

# Champlain Hudson Power Express



**Case Number 10-T-0139**

**Segments 4 and 5 – Package 3**

## **Stormwater Pollution Prevention Plan**

**Fort Edward to Milton**

**Washington County and Saratoga County, New York**

*CHA Project Number: 066076*

***Prepared for:***

*Transmission Developers Inc.  
1301 Avenue of the Americas, 26th Floor  
New York, NY 10019*

***Prepared by:***

*CHA Consulting, Inc.  
III Winners Circle  
Albany, New York 12205  
(518) 453-4500*

***April 2023***



---

## TABLE OF CONTENTS

<b>1.0</b>	<b>PROJECT INFORMATION .....</b>	<b>1</b>
<b>2.0</b>	<b>PROJECT DESCRIPTION.....</b>	<b>1</b>
2.1	Purpose and Extent of Proposed Development .....	1
2.2	Project Disturbance Area.....	6
2.3	Description and Limitations of On-Site Soils .....	6
2.4	Historic Places .....	7
<b>3.0</b>	<b>SEQUENCE OF MAJOR ACTIVITIES.....</b>	<b>8</b>
3.1	Name of Receiving Waters.....	10
<b>4.0</b>	<b>CONTROLS .....</b>	<b>13</b>
4.1	PRE-CONSTRUCTION .....	13
4.2	Timing of Controls/Measures.....	13
4.3	Erosion and Sediment Controls / Stabilization Practice .....	14
4.3.1	Temporary Stabilization.....	14
4.3.2	Permanent Stabilization .....	15
4.4	Winter Operations.....	15
4.4.1	Winter Shutdown.....	16
4.4.2	Final Site Inspection .....	16
4.5	Other Controls .....	16
4.5.1	Waste Disposal .....	16
4.5.2	Sediment Tracking by Vehicles.....	17
4.5.3	Non-Stormwater Discharges .....	18
4.6	Certification of Compliance with Federal, State, and Local Regulations.....	18
<b>5.0</b>	<b>POST-CONSTRUCTION STORMWATER MANAGEMENT .....</b>	<b>19</b>
5.1.1	Floodplains.....	19
<b>6.0</b>	<b>MAINTENANCE/INSPECTION PROCEDURES .....</b>	<b>20</b>
6.1	Erosion and Sediment Control Inspection and Maintenance Practices.....	20
6.1.1	Owner/Operator Inspection Requirements.....	20
6.1.2	Qualified Inspector Inspection Requirements .....	21
6.1.3	General Requirements.....	22
6.1.4	Dewatering Methods.....	23
6.1.5	Dust Control .....	24
<b>7.0</b>	<b>INVENTORY FOR POLLUTION PREVENTION PLAN .....</b>	<b>25</b>

---

<b>8.0</b>	<b>SPILL PREVENTION .....</b>	<b>26</b>
8.1	Good Housekeeping.....	26
8.2	Hazardous Products.....	26
8.3	Product Specific Practices .....	26
	Petroleum Products .....	26
	Fertilizers.....	28
	Paints .....	28
	Concrete Trucks.....	28
	Watercourse Protection .....	29
8.4	Spill Control Practices.....	29
<b>9.0</b>	<b>UPDATING THE SWPPP .....</b>	<b>30</b>
<b>10.0</b>	<b>SWPPP CERTIFICATION.....</b>	<b>31</b>

**LIST OF APPENDICES:**

- A. Figures
- B. USDA Soils Maps
- C. Receiving Waters Maps
- D. FEMA FIRM Maps
- E. Grading and Erosion Sediment Control Plans and Details
- F. SWPPP Inspection Forms
- G. SWPPP Amendments
- H. Notice of Intent (NOI)/SPDES GP-0-20-001
- I. Notice of Termination (NOT)

**LIST OF TABLES:**

- Table 1 – Overland and Main Segment: Project Construction Sequencing and Scheduling
- Table 2 – Nature of Construction Project
- Table 3 – Required Highway Work Permits
- Table 4 – Project Disturbance Area
- Table 5 – Soil Analysis Summary
- Table 6 – Status of MS4 Permits Required for Segments 4 & 5 – Package 3
- Table 7 – Summary of Receiving Waters and Stream Classifications



---

## 1.0 PROJECT INFORMATION

Project Name and Location	Owner and Operator Name and Address
Champlain Hudson Power Express Segments 4 and 5 – Package 3 Fort Edward to Milton, New York	Transmission Developers Inc. 1301 Avenue of the Americas, 26 <sup>th</sup> Floor New York, NY 10019

## 2.0 PROJECT DESCRIPTION

### 2.1 PURPOSE AND EXTENT OF PROPOSED DEVELOPMENT

The proposed Champlain Hudson Power Express (CHPE) project involves the construction of  $\pm 339$  miles of high voltage direct current underground and underwater transmission line from Montreal, Canada to Queens, New York. It will bring 1,250 megawatts of hydropower to replace the use of fossil fuel, reduce carbon emission, and to help achieve clean renewable energy by the year 2025. 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  $\pm 105.5$  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  $\pm 145.5$  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  $\pm 88$  miles of the transmission line will be installed underwater and covered under another SWPPP by others.

Specifically, the proposed  $\pm 26.34$  miles of upland cable installation work for Segments 4 and 5 - Package 3 begins in the in Town of Fort Edward, Washington County and ends in the Town of Milton, Saratoga County, NY (see Figure 1.2 – 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. Subsequent Package 4A work will follow with anticipated design plans and SWPPP updates.

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

EM&CP		Location Description	Segment Length (miles)	Anticipated (or Actual) Filing with DPS	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)	November 2022
3	Package 1C/Package 2	Whitehall to Fort Ann/Fort Ann to Kingsbury	20.8	(December 23, 2022)	May 2023
8	Package 5A	Rotterdam to Selkirk	16.99	(December 21, 2022)	May 2023
9	Package 5B	Selkirk Bypass	5.31	(December 21, 2022)	May 2023
4, 5	Package 3	Kingsbury to Milton	26.5	April 2023	June 2023
10	Package 6	Ravena to Catskill	20.9	April 2023	June 2023
13, 14, 15	Package 8	Queens	2.13	May 2023	August 2023
6	Package 4A	Milton to Ballston	10.2	May 2023	August 2023
7	Package 4B	Ballston to Schenectady/Rotterdam	9.6	May 2023	August 2023
11	Package 7A	Catskill to Germantown	8.6	(March 31, 2023)	July 2023
12	Package 7B	Stony Point to Haverstraw	7.6	April 2023	July 2023

EM&CP		Location Description	Segment Length (miles)	Anticipated (or Actual) Filing with DPS	Anticipated Start of Construction
Construction Segment	Design Package				
Laydown Yards	3, 5B, 6	Fort Edward, Bethlehem, Cossackie	N/A	(November 11, 2022)	March 2023
<b>MARINE SEGMENTS</b>					
16	Package 9	Transitional HDD (Stony Point)	N/A	(September 29, 2022)	July 2023
17	Package 10	3 Transitional HDDs (Putnam, Catskill, Clarkstown)	N/A	(December 14, 2022)	May 2023
18	Package 11	Lake Champlain (Pre-Lay Mattressing)	96	(April 4, 2023)	August 2023
TBD	TBD	Lake Champlain (Cable Installation)	96	November 2023	July 2024
19	Package 12	Hudson River (Pre-Lay Mattressing)	89.1	May 2023	September 2023
20	Package 13	Hudson River (Cable Installation)	89.1	December 2023	July 2024
21	Package 14	Harlem River	6.3	December 2023	July 2024
<b>NEW YORK CITY INTERCONNECTION</b>					
22	Package 22	Converter Station, Astoria Complex (Queens)	N/A	(January 31, 2023)	June 2023
23	TBD	Astoria Rainey Cable HVAC System (Queens)	3.5	November 2023	June 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

---

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. The cable installation will be phased such that no more than five acres will be disturbed at one time within one individual watershed. 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 Segments 4 and 5 – Package 3 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. Work for Segment 4 and 5 – Package 3 of the proposed project is scheduled to be determined.

**Table 2 – Nature of Construction Project**

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

CHPE 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 CHPE anticipates being required in addition to NYSDOT required permits.

**Table 3 – Required Highway Work Permits**

Municipality	Permit
<b>Washington County</b>	
Town of Fort Edward	Town Road Work
Village of Fort Edward	Town Road Work
Town of Moreau	Town Road Work
Town of Northumberland	Town Road Work
<b>Saratoga County</b>	
Town of Wilton	Town Road Work
Town of Greenfield	Town Road Work
City of Saratoga Springs	Town Road Work
Town of Milton	Town Road Work

---

## 2.2 PROJECT DISTURBANCE AREA

The total land disturbance acreage is calculated based on the length and width ( $\pm 10$  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.

**Table 4 – Project Disturbance Area**

Land Segments	Location Description	Total Disturbed Area	Existing Impervious Area within Disturbed Area*	Proposed Impervious Area within Disturbed Area*
4 and 5	Fort Edward /Milton	$\pm 31.93$ acres	$\pm 25.55$ acres	$\pm 25.55$ acres

\*Note: Assumed  $\pm 80\%$  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

Geotechnical borings and summary have been provided across the project site to support HDD design work. See geotechnical report (document can be provided by request) in addition to the information provided below and Appendix B of this SWPPP.

The soil disturbance for the proposed work is limited to the total land disturbance acreage listed for each construction land segment. Based on a review of the USDA Soil Survey of Saratoga and Washington Counties, 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 Segments	Design Package	Location	Hydrologic Soil Group (HSG)			
			A	B	C	D
4 and 5	3	Fort Edward to Milton	53%	2%	2%	43%

---

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 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).

Prior to construction in areas under the jurisdiction of a regulated, traditional land use control Municipal Separate Storm Sewers Systems (MS4), the Certificate Holders must receive written authorization from the MS4 prior to the submission of the Notice of Intent to NYSDEC. The Certificate Holders will obtain the necessary authorization from the applicable municipalities. Table 6 identifies each MS4 municipalities in Segment 4 and 5 – Package 3 that the Certificate Holders will be obtaining authorization from and the status of each.

**Table 6 - Status of MS4 Permits Required for Segments 4 & 5 – Package 3**

<b>Municipality</b>	<b>Status</b>
Town of Fort Edward	Initial contact made. Coordination in progress.
Village of Fort Edward	Initial contact made. Coordination in progress.
Town of Moreau	Initial contact made. Coordination in progress.
Town of Wilton	Initial contact made. Coordination in progress.
Town of Greenfield	Initial contact made. Coordination in progress.
City of Saratoga Springs	Initial contact made. Coordination in progress.
Town of Milton	Initial contact made. Coordination in progress.



---

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. Excavated material shall be stockpiled temporarily within the right-of-way away from stormwater conveyance areas. 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. Install stabilized construction entrance and temporary erosion and sediment control measures (installed in progressive phases).
2. Establish work area and contractor staging areas.
3. Perform initial clearing to remove vegetation (where required).
4. Build gravel access roads.
5. Place temporary timber mattings through accessible wetland areas (where required).
6. Perform excavation to facilitate conduit placement or splice pits.
7. Perform conduit, splice box, handhole, etc. installation.
8. Backfill trench in accordance with project details and specifications.
9. Within HDD areas set up laydown, staging and excavate pits.
10. Perform HDD.
11. Restore HDD disturbed areas in accordance with the plans.
12. Within pavement areas, restore pavement to pre-existing grade, mill and overlay areas as depicted on the plans.
13. Pull and/or splice cable.

- 
14. Restore signage, guiderail, mailboxes etc. and staging/access roads impacted by construction to pre-existing condition.
  15. Remove temporary timber matting from wetland areas and apply appropriate seed mixture where necessary.
  16. 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. Some of the receiving waters in Washington County, specifically Champlain Canal and its minor tributaries are currently listed as 303(d) segments impaired by construction related pollutants (Appendix E of the GP-0-20-001 permit). But all of the receiving waters in Saratoga County are not listed as 303(d) segments impaired waterbodies in Appendix E of the GP-0-20-001 permit. Moreover, all the receiving waterbodies in Washington County and Saratoga County are 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 7 – Summary of Receiving Waters and Stream Classifications**

<b>Approximate Alignment Station</b>	<b>Receiving Waterbody / Stream Name</b>	<b>NYSDEC Stream Classification</b>	<b>Waterbody Field ID</b>	<b>303(d) Segment Impaired</b>
30066+75	Unnamed Tributary to Champlain Canal	Unmapped	G-R-S-AA	Yes
30067+00	Unnamed Tributary to Champlain Canal	Unmapped	G-R-S-BB	Yes
30193+75	Unnamed Tributary to the Hudson River	Unmapped	G-R-S-CC	No
30219+00	Unnamed Tributary to the Hudson River	D/D	G-R-S-DD	No
30227+75	Unnamed Tributary to the Hudson River	Unmapped	G-R-S-EE	No
30232+75	Unnamed Tributary to the Hudson River	Unmapped	G-R-S-FF	No
30288+50	North Branch Snook Kill	C/C(T)	G-R-S-GG	No
30324+25	Unnamed Tributary to the Hudson River	C/C	C-R-SHH	No
30372+75	Unnamed Tributary to the Hudson River	Unmapped	C-R-S-II	No
30392+75	Unnamed Tributary to the Hudson River	Unmapped	C-R-S-JJ	No
30403+00	Snook Kill	C/C	C-R-S-KK	No
30412+75	Unnamed Tributary to the Hudson River	Unmapped	C-R-S-LL	No
30489+25	Unnamed Tributary to the Hudson River	Unmapped	C-R-S-MM	No
30549+75	Unnamed Tributary to the Hudson River	Unmapped	C-RS-NN	No
30551+00	Unnamed Tributary to the Hudson River	C/C	C-RS-OO	No
30589+50	Unnamed Tributary to the Hudson River	C/C	FA-S-BW	No
30667+75	Delegan Brook	C/C	FA-S-BO	No
30902+75	Spring Run	A/A	FA-S-CD	No
30943+75	Unnamed Tributary to the Hudson River	Unmapped	FA-D-CK	No
30949+75	Unnamed Tributary to the Hudson River	A/A	FA-S-CJ	No
30950+00	Unnamed Tributary to the Hudson River	Unmapped	FA-D-CI	No

30954+75	Unnamed Tributary to the Hudson River	A/A	FA-S-CF	No
30955+00	Unnamed Tributary to the Hudson River	Unmapped	FA-D-CE	No
31004+50	Unnamed Tributary to the Hudson River	C/C	FA-S-CG	No
31006+75	Unnamed Tributary to the Hudson River	C/C	FA-S-CH	No
31046+50	Putnam Brook	C/C(T)	C2-R-S1	No
31170+50	Unnamed Tributary to the Hudson River	Unmapped	FA-D-CL	No
31194+00	Unnamed Tributary to the Hudson River	Unmapped	FA-S-CN	No
31208+50	Unnamed Tributary to the Hudson River	Unmapped	FA-CP	No
31212+25	Unnamed Tributary to the Hudson River	Unmapped	FA-D-CR	No
31221+00	Unnamed Tributary to the Hudson River	Unmapped	FA-D-CO	No
31228+25	Unnamed Tributary to the Hudson River	Unmapped	FA-D-CT	No
31237+25	Unnamed Tributary to the Hudson River	Unmapped	FA-CY	No
31246+25	Unnamed Tributary to the Hudson River	Unmapped	FA-D-CV	No
31250+50	Unnamed Tributary to the Hudson River	C/C	FA-S-CW	No
31253+50	Unnamed Tributary to the Hudson River	C/C	FA-S-CU	No
31266+25	Unnamed Tributary to the Hudson River	C/C	FA-S-CZ	No
31266+50	Unnamed Tributary to the Hudson River	C/C	FA-S-DA	No
31269+25	Unnamed Tributary to the Hudson River	Unmapped	FA-D-DC	No
31294+00	Unnamed Tributary to the Hudson River	Unmapped	FA-D-DD	No
31295+50	Unnamed Tributary to the Hudson River	C/C(T)	FA-S-DE	No
31295+50	Unnamed Tributary to the Hudson River	Unmapped	FA-D-DF	No
31302+75	Unnamed Tributary to the Hudson River	Unmapped	FA-S-DH	No
31303+00	Unnamed Tributary to the Hudson River	Unmapped	FA-S-DG	No
31313+75	Unnamed Tributary to the Hudson River	Unmapped	S-53	No
31314+25	Unnamed Tributary to the Hudson River	Unmapped	S-54	No
31319+25	Unnamed Tributary to the Hudson River	Unmapped	S-55	No
31327+25	Unnamed Tributary to the Hudson River	Unmapped	S-56	No
31329+75	Unnamed Tributary to the Hudson River	Unmapped	S-57	No

---

31331+25	Unnamed Tributary to the Hudson River	Unmapped	S-58	No
31333+00	Unnamed Tributary to the Hudson River	Unmapped	S-59	No
31333+25	Unnamed Tributary to the Hudson River	Unmapped	S-60	No
31345+50	Unnamed Tributary to the Hudson River	Unmapped	S-61	No
31347+00	Unnamed Tributary to the Hudson River	Unmapped	S-62	No
31384+00	Unnamed Tributary to the Hudson River	Unmapped	FA-D-DK	No
31390+50	Unnamed Tributary to the Hudson River	Unmapped	FA-D-DL	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 Specifications for Erosion & Sediment Control (Blue Book). The Owner's Representative shall ensure that at least one (1) Trained Contractor is on-site daily when soil disturbance activities are being performed. The 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 Contractors 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.

#### **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 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 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. The 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 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 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 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**

**Solid Waste** – Waste materials will be collected and stored in a secured area until removal and disposal by a licensed solid waste management company. Debris will be cleaned up daily. 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 Management Plan. 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 filed for the tanks at each laydown yard as described in 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).

**Hazardous Waste** - All hazardous waste materials shall be disposed of in a manner specified by local, state, and/or federal 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 Sediment Tracking by Vehicles**

A stabilized construction entrance shall be installed (where depicted on attached plan) and maintained as necessary to help reduce vehicular tracking of sediment. The entrance 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.

#### **4.5.3 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. 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 Fort Edward, Washington County, Moreau, Northumberland, Saratoga Springs, and Milton, Saratoga County, NY, various portions of the proposed CHPE project Segments 4 and 5 – Package 3 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 by 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 Department of Public Service (DPS) and the DEC Regional Office's stormwater contact person 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 H.

### **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. A copy of the "Stormwater Construction Site Inspection Reports" is included in Appendix F 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 contractor 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**

- 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 passing through the filter bag, the dewatering effluent will be discharge 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 the 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.

#### **6.1.4 Dewatering Methods**

All the procedures related to dewatering methods are described in the section 4.3.2 of the Environmental Management and Construction Plan (EM&CP) and Spill Prevention Control & Countermeasures Plan (SPCC) in Appendix K 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 (2012 BMPs, Section 4). A dewatering hose will be connected to a filter bag placed on the ground surface within a stabilized area (2012 BMPs, Section 4). 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 included in Soil Management Plan in Appendix L of the EM&CP (2012 BMPs, Section 4). A Sediment Dewatering Bag detail is provided on the Plan and Profile Drawings 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 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 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 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 1 and 2 construction (CC#64). Dust control will be used through dry weather periods until all disturbed areas are stabilized and 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 (see Plan and Profile Drawings in Appendix C). All applicable regulations and standards related to dust control will be followed including 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:

- Compost filter sock.
- Portland cement concrete.
- Fertilizers / seeding materials.
- Stone.
- Bituminous asphalt.
- Petroleum based products.
- Silt fence fabric.
- Lumber.
- Pavement marking paint.
- PVC pipe.
- Glue and primer.
- HDD Fluid.
- Hydraulic fluid conductor.
- Matting.

---

## **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 by 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 Spill Prevention Control Countermeasures Plan (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 apprised of on-site chemicals and waste stored within one hundred (100) feet of their Co-located Infrastructure (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 of 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 the 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 100 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 and meeting the guidelines of the New York State Standards and Specifications for Erosion and Sediment Control.

---

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

## **WATERCOURSE PROTECTION**

All the procedures related to stream and watercourse protection are described in Section 8.1 of the Environmental Management and Construction Plan (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.

---

## **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

Segments 4 and 5 – Package 3

Washington 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







### Legend

 Segment 4 and 5 Project Corridor

0 5 10  
Miles

**Figure 1.2 - Champlain Hudson Power Express  
Segment 4 and 5  
USGS Project Location Map**

Service Layer Credits: Copyright:© 2013  
National Geographic Society, i-cubed



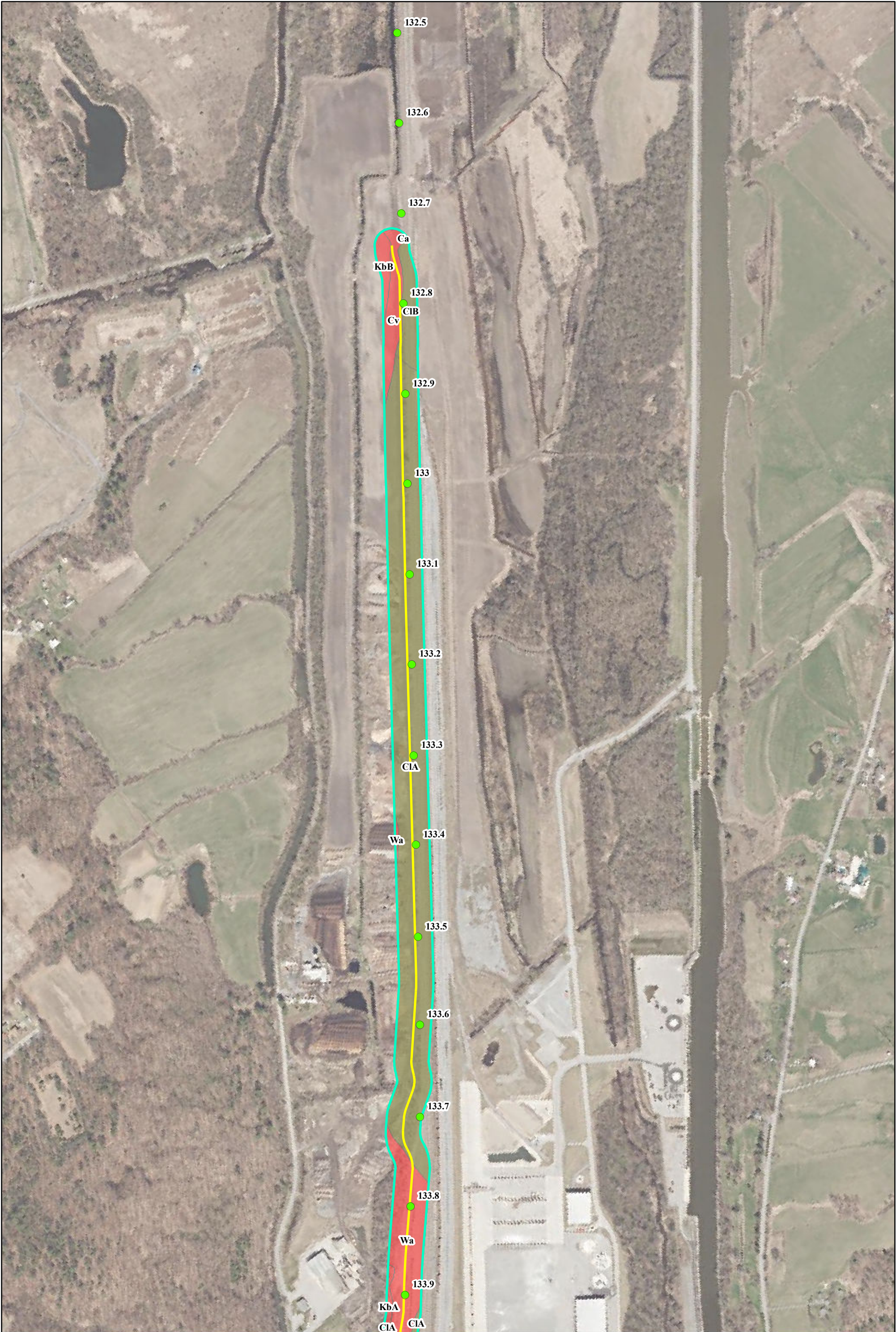


## Appendix B

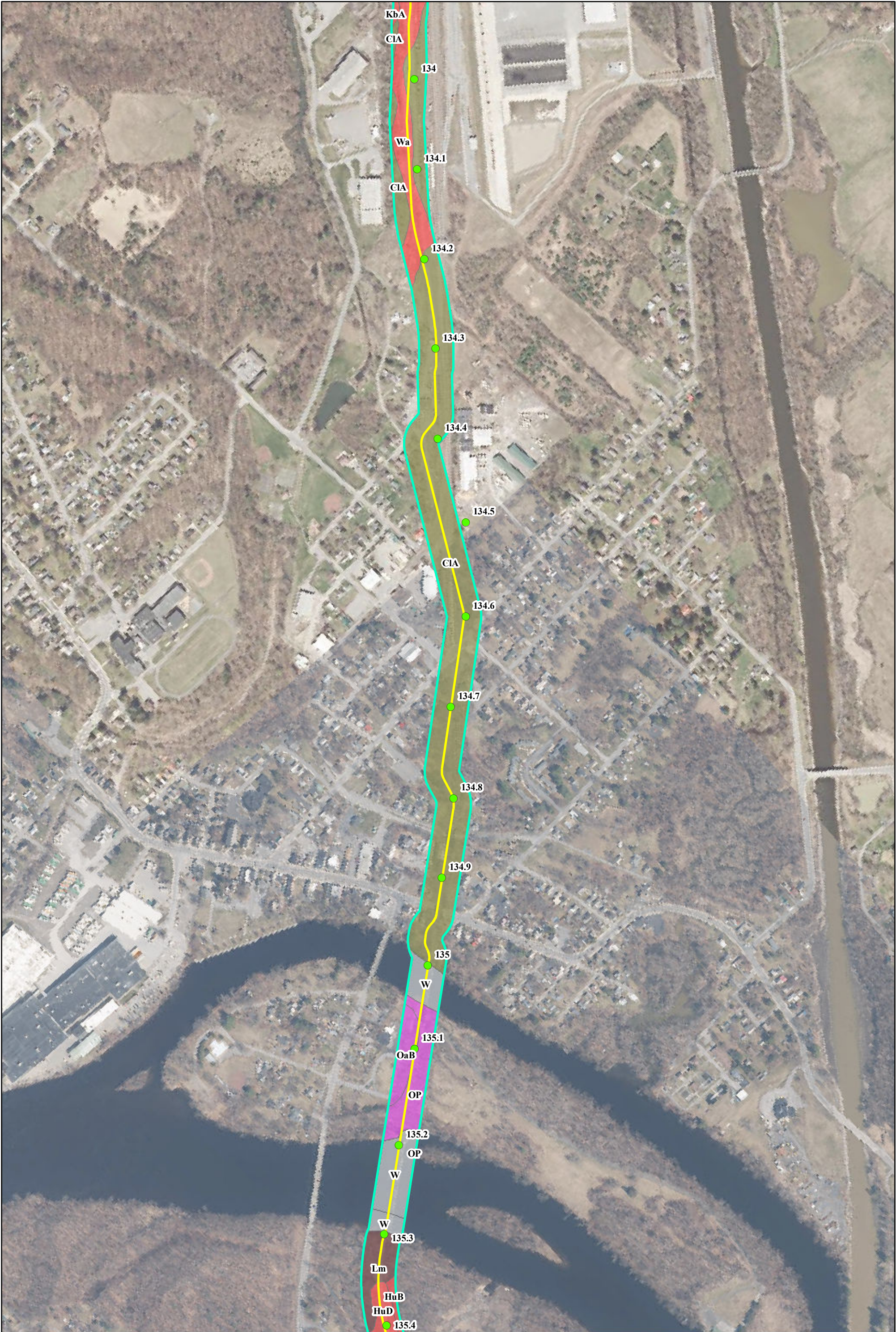
### USDA Soils Maps



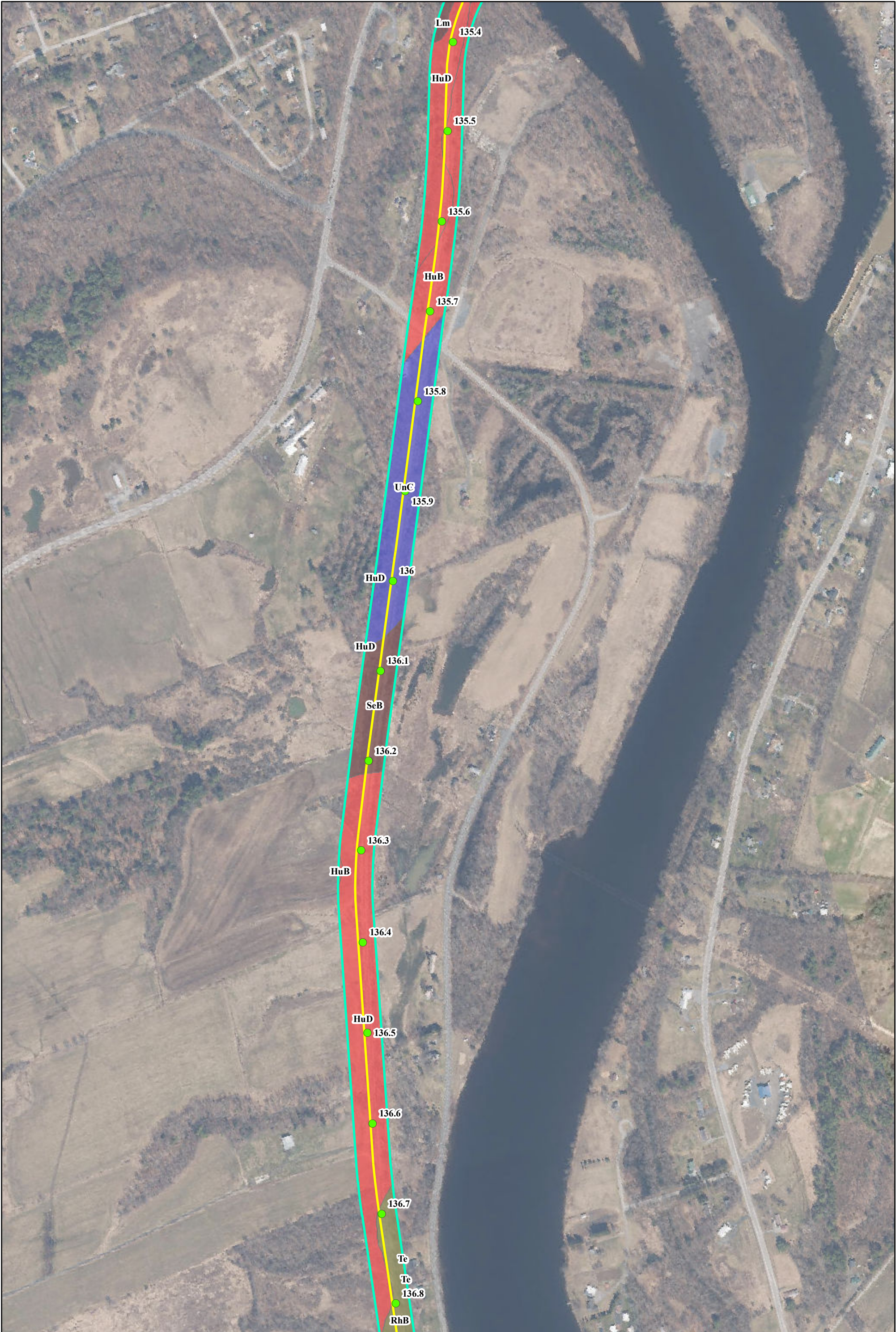




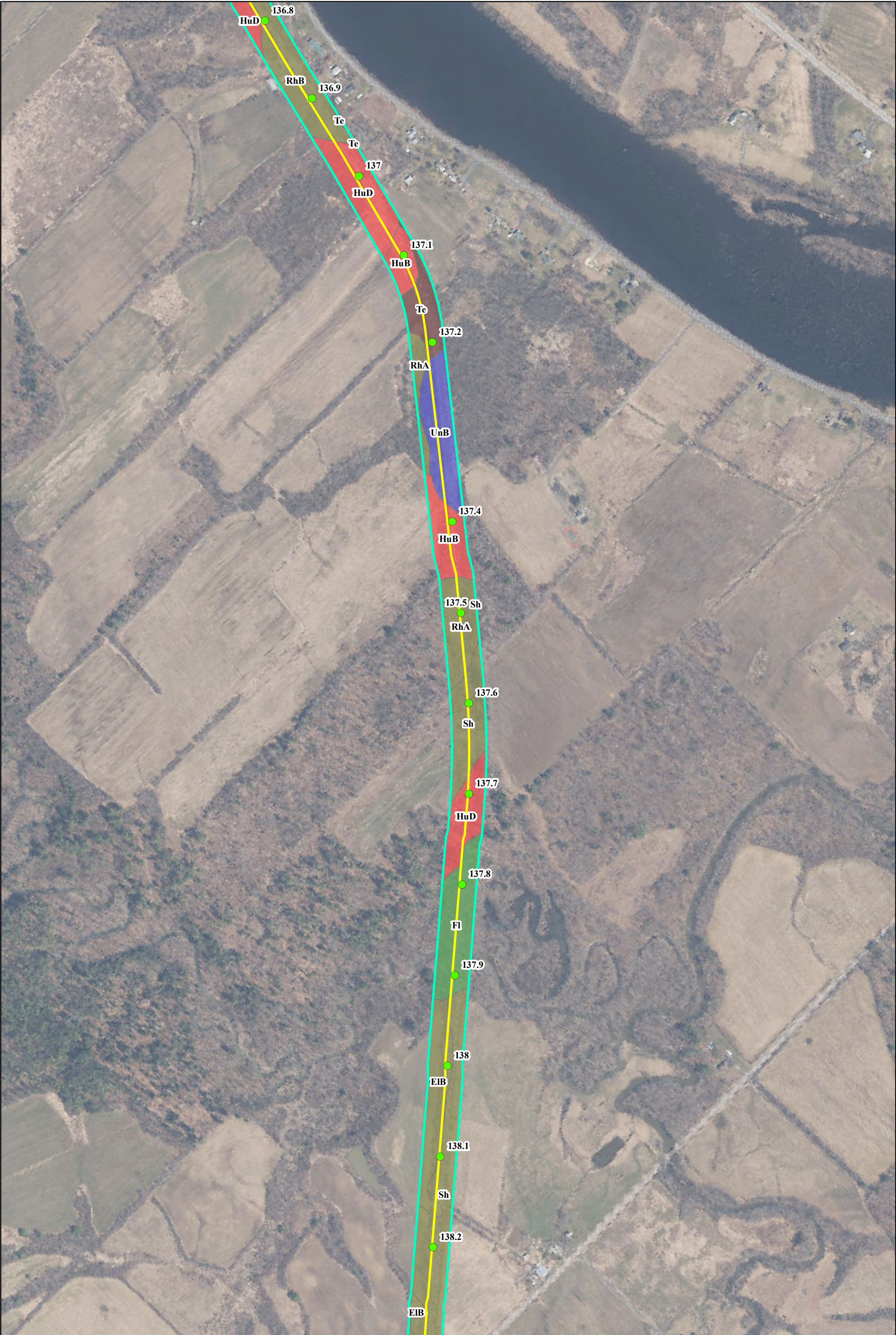




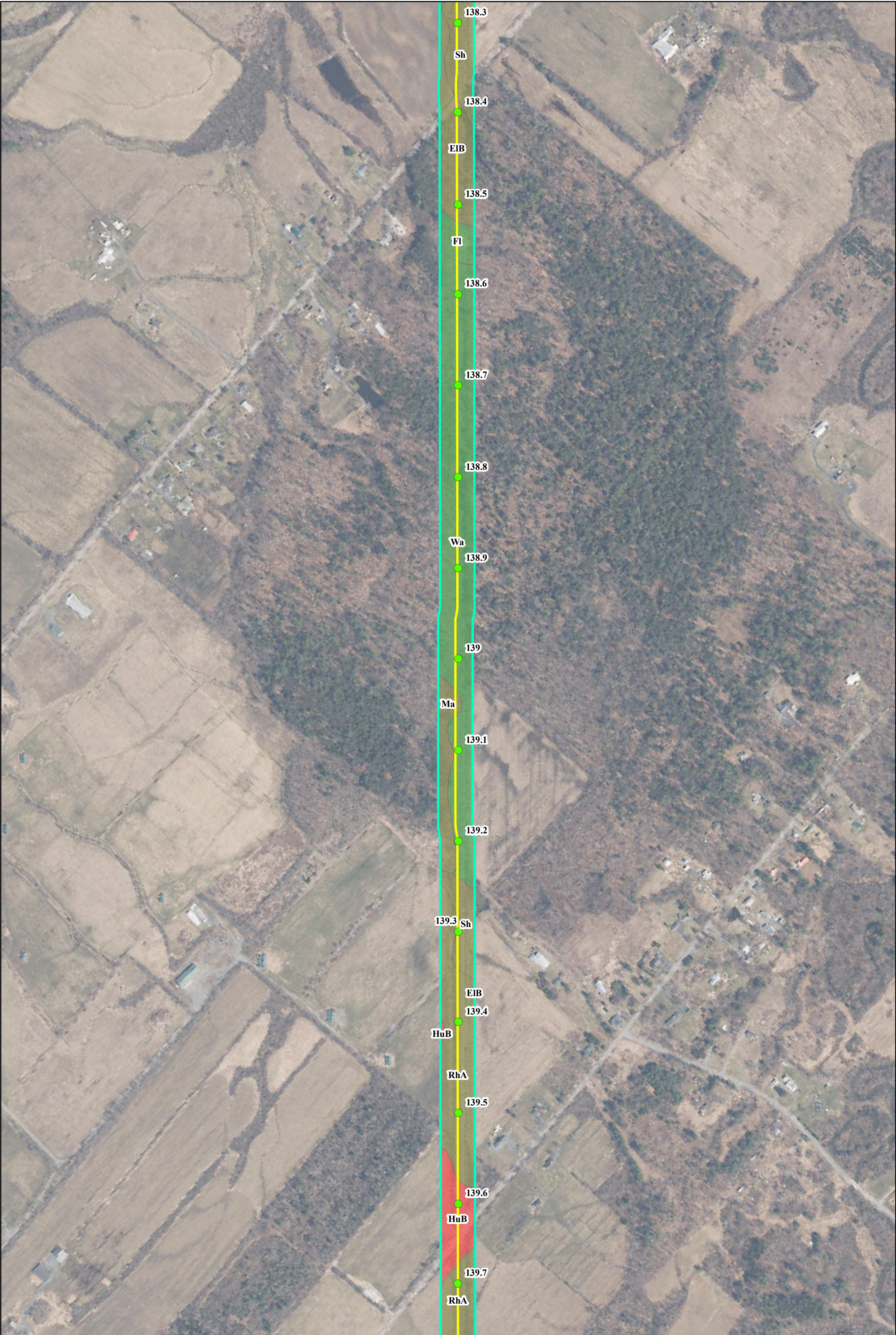




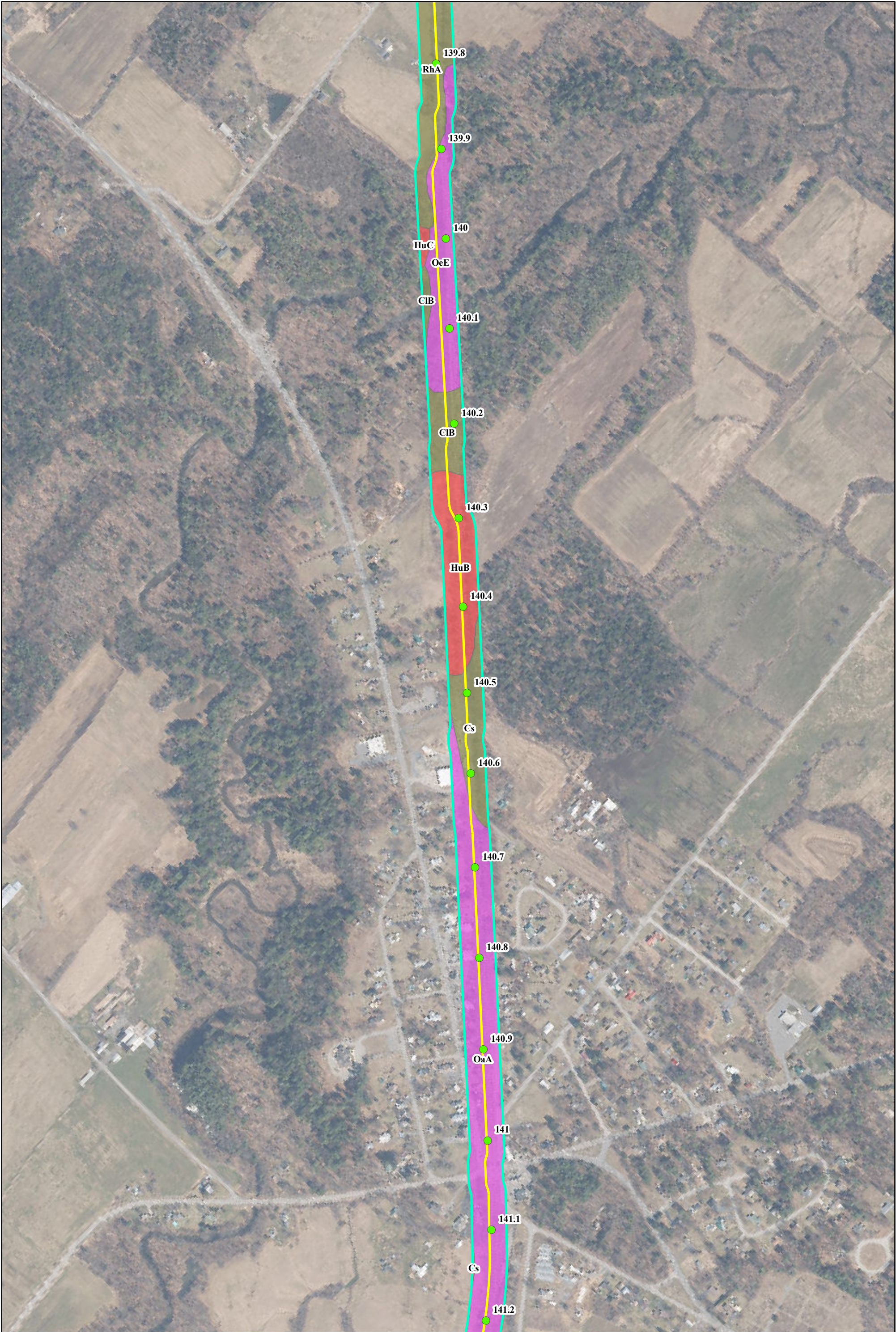




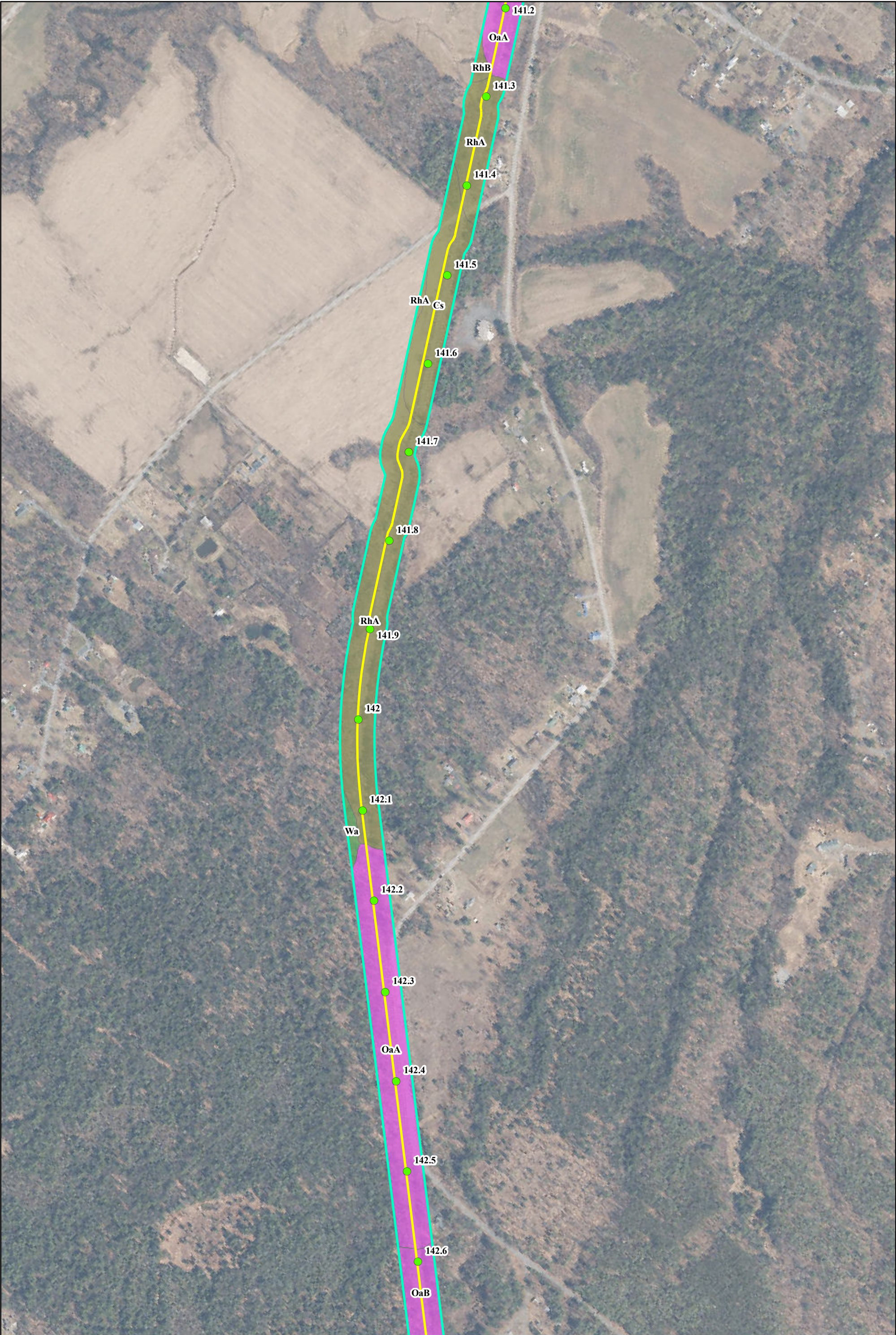




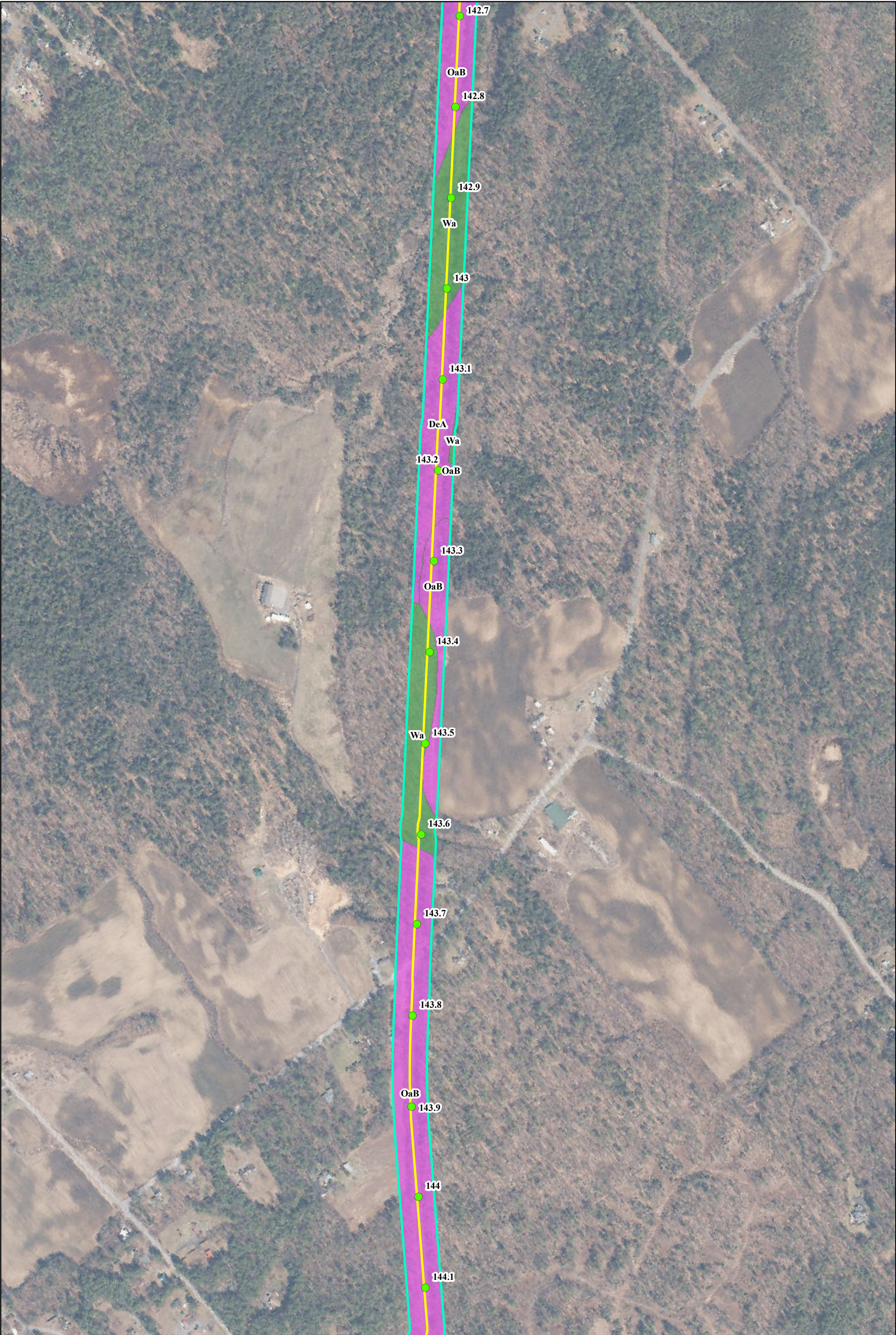




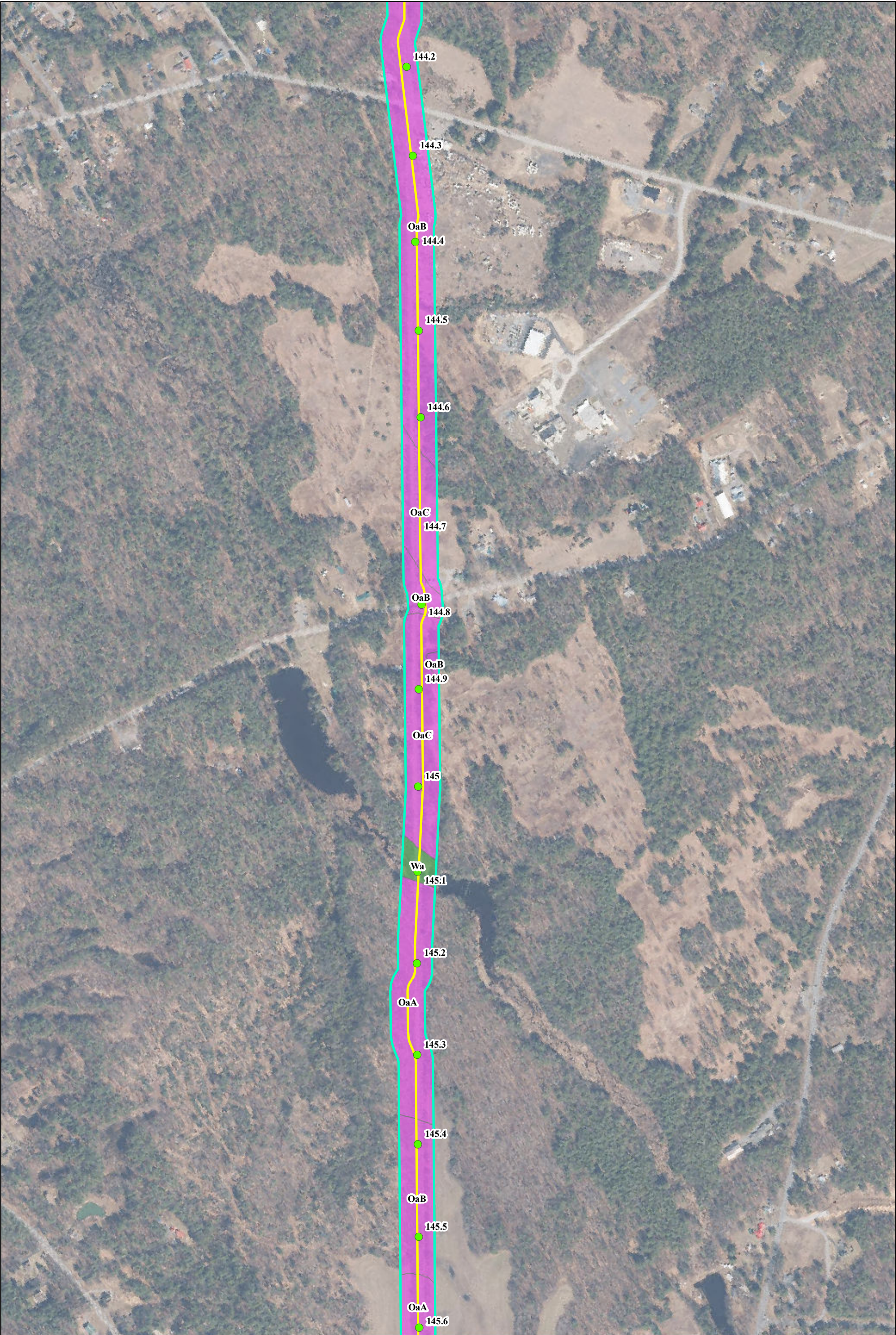




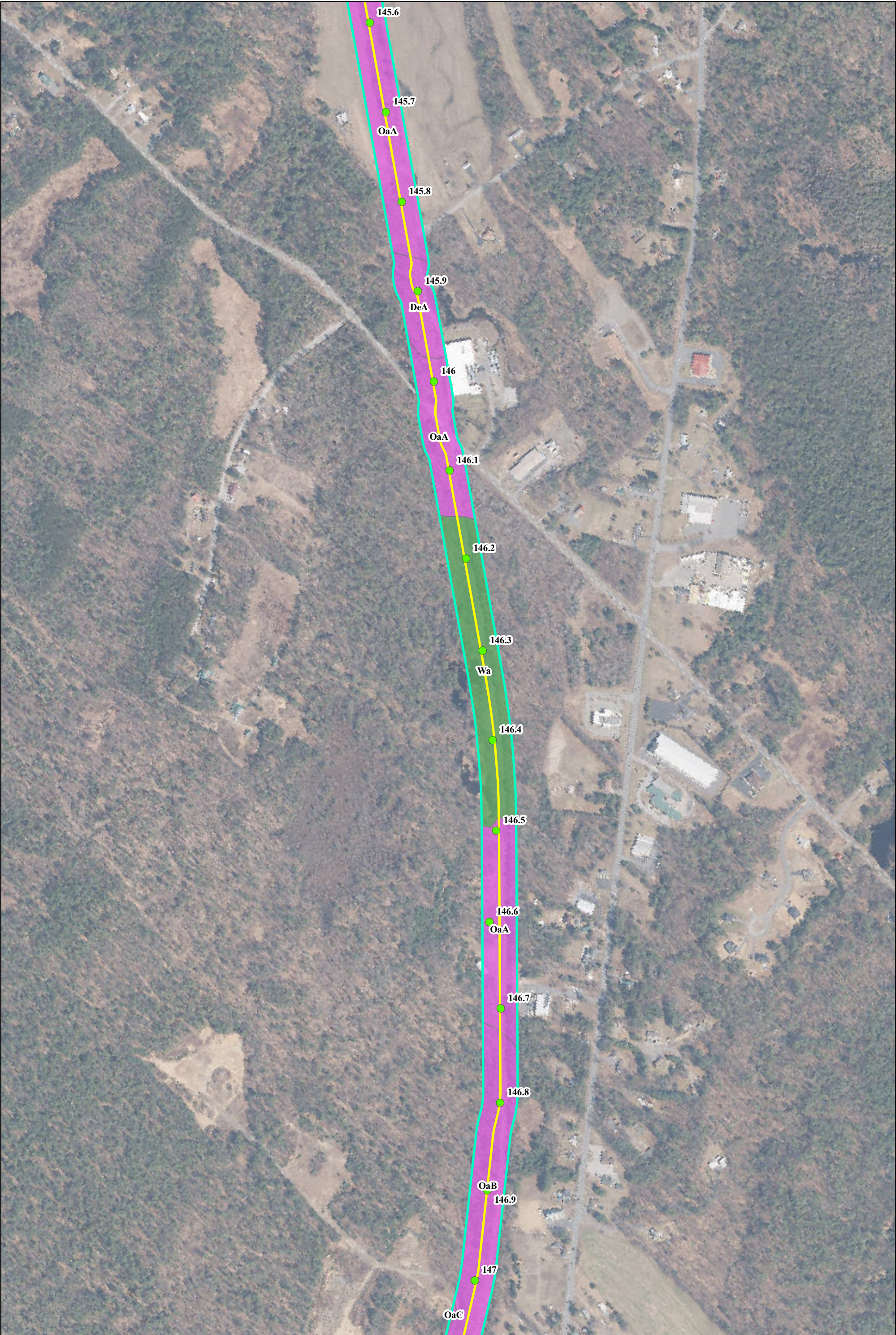




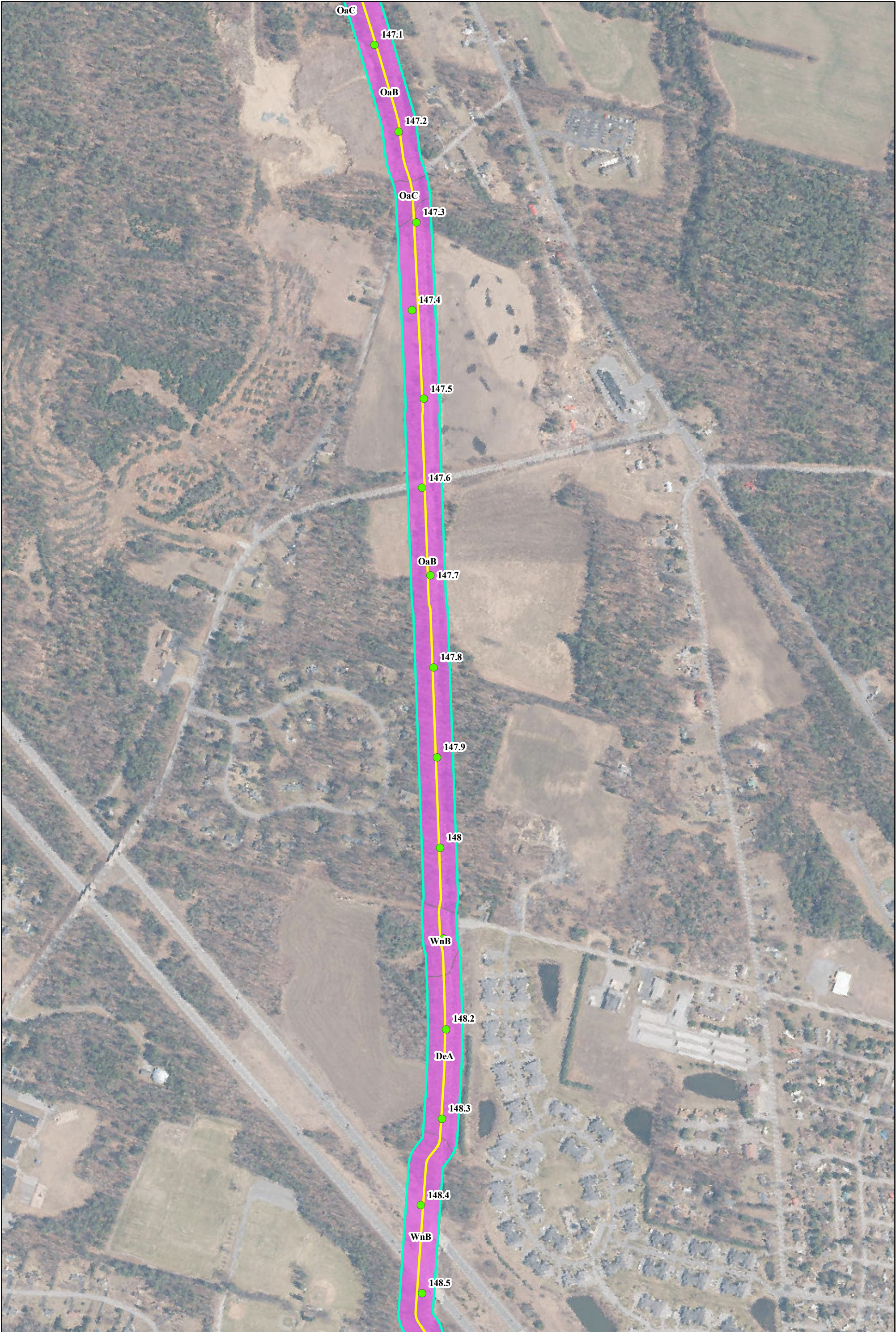




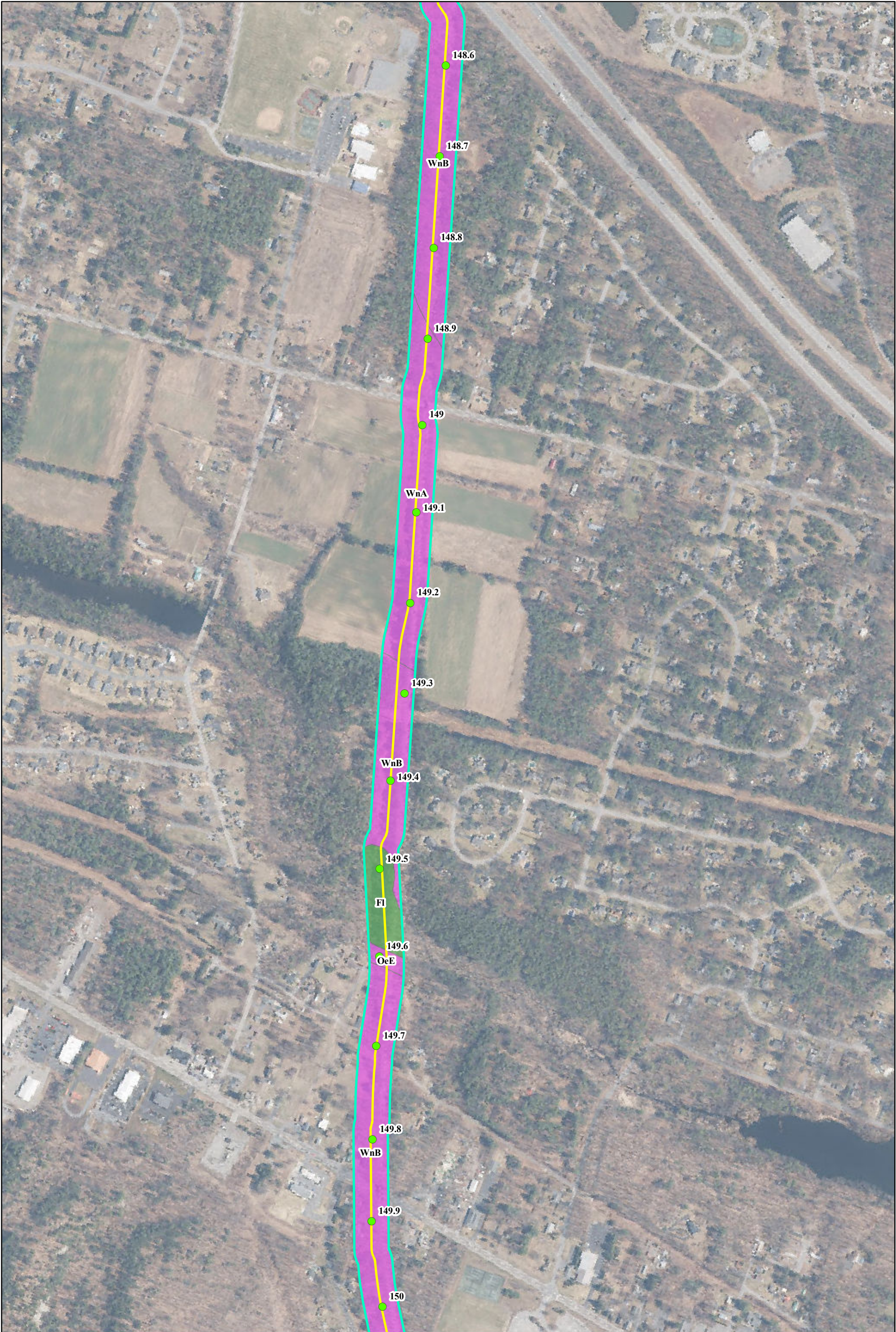




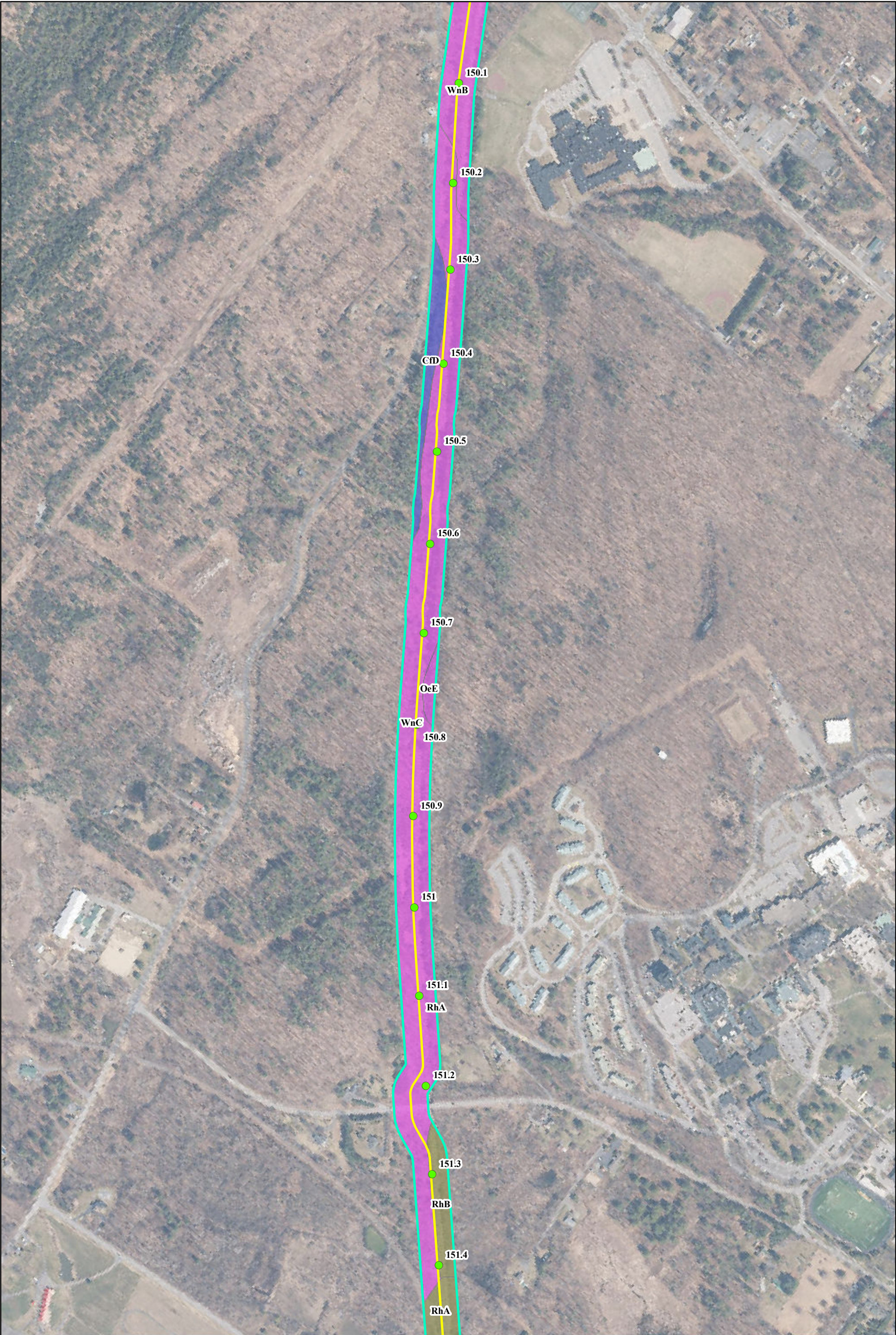




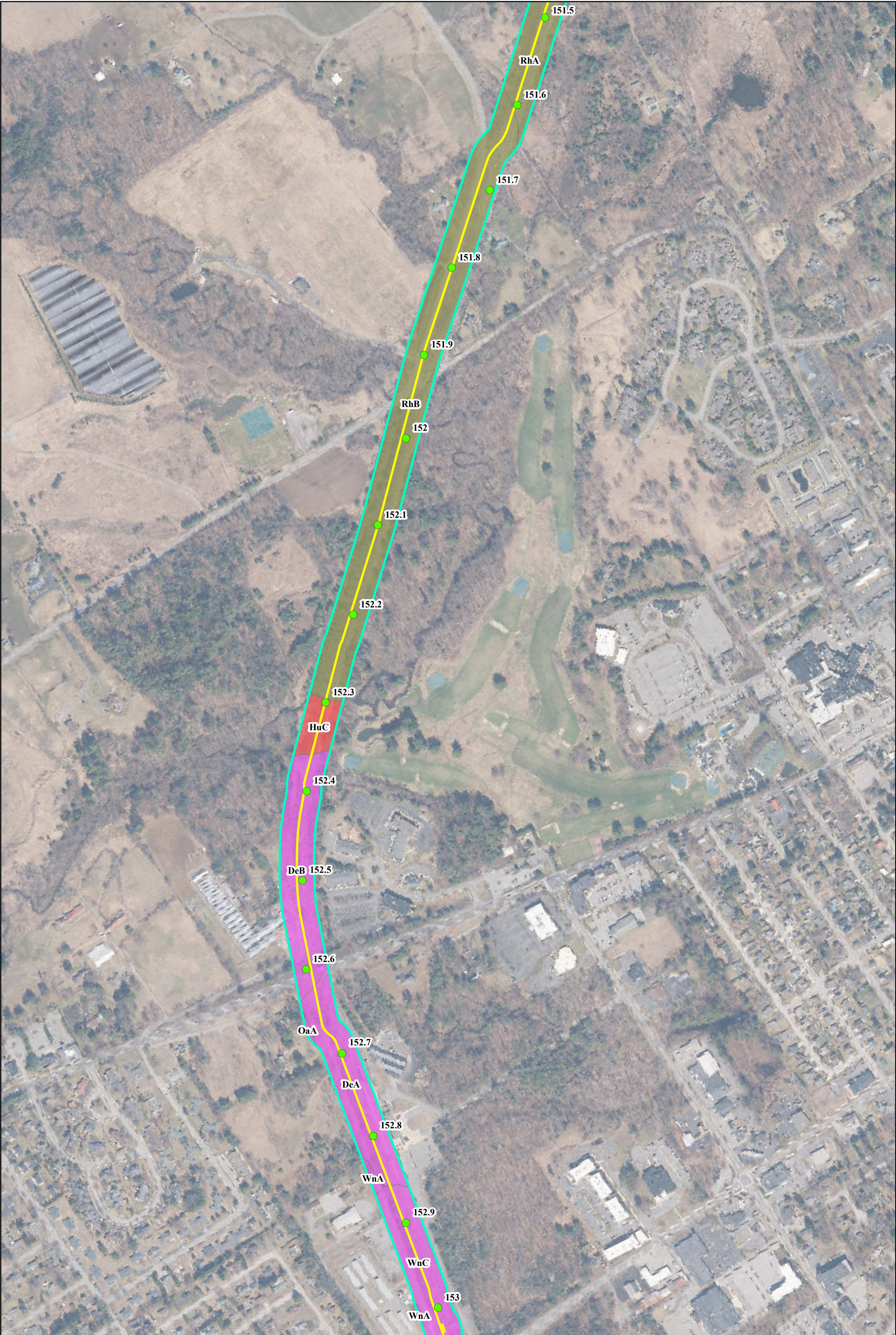




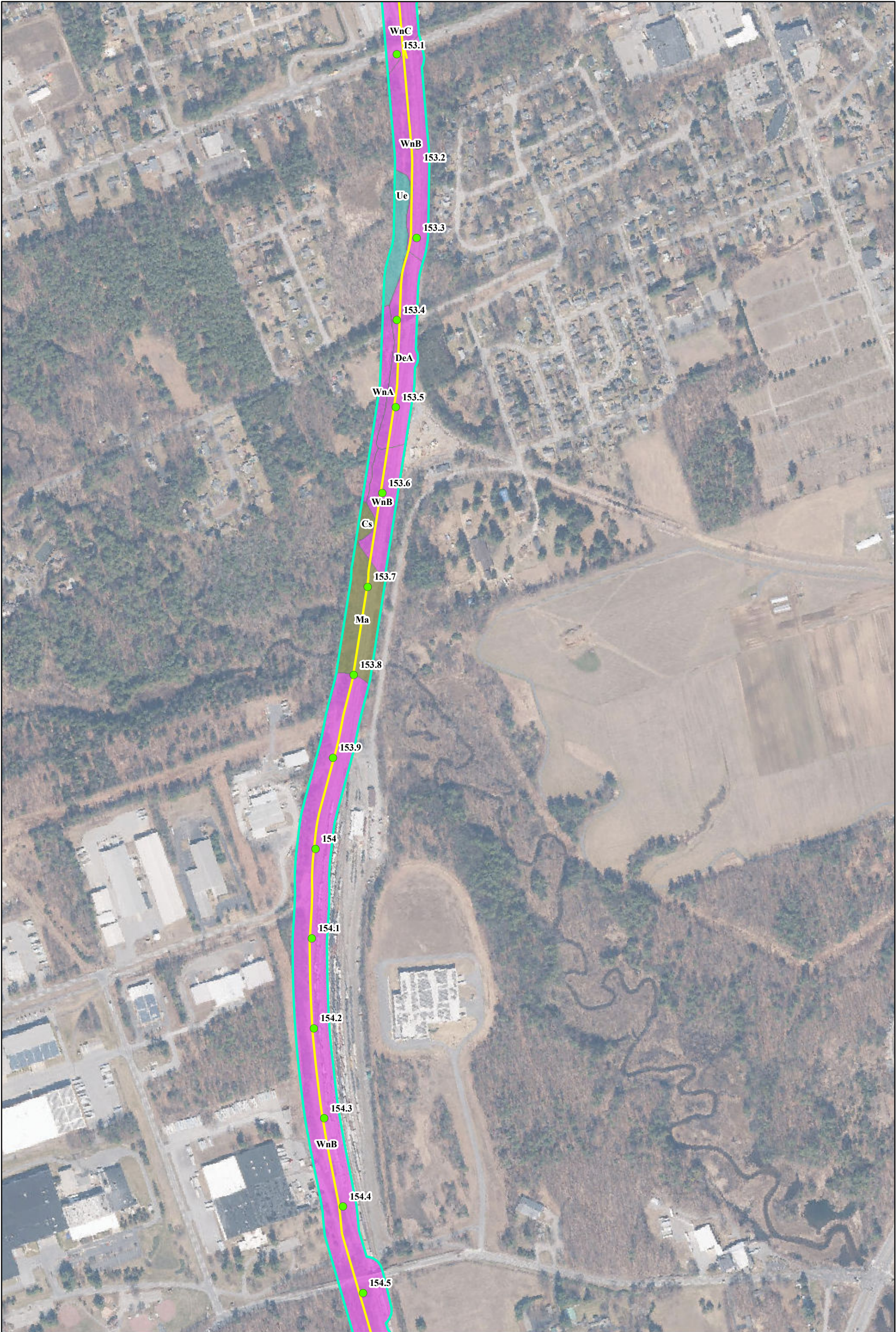




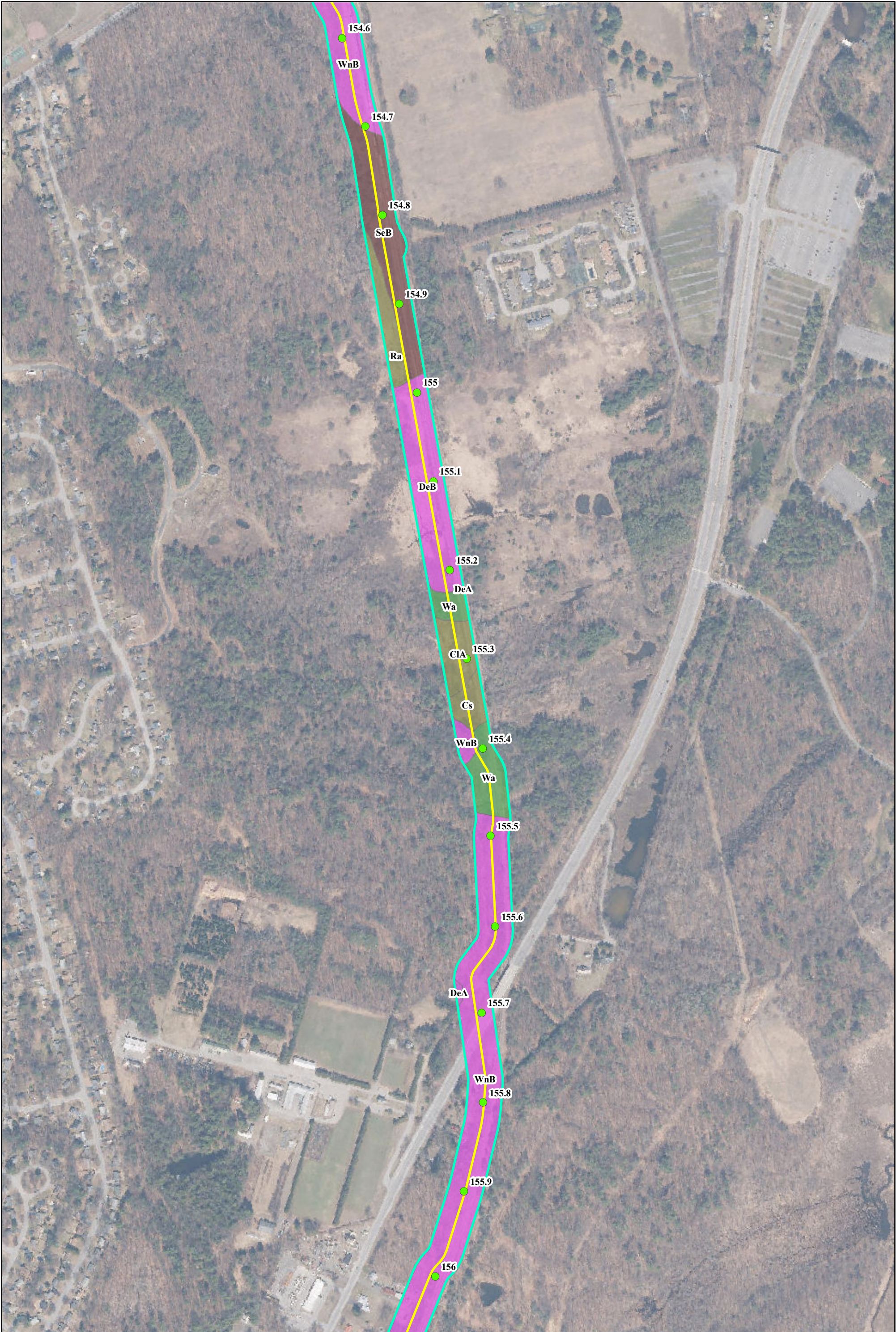




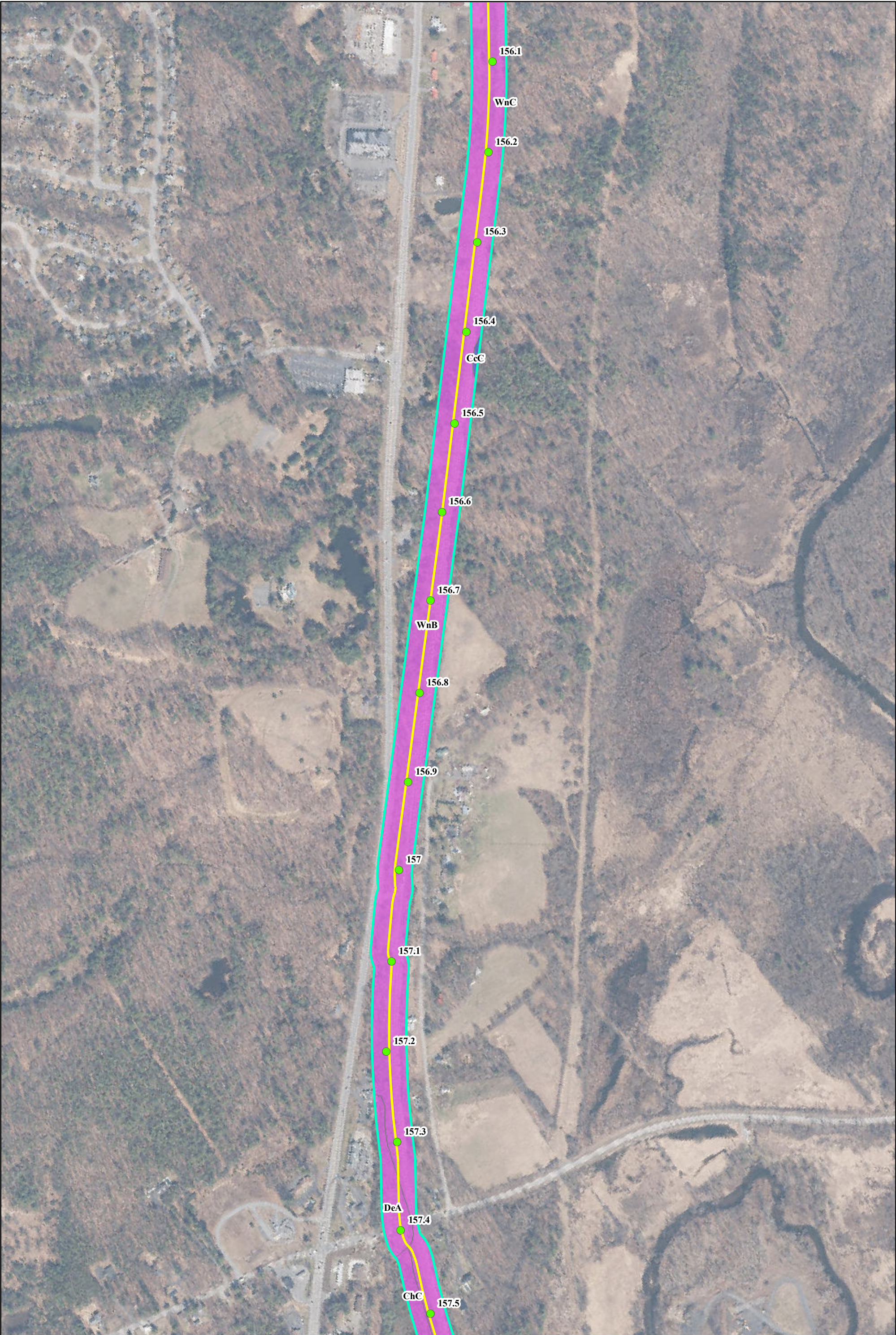




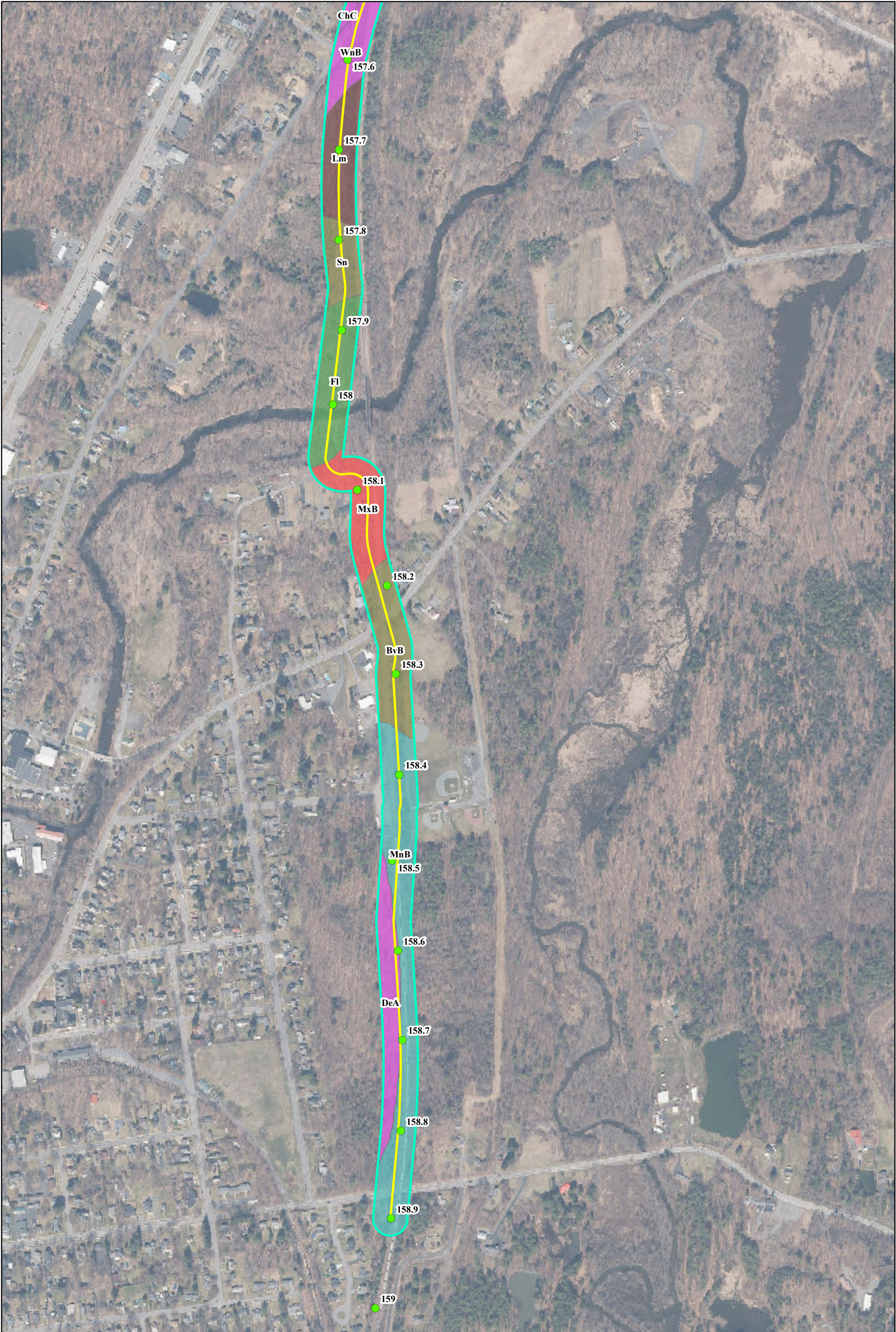
















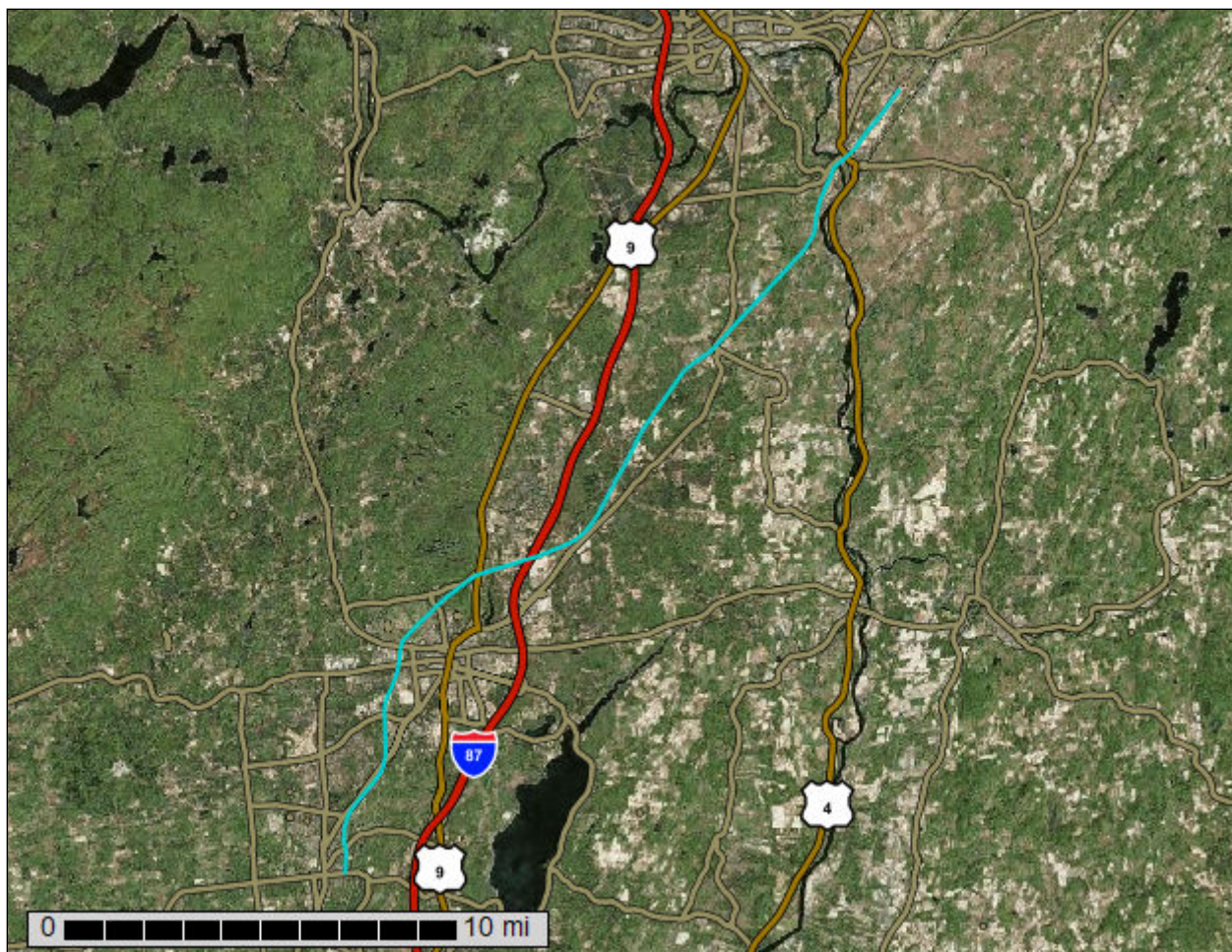
United States  
Department of  
Agriculture

**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 Saratoga County, New York, and Washington County, New York



# Preface

---

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

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

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

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

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

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

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

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

# Contents

---

<b>Preface</b> .....	2
<b>How Soil Surveys Are Made</b> .....	6
<b>Soil Map</b> .....	9
Soil Map.....	10
Legend.....	11
Map Unit Legend.....	13
Map Unit Descriptions.....	15
Saratoga County, New York.....	17
BvB—Broadalbin-Manlius-Nassau, complex, undulating.....	17
CcC—Charlton fine sandy loam, 8 to 15 percent slopes.....	19
CfD—Chatfield-Hollis complex, 15 to 35 percent slopes, very rocky.....	21
ChC—Chenango silt loam, loamy substratum, rolling.....	23
CIA—Claverack loamy fine sand, 0 to 3 percent slopes.....	24
CIB—Claverack loamy fine sand, 3 to 8 percent slopes.....	25
Cs—Cosad fine sandy loam.....	26
DeA—Deerfield loamy fine sand, 0 to 3 percent slopes.....	28
DeB—Deerfield loamy fine sand, 3 to 8 percent slopes.....	29
EIB—Elmridge very fine sandy loam, 3 to 8 percent slopes.....	30
FI—Fluvaqvents frequently flooded.....	32
HuB—Hudson silt loam, 3 to 8 percent slopes.....	33
HuC—Hudson silt loam, 8 to 15 percent slopes.....	34
HuD—Hudson silt loam, hilly.....	35
Lm—Limerick-Saco complex.....	36
Ma—Madalin mucky silty clay loam.....	38
MnB—Manlius-Nassau complex, undulating, rocky.....	39
MxB—Mosherville-Hornell complex, undulating.....	40
OaA—Oakville loamy fine sand, nearly level.....	42
OaB—Oakville loamy fine sand, undulating.....	43
OaC—Oakville loamy fine sand, rolling.....	44
OeE—Windsor loamy sand, 25 to 35 percent slopes.....	45
Ra—Raynham silt loam.....	46
RhA—Rhinebeck silt loam, 0 to 3 percent slopes.....	47
RhB—Rhinebeck silt loam, 3 to 8 percent slopes.....	49
SeB—Scio silt loam, 3 to 8 percent slopes.....	50
Sh—Shaker very fine sandy loam.....	51
Sn—Sun silt loam.....	52
Te—Teel silt loam.....	53
Ue—Udorthents, smoothed.....	54
UnB—Unadilla very fine sandy loam, 3 to 8 percent slopes.....	55
UnC—Unadilla very fine sandy loam, 8 to 15 percent slopes.....	56
W—Water.....	57
Wa—Wareham loamy sand.....	57
WnA—Windsor loamy sand, 0 to 3 percent slopes.....	58
WnB—Windsor loamy sand, 3 to 8 percent slopes.....	59

## Custom Soil Resource Report

WnC—Windsor loamy sand, 8 to 15 percent slopes.....	61
Washington County, New York.....	63
Ca—Catden muck, 0 to 2 percent slopes.....	63
CIA—Claverack loamy fine sand, 0 to 2 percent slopes.....	64
CIB—Claverack loamy fine sand, 2 to 6 percent slopes.....	65
Cv—Covington silty clay loam.....	66
KbA—Kingsbury silty clay, 0 to 2 percent slopes.....	67
KbB—Kingsbury silty clay, 2 to 6 percent slopes.....	69
OaB—Oakville loamy fine sand, 0 to 5 percent slopes.....	70
OP—Orthents and Psamments.....	71
W—Water.....	72
Wa—Wallington silt loam, sandy substratum.....	73
<b>References</b> .....	75

# 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

## Custom Soil Resource Report

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

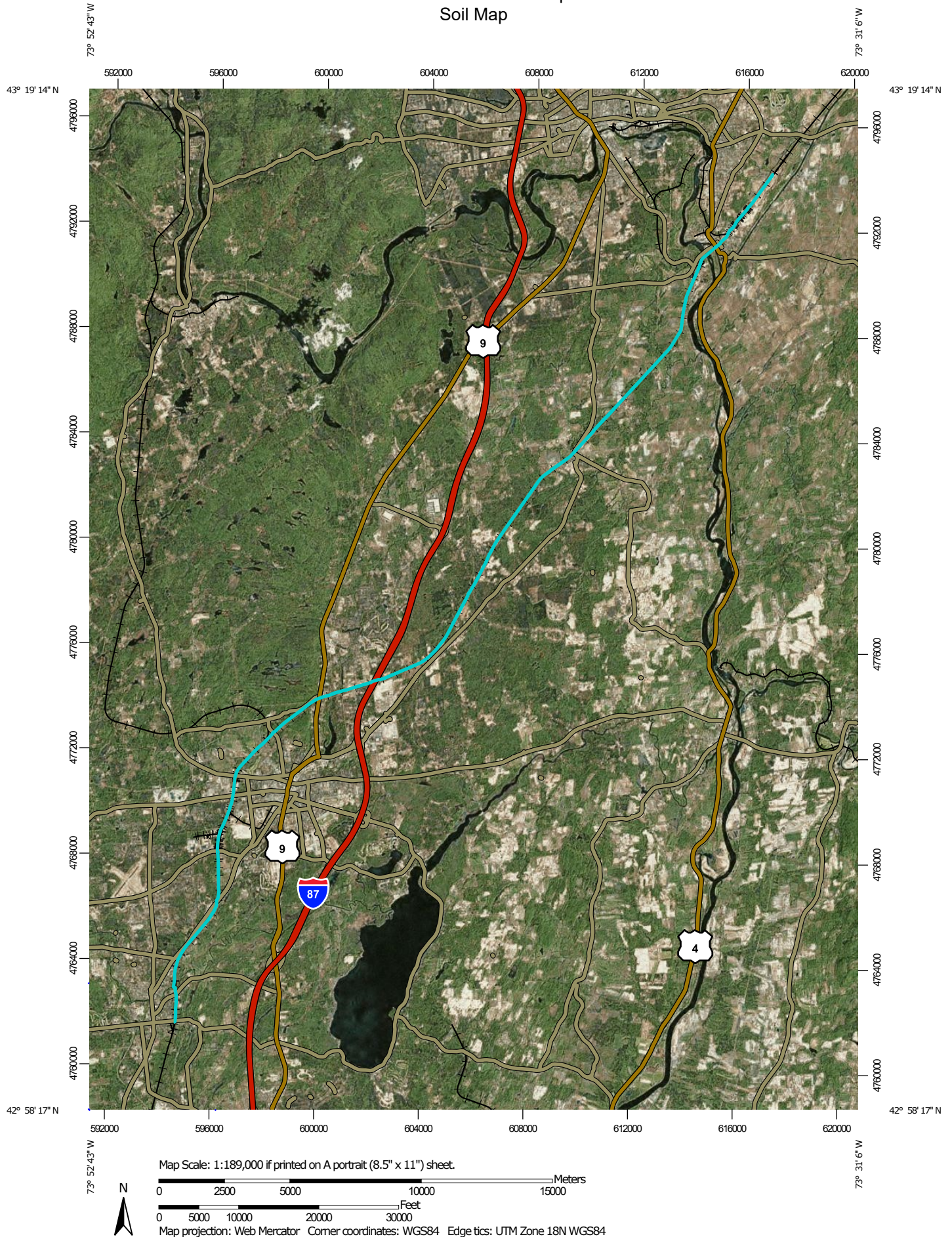
# Soil Map

---

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



# Custom Soil Resource Report Soil Map






## Custom Soil Resource Report


### 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 scales ranging from 1:20,000 to 1:24,000.

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: Saratoga County, New York

Survey Area Data: Version 22, Sep 10, 2022

Soil Survey Area: Washington County, New York

Survey Area Data: Version 22, Sep 10, 2022

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

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

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

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

## MAP LEGEND

## MAP INFORMATION

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

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BvB	Broadalbin-Manlius-Nassau, complex, undulating	4.3	0.7%
CcC	Charlton fine sandy loam, 8 to 15 percent slopes	0.1	0.0%
CfD	Chatfield-Hollis complex, 15 to 35 percent slopes, very rocky	2.1	0.3%
ChC	Chenango silt loam, loamy substratum, rolling	1.3	0.2%
CIA	Claverack loamy fine sand, 0 to 3 percent slopes	1.8	0.3%
CIB	Claverack loamy fine sand, 3 to 8 percent slopes	2.6	0.4%
Cs	Cosad fine sandy loam	10.5	1.7%
DeA	Deerfield loamy fine sand, 0 to 3 percent slopes	28.0	4.4%
DeB	Deerfield loamy fine sand, 3 to 8 percent slopes	12.0	1.9%
EIB	Elmridge very fine sandy loam, 3 to 8 percent slopes	6.8	1.1%
FI	Fluvaquents frequently flooded	11.6	1.8%
HuB	Hudson silt loam, 3 to 8 percent slopes	15.2	2.4%
HuC	Hudson silt loam, 8 to 15 percent slopes	1.8	0.3%
HuD	Hudson silt loam, hilly	22.5	3.5%
Lm	Limerick-Saco complex	5.1	0.8%
Ma	Madalin mucky silty clay loam	5.2	0.8%
MnB	Manlius-Nassau complex, undulating, rocky	10.0	1.6%
MxB	Mosherville-Hornell complex, undulating	3.7	0.6%
OaA	Oakville loamy fine sand, nearly level	50.8	8.0%
OaB	Oakville loamy fine sand, undulating	71.0	11.2%
OaC	Oakville loamy fine sand, rolling	10.2	1.6%
OeE	Windsor loamy sand, 25 to 35 percent slopes	6.8	1.1%
Ra	Raynham silt loam	1.6	0.3%
RhA	Rhinebeck silt loam, 0 to 3 percent slopes	34.5	5.4%
RhB	Rhinebeck silt loam, 3 to 8 percent slopes	23.8	3.8%

# Custom Soil Resource Report

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
SeB	Scio silt loam, 3 to 8 percent slopes	9.2	1.4%
Sh	Shaker very fine sandy loam	12.1	1.9%
Sn	Sun silt loam	2.1	0.3%
Te	Teel silt loam	1.9	0.3%
Ue	Udorthents, smoothed	1.4	0.2%
UnB	Unadilla very fine sandy loam, 3 to 8 percent slopes	3.3	0.5%
UnC	Unadilla very fine sandy loam, 8 to 15 percent slopes	8.0	1.3%
W	Water	0.5	0.1%
Wa	Wareham loamy sand	36.3	5.7%
WnA	Windsor loamy sand, 0 to 3 percent slopes	10.6	1.7%
WnB	Windsor loamy sand, 3 to 8 percent slopes	112.6	17.8%
WnC	Windsor loamy sand, 8 to 15 percent slopes	31.0	4.9%
<b>Subtotals for Soil Survey Area</b>		<b>572.3</b>	<b>90.2%</b>
<b>Totals for Area of Interest</b>		<b>634.2</b>	<b>100.0%</b>

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ca	Catden muck, 0 to 2 percent slopes	0.0	0.0%
CIA	Claverack loamy fine sand, 0 to 2 percent slopes	43.5	6.9%
CIB	Claverack loamy fine sand, 2 to 6 percent slopes	1.5	0.2%
Cv	Covington silty clay loam	1.6	0.3%
KbA	Kingsbury silty clay, 0 to 2 percent slopes	0.2	0.0%
KbB	Kingsbury silty clay, 2 to 6 percent slopes	0.6	0.1%
OaB	Oakville loamy fine sand, 0 to 5 percent slopes	1.2	0.2%
OP	Orthents and Psamments	2.4	0.4%
W	Water	3.2	0.5%
Wa	Wallington silt loam, sandy substratum	7.7	1.2%
<b>Subtotals for Soil Survey Area</b>		<b>61.9</b>	<b>9.8%</b>
<b>Totals for Area of Interest</b>		<b>634.2</b>	<b>100.0%</b>



## Map Unit Descriptions

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

## Saratoga County, New York

### BvB—Broadalbin-Manlius-Nassau, complex, undulating

#### Map Unit Setting

*National map unit symbol:* 9w97  
*Elevation:* 200 to 1,800 feet  
*Mean annual precipitation:* 36 to 48 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 125 to 160 days  
*Farmland classification:* All areas are prime farmland

#### Map Unit Composition

*Broadalbin and similar soils:* 50 percent  
*Manlius and similar soils:* 30 percent  
*Nassau and similar soils:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Broadalbin

##### Setting

*Landform:* Drumlinoid ridges, till plains  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Crest  
*Down-slope shape:* Concave  
*Across-slope shape:* Convex  
*Parent material:* Thin eolian deposits over loamy till derived mainly from granite and gneiss with a significant component of soft dark shale

##### Typical profile

*H1 - 0 to 9 inches:* silt loam  
*H2 - 9 to 30 inches:* silt loam  
*2Bx - 30 to 43 inches:* gravelly fine sandy loam  
*2C - 43 to 74 inches:* channery fine sandy loam  
*2Cd - 74 to 88 inches:* channery fine sandy loam

##### Properties and qualities

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* 18 to 36 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 36 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 3 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):* 2e  
*Hydrologic Soil Group:* C/D  
*Ecological site:* F144AY034CT - Well Drained Till Uplands  
*Hydric soil rating:* No

## Description of Manlius

### 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:* Loamy till derived mainly from local acid shale bedrock

### Typical profile

*H1 - 0 to 5 inches:* channery silt loam

*H2 - 5 to 21 inches:* very channery silt loam

*H3 - 21 to 24 inches:* extremely channery silt loam

*H4 - 24 to 34 inches:* unweathered bedrock

### Properties and qualities

*Slope:* 3 to 8 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:* Very low (about 2.5 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* C

*Ecological site:* F144AY034CT - Well Drained Till Uplands

*Hydric soil rating:* No

## 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 3 inches:* channery silt loam

*H2 - 3 to 18 inches:* very channery silt loam

*H3 - 18 to 28 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 excessively drained

*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:* More than 80 inches

*Frequency of flooding:* None

## Custom Soil Resource Report

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Very low (about 1.9 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

## **CcC—Charlton fine sandy loam, 8 to 15 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2wh0q

*Elevation:* 0 to 1,440 feet

*Mean annual precipitation:* 36 to 71 inches

*Mean annual air temperature:* 39 to 55 degrees F

*Frost-free period:* 140 to 240 days

*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*Charlton and similar soils:* 85 percent

*Minor components:* 15 percent

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

### **Description of Charlton**

#### **Setting**

*Landform:* Ridges, hills, ground moraines

*Landform position (two-dimensional):* Backslope

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

*Down-slope shape:* Convex, linear

*Across-slope shape:* Convex

*Parent material:* Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

#### **Typical profile**

*Ap - 0 to 7 inches:* fine sandy loam

*Bw - 7 to 22 inches:* gravelly fine sandy loam

*C - 22 to 65 inches:* gravelly fine sandy loam

#### **Properties and qualities**

*Slope:* 8 to 15 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Runoff class:* Low

*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:* More than 80 inches

*Frequency of flooding:* None



## Custom Soil Resource Report

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Moderate (about 6.9 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* B

*Ecological site:* F144AY034CT - Well Drained Till Uplands

*Hydric soil rating:* No

### Minor Components

#### Paxton

*Percent of map unit:* 5 percent

*Landform:* Drumlins, hills, ground moraines

*Landform position (two-dimensional):* Backslope

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

*Down-slope shape:* Convex, linear

*Across-slope shape:* Convex

*Hydric soil rating:* No

#### Sutton, fine sandy loam

*Percent of map unit:* 5 percent

*Landform:* Ridges, hills, ground moraines

*Landform position (two-dimensional):* Footslope

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

*Down-slope shape:* Concave

*Across-slope shape:* Linear

*Hydric soil rating:* No

#### Chatfield

*Percent of map unit:* 3 percent

*Landform:* Ridges, hills

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Nose slope, side slope, crest

*Down-slope shape:* Convex

*Across-slope shape:* Linear, convex

*Hydric soil rating:* No

#### Canton

*Percent of map unit:* 2 percent

*Landform:* Ridges, hills, ground moraines

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Nose slope, side slope, crest

*Down-slope shape:* Convex, linear

*Across-slope shape:* Convex

*Hydric soil rating:* No

## **CfD—Chatfield-Hollis complex, 15 to 35 percent slopes, very rocky**

### **Map Unit Setting**

*National map unit symbol:* 2w69w  
*Elevation:* 230 to 1,360 feet  
*Mean annual precipitation:* 36 to 71 inches  
*Mean annual air temperature:* 39 to 55 degrees F  
*Frost-free period:* 145 to 240 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Chatfield, very stony, and similar soils:* 45 percent  
*Hollis, very stony, and similar soils:* 35 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Chatfield, Very Stony**

#### **Setting**

*Landform:* Ridges, hills  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Nose slope, side slope, crest  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear, convex  
*Parent material:* Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

#### **Typical profile**

*Oi - 0 to 1 inches:* slightly decomposed plant material  
*A - 1 to 2 inches:* fine sandy loam  
*Bw - 2 to 30 inches:* gravelly fine sandy loam  
*2R - 30 to 40 inches:* bedrock

#### **Properties and qualities**

*Slope:* 15 to 35 percent  
*Surface area covered with cobbles, stones or boulders:* 1.6 percent  
*Depth to restrictive feature:* 20 to 41 inches to lithic bedrock  
*Drainage class:* Well drained  
*Runoff class:* High  
*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  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 4.3 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7s

## Custom Soil Resource Report

*Hydrologic Soil Group:* B

*Ecological site:* F142XB008VT - Steep Acidic Till Upland

*Hydric soil rating:* No

### Description of Hollis, Very Stony

#### Setting

*Landform:* Ridges, hills

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Nose slope, side slope, crest

*Down-slope shape:* Convex

*Across-slope shape:* Linear, convex

*Parent material:* Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

#### Typical profile

*Oi - 0 to 2 inches:* slightly decomposed plant material

*A - 2 to 7 inches:* gravelly fine sandy loam

*Bw - 7 to 16 inches:* gravelly fine sandy loam

*2R - 16 to 26 inches:* bedrock

#### Properties and qualities

*Slope:* 15 to 35 percent

*Surface area covered with cobbles, stones or boulders:* 1.6 percent

*Depth to restrictive feature:* 8 to 23 inches to lithic bedrock

*Drainage class:* Somewhat excessively drained

*Runoff class:* Very high

*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

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Very low (about 2.7 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydrologic Soil Group:* D

*Ecological site:* F142XB019NY - Shallow Acidic Till Upland

*Hydric soil rating:* No

### Minor Components

#### Charlton, very stony

*Percent of map unit:* 9 percent

*Landform:* Ridges, hills

*Landform position (two-dimensional):* Backslope

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

*Down-slope shape:* Convex, linear

*Across-slope shape:* Convex

*Hydric soil rating:* No

#### Rock outcrop

*Percent of map unit:* 6 percent

*Landform:* Ridges, hills

*Hydric soil rating:* No

**Sun, very stony**

*Percent of map unit:* 3 percent  
*Landform:* Depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

**Sutton, very stony**

*Percent of map unit:* 1 percent  
*Landform:* Hills, ground moraines  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

**Pittsfield, very stony**

*Percent of map unit:* 1 percent  
*Landform:* Hills, ground moraines  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Hydric soil rating:* No

**ChC—Chenango silt loam, loamy substratum, rolling**

**Map Unit Setting**

*National map unit symbol:* 9w9p  
*Elevation:* 600 to 1,800 feet  
*Mean annual precipitation:* 36 to 48 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 125 to 160 days  
*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

*Chenango, loamy substratum, and similar soils:* 85 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Chenango, Loamy Substratum**

**Setting**

*Landform:* Valley trains, terraces  
*Landform position (two-dimensional):* Shoulder  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from sandstone, shale, and siltstone

**Typical profile**

*H1 - 0 to 6 inches:* silt loam  
*H2 - 6 to 30 inches:* very gravelly fine sandy loam  
*H3 - 30 to 72 inches:* very channery fine sandy loam

**Properties and qualities**

*Slope:* 8 to 15 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.57 to 5.95 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Available water supply, 0 to 60 inches:* Moderate (about 6.2 inches)

**Interpretive groups**

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

**CIA—Claverack loamy fine sand, 0 to 3 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 9w9q  
*Elevation:* 600 to 1,800 feet  
*Mean annual precipitation:* 36 to 48 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 125 to 160 days  
*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Claverack and similar soils:* 70 percent  
*Minor components:* 1 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Claverack**

**Setting**

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

**Typical profile**

*H1 - 0 to 8 inches:* loamy fine sand  
*H2 - 8 to 27 inches:* fine sand



## Custom Soil Resource Report

2C - 27 to 31 inches: silt loam

3C - 31 to 72 inches: silty clay

### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

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

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 10 percent

*Available water supply, 0 to 60 inches:* Very low (about 1.9 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2w

*Hydrologic Soil Group:* C/D

*Ecological site:* F101XY006NY - Moist Outwash

*Hydric soil rating:* No

### Minor Components

#### Madalin

*Percent of map unit:* 1 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

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

### Map Unit Setting

*National map unit symbol:* 9w9r

*Elevation:* 600 to 1,800 feet

*Mean annual precipitation:* 36 to 48 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 125 to 160 days

*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Claverack and similar soils:* 70 percent

*Minor components:* 1 percent

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

### Description of Claverack

#### Setting

*Landform:* Lake plains

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Tread

## Custom Soil Resource Report

*Down-slope shape:* Concave

*Across-slope shape:* Convex

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

### Typical profile

*H1 - 0 to 8 inches:* loamy fine sand

*H2 - 8 to 27 inches:* fine sand

*2C - 27 to 31 inches:* silt loam

*3C - 31 to 72 inches:* silty clay

### Properties and qualities

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

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

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 10 percent

*Available water supply, 0 to 60 inches:* Very low (about 1.9 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2w

*Hydrologic Soil Group:* C/D

*Ecological site:* F101XY006NY - Moist Outwash

*Hydric soil rating:* No

### Minor Components

#### Madalin

*Percent of map unit:* 1 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

## Cs—Cosad fine sandy loam

### Map Unit Setting

*National map unit symbol:* 9w9s

*Elevation:* 200 to 800 feet

*Mean annual precipitation:* 36 to 48 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 125 to 160 days

*Farmland classification:* Prime farmland if drained

### Map Unit Composition

*Cosad and similar soils:* 70 percent

*Minor components:* 6 percent

## Custom Soil Resource Report

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

### Description of Cosad

#### Setting

*Landform:* Lake plains

*Landform position (two-dimensional):* Foothlope

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave

*Across-slope shape:* Linear

*Parent material:* Sandy glaciofluvial or deltaic deposits over clayey glaciolacustrine deposits

#### Typical profile

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

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

*H3 - 20 to 27 inches:* loamy fine sand

*H4 - 27 to 72 inches:* clay

#### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* 18 to 40 inches to strongly contrasting textural stratification

*Drainage class:* Somewhat poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 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:* Very low (about 2.3 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* C/D

*Ecological site:* F101XY006NY - Moist Outwash

*Hydric soil rating:* No

### Minor Components

#### Cheektowaga

*Percent of map unit:* 5 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

#### Madalin

*Percent of map unit:* 1 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

## **DeA—Deerfield loamy fine sand, 0 to 3 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2xfg8

*Elevation:* 0 to 1,100 feet

*Mean annual precipitation:* 36 to 71 inches

*Mean annual air temperature:* 39 to 55 degrees F

*Frost-free period:* 145 to 240 days

*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*Deerfield and similar soils:* 85 percent

*Minor components:* 5 percent

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

### **Description of Deerfield**

#### **Setting**

*Landform:* Outwash deltas, outwash terraces, outwash plains, kame terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave, convex, linear

*Across-slope shape:* Convex, linear, concave

*Parent material:* Sandy outwash derived from granite, gneiss, and/or quartzite

#### **Typical profile**

*Ap - 0 to 9 inches:* loamy fine sand

*Bw - 9 to 25 inches:* loamy fine sand

*BC - 25 to 33 inches:* fine sand

*Cg - 33 to 60 inches:* sand

#### **Properties and qualities**

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Runoff class:* Negligible

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to very high (1.42 to 99.90 in/hr)

*Depth to water table:* About 15 to 37 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Sodium adsorption ratio, maximum:* 11.0

*Available water supply, 0 to 60 inches:* Moderate (about 6.5 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2w

*Hydrologic Soil Group:* A

*Ecological site:* F144AY027MA - Moist Sandy Outwash

*Hydric soil rating:* No

## Minor Components

### Wareham

*Percent of map unit:* 5 percent  
*Landform:* Drainageways, depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Hydric soil rating:* Yes

## DeB—Deerfield loamy fine sand, 3 to 8 percent slopes

### Map Unit Setting

*National map unit symbol:* 2xfg9  
*Elevation:* 0 to 1,190 feet  
*Mean annual precipitation:* 36 to 71 inches  
*Mean annual air temperature:* 39 to 55 degrees F  
*Frost-free period:* 145 to 240 days  
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

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

## Description of Deerfield

### Setting

*Landform:* Outwash deltas, outwash terraces, outwash plains, kame terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Concave, convex, linear  
*Across-slope shape:* Convex, linear, concave  
*Parent material:* Sandy outwash derived from granite, gneiss, and/or quartzite

### Typical profile

*Ap - 0 to 9 inches:* loamy fine sand  
*Bw - 9 to 25 inches:* loamy fine sand  
*BC - 25 to 33 inches:* fine sand  
*Cg - 33 to 60 inches:* sand

### Properties and qualities

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Moderately well drained  
*Runoff class:* Very low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to very high (1.42 to 99.90 in/hr)  
*Depth to water table:* About 15 to 37 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

## Custom Soil Resource Report

*Sodium adsorption ratio, maximum:* 11.0

*Available water supply, 0 to 60 inches:* Moderate (about 6.5 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2w

*Hydrologic Soil Group:* A

*Ecological site:* F144AY027MA - Moist Sandy Outwash

*Hydric soil rating:* No

### Minor Components

#### Windsor

*Percent of map unit:* 7 percent

*Landform:* Kame terraces, outwash deltas, outwash terraces, outwash plains

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave, convex, linear

*Across-slope shape:* Convex, linear, concave

*Hydric soil rating:* No

#### Wareham

*Percent of map unit:* 5 percent

*Landform:* Drainageways, depressions

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Hydric soil rating:* Yes

#### Sudbury

*Percent of map unit:* 2 percent

*Landform:* Outwash deltas, outwash terraces, outwash plains, kame terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave, convex, linear

*Across-slope shape:* Convex, linear, concave

*Hydric soil rating:* No

#### Ninigret

*Percent of map unit:* 1 percent

*Landform:* Outwash terraces, outwash plains, kame terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear, convex

*Across-slope shape:* Concave, convex

*Hydric soil rating:* No

## EIB—Elmridge very fine sandy loam, 3 to 8 percent slopes

### Map Unit Setting

*National map unit symbol:* 9w9w

*Elevation:* 130 to 410 feet

*Mean annual precipitation:* 36 to 48 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 125 to 160 days



## Custom Soil Resource Report

*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Elmridge and similar soils:* 70 percent

*Minor components:* 5 percent

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

### Description of Elmridge

#### Setting

*Landform:* Lake plains

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave

*Across-slope shape:* Convex

*Parent material:* Loamy over clayey glaciolacustrine or marine deposits

#### Typical profile

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

*H2 - 8 to 18 inches:* very fine sandy loam

*2Bw - 18 to 39 inches:* silty clay

*2C - 39 to 72 inches:* clay

#### Properties and qualities

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* 18 to 40 inches to strongly contrasting textural stratification

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

*Depth to water table:* About 18 to 30 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 5 percent

*Available water supply, 0 to 60 inches:* Low (about 3.3 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* C/D

*Ecological site:* F144AY018NY - Moist Lake Plain

*Hydric soil rating:* No

### Minor Components

#### Shaker

*Percent of map unit:* 5 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

## **FI—Fluvaquents frequently flooded**

### **Map Unit Setting**

*National map unit symbol:* 9wb0  
*Elevation:* 300 to 1,800 feet  
*Mean annual precipitation:* 36 to 48 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 125 to 160 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Fluvaquents, frequently flooded, and similar soils:* 60 percent  
*Minor components:* 20 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Fluvaquents, Frequently Flooded**

#### **Setting**

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

#### **Typical profile**

*H1 - 0 to 10 inches:* gravelly loamy sand  
*H2 - 10 to 72 inches:* gravelly sandy loam

#### **Properties and qualities**

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to very high (0.06 to 19.98 in/hr)  
*Depth to water table:* About 0 inches  
*Frequency of flooding:* NoneFrequent  
*Frequency of ponding:* Frequent  
*Calcium carbonate, maximum content:* 2 percent  
*Available water supply, 0 to 60 inches:* Moderate (about 6.2 inches)

#### **Interpretive groups**

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

## Minor Components

### Limerick

*Percent of map unit:* 10 percent  
*Landform:* Flood plains  
*Hydric soil rating:* Yes

### Madalin

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

### Palms

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

## HuB—Hudson silt loam, 3 to 8 percent slopes

### Map Unit Setting

*National map unit symbol:* 9wbb  
*Elevation:* 300 to 1,800 feet  
*Mean annual precipitation:* 36 to 48 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 125 to 160 days  
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Hudson and similar soils:* 70 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Hudson

#### Setting

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

#### Typical profile

*H1 - 0 to 8 inches:* silt loam  
*H2 - 8 to 13 inches:* silty clay loam  
*H3 - 13 to 32 inches:* silty clay  
*H4 - 32 to 72 inches:* clay

#### Properties and qualities

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* 20 to 72 inches to strongly contrasting textural stratification

## Custom Soil Resource Report

*Drainage class:* Moderately well drained  
*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 18 to 24 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 10 percent  
*Available water supply, 0 to 60 inches:* Low (about 5.1 inches)

### Interpretive groups

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

## HuC—Hudson silt loam, 8 to 15 percent slopes

### Map Unit Setting

*National map unit symbol:* 9wbc  
*Elevation:* 300 to 1,800 feet  
*Mean annual precipitation:* 36 to 48 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 125 to 160 days  
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Hudson and similar soils:* 70 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Hudson

#### Setting

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

#### Typical profile

*H1 - 0 to 8 inches:* silt loam  
*H2 - 8 to 13 inches:* silty clay loam  
*H3 - 13 to 32 inches:* silty clay  
*H4 - 32 to 72 inches:* clay

#### Properties and qualities

*Slope:* 8 to 15 percent  
*Depth to restrictive feature:* 20 to 72 inches to strongly contrasting textural stratification  
*Drainage class:* Moderately well drained

## Custom Soil Resource Report

*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 18 to 24 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 10 percent

*Available water supply, 0 to 60 inches:* Low (about 5.1 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* D

*Ecological site:* F144AY018NY - Moist Lake Plain

*Hydric soil rating:* No

## HuD—Hudson silt loam, hilly

### Map Unit Setting

*National map unit symbol:* 9wbd

*Elevation:* 300 to 1,800 feet

*Mean annual precipitation:* 36 to 48 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 125 to 160 days

*Farmland classification:* Not prime farmland

### Map Unit Composition

*Hudson and similar soils:* 70 percent

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

### Description of Hudson

#### Setting

*Landform:* Lake plains

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Riser

*Down-slope shape:* Concave

*Across-slope shape:* Convex

*Parent material:* Clayey and silty glaciolacustrine deposits

#### Typical profile

*H1 - 0 to 8 inches:* silt loam

*H2 - 8 to 13 inches:* silty clay loam

*H3 - 13 to 32 inches:* silty clay

*H4 - 32 to 72 inches:* clay

#### Properties and qualities

*Slope:* 15 to 25 percent

*Depth to restrictive feature:* 20 to 72 inches to strongly contrasting textural stratification

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

## Custom Soil Resource Report

*Depth to water table:* About 18 to 24 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 10 percent  
*Available water supply, 0 to 60 inches:* Low (about 5.1 inches)

### Interpretive groups

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

## Lm—Limerick-Saco complex

### Map Unit Setting

*National map unit symbol:* 9wbj  
*Elevation:* 50 to 500 feet  
*Mean annual precipitation:* 36 to 48 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 125 to 160 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Limerick and similar soils:* 50 percent  
*Saco and similar soils:* 40 percent  
*Minor components:* 5 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Limerick

#### 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 that is dominantly silt and very fine sand

#### Typical profile

*H1 - 0 to 5 inches:* silt loam  
*H2 - 5 to 44 inches:* very fine sandy loam  
*2C - 44 to 72 inches:* loamy 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  
(0.57 to 1.98 in/hr)  
*Depth to water table:* About 0 to 18 inches  
*Frequency of flooding:* FrequentNone



## Custom Soil Resource Report

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Very high (about 13.3 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 5w

*Hydrologic Soil Group:* B/D

*Ecological site:* F144AY015NY - Wet Silty Low Floodplain

*Hydric soil rating:* Yes

### Description of Saco

#### Setting

*Landform:* Depressions

*Landform position (two-dimensional):* Toeslope

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Parent material:* Silty alluvium derived mainly from crystalline rock, shale, and sandstone

#### Typical profile

*H1 - 0 to 13 inches:* silt loam

*H2 - 13 to 23 inches:* silt loam

*Cg2 - 23 to 72 inches:* silt loam

#### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Very poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)

*Depth to water table:* About 0 to 6 inches

*Frequency of flooding:* FrequentNone

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Very high (about 13.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 5w

*Hydrologic Soil Group:* B/D

*Ecological site:* F144AY015NY - Wet Silty Low Floodplain

*Hydric soil rating:* Yes

### Minor Components

#### Fluvaquents

*Percent of map unit:* 5 percent

*Landform:* Flood plains

*Hydric soil rating:* Yes

## **Ma—Madalin mucky silty clay loam**

### **Map Unit Setting**

*National map unit symbol:* 9wbk  
*Elevation:* 20 to 840 feet  
*Mean annual precipitation:* 36 to 48 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 125 to 160 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Madalin and similar soils:* 80 percent  
*Minor components:* 10 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:* Clayey and silty glaciolacustrine deposits

#### **Typical profile**

*H1 - 0 to 9 inches:* mucky silty clay loam  
*H2 - 9 to 36 inches:* clay  
*H3 - 36 to 72 inches:* clay

#### **Properties and qualities**

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Very poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)  
*Depth to water table:* About 0 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* Frequent  
*Calcium carbonate, maximum content:* 10 percent  
*Available water supply, 0 to 60 inches:* Moderate (about 8.5 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 5w  
*Hydrologic Soil Group:* C/D  
*Ecological site:* F144AY019NH - Wet Lake Plain  
*Hydric soil rating:* Yes

**Minor Components**

**Unnamed soils**

*Percent of map unit:* 10 percent

*Hydric soil rating:* Yes

**MnB—Manlius-Nassau complex, undulating, rocky**

**Map Unit Setting**

*National map unit symbol:* 9wbl

*Elevation:* 200 to 1,800 feet

*Mean annual precipitation:* 36 to 48 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 125 to 160 days

*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

*Manlius, rocky, and similar soils:* 50 percent

*Nassau and similar soils:* 30 percent

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

**Description of Manlius, Rocky**

**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:* Loamy till derived mainly from local acid shale bedrock

**Typical profile**

*H1 - 0 to 5 inches:* channery silt loam

*H2 - 5 to 21 inches:* very channery silt loam

*H3 - 21 to 24 inches:* extremely channery silt loam

*H4 - 24 to 34 inches:* unweathered bedrock

**Properties and qualities**

*Slope:* 3 to 8 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:* Very low (about 2.5 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

## Custom Soil Resource Report

*Land capability classification (nonirrigated): 3e*  
*Hydrologic Soil Group: C*  
*Ecological site: F144AY034CT - Well Drained Till Uplands*  
*Hydric soil rating: No*

### 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 3 inches: channery silt loam*  
*H2 - 3 to 18 inches: very channery silt loam*  
*H3 - 18 to 28 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 excessively drained*  
*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: More than 80 inches*  
*Frequency of flooding: None*  
*Frequency of ponding: None*  
*Available water supply, 0 to 60 inches: Very low (about 1.9 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*

## MxB—Mosherville-Hornell complex, undulating

### Map Unit Setting

*National map unit symbol: 9wbs*  
*Elevation: 500 to 1,800 feet*  
*Mean annual precipitation: 36 to 48 inches*  
*Mean annual air temperature: 45 to 48 degrees F*  
*Frost-free period: 125 to 160 days*  
*Farmland classification: Farmland of statewide importance*

### Map Unit Composition

*Mosherville and similar soils: 50 percent*  
*Hornell and similar soils: 40 percent*

## Custom Soil Resource Report

*Minor components: 3 percent*

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

### Description of Mosherville

#### Setting

*Landform:* Drumlinoid ridges, till plains

*Landform position (two-dimensional):* Summit, footslope

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

*Down-slope shape:* Concave

*Across-slope shape:* Linear

*Parent material:* Loamy till derived from granite, gneiss, and sandstone, with a significant component of shale

#### Typical profile

*H1 - 0 to 9 inches:* silt loam

*H2 - 9 to 16 inches:* loam

*2Bx - 16 to 47 inches:* gravelly fine sandy loam

*2Cd - 47 to 72 inches:* gravelly fine sandy loam

#### Properties and qualities

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* 14 to 30 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:* 2 percent

*Available water supply, 0 to 60 inches:* Very low (about 2.7 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* D

*Ecological site:* F144AY037MA - Moist Dense Till Uplands, F144AY008CT - Moist Till Uplands

*Hydric soil rating:* No

### 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 6 inches:* channery silt loam

*H2 - 6 to 17 inches:* channery silty clay loam

*H3 - 17 to 24 inches:* very channery silty clay loam

*H4 - 24 to 34 inches:* weathered bedrock

## Custom Soil Resource Report

### 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 3.1 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* D

*Ecological site:* F140XY028NY - Moist Till Upland

*Hydric soil rating:* No

### Minor Components

#### Allis

*Percent of map unit:* 2 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

#### Sun

*Percent of map unit:* 1 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

## OaA—Oakville loamy fine sand, nearly level

### Map Unit Setting

*National map unit symbol:* 9wbz

*Elevation:* 600 to 1,200 feet

*Mean annual precipitation:* 36 to 48 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 125 to 160 days

*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Oakville and similar soils:* 70 percent

*Minor components:* 5 percent

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

### Description of Oakville

#### Setting

*Landform:* Terraces, outwash plains, deltas



## Custom Soil Resource Report

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Sandy eolian, beach ridge, or glaciofluvial deposits

### Typical profile

*H1 - 0 to 7 inches:* loamy fine sand

*H2 - 7 to 37 inches:* loamy fine sand

*H3 - 37 to 90 inches:* loamy 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 (5.95 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:* Low (about 4.5 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2w

*Hydrologic Soil Group:* A

*Ecological site:* F144AY022MA - Dry Outwash

*Hydric soil rating:* No

### Minor Components

#### Wareham

*Percent of map unit:* 5 percent

*Hydric soil rating:* Yes

## OaB—Oakville loamy fine sand, undulating

### Map Unit Setting

*National map unit symbol:* 9wc0

*Elevation:* 600 to 1,200 feet

*Mean annual precipitation:* 36 to 48 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 125 to 160 days

*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Oakville and similar soils:* 70 percent

*Minor components:* 5 percent

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

## Description of Oakville

### 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 eolian, beach ridge, or glaciofluvial deposits

### Typical profile

*H1 - 0 to 7 inches:* loamy fine sand  
*H2 - 7 to 37 inches:* loamy fine sand  
*H3 - 37 to 90 inches:* loamy fine sand

### Properties and qualities

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (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 4.5 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2s  
*Hydrologic Soil Group:* A  
*Ecological site:* F144AY022MA - Dry Outwash  
*Hydric soil rating:* No

## Minor Components

### Wareham

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

## OaC—Oakville loamy fine sand, rolling

### Map Unit Setting

*National map unit symbol:* 9wc1  
*Elevation:* 600 to 1,200 feet  
*Mean annual precipitation:* 36 to 48 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 125 to 160 days  
*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

*Oakville and similar soils: 70 percent*

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

**Description of Oakville**

**Setting**

*Landform: Deltas, terraces, outwash plains*

*Landform position (two-dimensional): Shoulder*

*Landform position (three-dimensional): Tread*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Parent material: Sandy eolian, beach ridge, or glaciofluvial deposits*

**Typical profile**

*H1 - 0 to 7 inches: loamy fine sand*

*H2 - 7 to 37 inches: loamy fine sand*

*H3 - 37 to 90 inches: loamy fine sand*

**Properties and qualities**

*Slope: 8 to 15 percent*

*Depth to restrictive feature: More than 80 inches*

*Drainage class: Well drained*

*Capacity of the most limiting layer to transmit water (Ksat): High 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 4.5 inches)*

**Interpretive groups**

*Land capability classification (irrigated): None specified*

*Land capability classification (nonirrigated): 3e*

*Hydrologic Soil Group: A*

*Ecological site: F144AY022MA - Dry Outwash*

*Hydric soil rating: No*

**OeE—Windsor loamy sand, 25 to 35 percent slopes**

**Map Unit Setting**

*National map unit symbol: 2svl7*

*Elevation: 10 to 1,110 feet*

*Mean annual precipitation: 36 to 71 inches*

*Mean annual air temperature: 39 to 55 degrees F*

*Frost-free period: 140 to 240 days*

*Farmland classification: Not prime farmland*

**Map Unit Composition**

*Windsor and similar soils: 90 percent*

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

## Description of Windsor

### Setting

*Landform:* Outwash terraces, outwash plains, dunes, deltas

*Landform position (three-dimensional):* Tread, riser

*Down-slope shape:* Linear, convex

*Across-slope shape:* Linear, convex

*Parent material:* Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

### Typical profile

*Oe - 0 to 1 inches:* moderately decomposed plant material

*A - 1 to 3 inches:* loamy sand

*Bw - 3 to 25 inches:* loamy sand

*C - 25 to 65 inches:* sand

### Properties and qualities

*Slope:* 25 to 35 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Excessively drained

*Runoff class:* Low

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to very high (1.42 to 99.90 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 4.5 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* A

*Ecological site:* F144AY022MA - Dry Outwash

*Hydric soil rating:* No

## Ra—Raynham silt loam

### Map Unit Setting

*National map unit symbol:* 9wcd

*Elevation:* 50 to 500 feet

*Mean annual precipitation:* 36 to 48 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 125 to 160 days

*Farmland classification:* Prime farmland if drained

### Map Unit Composition

*Raynham and similar soils:* 60 percent

*Minor components:* 15 percent

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

## Description of Raynham

### 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 12 inches:* silt loam

*H2 - 12 to 34 inches:* very fine sandy loam

*H3 - 34 to 72 inches:* very fine sandy loam

### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat poorly drained

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

*Depth to water table:* About 12 to 24 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 3 percent

*Available water supply, 0 to 60 inches:* High (about 11.8 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* C/D

*Ecological site:* F144AY019NH - Wet Lake Plain

*Hydric soil rating:* No

## Minor Components

### Raynham

*Percent of map unit:* 10 percent

*Hydric soil rating:* Yes

### Madalin

*Percent of map unit:* 5 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

## RhA—Rhinebeck silt loam, 0 to 3 percent slopes

### Map Unit Setting

*National map unit symbol:* 9wcf

*Elevation:* 80 to 1,000 feet

## Custom Soil Resource Report

*Mean annual precipitation:* 36 to 48 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 125 to 160 days  
*Farmland classification:* Prime farmland if drained

### Map Unit Composition

*Rhinebeck and similar soils:* 70 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Rhinebeck

#### Setting

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

#### Typical profile

*H1 - 0 to 11 inches:* silt loam  
*H2 - 11 to 37 inches:* silty clay  
*H3 - 37 to 72 inches:* 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 8.4 inches)

#### Interpretive groups

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

### Minor Components

#### Madalin

*Percent of map unit:* 10 percent  
*Landform:* Depressions  
*Hydric soil rating:* Yes

## **RhB—Rhinebeck silt loam, 3 to 8 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 9wcg  
*Elevation:* 80 to 1,000 feet  
*Mean annual precipitation:* 36 to 48 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 125 to 160 days  
*Farmland classification:* Prime farmland if drained

### **Map Unit Composition**

*Rhinebeck and similar soils:* 70 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Rhinebeck**

#### **Setting**

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

#### **Typical profile**

*H1 - 0 to 11 inches:* silt loam  
*H2 - 11 to 37 inches:* silty clay  
*H3 - 37 to 72 inches:* 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 8.4 inches)

#### **Interpretive groups**

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



## Minor Components

### Madalin

*Percent of map unit:* 10 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

## SeB—Scio silt loam, 3 to 8 percent slopes

### Map Unit Setting

*National map unit symbol:* 9wcm

*Elevation:* 100 to 1,000 feet

*Mean annual precipitation:* 36 to 48 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 125 to 160 days

*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Scio and similar soils:* 70 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 4 inches:* silt loam

*H2 - 4 to 23 inches:* silt loam

*H3 - 23 to 72 inches:* silt loam

### Properties and qualities

*Slope:* 3 to 8 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)

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

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 1 percent

*Available water supply, 0 to 60 inches:* Moderate (about 8.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2e

*Hydrologic Soil Group:* B/D

*Ecological site:* F144AY026CT - Moist Silty Outwash

*Hydric soil rating:* No

**Sh—Shaker very fine sandy loam**

**Map Unit Setting**

*National map unit symbol:* 9wcn

*Elevation:* 50 to 410 feet

*Mean annual precipitation:* 36 to 48 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 125 to 160 days

*Farmland classification:* Prime farmland if drained

**Map Unit Composition**

*Shaker and similar soils:* 70 percent

*Minor components:* 10 percent

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

**Description of Shaker**

**Setting**

*Landform:* Depressions

*Landform position (two-dimensional):* Toeslope

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Parent material:* Loamy over clayey glaciolacustrine or glaciomarine deposits

**Typical profile**

*H1 - 0 to 9 inches:* very fine sandy loam

*H2 - 9 to 31 inches:* loam

*H3 - 31 to 72 inches:* stratified clay to 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):* Very low to moderately high (0.00 to 0.20 in/hr)

*Depth to water table:* About 0 to 18 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 3 percent

*Available water supply, 0 to 60 inches:* Moderate (about 8.8 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4w

## Custom Soil Resource Report

*Hydrologic Soil Group:* C/D  
*Ecological site:* F144AY019NH - Wet Lake Plain  
*Hydric soil rating:* Yes

### Minor Components

#### **Cheektowaga**

*Percent of map unit:* 10 percent  
*Landform:* Depressions  
*Hydric soil rating:* Yes

## Sn—Sun silt loam

### Map Unit Setting

*National map unit symbol:* 9wcp  
*Elevation:* 600 to 1,800 feet  
*Mean annual precipitation:* 36 to 48 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 125 to 160 days  
*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Sun and similar soils:* 70 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Sun

#### **Setting**

*Landform:* Depressions  
*Landform position (two-dimensional):* Toeslope  
*Landform position (three-dimensional):* Base slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Parent material:* Loamy till derived primarily from limestone and sandstone, with a component of schist, shale, or granitic rocks in some areas

#### **Typical profile**

*Oe - 0 to 1 inches:* moderately decomposed plant material  
*A - 1 to 13 inches:* silt loam  
*H3 - 13 to 34 inches:* silt loam  
*H4 - 34 to 72 inches:* cobbly 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 0.57 in/hr)  
*Depth to water table:* About 0 to 6 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* Frequent

## Custom Soil Resource Report

*Calcium carbonate, maximum content:* 5 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):* 4w

*Hydrologic Soil Group:* C/D

*Ecological site:* F144AY039NY - Semi-Rich Wet Till Depressions

*Hydric soil rating:* Yes

## Te—Teel silt loam

### Map Unit Setting

*National map unit symbol:* 9wcw

*Elevation:* 600 to 1,800 feet

*Mean annual precipitation:* 36 to 48 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 125 to 160 days

*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Teel and similar soils:* 70 percent

*Minor components:* 10 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 12 inches:* silt loam

*H2 - 12 to 38 inches:* silt loam

*H3 - 38 to 72 inches:* very fine sandy loam

#### Properties and qualities

*Slope:* 0 to 3 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.57 to 1.98 in/hr)

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

*Frequency of flooding:* OccasionalNone

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 2 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  
*Ecological site:* F101XY002NY - Low Floodplain  
*Hydric soil rating:* No

**Minor Components**

**Limerick**

*Percent of map unit:* 10 percent  
*Landform:* Flood plains  
*Hydric soil rating:* Yes

**Ue—Udorthents, smoothed**

**Map Unit Setting**

*National map unit symbol:* 9wcz  
*Elevation:* 20 to 840 feet  
*Mean annual precipitation:* 36 to 48 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 125 to 160 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Udorthents, smoothed, well drained, and similar soils:* 80 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Udorthents, Smoothed, Well Drained**

**Typical profile**

*H1 - 0 to 5 inches:* silt loam  
*H2 - 5 to 72 inches:* channery loam

**Properties and qualities**

*Slope:* 0 to 8 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to 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:* Low (about 5.5 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* C  
*Hydric soil rating:* Unranked

## **UnB—Unadilla very fine sandy loam, 3 to 8 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 9wd0  
*Elevation:* 600 to 1,800 feet  
*Mean annual precipitation:* 36 to 48 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 125 to 160 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Unadilla and similar soils:* 70 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**

*Oi - 0 to 2 inches:* slightly decomposed plant material  
*H2 - 2 to 8 inches:* very fine sandy loam  
*H3 - 8 to 42 inches:* very fine sandy loam  
*2C - 42 to 72 inches:* loamy very fine sand

#### **Properties and qualities**

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 1.98 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 2 percent  
*Available water supply, 0 to 60 inches:* High (about 9.4 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* B  
*Ecological site:* F144AY024NY - Well Drained Eolian Outwash  
*Hydric soil rating:* No

## **UnC—Unadilla very fine sandy loam, 8 to 15 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 9wd1

*Elevation:* 600 to 1,800 feet

*Mean annual precipitation:* 36 to 48 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 125 to 160 days

*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*Unadilla and similar soils:* 70 percent

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

### **Description of Unadilla**

#### **Setting**

*Landform:* Lake plains

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Glaciolacustrine deposits, eolian deposits, or old alluvium, comprised mainly of silt and very fine sand

#### **Typical profile**

*Oi - 0 to 2 inches:* slightly decomposed plant material

*H2 - 2 to 8 inches:* very fine sandy loam

*H3 - 8 to 42 inches:* very fine sandy loam

*2C - 42 to 72 inches:* loamy very fine sand

#### **Properties and qualities**

*Slope:* 8 to 15 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 1.98 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 2 percent

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

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3e

*Hydrologic Soil Group:* B

*Ecological site:* F144AY024NY - Well Drained Eolian Outwash

*Hydric soil rating:* No



## **W—Water**

### **Map Unit Setting**

*National map unit symbol:* 9wd3  
*Mean annual precipitation:* 36 to 48 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 125 to 160 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

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

## **Wa—Wareham loamy sand**

### **Map Unit Setting**

*National map unit symbol:* 9wd4  
*Elevation:* 100 to 1,000 feet  
*Mean annual precipitation:* 36 to 48 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 125 to 160 days  
*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*Wareham, poorly drained, and similar soils:* 70 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

## **Description of Wareham, Poorly Drained**

### **Setting**

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

### **Typical profile**

*Oi - 0 to 2 inches:* slightly decomposed plant material  
*H2 - 2 to 8 inches:* loamy sand  
*H3 - 8 to 19 inches:* loamy sand  
*C - 19 to 72 inches:* sand

### **Properties and qualities**

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

## Custom Soil Resource Report

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.20 to 5.95 in/hr)

*Depth to water table:* About 0 to 18 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water supply, 0 to 60 inches:* Low (about 5.1 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4w

*Hydrologic Soil Group:* A/D

*Ecological site:* F144AY028MA - Wet Outwash

*Hydric soil rating:* Yes

### Minor Components

#### Scarboro

*Percent of map unit:* 5 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

#### Cheektowaga

*Percent of map unit:* 5 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

## WnA—Windsor loamy sand, 0 to 3 percent slopes

### Map Unit Setting

*National map unit symbol:* 2svkg

*Elevation:* 0 to 990 feet

*Mean annual precipitation:* 36 to 71 inches

*Mean annual air temperature:* 39 to 55 degrees F

*Frost-free period:* 140 to 240 days

*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Windsor, loamy sand, and similar soils:* 85 percent

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

### Description of Windsor, Loamy Sand

#### Setting

*Landform:* Outwash terraces, outwash plains, dunes, deltas

*Landform position (three-dimensional):* Tread, riser

*Down-slope shape:* Linear, convex

*Across-slope shape:* Linear, convex

*Parent material:* Loose sandy glaciofluvial deposits derived from granite and/or  
loose sandy glaciofluvial deposits derived from schist and/or loose sandy  
glaciofluvial deposits derived from gneiss

**Typical profile**

*O - 0 to 1 inches:* moderately decomposed plant material  
*A - 1 to 3 inches:* loamy sand  
*Bw - 3 to 25 inches:* loamy sand  
*C - 25 to 65 inches:* sand

**Properties and qualities**

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Excessively drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to very high (1.42 to 99.90 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 3.6 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2s  
*Hydrologic Soil Group:* A  
*Ecological site:* F144AY022MA - Dry Outwash  
*Hydric soil rating:* No

**WnB—Windsor loamy sand, 3 to 8 percent slopes**

**Map Unit Setting**

*National map unit symbol:* 2svkf  
*Elevation:* 0 to 1,210 feet  
*Mean annual precipitation:* 36 to 71 inches  
*Mean annual air temperature:* 39 to 55 degrees F  
*Frost-free period:* 140 to 240 days  
*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

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

**Description of Windsor, Loamy Sand**

**Setting**

*Landform:* Dunes, outwash terraces, outwash plains, deltas  
*Landform position (three-dimensional):* Tread, riser  
*Down-slope shape:* Convex, linear  
*Across-slope shape:* Convex, linear  
*Parent material:* Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

## Custom Soil Resource Report

### Typical profile

*O - 0 to 1 inches:* moderately decomposed plant material  
*A - 1 to 3 inches:* loamy sand  
*Bw - 3 to 25 inches:* loamy sand  
*C - 25 to 65 inches:* sand

### Properties and qualities

*Slope:* 3 to 8 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Excessively drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to very high (1.42 to 99.90 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Low (about 4.5 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2s  
*Hydrologic Soil Group:* A  
*Ecological site:* F144AY022MA - Dry Outwash  
*Hydric soil rating:* No

### Minor Components

#### Hinckley, loamy sand

*Percent of map unit:* 10 percent  
*Landform:* Deltas, kames, outwash plains, eskers  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Head slope, nose slope, crest, side slope, rise  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex, linear  
*Hydric soil rating:* No

#### Deerfield, loamy sand

*Percent of map unit:* 5 percent  
*Landform:* Terraces, outwash plains, deltas  
*Landform position (two-dimensional):* Footslope  
*Landform position (three-dimensional):* Tread, talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* No

## **WnC—Windsor loamy sand, 8 to 15 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 2svkq  
*Elevation:* 0 to 1,260 feet  
*Mean annual precipitation:* 36 to 71 inches  
*Mean annual air temperature:* 39 to 55 degrees F  
*Frost-free period:* 140 to 240 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

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

### **Description of Windsor**

#### **Setting**

*Landform:* — error in exists on —  
*Landform position (two-dimensional):* Summit, shoulder, backslope  
*Landform position (three-dimensional):* Side slope, riser  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear, convex  
*Parent material:* Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

#### **Typical profile**

*Oe - 0 to 1 inches:* moderately decomposed plant material  
*Ap - 1 to 11 inches:* loamy sand  
*Bw - 11 to 31 inches:* loamy sand  
*C - 31 to 65 inches:* sand

#### **Properties and qualities**

*Slope:* 8 to 15 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Excessively drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to very high (1.42 to 99.90 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)  
*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:* A

## Custom Soil Resource Report

*Ecological site:* F144AY022MA - Dry Outwash

*Hydric soil rating:* No

### Minor Components

#### Hinckley

*Percent of map unit:* 10 percent

*Landform:* Kames, outwash plains, eskers, deltas

*Landform position (two-dimensional):* Summit, shoulder, backslope

*Landform position (three-dimensional):* Head slope, nose slope, side slope, crest, rise

*Down-slope shape:* Convex

*Across-slope shape:* Convex, linear

*Hydric soil rating:* No

#### Deerfield

*Percent of map unit:* 5 percent

*Landform:* Terraces, outwash plains, deltas

*Landform position (two-dimensional):* Footslope

*Landform position (three-dimensional):* Tread, talf

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Hydric soil rating:* No

## Washington County, New York

### Ca—Catden muck, 0 to 2 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2t2qk  
*Elevation:* 0 to 1,430 feet  
*Mean annual precipitation:* 36 to 71 inches  
*Mean annual air temperature:* 39 to 55 degrees F  
*Frost-free period:* 140 to 240 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

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

#### Description of Catden

##### Setting

*Landform:* Kettles, fens, bogs, swamps, marshes, depressions, depressions, depressions  
*Landform position (two-dimensional):* Toeslope  
*Landform position (three-dimensional):* Base slope, tread  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Parent material:* Highly decomposed herbaceous organic material and/or highly decomposed woody organic material

##### Typical profile

*Oa1 - 0 to 2 inches:* muck  
*Oa2 - 2 to 79 inches:* muck

##### Properties and qualities

*Slope:* 0 to 1 percent  
*Surface area covered with cobbles, stones or boulders:* 0.0 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Very poorly drained  
*Runoff class:* Negligible  
*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:* None  
*Frequency of ponding:* Frequent  
*Available water supply, 0 to 60 inches:* Very high (about 26.9 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 5w  
*Hydrologic Soil Group:* B/D  
*Ecological site:* F144AY042NY - Semi-Rich Organic Wetlands  
*Hydric soil rating:* Yes

## Minor Components

### Canandaigua

*Percent of map unit:* 5 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

### Natchaug

*Percent of map unit:* 5 percent  
*Landform:* Depressions, 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

### Alden

*Percent of map unit:* 5 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

### Timakwa

*Percent of map unit:* 5 percent  
*Landform:* Swamps  
*Landform position (two-dimensional):* Toeslope  
*Landform position (three-dimensional):* Base slope, tread  
*Down-slope shape:* Concave, linear  
*Across-slope shape:* Concave, linear  
*Hydric soil rating:* Yes

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

### Map Unit Setting

*National map unit symbol:* 9xyy  
*Elevation:* 600 to 1,800 feet  
*Mean annual precipitation:* 35 to 42 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 110 to 175 days  
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Claverack and similar soils:* 80 percent



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

### **Description of Claverack**

#### **Setting**

*Landform:* Lake plains

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave

*Across-slope shape:* Convex

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

#### **Typical profile**

*H1 - 0 to 8 inches:* loamy fine sand

*H2 - 8 to 33 inches:* loamy fine sand

*H3 - 33 to 80 inches:* silty clay loam

#### **Properties and qualities**

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification

*Drainage class:* Moderately well drained

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

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

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

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

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2w

*Hydrologic Soil Group:* C/D

*Ecological site:* F101XY006NY - Moist Outwash

*Hydric soil rating:* No

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

#### **Map Unit Setting**

*National map unit symbol:* 9xyz

*Elevation:* 600 to 1,800 feet

*Mean annual precipitation:* 35 to 42 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 110 to 175 days

*Farmland classification:* All areas are prime farmland

#### **Map Unit Composition**

*Claverack and similar soils:* 80 percent

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

## Description of Claverack

### Setting

*Landform:* Lake plains

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave

*Across-slope shape:* Convex

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

### Typical profile

*H1 - 0 to 8 inches:* loamy fine sand

*H2 - 8 to 33 inches:* loamy fine sand

*H3 - 33 to 80 inches:* silty clay loam

### Properties and qualities

*Slope:* 2 to 6 percent

*Depth to restrictive feature:* 20 to 40 inches to strongly contrasting textural stratification

*Drainage class:* Moderately well drained

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

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

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

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

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2w

*Hydrologic Soil Group:* C/D

*Ecological site:* F142XB018VT - Moist Lake Plain

*Hydric soil rating:* No

## Cv—Covington silty clay loam

### Map Unit Setting

*National map unit symbol:* 9xz1

*Elevation:* 50 to 1,000 feet

*Mean annual precipitation:* 35 to 42 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 110 to 175 days

*Farmland classification:* Not prime farmland

### Map Unit Composition

*Covington and similar soils:* 80 percent

*Minor components:* 5 percent

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

## Description of Covington

### Setting

*Landform:* Depressions

*Landform position (two-dimensional):* Toeslope

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave

*Across-slope shape:* Concave

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

### Typical profile

*H1 - 0 to 6 inches:* silty clay loam

*H2 - 6 to 13 inches:* silty clay

*H3 - 13 to 27 inches:* clay

*H4 - 27 to 80 inches:* clay

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

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

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

*Available water supply, 0 to 60 inches:* Moderate (about 6.2 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 5w

*Hydrologic Soil Group:* D

*Ecological site:* F142XB007VT - Wet Clayplain Depression

*Hydric soil rating:* Yes

## Minor Components

### Madalin

*Percent of map unit:* 5 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

## KbA—Kingsbury silty clay, 0 to 2 percent slopes

### Map Unit Setting

*National map unit symbol:* 9xzv

*Elevation:* 80 to 600 feet

*Mean annual precipitation:* 35 to 42 inches

*Mean annual air temperature:* 45 to 48 degrees F

## Custom Soil Resource Report

*Frost-free period:* 110 to 175 days

*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Kingsbury and similar soils:* 80 percent

*Minor components:* 5 percent

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

### Description of Kingsbury

#### Setting

*Landform:* Lake plains

*Landform position (two-dimensional):* Footslope

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave

*Across-slope shape:* Linear

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

#### Typical profile

*H1 - 0 to 8 inches:* silty clay

*H2 - 8 to 28 inches:* clay

*H3 - 28 to 60 inches:* clay

#### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat poorly drained

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

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

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

*Available water supply, 0 to 60 inches:* Moderate (about 8.1 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* D

*Ecological site:* F142XB006NY - Moist Clayplain

*Hydric soil rating:* No

### Minor Components

#### Covington

*Percent of map unit:* 5 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

## **KbB—Kingsbury silty clay, 2 to 6 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* 9xzw

*Elevation:* 80 to 600 feet

*Mean annual precipitation:* 35 to 42 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 110 to 175 days

*Farmland classification:* Farmland of statewide importance

### **Map Unit Composition**

*Kingsbury and similar soils:* 80 percent

*Minor components:* 5 percent

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

### **Description of Kingsbury**

#### **Setting**

*Landform:* Lake plains

*Landform position (two-dimensional):* Footslope

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Concave

*Across-slope shape:* Linear

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

#### **Typical profile**

*H1 - 0 to 8 inches:* silty clay

*H2 - 8 to 28 inches:* clay

*H3 - 28 to 60 inches:* clay

#### **Properties and qualities**

*Slope:* 2 to 6 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Somewhat poorly drained

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

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

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

*Available water supply, 0 to 60 inches:* Moderate (about 8.1 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* D

*Ecological site:* F142XB006NY - Moist Clayplain

*Hydric soil rating:* No

## Minor Components

### Covington

*Percent of map unit:* 5 percent

*Landform:* Depressions

*Hydric soil rating:* Yes

## OaB—Oakville loamy fine sand, 0 to 5 percent slopes

### Map Unit Setting

*National map unit symbol:* 9y05

*Elevation:* 600 to 1,200 feet

*Mean annual precipitation:* 35 to 42 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 110 to 175 days

*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Oakville and similar soils:* 80 percent

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

### Description of Oakville

#### 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 eolian, beach ridge, or glaciofluvial deposits

#### Typical profile

*H1 - 0 to 9 inches:* loamy fine sand

*H2 - 9 to 24 inches:* loamy fine sand

*H3 - 24 to 60 inches:* fine sand

#### Properties and qualities

*Slope:* 0 to 5 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 4.3 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2s

## Custom Soil Resource Report

*Hydrologic Soil Group: A*  
*Ecological site: F144AY022MA - Dry Outwash*  
*Hydric soil rating: No*

### OP—Orthents and Psamments

#### Map Unit Setting

*National map unit symbol: 9y03*  
*Elevation: 80 to 330 feet*  
*Mean annual precipitation: 35 to 42 inches*  
*Mean annual air temperature: 45 to 48 degrees F*  
*Frost-free period: 110 to 175 days*  
*Farmland classification: Not prime farmland*

#### Map Unit Composition

*Orthents and similar soils: 50 percent*  
*Psamments and similar soils: 40 percent*  
*Minor components: 4 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Orthents

##### Setting

*Parent material: Dredge spoils*

##### Typical profile

*H1 - 0 to 10 inches: silt loam*  
*H2 - 10 to 60 inches: channery loam*

##### Properties and qualities

*Slope: 0 to 15 percent*  
*Depth to restrictive feature: More than 80 inches*  
*Drainage class: Well drained*  
*Capacity of the most limiting layer to transmit water (Ksat): Moderately 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 5.6 inches)*

##### Interpretive groups

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

#### Description of Psamments

##### Setting

*Parent material: Dredge spoils*

## Custom Soil Resource Report

### Typical profile

*H1 - 0 to 10 inches: fine sand*  
*H2 - 10 to 60 inches: coarse sand*

### Properties and qualities

*Slope: 0 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 (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 3.6 inches)*

### Interpretive groups

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

### Minor Components

#### Covington

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

#### Fredon

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

## W—Water

### Map Unit Setting

*National map unit symbol: 1qdsb*  
*Mean annual precipitation: 35 to 42 inches*  
*Mean annual air temperature: 45 to 48 degrees F*  
*Frost-free period: 110 to 175 days*  
*Farmland classification: Not prime farmland*

### Map Unit Composition

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



## **Wa—Wallington silt loam, sandy substratum**

### **Map Unit Setting**

*National map unit symbol:* 9y10  
*Elevation:* 80 to 850 feet  
*Mean annual precipitation:* 35 to 42 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 110 to 175 days  
*Farmland classification:* Prime farmland if drained

### **Map Unit Composition**

*Wallington, sandy substratum, and similar soils:* 80 percent  
*Minor components:* 5 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Wallington, Sandy Substratum**

#### **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 or eolian deposits high in silt and very fine sand

#### **Typical profile**

*H1 - 0 to 9 inches:* silt loam  
*H2 - 9 to 17 inches:* silt loam  
*H3 - 17 to 48 inches:* silt loam  
*H4 - 48 to 80 inches:* stratified loamy fine sand to very gravelly coarse sand

#### **Properties and qualities**

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* 15 to 24 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  
*Available water supply, 0 to 60 inches:* Low (about 3.3 inches)

#### **Interpretive groups**

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

### **Minor Components**

#### **Madalin**

*Percent of map unit:* 5 percent

## Custom Soil Resource Report

*Landform:* Depressions

*Hydric soil rating:* Yes

# 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](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](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](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](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>

## Custom Soil Resource Report

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](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242)

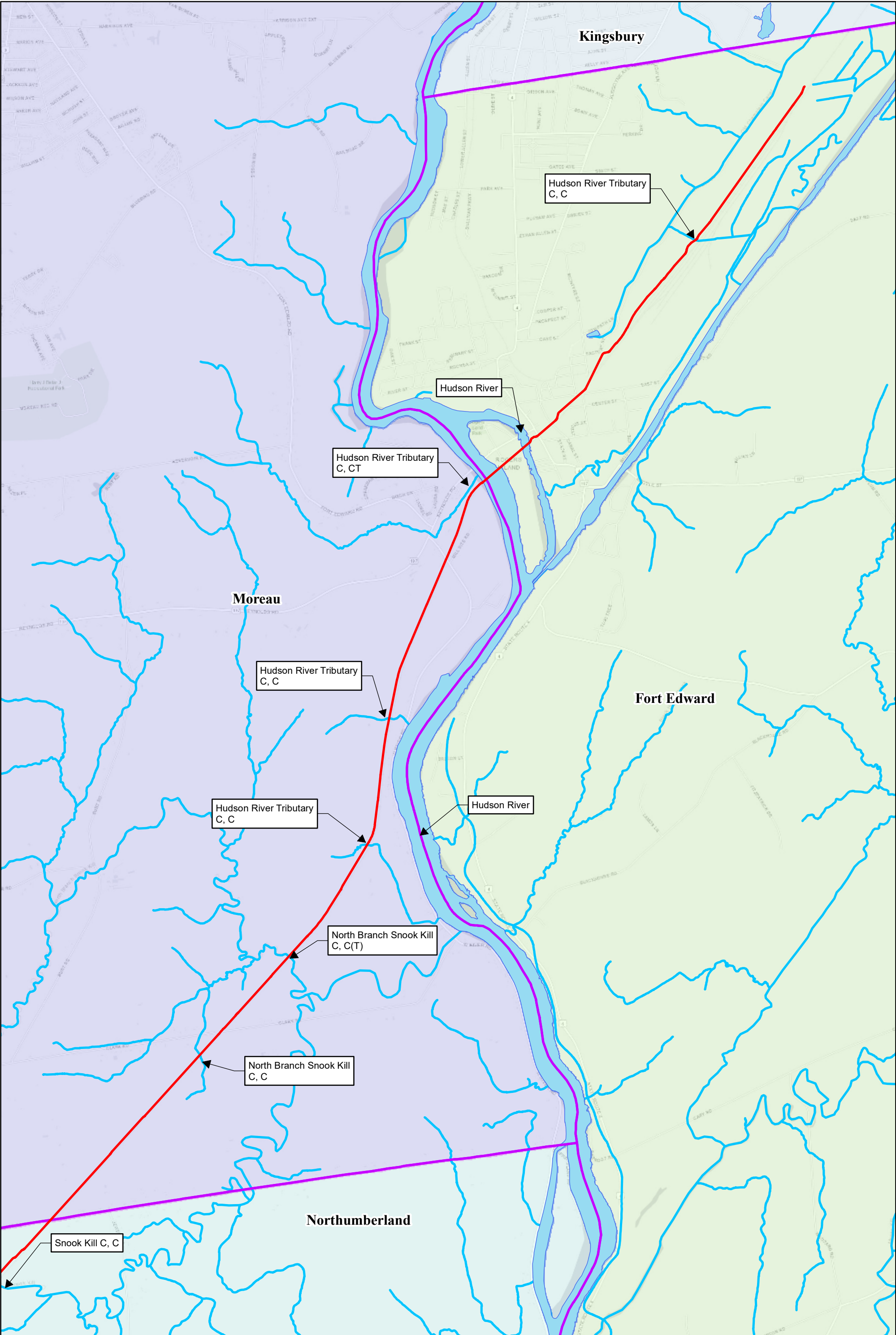
United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053624](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624)

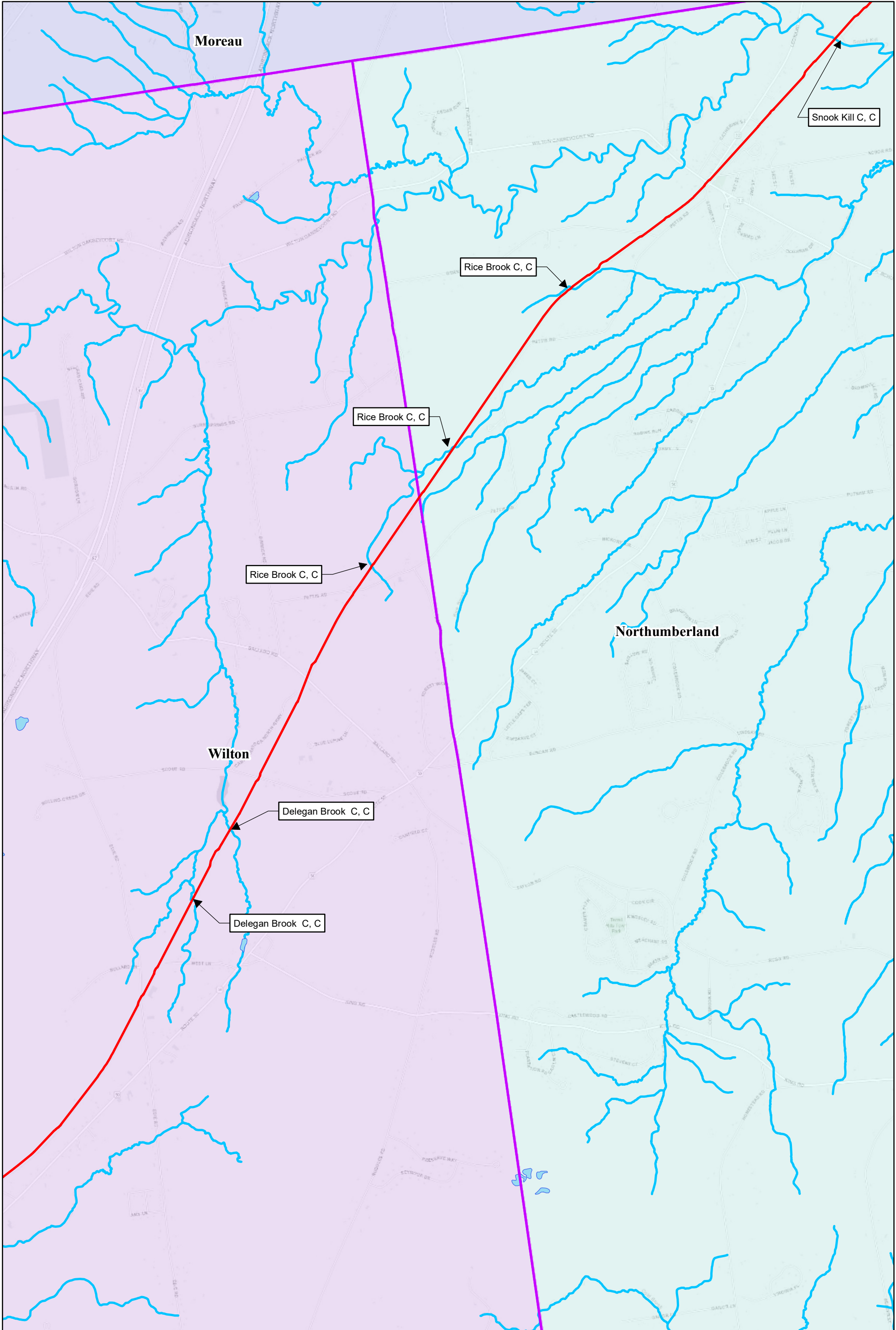
United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. [http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_052290.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf)

## Appendix C

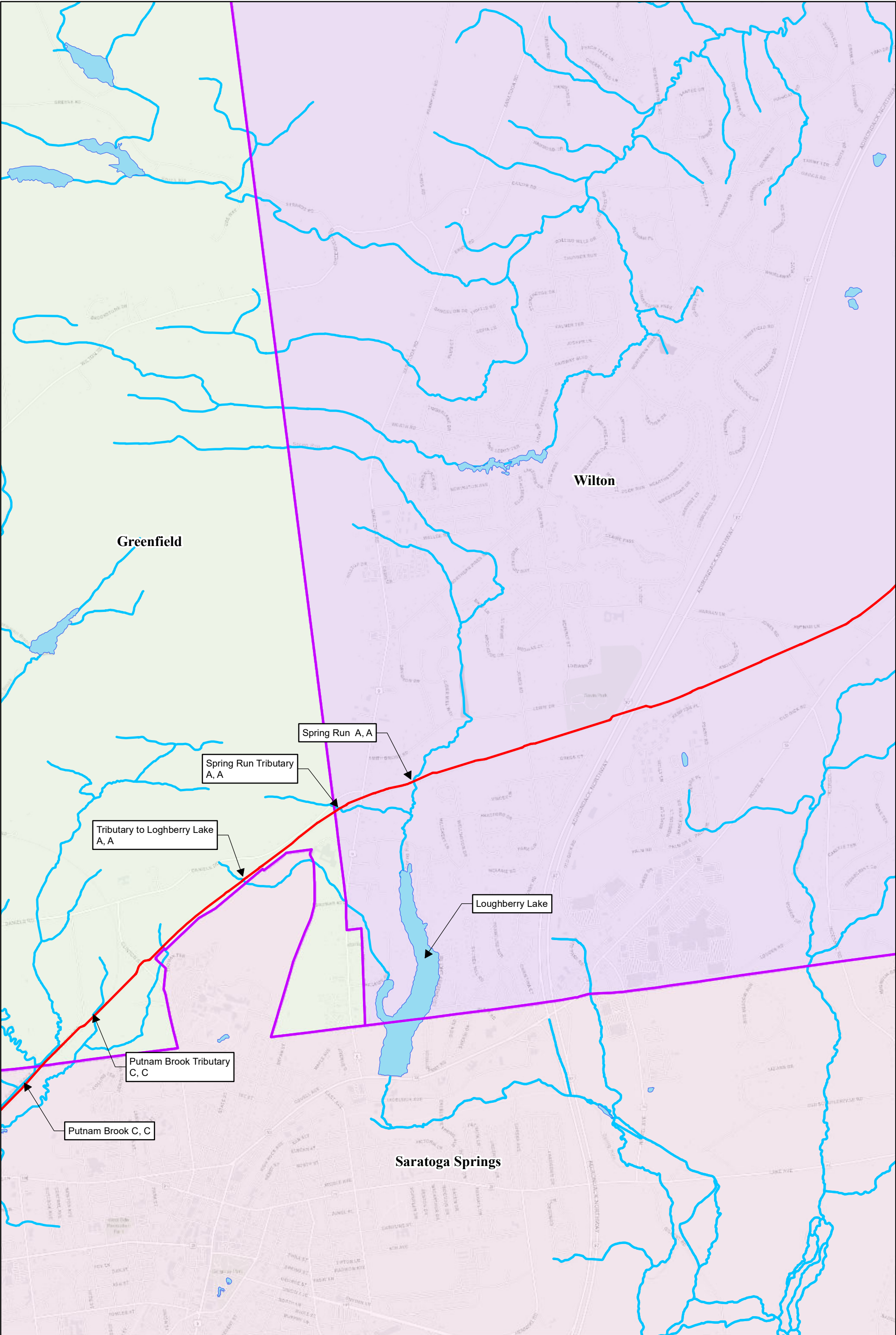
### Receiving Waters Maps



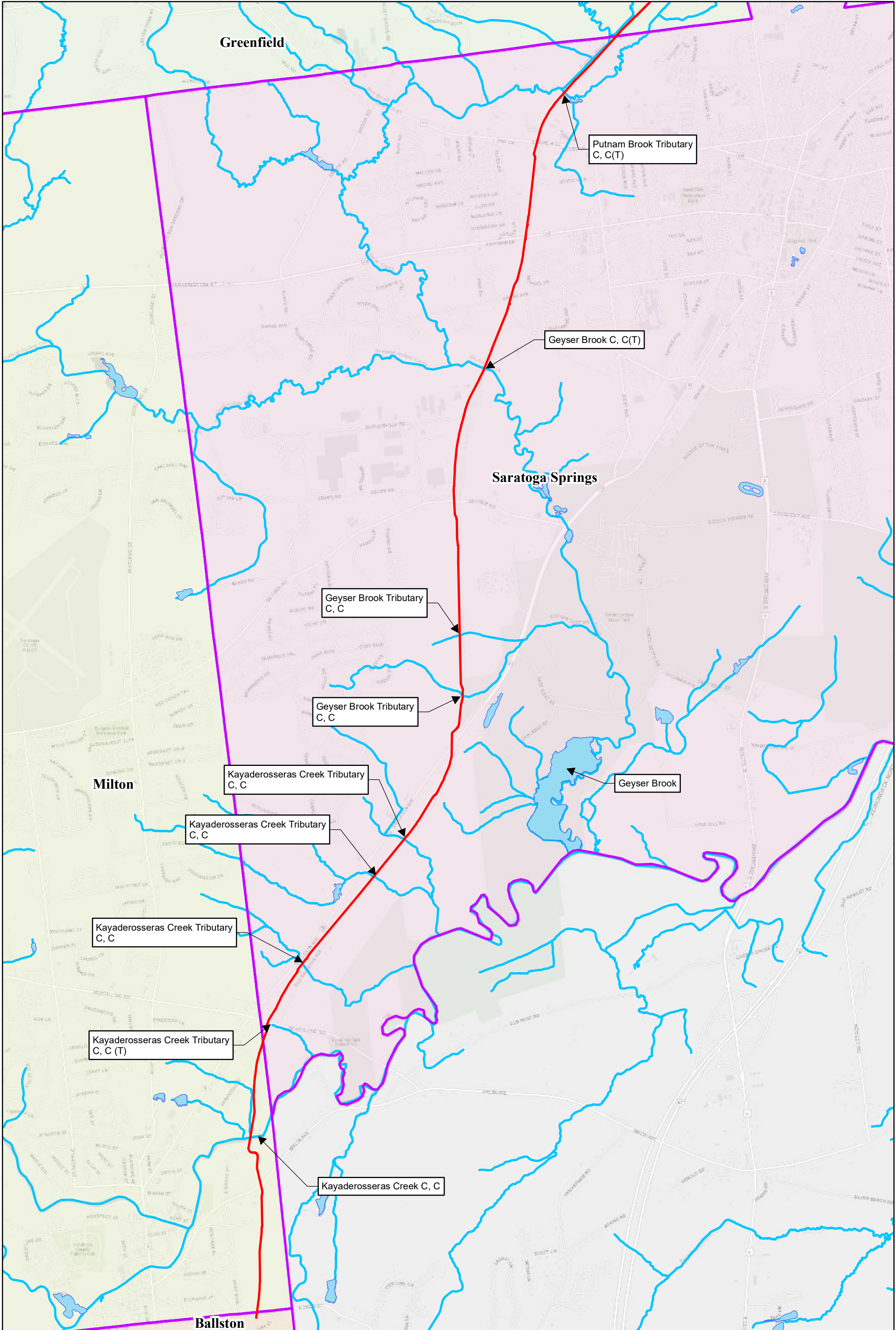








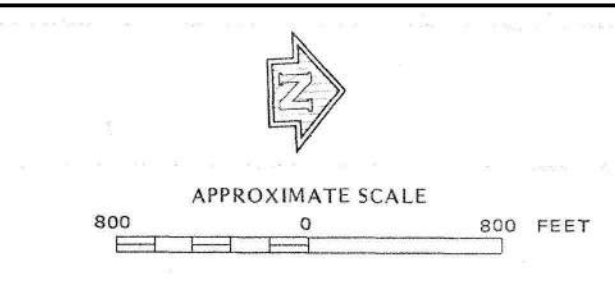
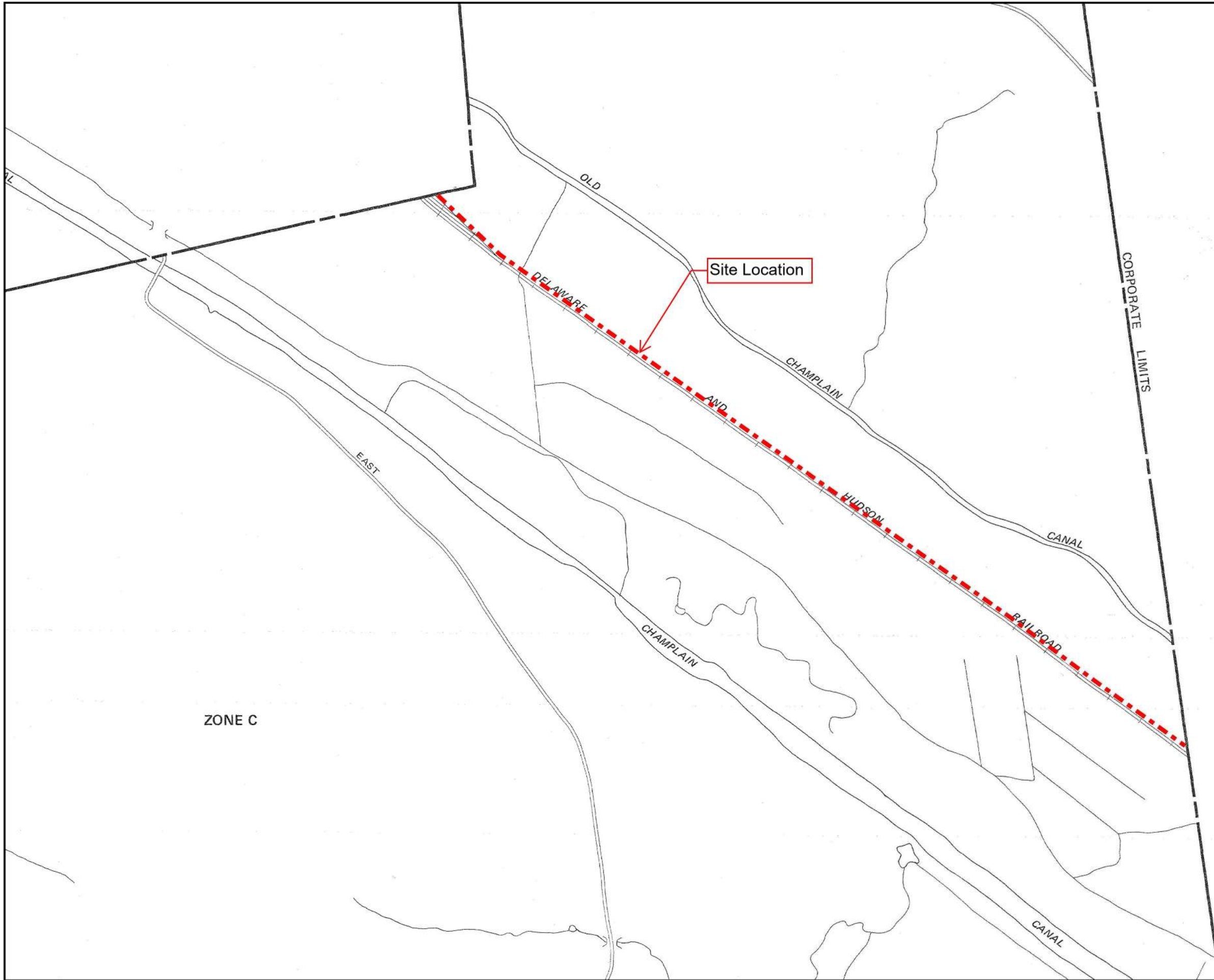




## Appendix D

### FEMA FIRM Maps





NATIONAL FLOOD INSURANCE PROGRAM


**FIRM**  
FLOOD INSURANCE RATE MAP

TOWN OF  
FORT EDWARD,  
NEW YORK  
WASHINGTON COUNTY

PANEL 10 OF 10  
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER  
360885 0010 A

EFFECTIVE DATE:  
DECEMBER 15, 1982

 Federal Emergency Management Agency

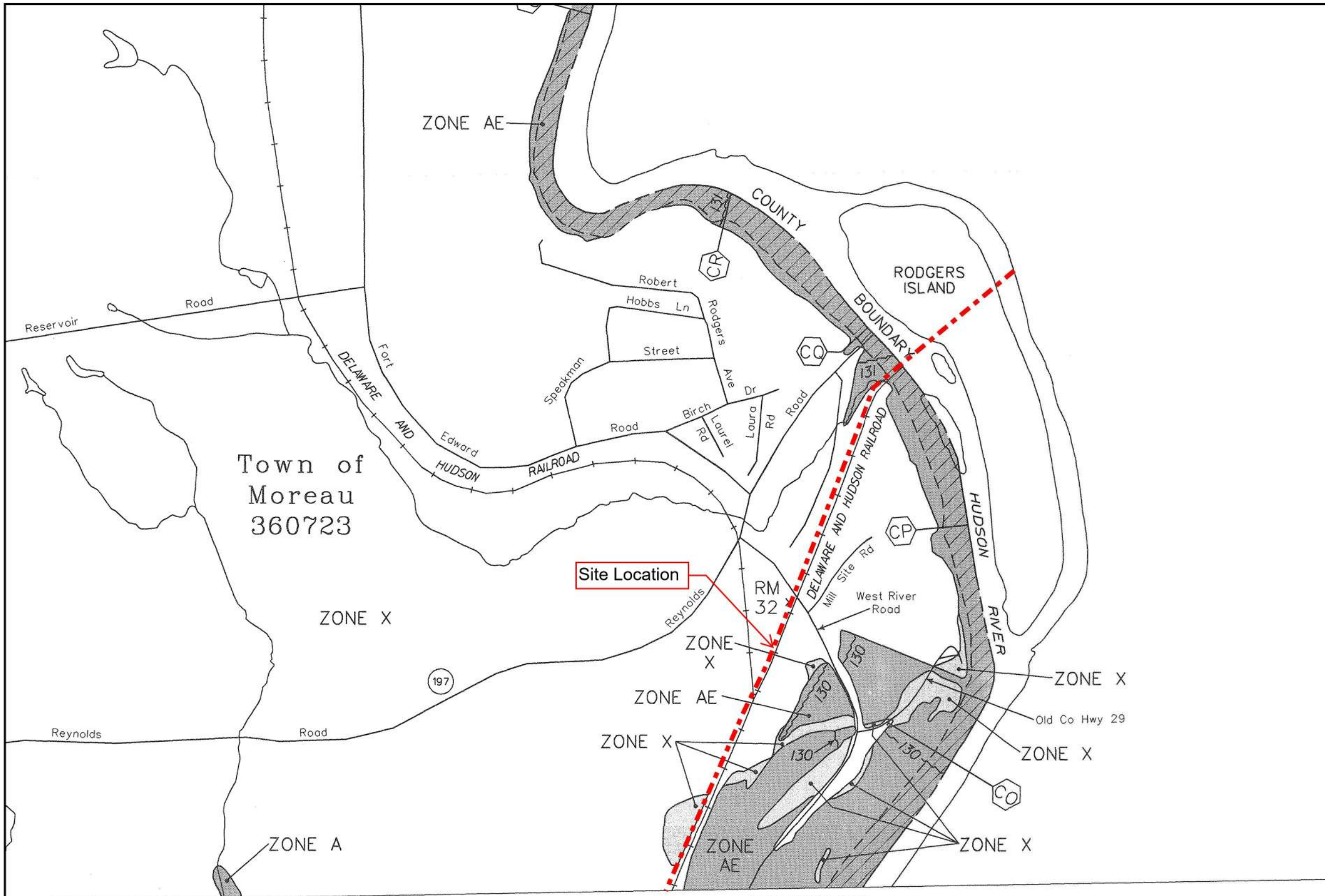
Champlain Hudson Power Express  
FEMA FIRM MAP 19

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.

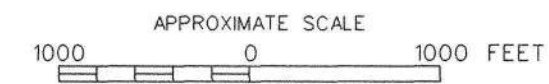








JOINS PANEL 0355



NATIONAL FLOOD INSURANCE PROGRAM

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

PANEL 215 OF 693  
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MOREAU TOWN OF	360723	025	E
SOUTH GLEN FALLS VILLAGE OF	360730	025	E

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



MAP NUMBER  
36091C0215 E

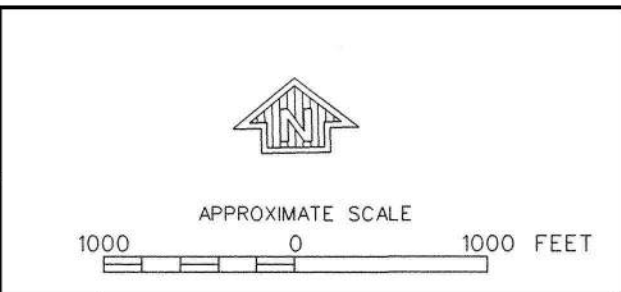
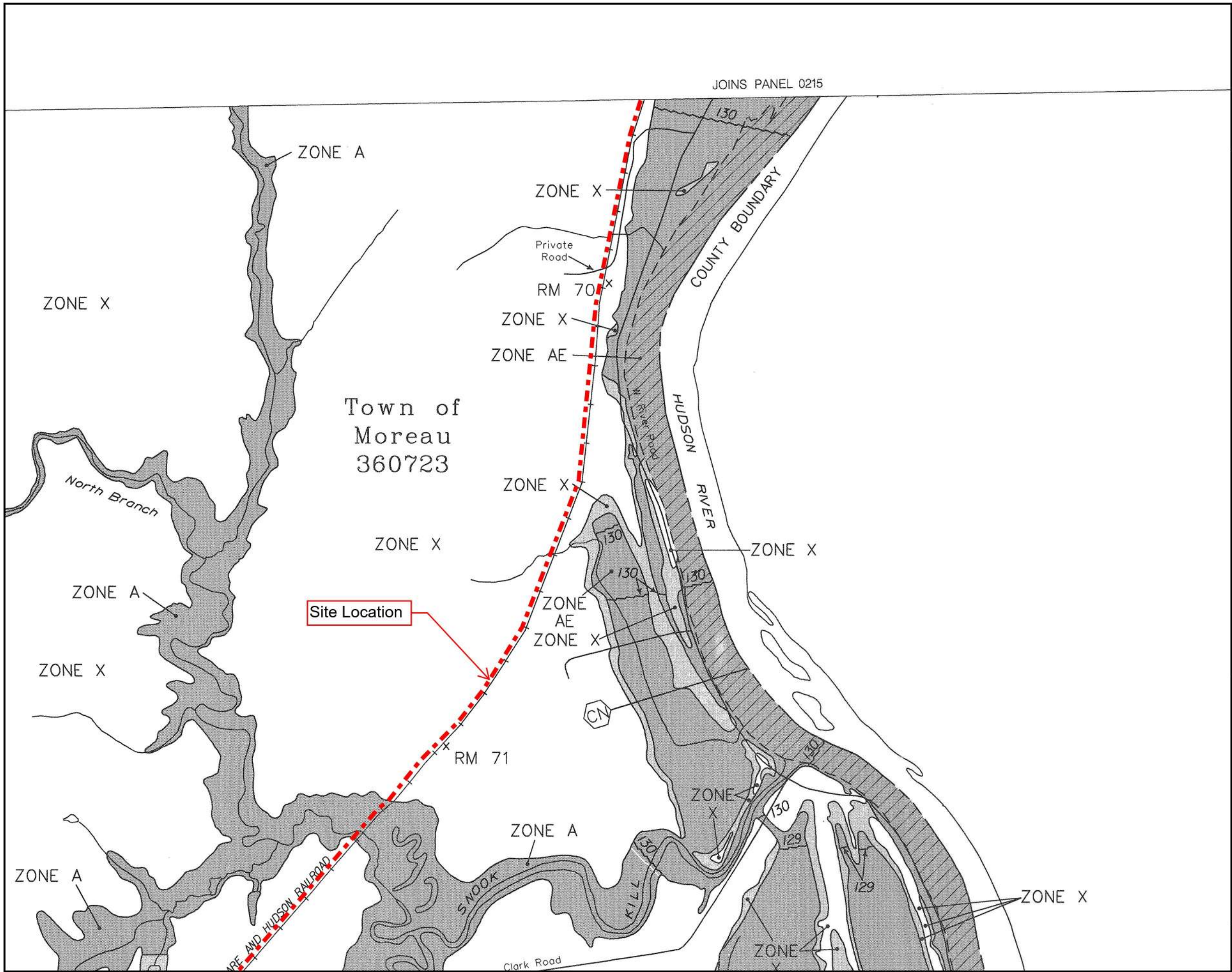
EFFECTIVE DATE:  
AUGUST 16, 1995

Federal Emergency Management Agency

**Champlain Hudson Power Express  
FEMA FIRM MAP 21**

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.





NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**  
FLOOD INSURANCE RATE MAP

**SARATOGA COUNTY,  
NEW YORK  
(ALL JURISDICTIONS)**

PANEL 355 OF 693  
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MOREAU TOWN OF	360723	0355	E
NORTHAMSTERLAND TOWN OF	360725	0355	E

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

MAP NUMBER  
36091C0355 E

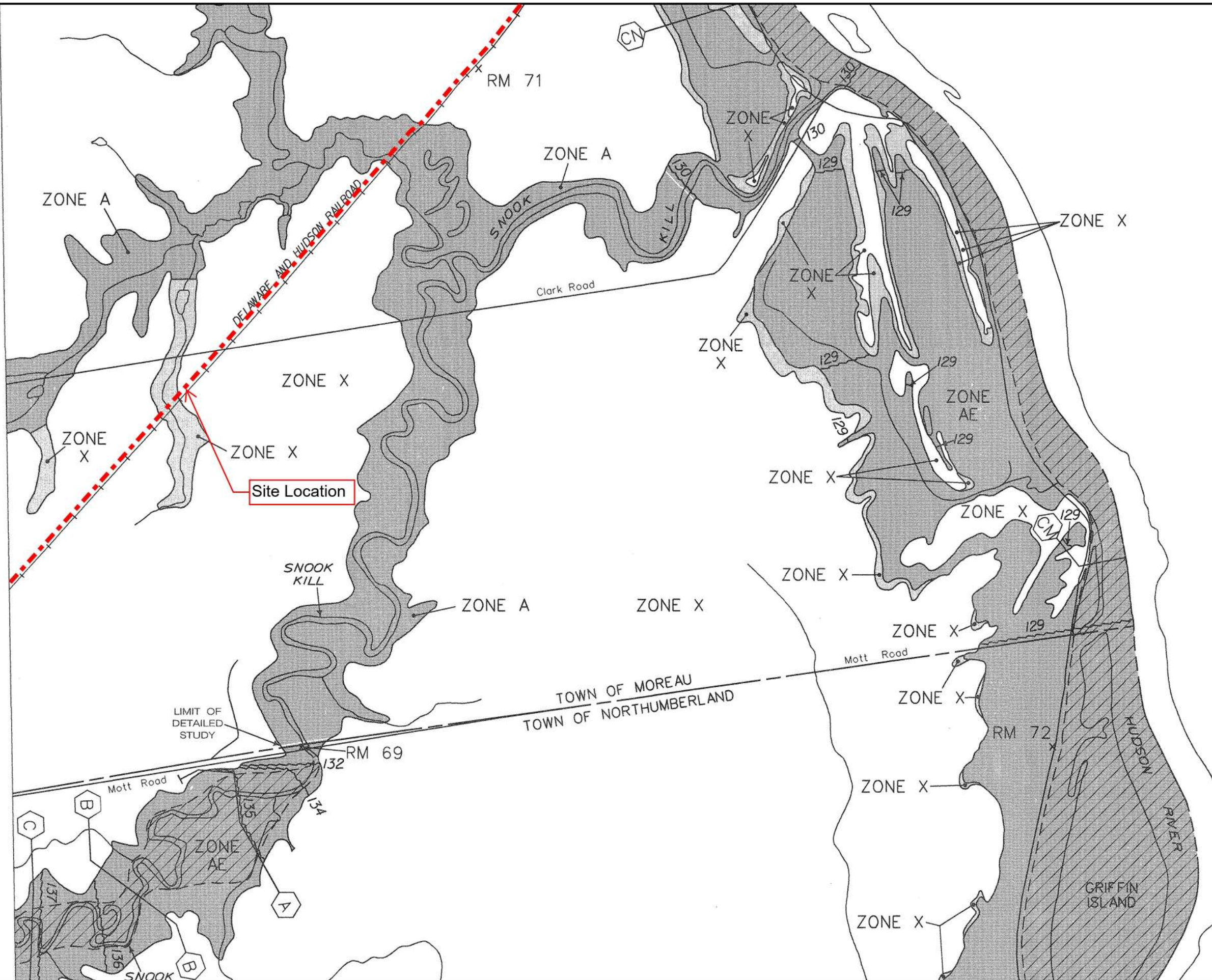
EFFECTIVE DATE:  
AUGUST 16, 1995

Federal Emergency Management Agency

**Champlain Hudson Power Express  
FEMA FIRM MAP 22**

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.





APPROXIMATE SCALE  
1000 0 1000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

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

PANEL 355 OF 693

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MOREAU TOWN OF	360723	0355	E
NORTHUMBERLAND TOWN OF	360725	0355	E

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

MAP NUMBER  
36091C0355 E

EFFECTIVE DATE:  
AUGUST 16, 1995

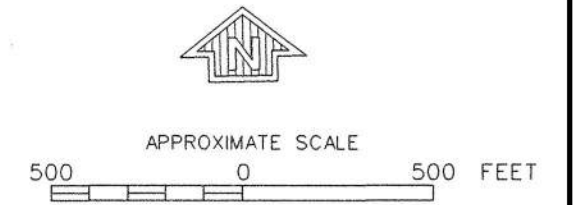
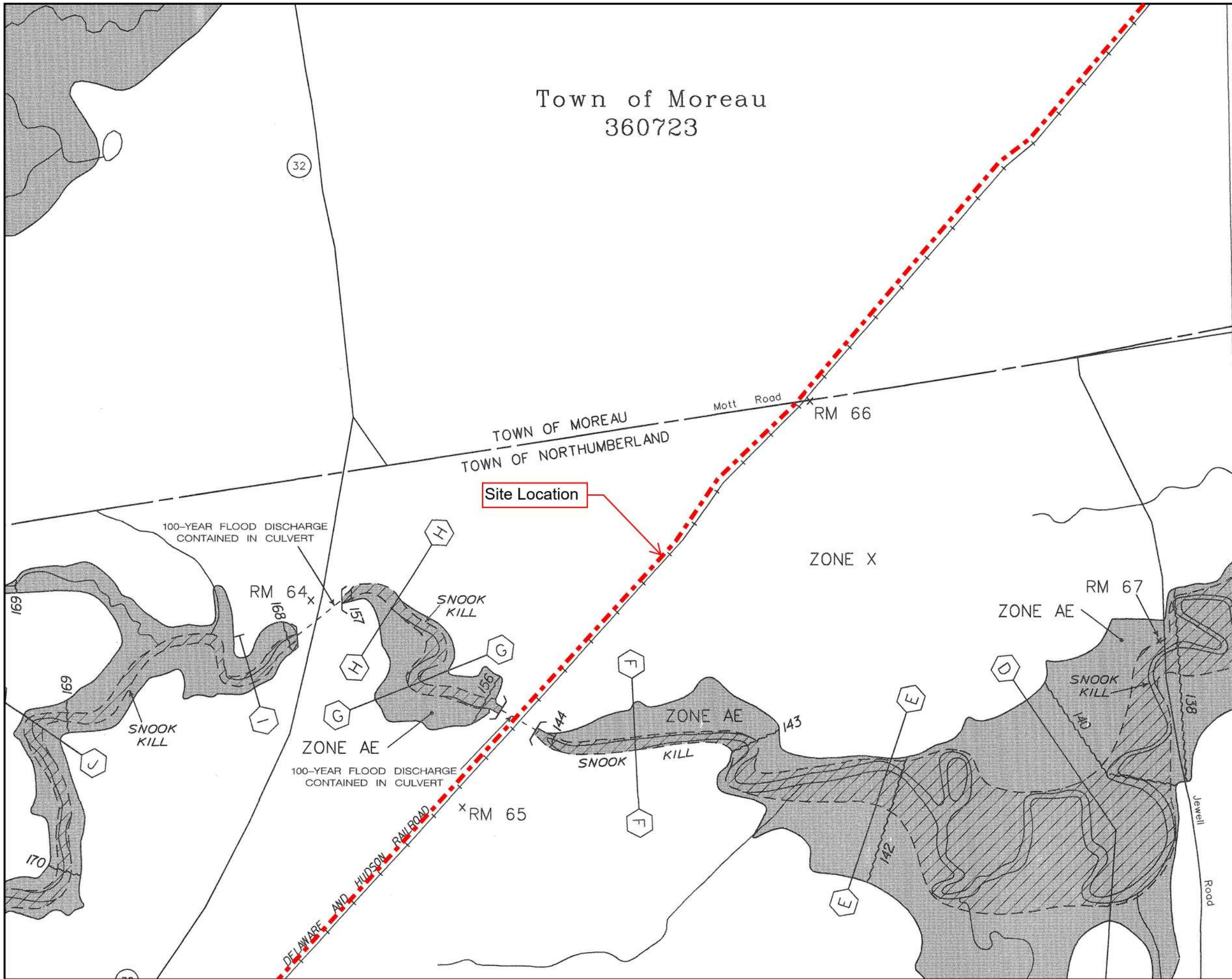


Federal Emergency Management Agency

**Champlain Hudson Power Express  
FEMA FIRM MAP 23**

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.





NATIONAL FLOOD INSURANCE PROGRAM

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

PANEL 334 OF 693

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MOREAU TOWN OF	360723	0334	E
NORTHUMBERLAND TOWN OF	360725	0334	E

Notice to User: The MAP NUMBER shown above should be used when placing map orders; the COMMUNITY NUMBER shown above should be used on insurance applications for the subject community.

MAP NUMBER  
36091C0334 E

EFFECTIVE DATE:  
AUGUST 16, 1995

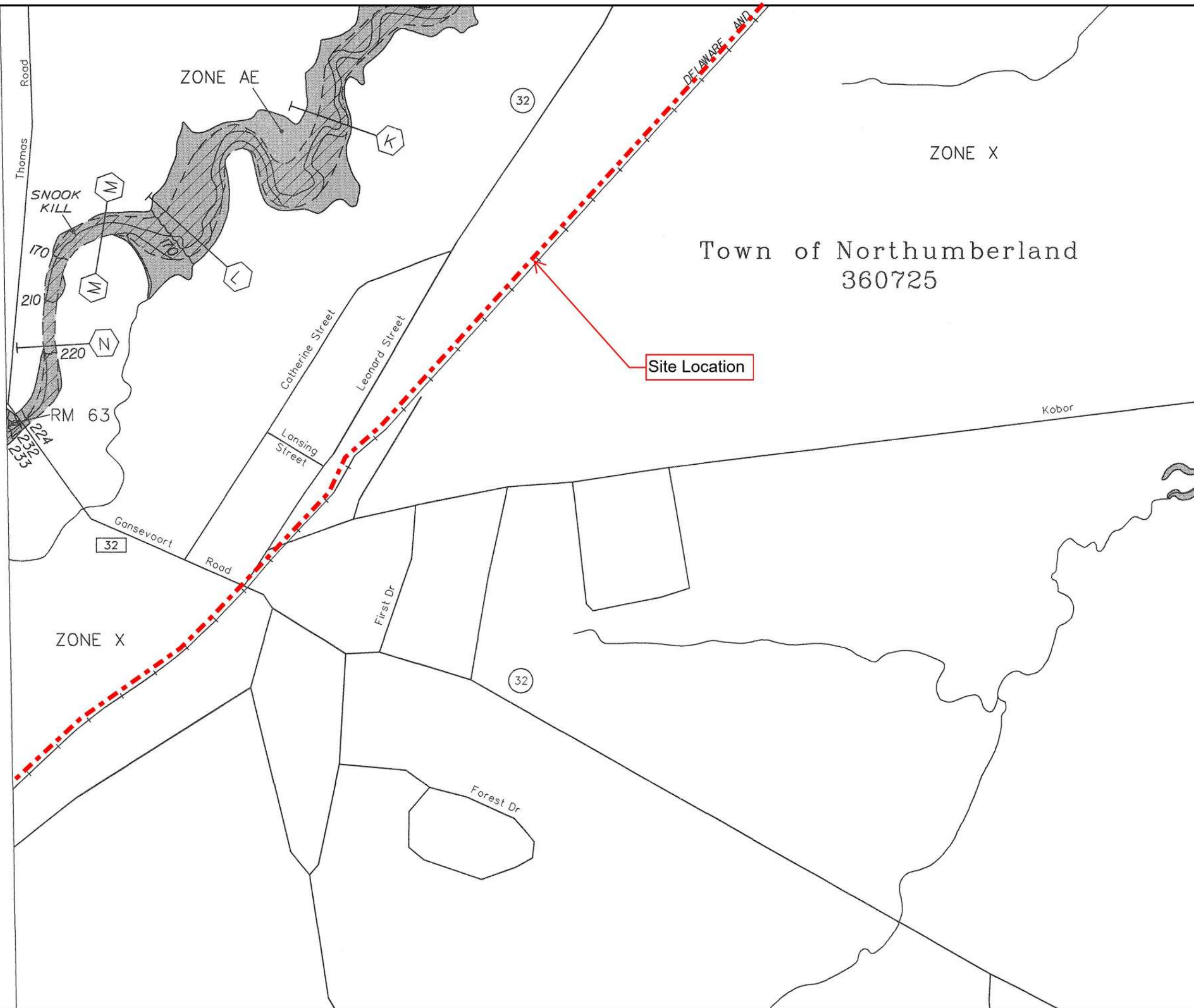


Federal Emergency Management Agency

**Champlain Hudson Power Express  
FEMA FIRM MAP 24**

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.





APPROXIMATE SCALE  
500 0 500 FEET

NATIONAL FLOOD INSURANCE PROGRAM

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

PANEL 334 OF 693

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MOREAU TOWN OF NORTHUMBERLAND, TOWN OF	360723 360725	0334 0334	E E

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



MAP NUMBER  
36091C0334 E

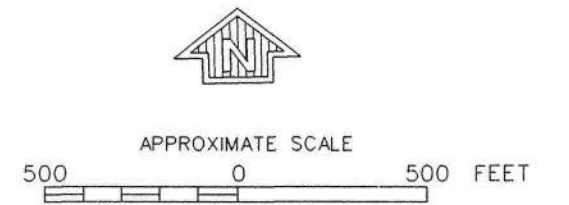
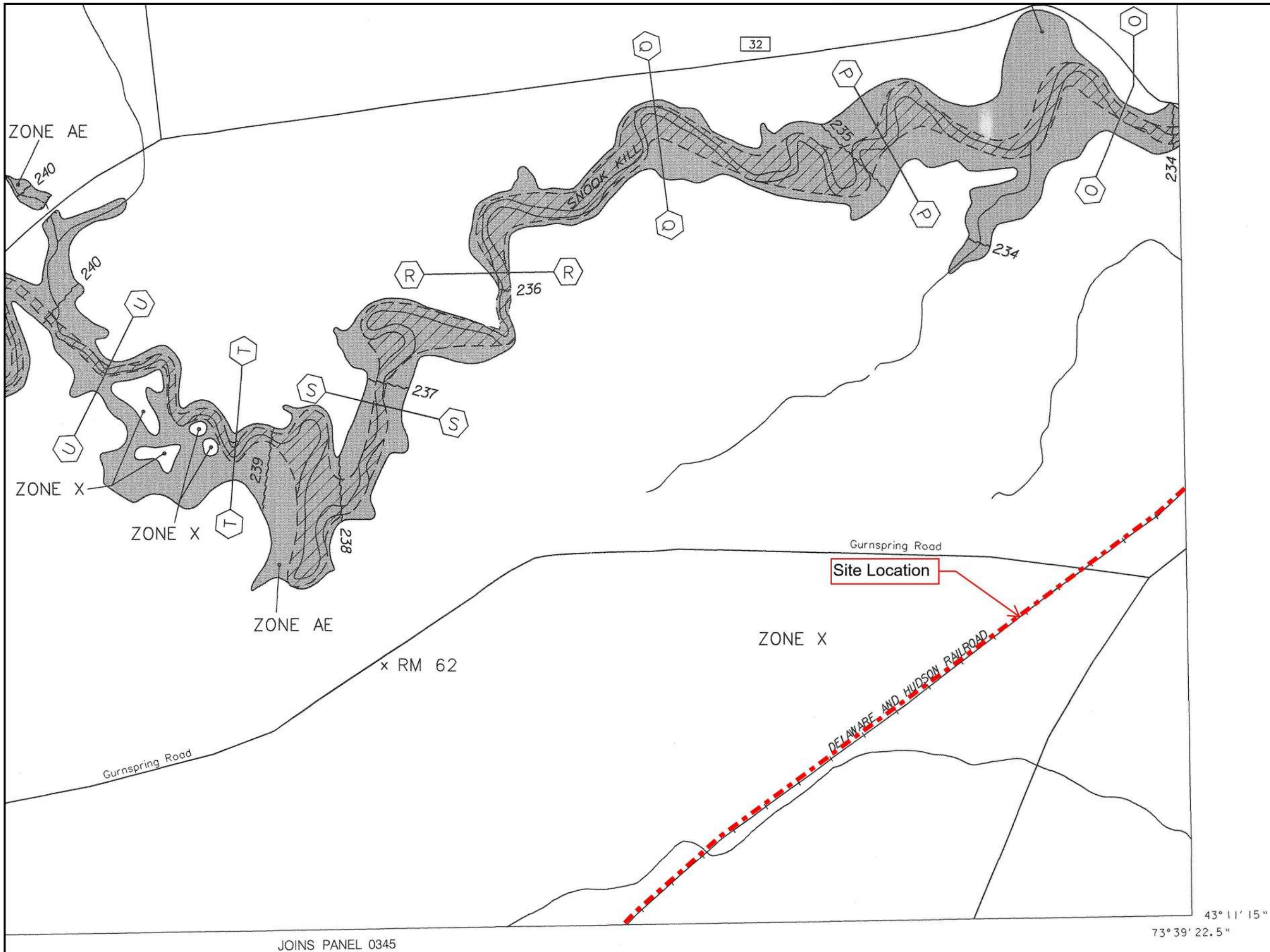
EFFECTIVE DATE:  
AUGUST 16, 1995

Federal Emergency Management Agency

**Champlain Hudson Power Express  
FEMA FIRM MAP 25**

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.





NATIONAL FLOOD INSURANCE PROGRAM

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

PANEL 333 OF 693  
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
WIREHILL TOWN OF	360723	0333	E
NORTHAMHERLAND TOWN OF	360725	0333	E

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

MAP NUMBER  
36091C0333 E

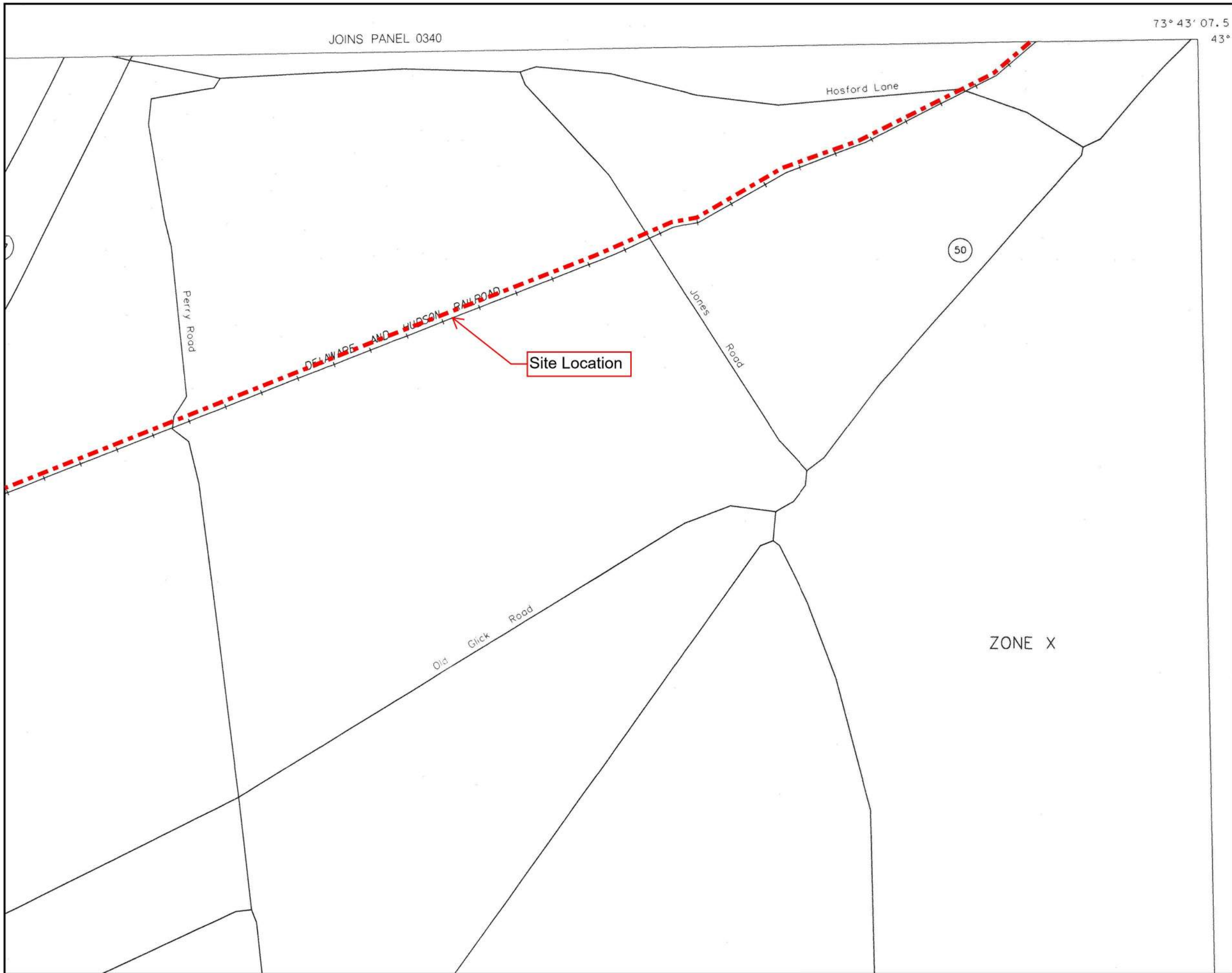
EFFECTIVE DATE:  
AUGUST 16, 1995




Federal Emergency Management Agency

**Champlain Hudson Power Express  
FEMA FIRM MAP 26**

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.



Agent of the National Flood Insurance Program of 1967



APPROXIMATE SCALE

500 0 500 FEET

NATIONAL FLOOD INSURANCE PROGRAM

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

PANEL 451 OF 693  
(SEE MAP INDEX FOR PANELS NOT PRINTED)


CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SARATOGA SPRINGS, CITY OF	360728	0451	E

Notice to User: The MAP NUMBER shown below should be used when placing map orders. The COMMUNITY NUMBER shown above should be used on insurance applications for the subject community.

MAP NUMBER  
36091C0451 E

EFFECTIVE DATE:  
AUGUST 16, 1995



Federal Emergency Management Agency

**Champlain Hudson Power Express  
FEMA FIRM MAP 27**

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.



73° 45' 00"  
43° 07' 30"

JOINS PANEL 0340

ZONE X

87

Adirondack Northway

Adirondack Northway

Perry Road

DELAWARE AND HUDSON RAILROAD

Site Location

Old Click Road



APPROXIMATE SCALE

500 0 500 FEET

NATIONAL FLOOD INSURANCE PROGRAM

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

PANEL 451 OF 693

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SARATOGA SPRINGS, CITY OF	360728	0451	E

Notice to User: The MAP NUMBER shown below should be used when placing map orders. The COMMUNITY NUMBER shown above should be used on insurance applications for the subject community.

MAP NUMBER  
36091C0451 E

EFFECTIVE DATE:  
AUGUST 16, 1995



Federal Emergency Management Agency

Champlain Hudson Power Express  
FEMA FIRM MAP 28

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.

73° 48' 45"  
43° 05' 37.5"

JOINS PANEL 0431



APPROXIMATE SCALE

500 0 500 FEET

Town of Greenfield  
360717

Denton Road  
TOWN OF GREENFIELD  
CITY OF SARATOGA SPRINGS

Site Location

ZONE AE

PUTNAM  
BROOK

City of  
Saratoga Springs  
360728

LIMIT OF  
DETAILED STUDY

Church St

9N

Embury Dr

Andrew St

Division St

Beekman  
St

Cherry St

NATIONAL FLOOD INSURANCE PROGRAM

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

PANEL 433 OF 693

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GREENFIELD, TOWN OF	360717	0433	E
SARATOGA SPRINGS, CITY OF	360728	0433	E

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

MAP NUMBER  
36091C0433 E

EFFECTIVE DATE:  
AUGUST 16, 1995

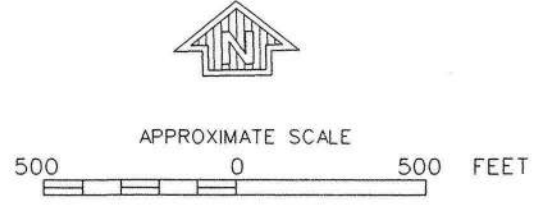


Federal Emergency Management Agency

Champlain Hudson Power Express  
FEMA FIRM MAP 29

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.





NATIONAL FLOOD INSURANCE PROGRAM

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

PANEL 433 OF 693  
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GREENFIELD TOWN OF	36072	0433	E
SARATOGA SPRINGS, CITY OF	36078	0433	E

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

MAP NUMBER  
36091C0433 E

EFFECTIVE DATE:  
AUGUST 16, 1995

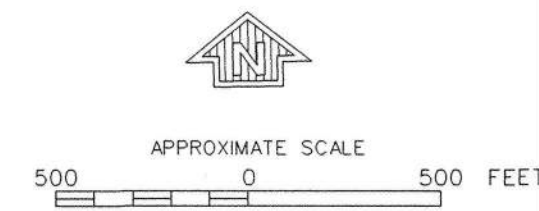
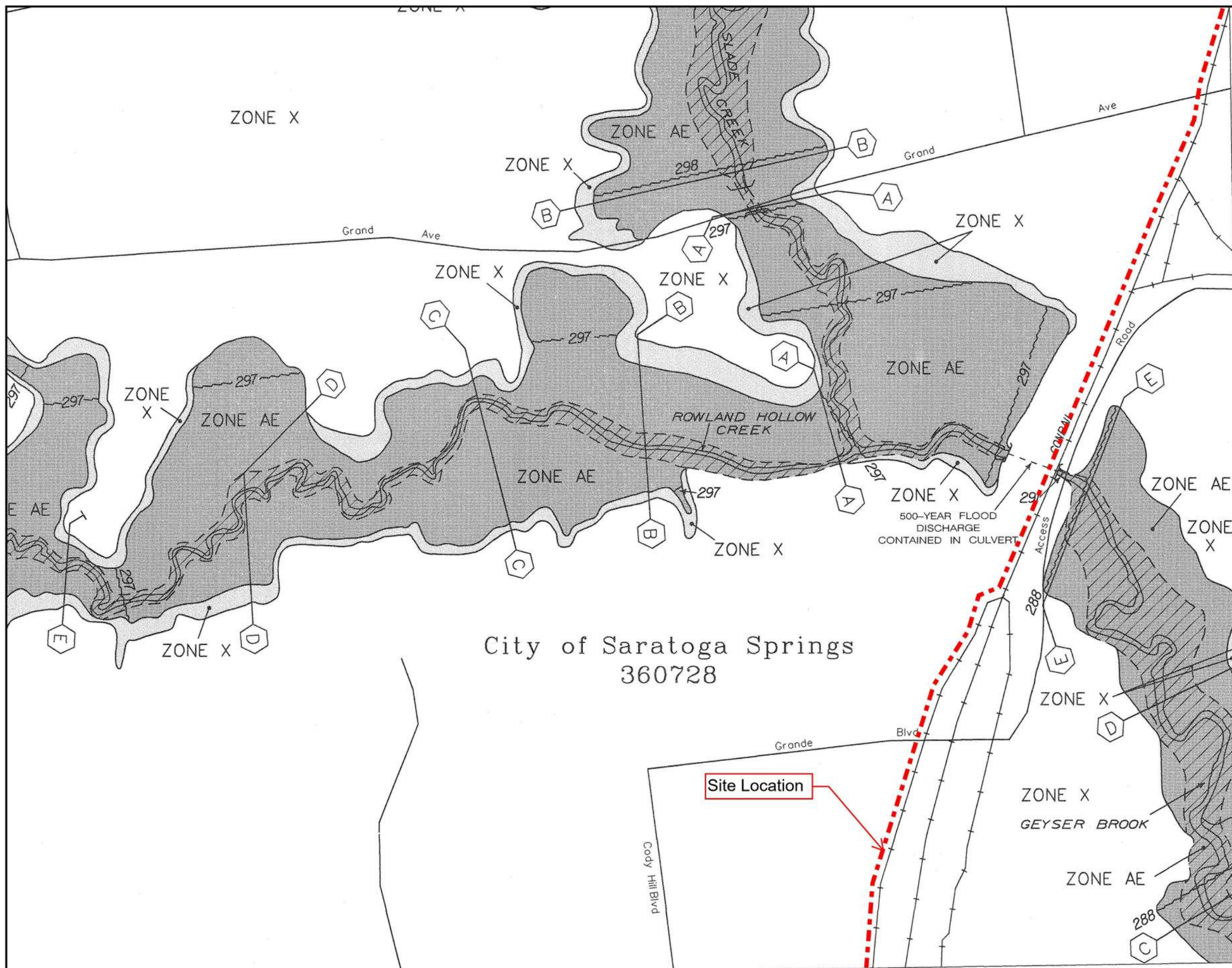


Federal Emergency Management Agency

**Champlain Hudson Power Express  
FEMA FIRM MAP 30**

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.





NATIONAL FLOOD INSURANCE PROGRAM

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

PANEL 429 OF 693  
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GREENFIELD, TOWN OF	36011	0429	E
SARATOGA SPRINGS, CITY OF	36078	0429	E

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

MAP NUMBER  
36091C0429 E

EFFECTIVE DATE:  
AUGUST 16, 1995

Federal Emergency Management Agency

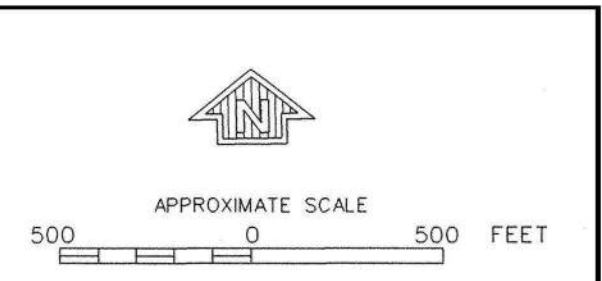
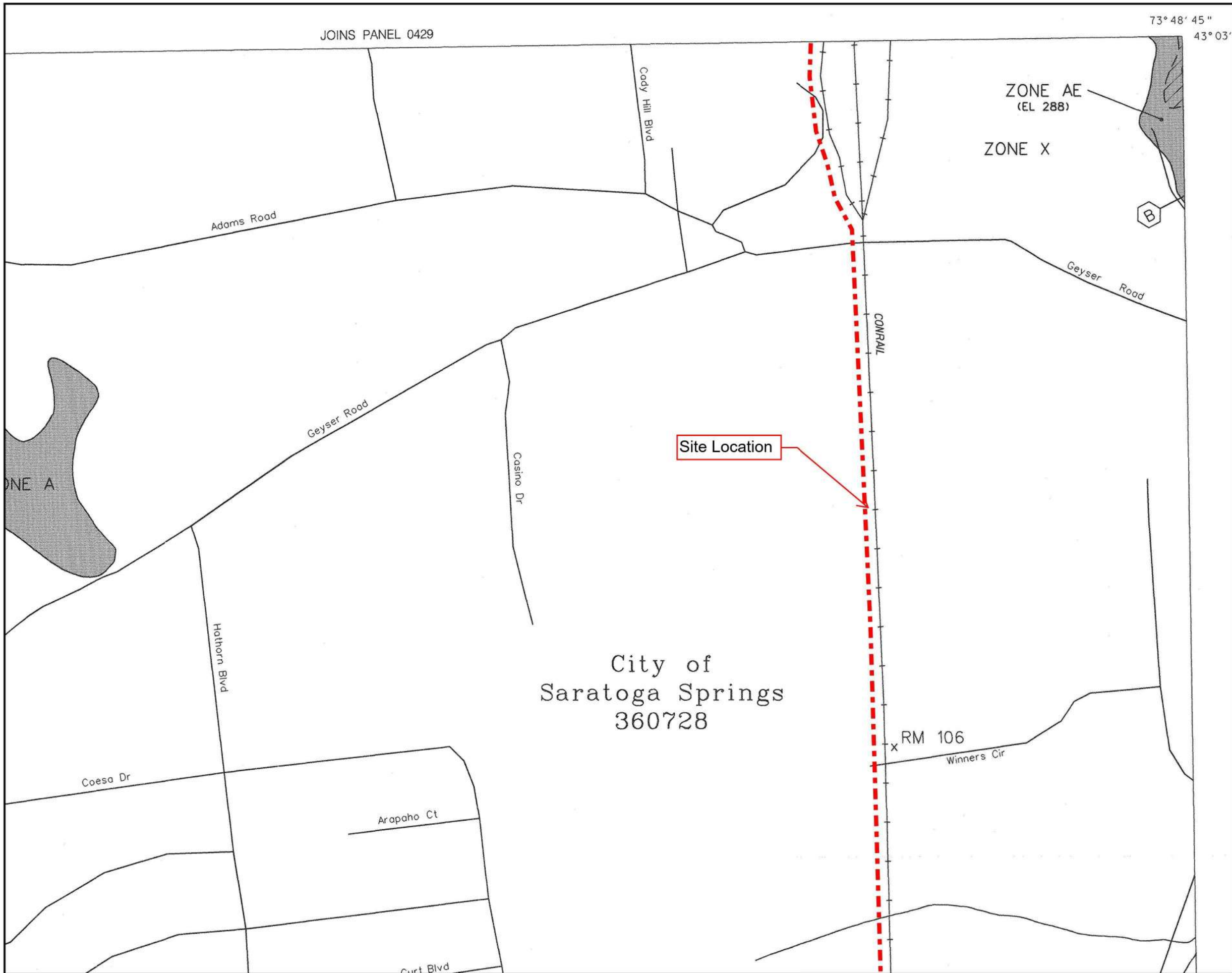
Champlain Hudson Power Express  
FEMA FIRM MAP 31

JOINS PANEL 0437

43° 45' 43" N  
73° 48' 45" W

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.





NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**  
FLOOD INSURANCE RATE MAP

**SARATOGA COUNTY,  
NEW YORK  
(ALL JURISDICTIONS)**

PANEL 437 OF 693  
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MULTI-TOWN OF	360720	0437	E
MULTI-TOWN OF	360722	0437	E
SARATOGA SPRINGS, CITY OF	360728	0437	E

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

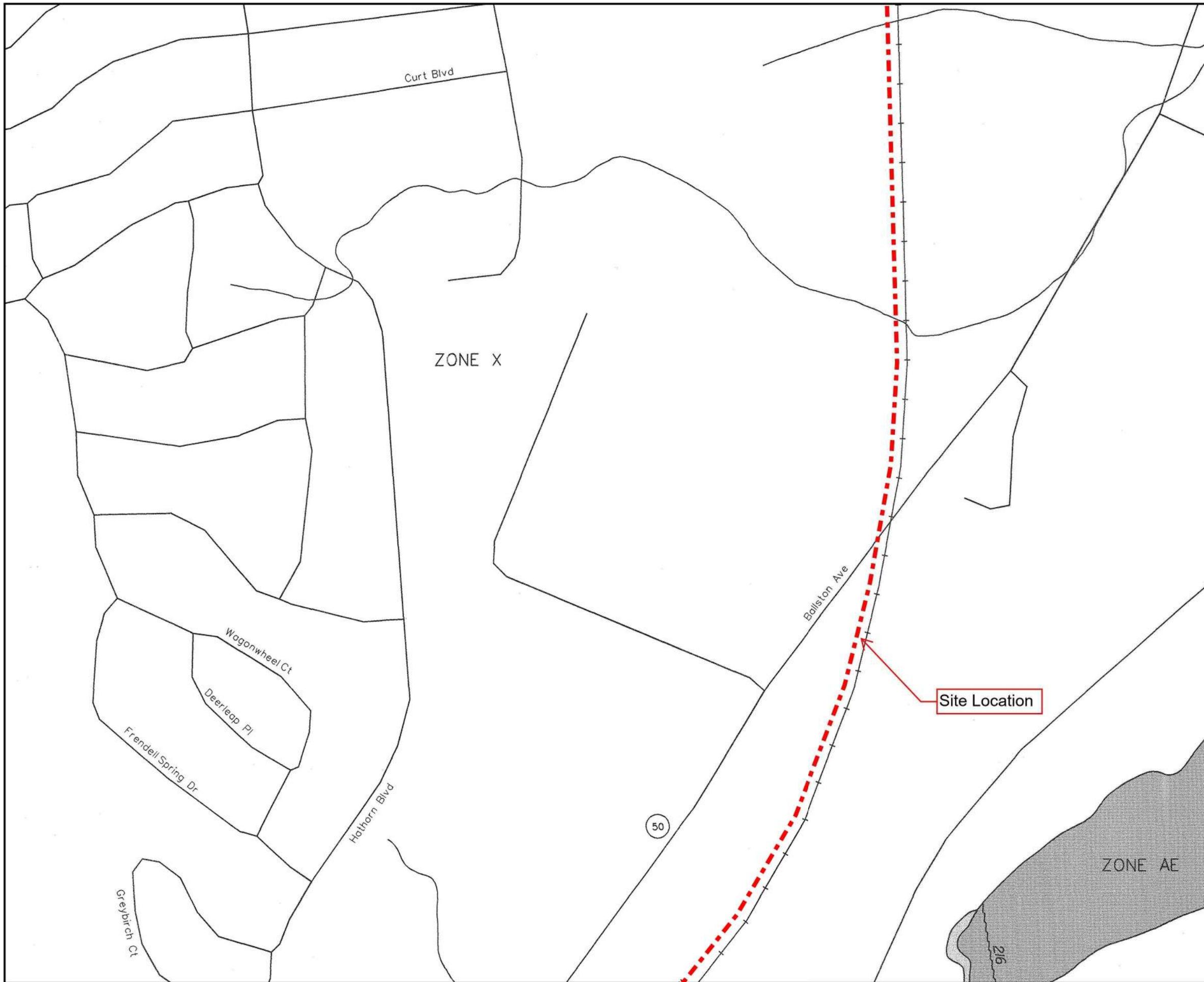
MAP NUMBER  
36091C0437 E

EFFECTIVE DATE:  
AUGUST 16, 1995

Federal Emergency Management Agency

Champlain Hudson Power Express  
FEMA FIRM MAP 32

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.



JOINS PANEL 0441



APPROXIMATE SCALE  
500 0 500 FEET

NATIONAL FLOOD INSURANCE PROGRAM

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

PANEL 437 OF 693  
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MULTA TOWN OF	360720	0437	E
MULTA TOWN OF	360722	0437	E
SARATOGA SPRINGS, CITY OF	360728	0437	E

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



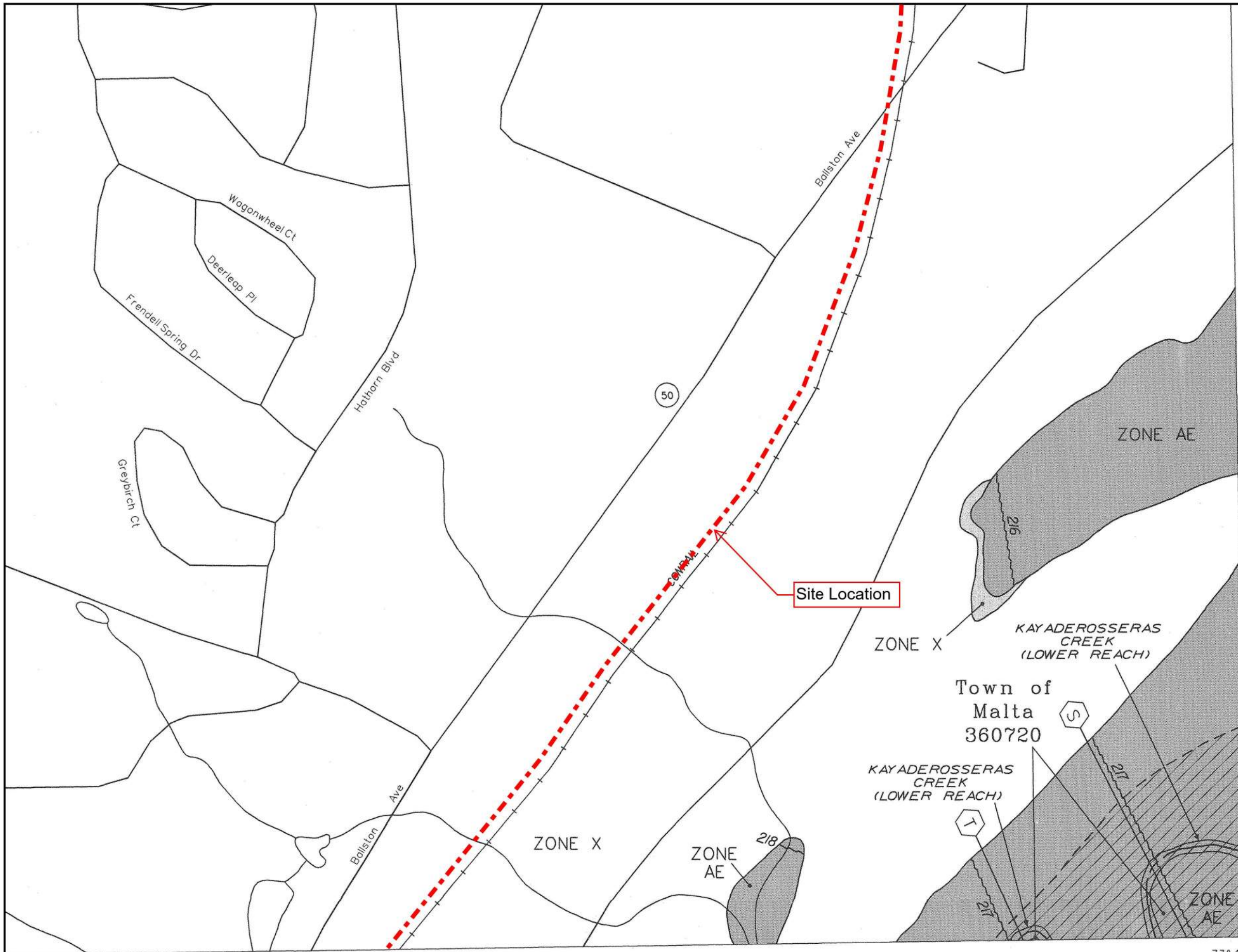
MAP NUMBER  
36091C0437 E  
EFFECTIVE DATE:  
AUGUST 16, 1995

Federal Emergency Management Agency

**Champlain Hudson Power Express  
FEMA FIRM MAP 33**

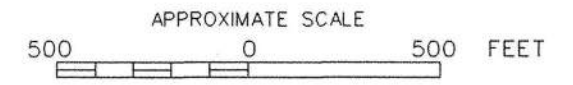
This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.





JOINS PANEL 0439

73° 48' 4



NATIONAL FLOOD INSURANCE PROGRAM

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

PANEL 437 OF 693  
(SEE MAP INDEX FOR PANELS NOT PRINTED)  
CONTAINS:  

COMMUNITY	NUMBER	PANEL	SUFFIX
MALTA TOWN OF	360720	0437	E
MALTA TOWN OF	360722	0437	E
SARATOGA SPRINGS, CITY OF	360728	0437	E

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

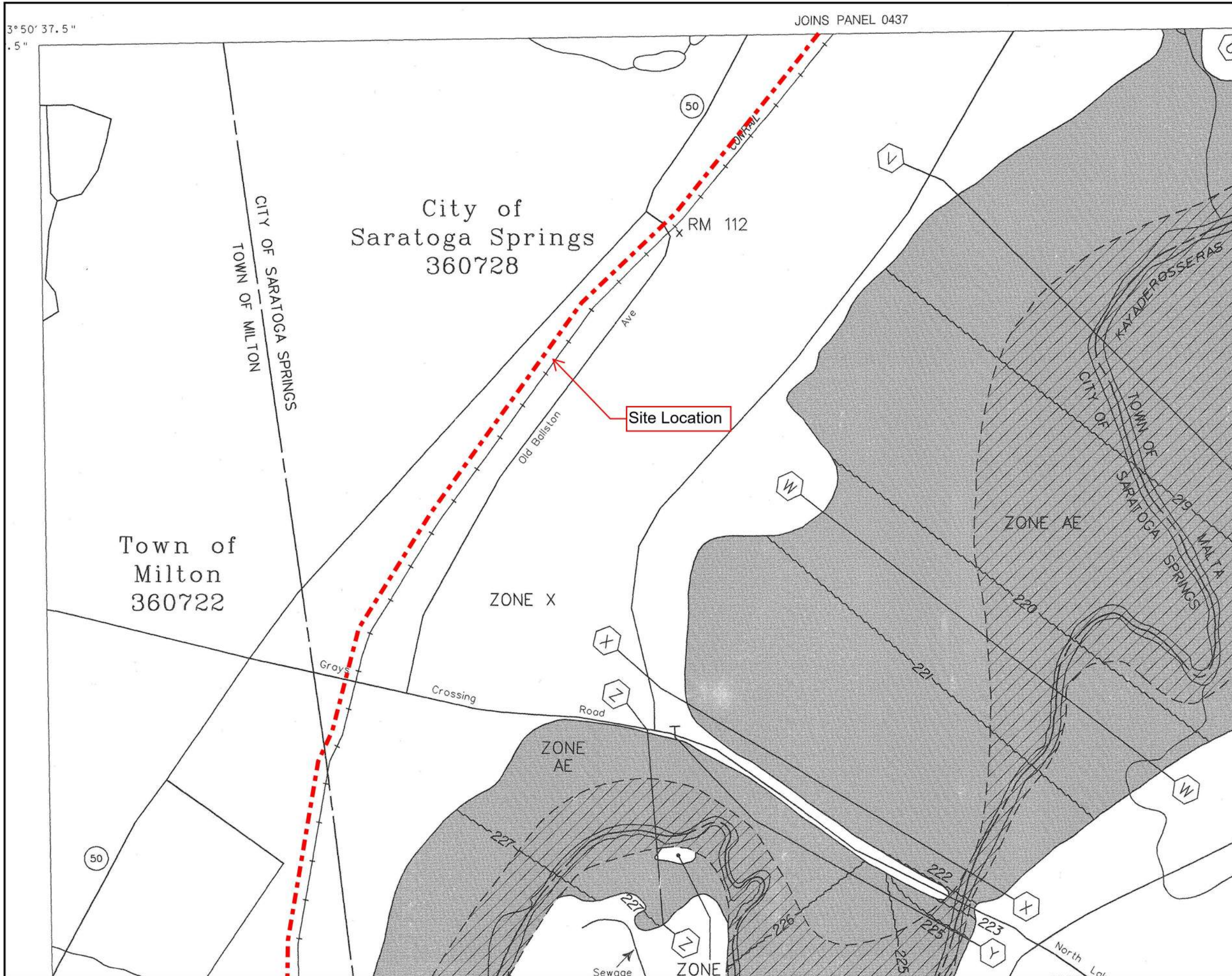


MAP NUMBER  
36091C0437 E  
EFFECTIVE DATE:  
AUGUST 16, 1995  
Federal Emergency Management Agency

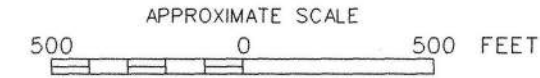
**Champlain Hudson Power Express  
FEMA FIRM MAP 34**

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.





JOINS PANEL 0437



NATIONAL FLOOD INSURANCE PROGRAM

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

PANEL 439 OF 693  
(SEE MAP INDEX FOR PANELS NOT PRINTED)  
CONTAINS:  

COMMUNITY	NUMBER	PANEL	SUFFIX
BALLSTON TOWN OF	36071	0439	E
BALLSTON SPA VILLAGE OF	36075	0439	E
MALTA TOWN OF	36072	0439	E
MILTON TOWN OF	36072	0439	E
SARATOGA SPRINGS CITY OF	36078	0439	E

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

MAP NUMBER  
36091C0439 E

EFFECTIVE DATE:  
AUGUST 16, 1995



Federal Emergency Management Agency

**Champlain Hudson Power Express  
FEMA FIRM MAP 35**

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.



