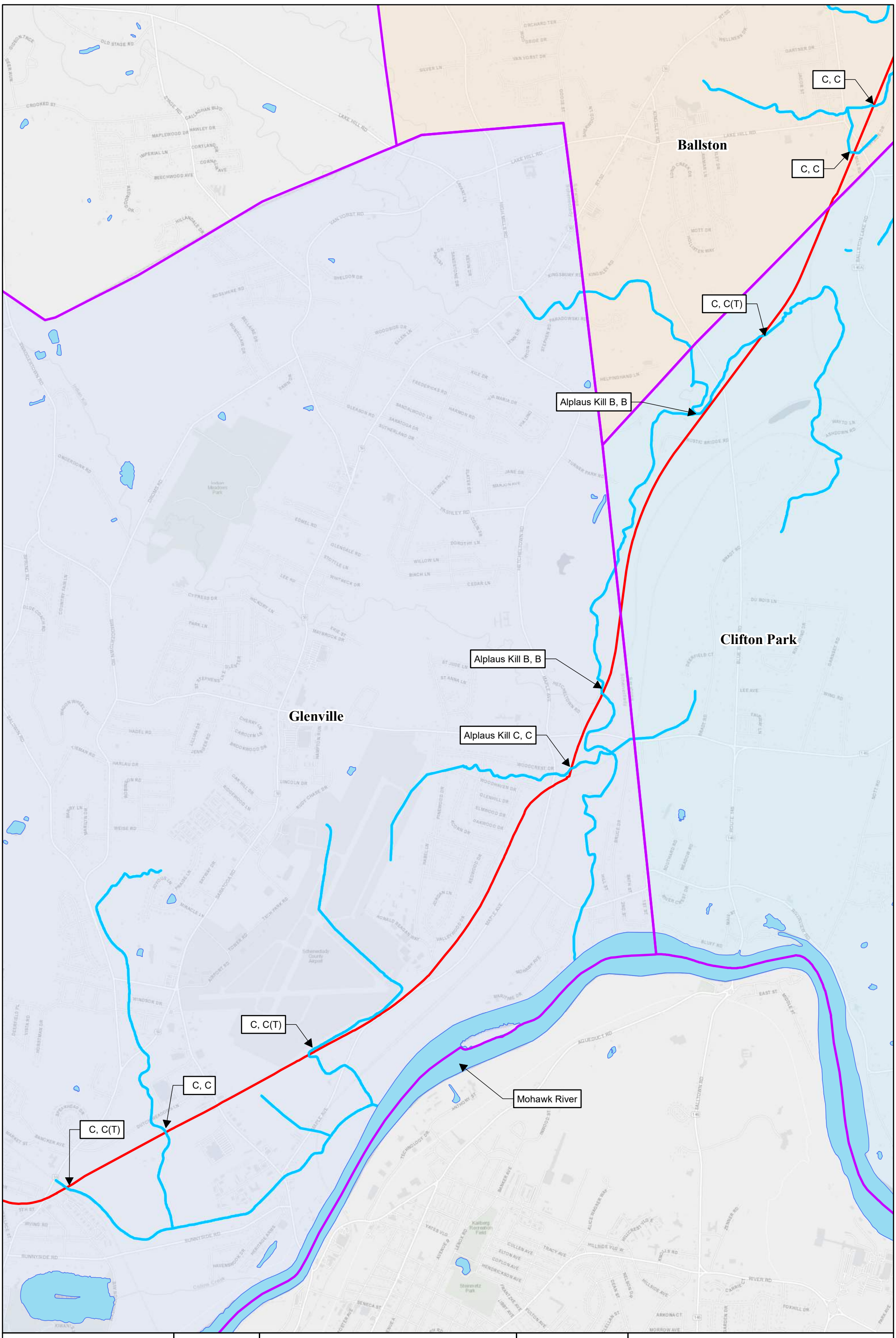
United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

APPENDIX C
RECEIVING WATERS MAP



CHPE Champlain Hudson Power Express

N

Page 1 of 2

Legend

Consolidated Route

Municipal Border

Water Bodies

Streams

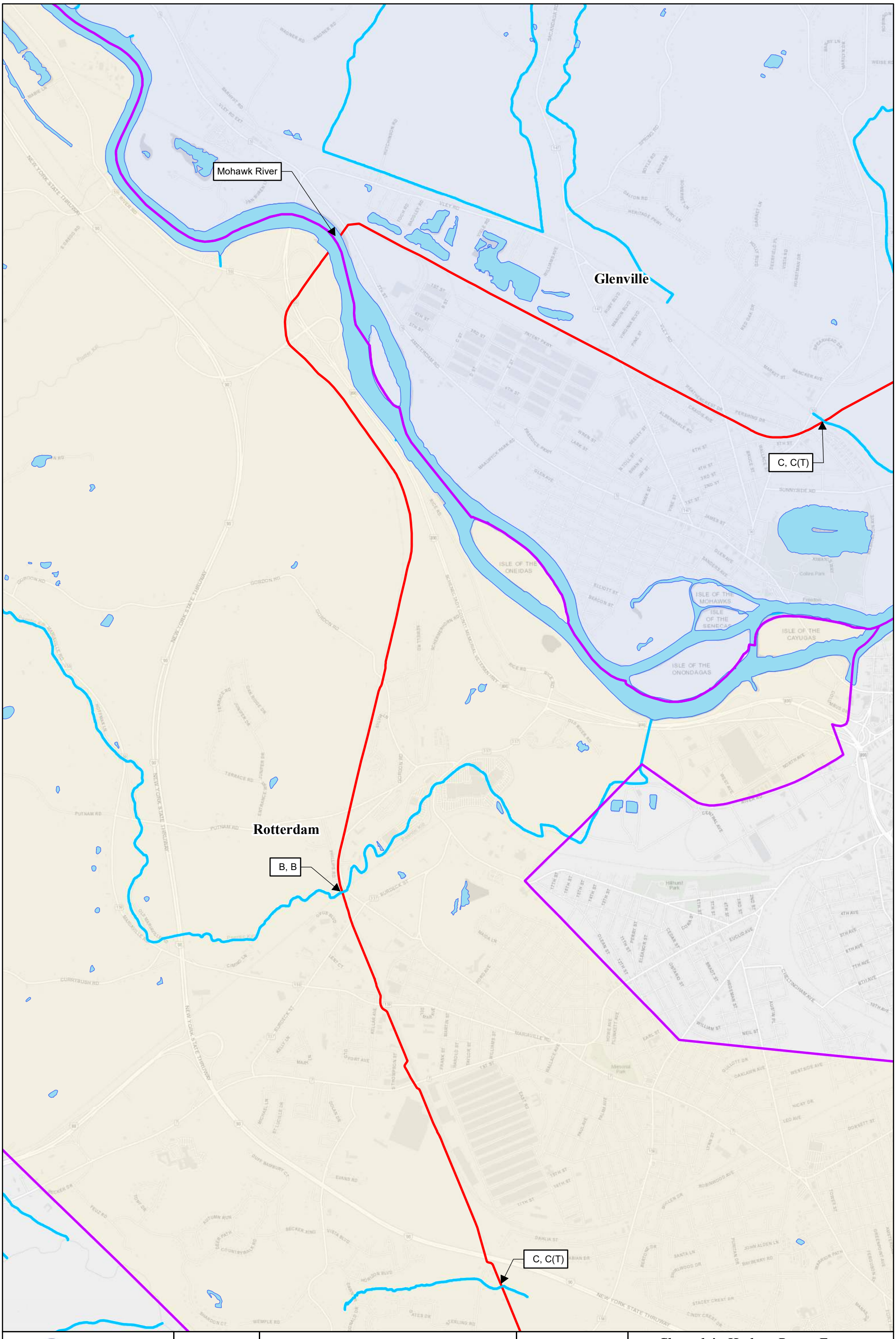
0 1,000 2,000

Feet

1 in. = 2,250 ft.

Champlain Hudson Power Express
Receiving Waters Map
Segment 7

Saratoga & Schenectady County, New York



CHPE Champlain Hudson Power Express

N

Legend

Consolidated Route

Municipal Border

Water Bodies

Streams

0 1,000 2,000

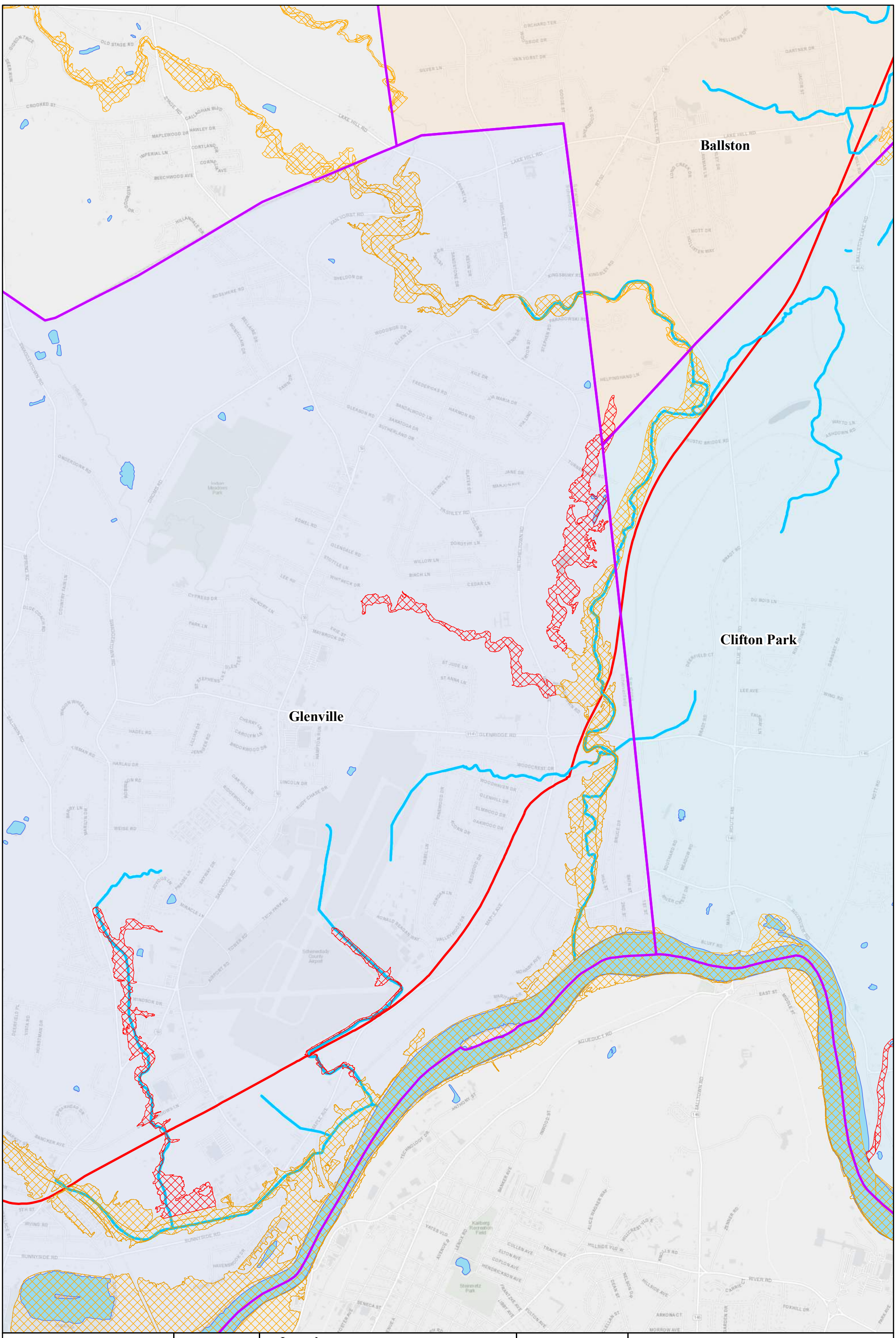
Feet

1 in. = 2,250 ft.

Champlain Hudson Power Express
Receiving Waters Map
Segment 7

Schenectady County, New York

APPENDIX D
FEMA FIRM MAPS



CHPE Champlain Hudson Power Express

N

Legend

- Consolidated Route
- Water Bodies
- Streams
- Municipal Border

FEMA Floodzone

- Zone A
- Zone AE

0 1,000 2,000
Feet

1 in. = 2,250 ft.

Champlain Hudson Power Express
FEMA Floodzone Map
Segment 7

Saratoga & Schenectady County, New York

Glenville

Rotterdam

CHPE
Champlain Hudson Power Express

Page 2 of 2

Legend

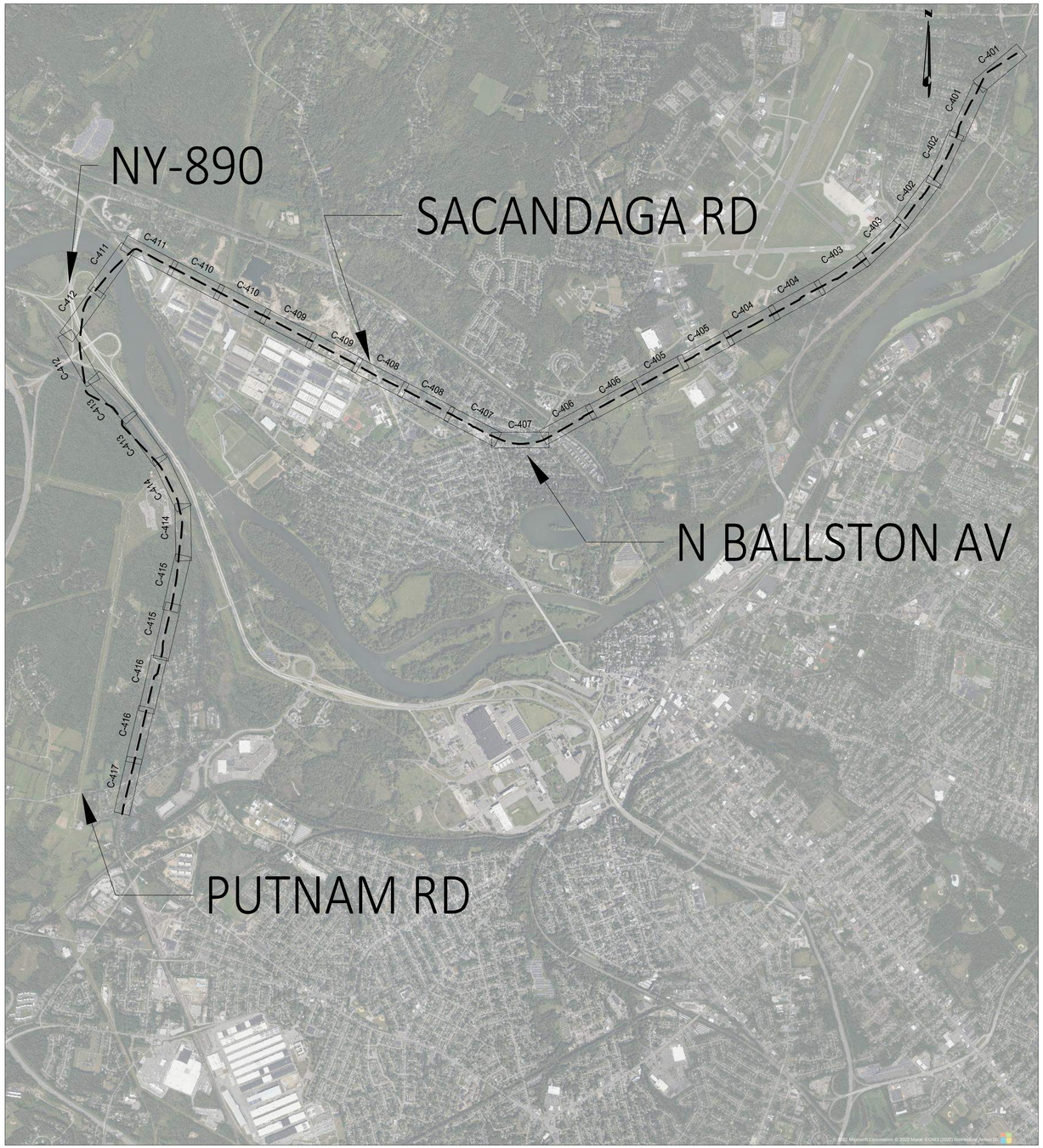
- Consolidated Route
- Water Bodies
- Streams
- Municipal Border
- **FEMA Floodzone**
- Zone A
- Zone AE

0 1,000 2,000
Feet
1 in. = 2,250 ft.

Champlain Hudson Power Express
FEMA Floodzone Map
Segment 7

Schenectady County, New York

APPENDIX E
EROSION AND
SEDIMENT CONTROL MAPS
PLANS AND PROFILES



PLAN AND PROFILE KEY MAP
SCALE: 1" = 6000'

CHPE Champlain Hudson Power Express

Kiewit

Engineering and Land Surveying, P.C.

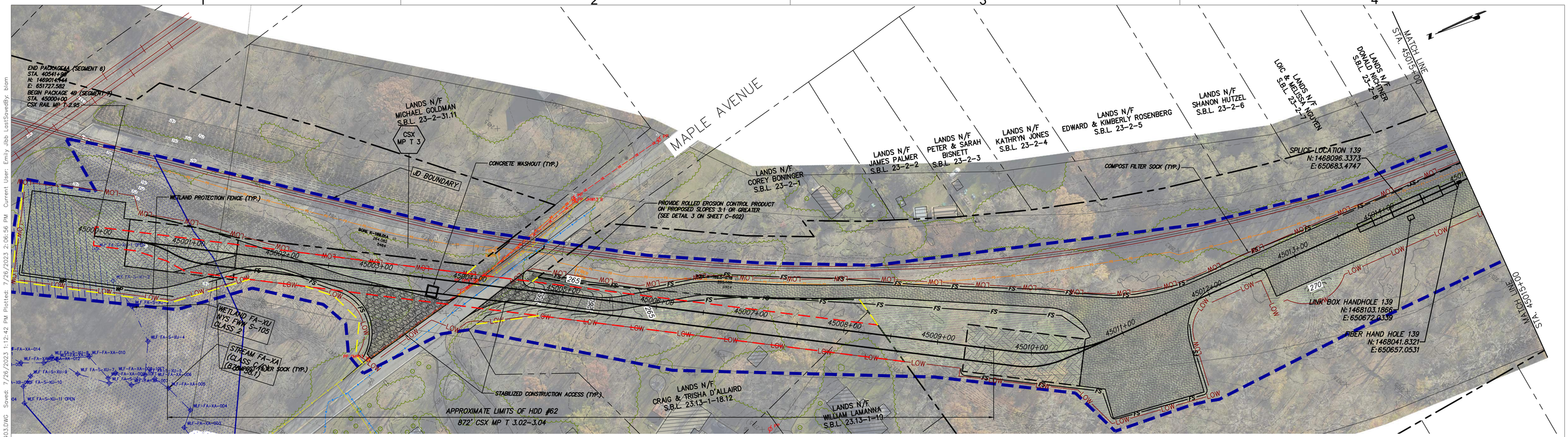
STATE OF NEW YORK · BRIAN LENTRAN · LICENSED PROFESSIONAL ENGINEER · 102293

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	07/28/2023	ISSUED FOR CONSTRUCTION SUBMISSION	BL	SL

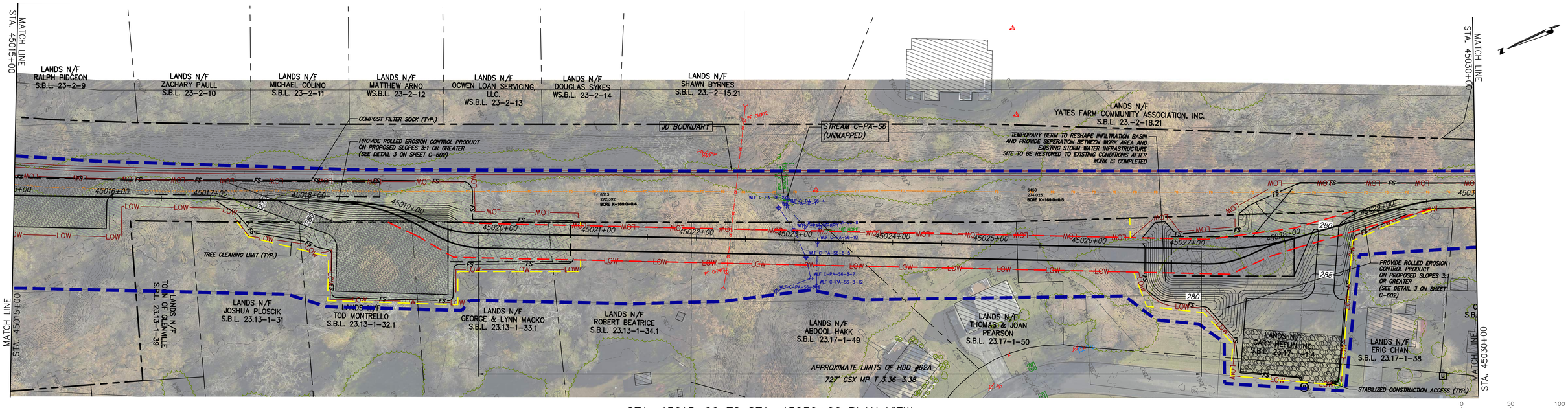
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
E&S KEY PLAN

KIEWIT PROJECT NO.	21162
KC PROJECT NO.	120174
DRAWING NO.	C-400

DRAWN BY: BL | DESIGNED BY: BL | APPROVED BY: SL | SCALE AS NOTED | REV. NO. 0 | DATE 07/26/2023 | SH.NO. OF



STA. 45000+00 TO STA. 45015+00 PLAN VIEW
SCALE: 1" = 50'



STA. 45015+00 TO STA. 45030+00 PLAN VIEW
SCALE: 1" = 50'

CHPE Champlain Hudson Power Express

Kiewit

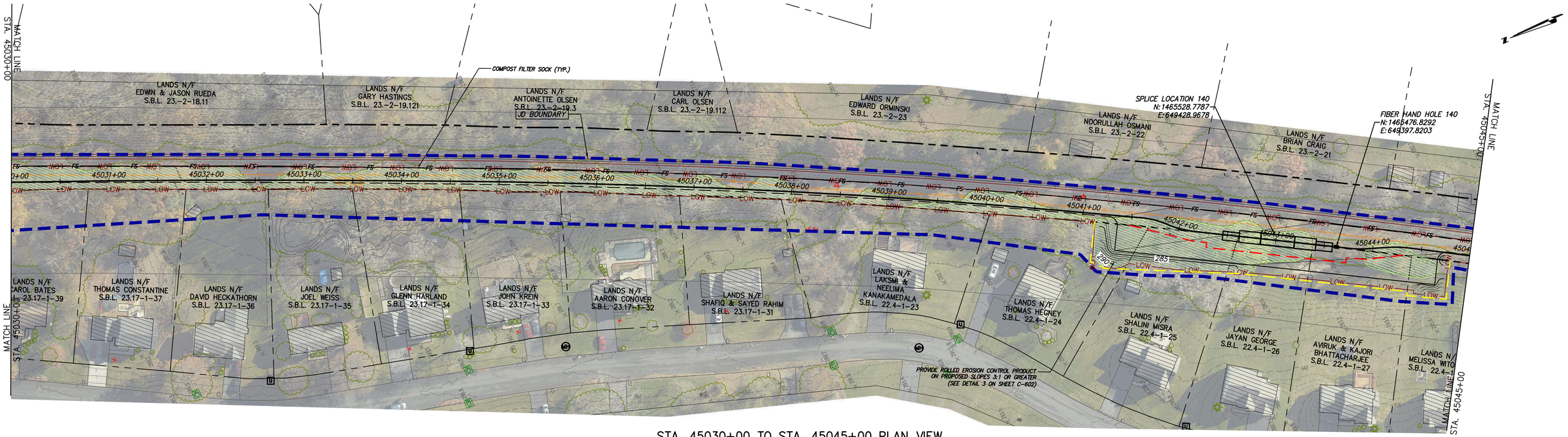
Engineering and Land Surveying, P.C.

STATE OF NEW YORK — BRIAN LENAHAN — LICENSED PROFESSIONAL ENGINEER — 102293

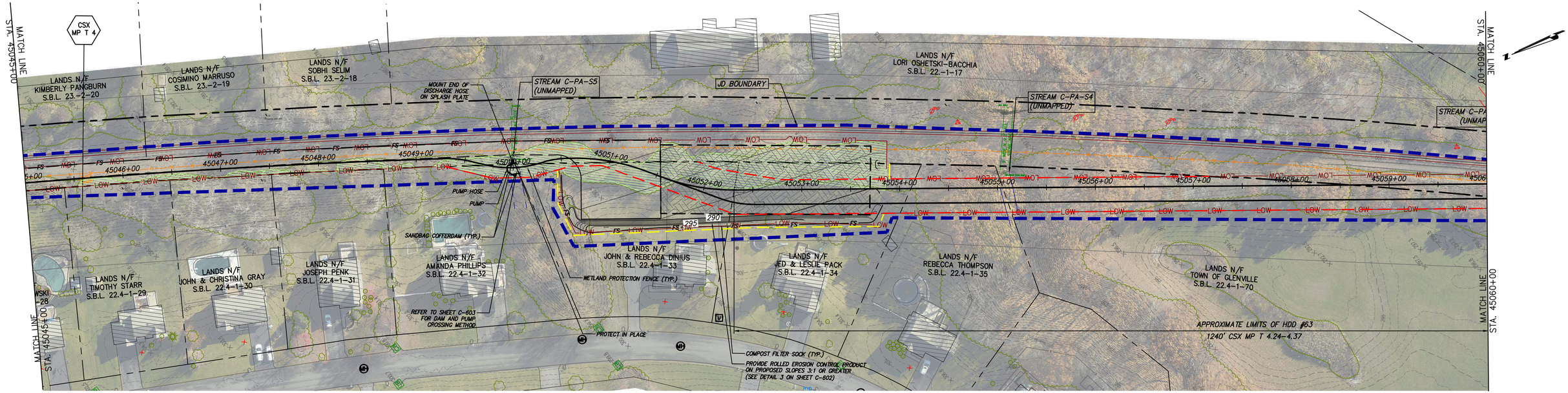
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	07/28/2023	ISSUED FOR CONSTRUCTION SUBMISSION	BL	SL

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
EROSION AND SEDIMENT CONTROL PLAN
STA. 45000+00 TO STA. 45030+00

KIEWIT PROJECT NO.	21162
KC PROJECT NO.	120174
DRAWING NO.	C-401
DRAWN BY: BL	DESIGNED BY: BL
APPROVED BY: SL	SCALE AS NOTED
REV. NO. 0	DATE 07/26/2023
SH.NO.	OF



STA. 45030+00 TO STA. 45045+00 PLAN VIEW
SCALE: 1" = 50'



STA. 45045+00 TO STA. 45060+00 PLAN VIEW
SCALE: 1" = 50'

CHPE Champlain Hudson Power Express

Kiewit

Engineering and Land Surveying, P.C.

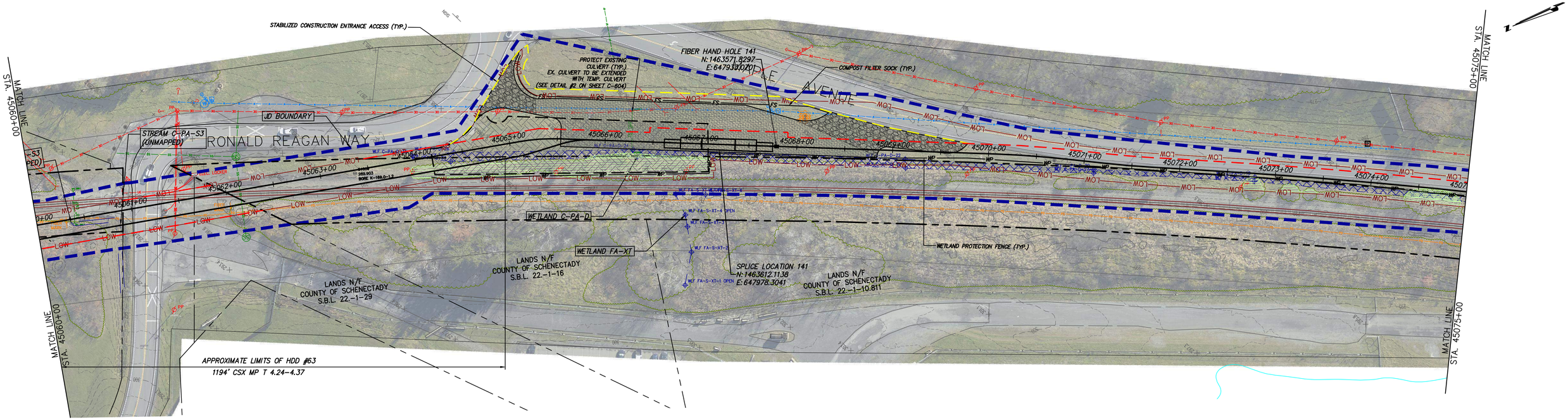
STATE OF NEW YORK — SEAN LENAHAN — 102293 — LICENSED PROFESSIONAL ENGINEER

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	07/28/2023	ISSUED FOR CONSTRUCTION SUBMISSION	BL	SL

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
EROSION AND SEDIMENT CONTROL PLAN
STA. 45030+00 TO STA. 45060+00

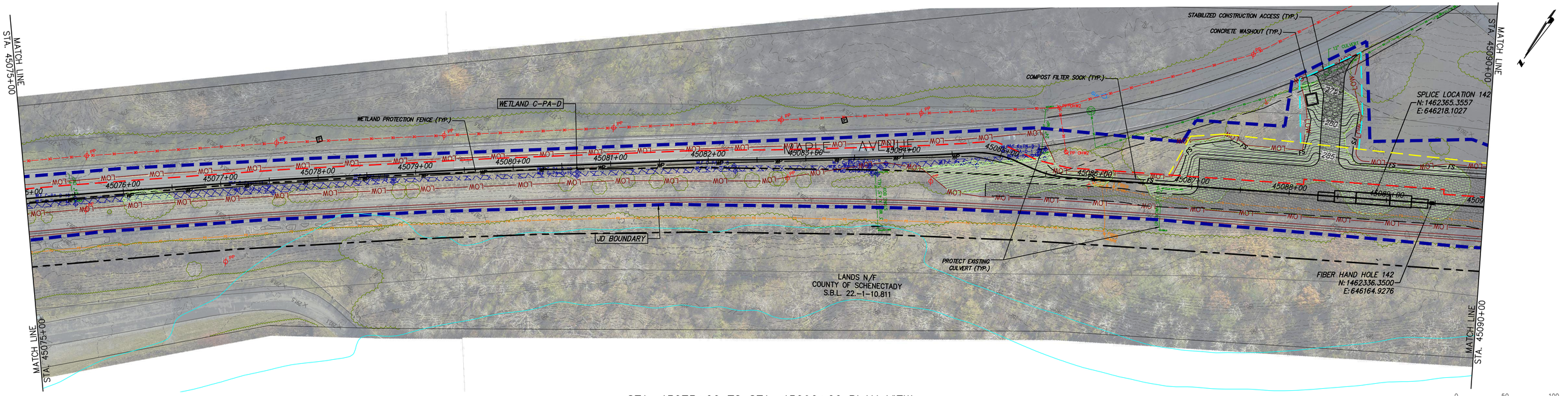
KIEWIT PROJECT NO.	21162
KC PROJECT NO.	120174
DRAWING NO.	C-402

DRAWN BY: BL | DESIGNED BY: BL | APPROVED BY: SL | SCALE AS NOTED | DATE 07/26/2023 | REV. NO. 0 | SH.NO. OF



STA. 45060+00 TO STA. 45075+00 PLAN VIEW
SCALE: 1" = 50'

0 50 100
Scale in feet



STA. 45075+00 TO STA. 45090+00 PLAN VIEW
SCALE: 1" = 50'

0 50 100
Scale in feet

CHPE Champlain Hudson Power Express

Kiewit

Engineering and Land Surveying, P.C.

STATE OF NEW YORK — BRIAN LENAHAN — 102293 — LICENSED PROFESSIONAL ENGINEER

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	07/28/2023	ISSUED FOR CONSTRUCTION SUBMISSION	BL	SL

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
EROSION AND SEDIMENT CONTROL PLAN
STA. 45060+00 TO STA. 45090+00

KIEWIT PROJECT NO.	21162
KC PROJECT NO.	120174
DRAWING NO.	C-403

DRAWN BY: BL | DESIGNED BY: BL | APPROVED BY: SL | SCALE AS NOTED | REV. NO. 0 | DATE 07/26/2023 | SH.NO. OF