Champlain Hudson Power

Segment 7 – Package 4B

Temporary Drainage Analysis

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

KC Engineering Project Number: 120174

Prepared for:

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

Prepared by:

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July 2023

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Project Description:

The proposed Champlain Hudson Power Express (CHPE) project involves the construction of ±339 miles of high voltage direct current underground and underwater transmission line from Montreal, Canada to Queens, New York. 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 ±9.66 miles of upland cable installation work for Segment 7 – Package 4B begins in the in the Village of Scotia and ends in Town of Rotterdam, Schenectady County, NY (see Figure 1 – Site Location Map in Appendix A). The 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.

Limits of proposed disturbances and restoration areas are identified on the plans and reference site specific details regarding the required restoration. Once the construction activity is completed, all disturbed grounds will be topsoiled, seeded, and stabilized. The proposed grading of the roads and side slopes on site will have minimal ground disturbance to the greatest extent practical while maintaining existing drainage patterns.

Background:

The following report details the temporary drainage and hydraulic analysis prepared for Champlain Hudson Power Express Segment 7 Package 4B located within Village of Scotia and ends in Town of Rotterdam, Schenectady County, NY.

The purpose of this report is to identify the areas where temporary swales or temporary culverts will be required in order to maintain existing flow patterns and to avoid any additional runoff entering onto private properties and railroads along the project limit during construction. All procedures related to dewatering methods are described in 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.

Backup calculations have been prepared and are provided within Appendix B of this report that demonstrate the temporary culverts have been sized appropriately during the duration of the project. All temporary drainage practices will be removed in final conditions and the site will be restored to pre-construction conditions.

Project Soils:

A variety of soil types are present within the project limits, See detail in Appendix C for the NRCS soils map within the project area.

Field Observations/ Research:

A combination of survey base mapping and google street view were utilized to confirm record plan information to the greatest extent possible. Location of the proposed temporary culverts were delineated from base mapping based on existing & proposed temporary grading. The basis for temporary culverts is to avoid additional flow from entering onto private properties and railroad as well as maintain existing flow patterns during construction.

Hydrology:

Drainage basins were delineated based on the existing ground survey provided. The hydrological analysis method used for peak flow analysis is Rational Method, because of the size of all contributing basins being smaller than 80 hectares (197 acres). The Rational Method predicts peak flows based on the rainfall intensity and the contributing drainage area. Runoff coefficients(C) used were consistent with New York State Department of Transportation (NYSDOT) Highway Design Manual (HDM) Exhibit 8-4. The times of concentration were based on NYSDOT guidelines, and a minimum time of concentration of 6 minutes was used. A 25-year design storm frequency was selected for the culverts in accordance with HDM Exhibit 8-3.

The rainfall intensity (R) was calculated from the NOAA Atlas 14 precipitation frequency estimates.

Based on the Rational Method, total runoff from the system was calculated using Q = CiA (ft3/s). A combination of the U.S. Department of Transportation Federal Highway Administration's HY-8 Culvert Hydraulic Analysis Program and StreamStats were used to develop peak flows.

The storm event analysis output files for the HY-8 models and StreamStats are attached in Appendix B. The proposed temporary drainage was designed to meet NYSDOT Highway Design Manual Chapter 8 requirements.

Summary of Drainage:

A summary of the temporary swales and culverts that will be utilized in Package 4B is shown below.

TABLE 1 - STORMWATER SUMMARY

Location	Type of Temporary Drainage	Length (Ft)	Pipe Diameter / Swale Side Slope	Flow Depth (Ft)	Material	Tributary Area (sf)	25-Yr Rainfall Intensity (in/hr)	Total Flow in 25 Yr Storm Event (cfs)
45066+35	Culvert Extension	N/A	18”*	N/A	CMP	N/A	7.84	N/A
45387+05	Culvert	84	15”	0.98	CMP	708111**	7.84	2.61

***Pipe size based on existing culvert size.**

****Flow provided from StreamStas**

References:

Highway Design Manual, Chapter 8, NYSDOT, 50 Wolf Road, Albany, NY 12232.

https://www.dot.ny.gov/divisions/engineering/design/dqab/hdm/chapter-8

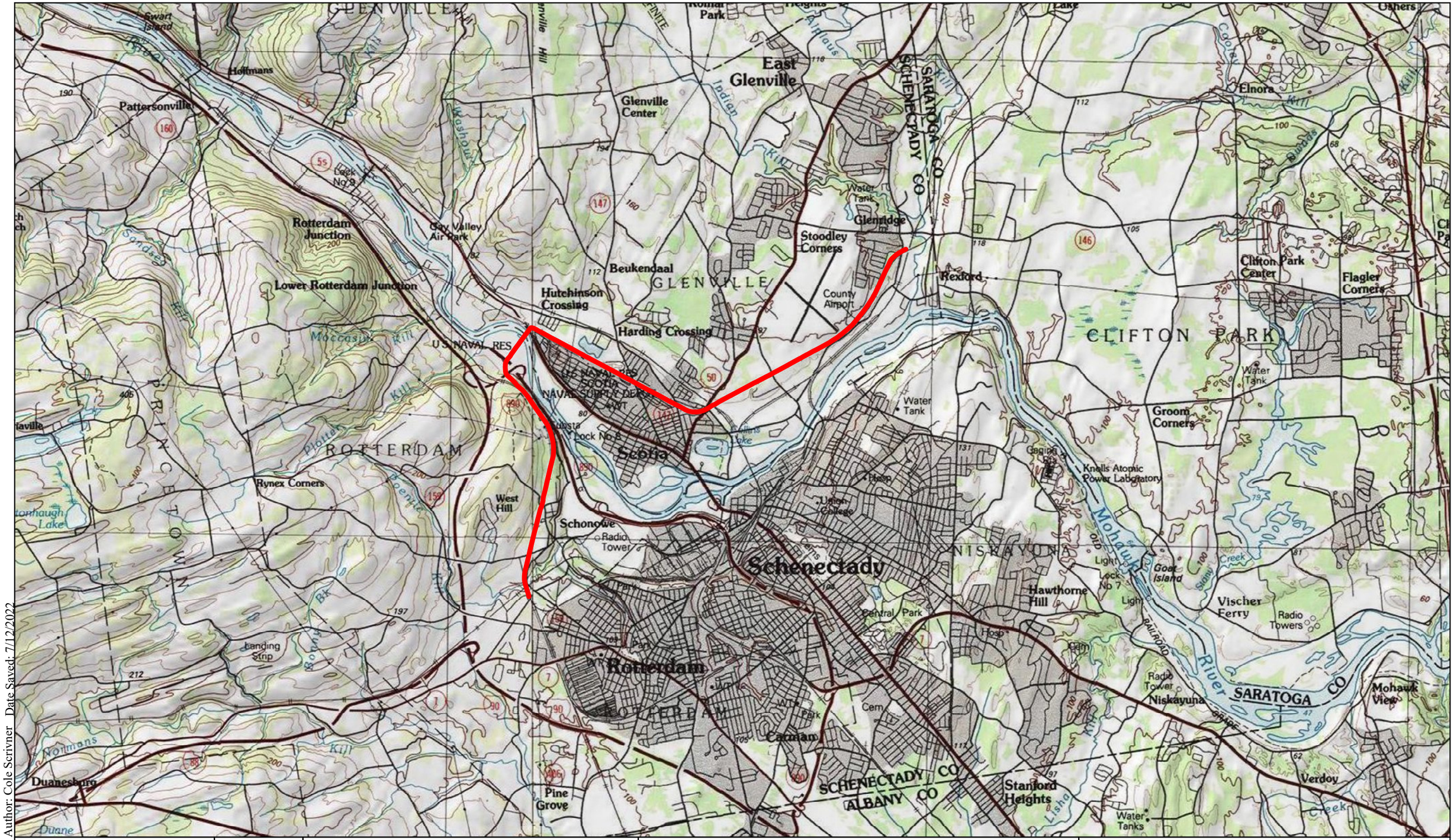
Standard Specifications, Construction and Materials, NYSDOT, 50 Wolf Road, Albany, NY 12232.

https://www.dot.ny.gov/main/business-center/engineering/specifications

Hydraulic Engineering Circular No. 22, 2nd Edition, Urban Drainage Design Manual, August 2001, FHWA

APPENDIX A

PROJECT LOCATION MAP



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

CHA

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Legend

Package 4B Segment 7 Project Corridor

0 3 6 Miles

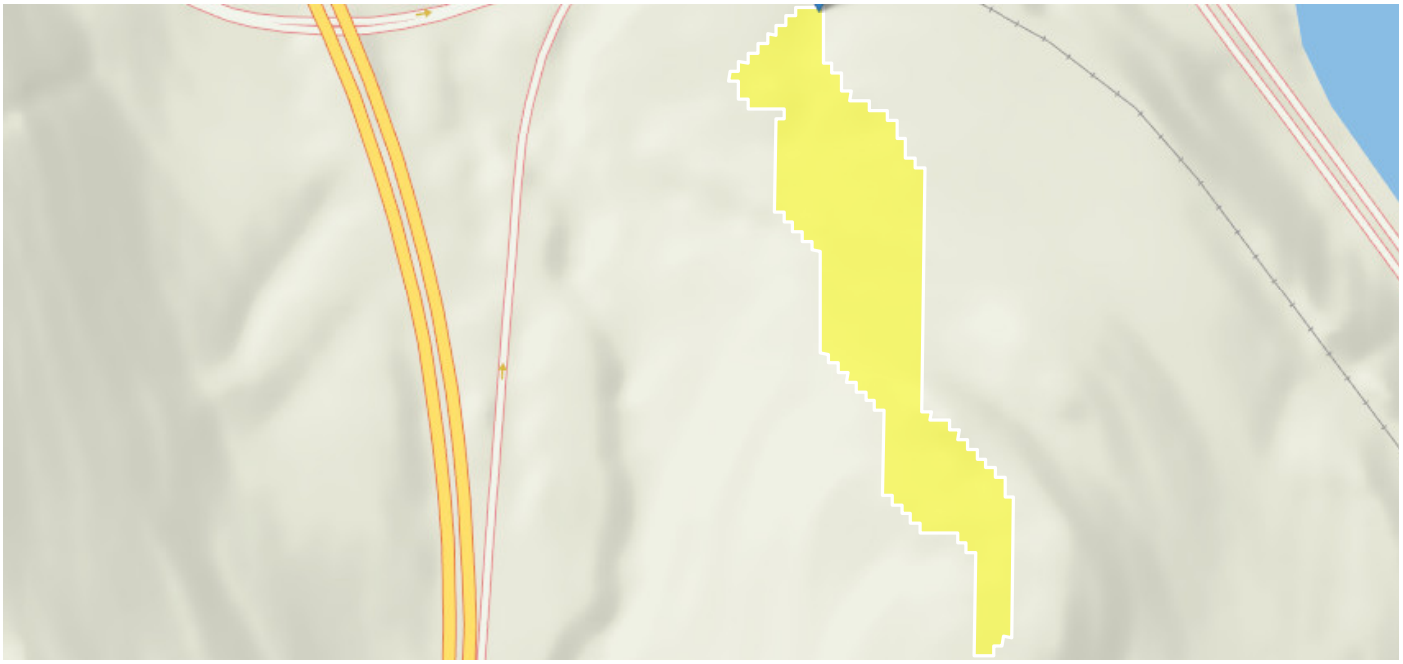
Figure 1 - Champlain Hudson Power Express
Package 4B Segment 7
USGS Project Location Map

APPENDIX B

DRAINAGE FEATURE MODEL INPUT DATA AND ANALYSIS

CHPE_P4B_Temporary Drainage Analysis

Region ID: NY
Workspace ID: NY20230622144704347000
Clicked Point (Latitude, Longitude): 42.83837, -74.00631
Time: 2023-06-22 10:49:36 -0400



Drainage Peak Flow Analysis for Temporary Culvert near Splice Location 151

Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.0254	square miles
FOREST	Percentage of area covered by forest	87.4	percent
LAGFACTOR	Lag Factor as defined in SIR 2006-5112	0.00125	dimensionless
PRECIP	Mean Annual Precipitation	35.8	inches
STORAGE	Percentage of area of storage (lakes ponds reservoirs wetlands)	0	percent

Peak-Flow Statistics

Peak-Flow Statistics Parameters [2006 Full Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0254	square miles	0.54	4500

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
LAGFACTOR	Lag Factor	0.00125	dimensionless	0.004	15.229
STORAGE	Percent Storage	0	percent	0	28.92
FOREST	Percent Forest	87.4	percent	23.83	99.61
PRECIP	Mean Annual Precipitation	35.8	inches	29.49	56.1

Peak-Flow Statistics Disclaimers [2006 Full Region 1]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Peak-Flow Statistics Flow Report [2006 Full Region 1]

Statistic	Value	Unit
80-percent AEP flood	0.646	ft^3/s
66.7-percent AEP flood	0.79	ft^3/s
50-percent AEP flood	0.996	ft^3/s
20-percent AEP flood	1.57	ft^3/s
10-percent AEP flood	2.01	ft^3/s
4-percent AEP flood	2.61	ft^3/s
2-percent AEP flood	3.07	ft^3/s
1-percent AEP flood	3.58	ft^3/s
0.5-percent AEP flood	4.08	ft^3/s
0.2-percent AEP flood	4.8	ft^3/s

Peak-Flow Statistics Citations

Lumia, Richard, Freehafer, D.A., and Smith, M.J.,2006, Magnitude and Frequency of Floods in New York: U.S. Geological Survey Scientific Investigations Report 2006–5112, 152 p. (http://pubs.usgs.gov/sir/2006/5112/)

Application Version: 4.15.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

NOAA Atlas 14, Volume 10, Version 3
Location name: Town of Rotterdam, New York, USA*
Latitude: 42.8384°, Longitude: -74.0063°
Elevation: 351 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**3.50** (2.70-4.51)	**4.24** (3.26-5.47)	**5.45** (4.18-7.04)	**6.46** (4.92-8.35)	**7.84** (5.80-10.5)	**8.87** (6.46-12.1)	**9.96** (7.04-13.9)	**11.2** (7.51-15.8)	**13.0** (8.41-18.8)	**14.5** (9.18-21.2)
10-min	**2.48** (1.91-3.20)	**3.01** (2.31-3.88)	**3.86** (2.96-4.99)	**4.57** (3.49-5.92)	**5.54** (4.10-7.43)	**6.28** (4.57-8.53)	**7.06** (4.99-9.86)	**7.94** (5.33-11.2)	**9.22** (5.96-13.3)	**10.3** (6.50-15.0)
15-min	**1.94** (1.50-2.51)	**2.36** (1.81-3.04)	**3.03** (2.32-3.91)	**3.58** (2.73-4.65)	**4.35** (3.22-5.83)	**4.93** (3.58-6.70)	**5.53** (3.92-7.73)	**6.22** (4.17-8.77)	**7.22** (4.67-10.4)	**8.05** (5.10-11.8)
30-min	**1.30** (1.00-1.68)	**1.58** (1.21-2.04)	**2.03** (1.56-2.62)	**2.40** (1.83-3.12)	**2.92** (2.16-3.91)	**3.31** (2.40-4.50)	**3.72** (2.63-5.19)	**4.18** (2.81-5.89)	**4.86** (3.14-7.01)	**5.41** (3.43-7.92)
60-min	**0.815** (0.628-1.05)	**0.989** (0.760-1.28)	**1.27** (0.976-1.64)	**1.51** (1.15-1.96)	**1.83** (1.36-2.45)	**2.08** (1.51-2.82)	**2.33** (1.65-3.26)	**2.62** (1.76-3.70)	**3.05** (1.97-4.40)	**3.40** (2.15-4.97)
2-hr	**0.515** (0.399-0.659)	**0.620** (0.480-0.794)	**0.792** (0.611-1.02)	**0.934** (0.717-1.20)	**1.13** (0.842-1.50)	**1.28** (0.934-1.72)	**1.43** (1.02-1.99)	**1.61** (1.09-2.25)	**1.87** (1.21-2.68)	**2.08** (1.32-3.03)
3-hr	**0.392** (0.305-0.499)	**0.469** (0.364-0.599)	**0.596** (0.462-0.762)	**0.702** (0.540-0.900)	**0.847** (0.633-1.12)	**0.956** (0.701-1.28)	**1.07** (0.765-1.48)	**1.20** (0.813-1.68)	**1.40** (0.910-1.99)	**1.56** (0.992-2.25)
6-hr	**0.246** (0.193-0.312)	**0.293** (0.229-0.371)	**0.369** (0.287-0.468)	**0.432** (0.334-0.550)	**0.518** (0.390-0.682)	**0.583** (0.430-0.779)	**0.652** (0.469-0.897)	**0.733** (0.497-1.01)	**0.853** (0.558-1.21)	**0.955** (0.610-1.37)
12-hr	**0.152** (0.120-0.191)	**0.179** (0.141-0.225)	**0.224** (0.176-0.282)	**0.261** (0.204-0.330)	**0.312** (0.236-0.408)	**0.350** (0.260-0.465)	**0.391** (0.283-0.536)	**0.440** (0.300-0.605)	**0.514** (0.337-0.724)	**0.578** (0.370-0.824)
24-hr	**0.091** (0.072-0.114)	**0.107** (0.085-0.134)	**0.134** (0.106-0.167)	**0.156** (0.122-0.195)	**0.186** (0.141-0.241)	**0.208** (0.155-0.274)	**0.232** (0.169-0.315)	**0.261** (0.178-0.356)	**0.304** (0.200-0.424)	**0.340** (0.219-0.481)
2-day	**0.053** (0.042-0.065)	**0.062** (0.049-0.077)	**0.077** (0.061-0.096)	**0.090** (0.071-0.112)	**0.107** (0.082-0.137)	**0.120** (0.090-0.156)	**0.133** (0.097-0.179)	**0.149** (0.102-0.202)	**0.171** (0.113-0.238)	**0.190** (0.123-0.267)
3-day	**0.038** (0.031-0.047)	**0.045** (0.036-0.056)	**0.056** (0.044-0.069)	**0.065** (0.051-0.080)	**0.077** (0.059-0.098)	**0.086** (0.064-0.111)	**0.096** (0.069-0.127)	**0.106** (0.073-0.143)	**0.122** (0.081-0.168)	**0.134** (0.087-0.188)
4-day	**0.031** (0.025-0.038)	**0.036** (0.029-0.044)	**0.044** (0.035-0.055)	**0.051** (0.041-0.063)	**0.061** (0.046-0.077)	**0.068** (0.051-0.088)	**0.075** (0.055-0.100)	**0.083** (0.058-0.112)	**0.095** (0.063-0.131)	**0.105** (0.068-0.146)
7-day	**0.021** (0.017-0.025)	**0.024** (0.019-0.029)	**0.029** (0.023-0.035)	**0.033** (0.026-0.041)	**0.039** (0.030-0.049)	**0.043** (0.033-0.055)	**0.048** (0.035-0.063)	**0.053** (0.036-0.070)	**0.060** (0.040-0.082)	**0.065** (0.042-0.090)
10-day	**0.017** (0.013-0.020)	**0.019** (0.015-0.023)	**0.023** (0.018-0.028)	**0.026** (0.021-0.032)	**0.030** (0.023-0.038)	**0.033** (0.025-0.042)	**0.037** (0.027-0.048)	**0.040** (0.028-0.053)	**0.045** (0.030-0.061)	**0.049** (0.032-0.067)
20-day	**0.012** (0.010-0.014)	**0.013** (0.011-0.016)	**0.015** (0.012-0.019)	**0.017** (0.014-0.021)	**0.019** (0.015-0.024)	**0.021** (0.016-0.027)	**0.023** (0.017-0.030)	**0.025** (0.017-0.033)	**0.027** (0.018-0.037)	**0.029** (0.019-0.040)
30-day	**0.010** (0.008-0.012)	**0.011** (0.009-0.013)	**0.012** (0.010-0.015)	**0.014** (0.011-0.016)	**0.015** (0.012-0.019)	**0.017** (0.013-0.021)	**0.018** (0.013-0.023)	**0.019** (0.013-0.025)	**0.021** (0.014-0.028)	**0.022** (0.014-0.030)
45-day	**0.008** (0.007-0.010)	**0.009** (0.007-0.011)	**0.010** (0.008-0.012)	**0.011** (0.009-0.013)	**0.012** (0.009-0.015)	**0.013** (0.010-0.016)	**0.014** (0.010-0.018)	**0.015** (0.010-0.020)	**0.016** (0.011-0.021)	**0.017** (0.011-0.023)
60-day	**0.007** (0.006-0.009)	**0.008** (0.006-0.009)	**0.009** (0.007-0.010)	**0.009** (0.007-0.011)	**0.010** (0.008-0.013)	**0.011** (0.008-0.014)	**0.012** (0.009-0.015)	**0.013** (0.009-0.016)	**0.013** (0.009-0.018)	**0.014** (0.009-0.019)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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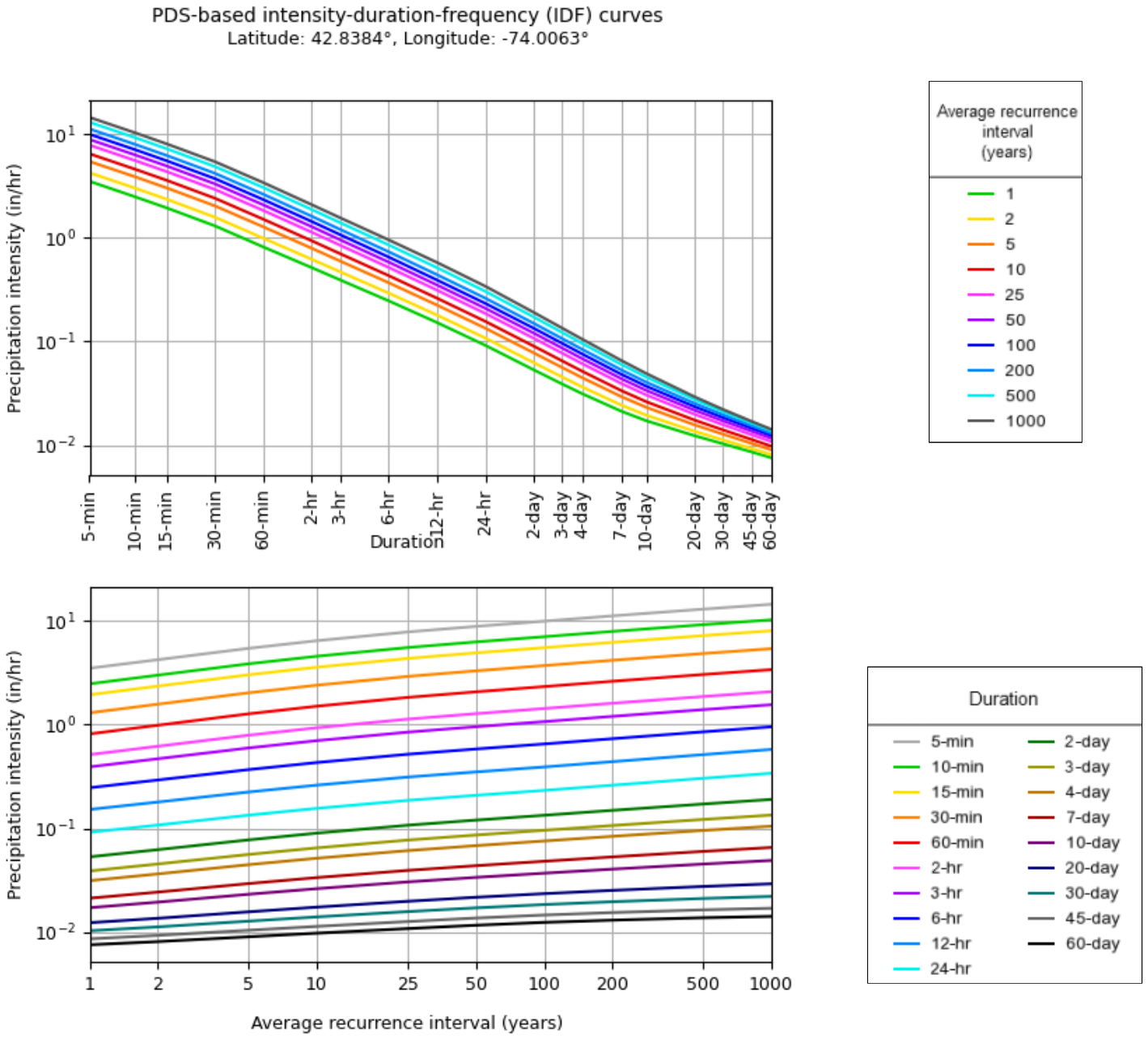
PF graphical



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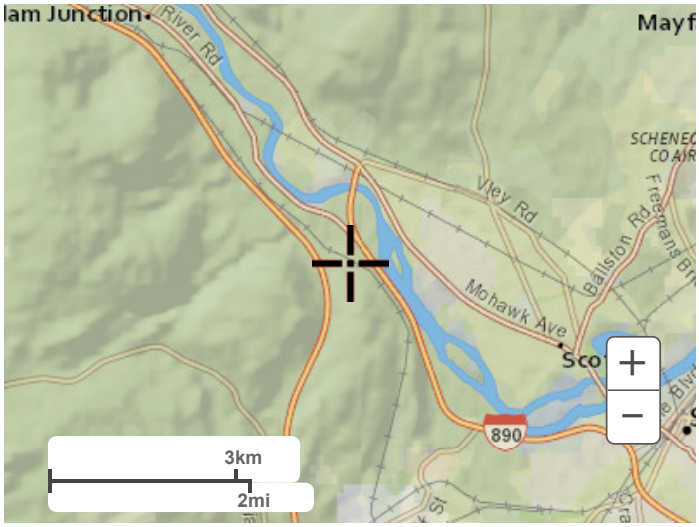
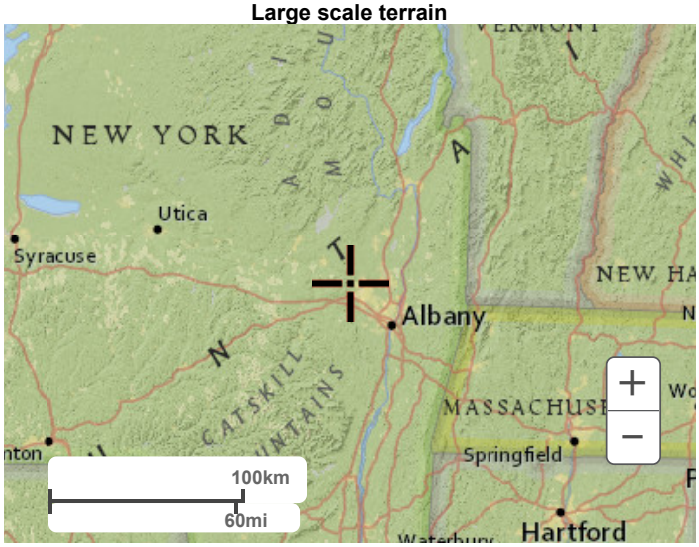
Maps & aerials

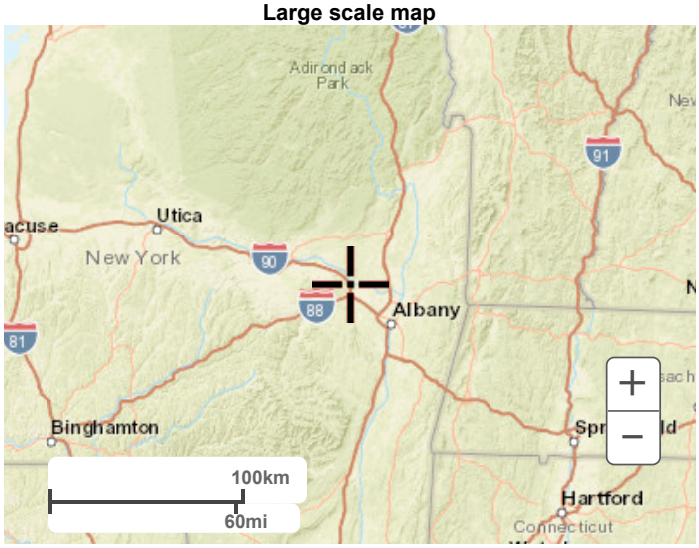
Small scale terrain



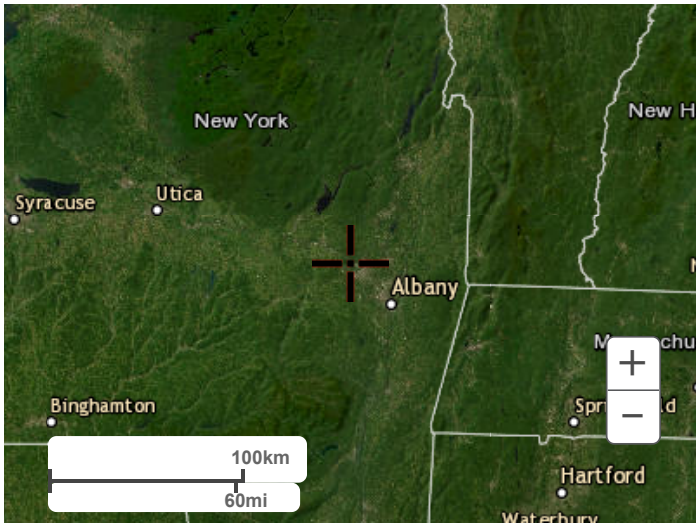
Large scale terrain



Large scale map



Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

HY-8 Culvert Analysis Report

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow
Minimum Flow: 2.01 cfs
Design Flow: 2.61 cfs
Maximum Flow: 3.58 cfs

Table 1 - Summary of Culvert Flows at Crossing: 45387+05

Headwater Elevatio	Total Discharge (c	45487+05 Dischar (cfs)	Roadway Dischar (cfs)	Iterations
347.32	2.01	2.01	0.00	1
347.37	2.17	2.17	0.00	1
347.41	2.32	2.32	0.00	1
347.45	2.48	2.48	0.00	1
347.48	2.61	2.61	0.00	1
347.53	2.79	2.79	0.00	1
347.57	2.95	2.95	0.00	1
347.61	3.11	3.11	0.00	1
347.65	3.27	3.27	0.00	1
347.69	3.42	3.42	0.00	1
347.73	3.58	3.58	0.00	1
352.00	11.38	11.38	0.00	Overtopping

Rating Curve Plot for Crossing: 45387+05

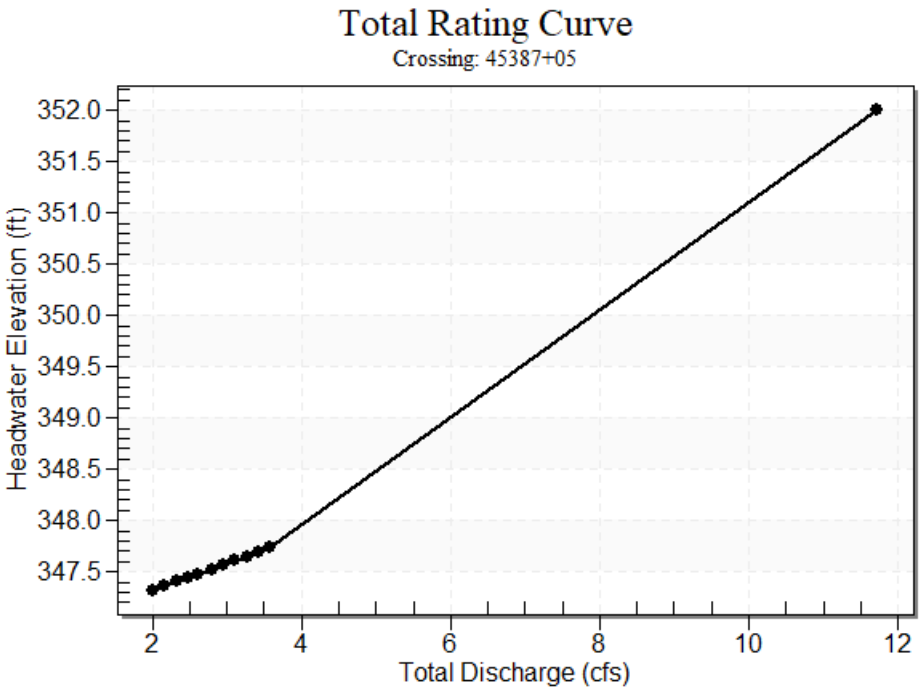


Table 2 - Culvert Summary Table: 45487+05

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (f	Outlet Control Depth (f	Flow Type	Normal Depth (f	Critical Depth (f	Outlet Depth (f	Tailwater Depth (f	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
2.01	2.01	347.32	0.825	0.376	1-JS1	0.276	0.565	1.250	0.243	1.638	4.789
2.17	2.17	347.37	0.866	0.409	1-JS1	0.287	0.587	1.250	0.252	1.766	4.887
2.32	2.32	347.41	0.906	0.444	1-JS1	0.297	0.609	1.250	0.261	1.894	4.982
2.48	2.48	347.45	0.946	0.481	1-JS1	0.307	0.631	1.250	0.270	2.022	5.073
2.61	2.61	347.48	0.979	0.512	1-JS1	0.315	0.647	1.250	0.277	2.127	5.143
2.79	2.79	347.53	1.026	0.558	1-JS1	0.326	0.671	1.250	0.287	2.278	5.243
2.95	2.95	347.57	1.066	0.599	1-JS1	0.335	0.691	1.250	0.295	2.406	5.320
3.11	3.11	347.61	1.107	0.642	1-JS1	0.344	0.710	1.250	0.302	2.533	5.393
3.27	3.27	347.65	1.148	0.686	1-JS1	0.353	0.728	1.250	0.310	2.661	5.465
3.42	3.42	347.69	1.189	0.731	1-JS1	0.362	0.746	1.250	0.317	2.789	5.538
3.58	3.58	347.73	1.231	0.779	1-JS1	0.370	0.764	1.250	0.324	2.917	5.603

****

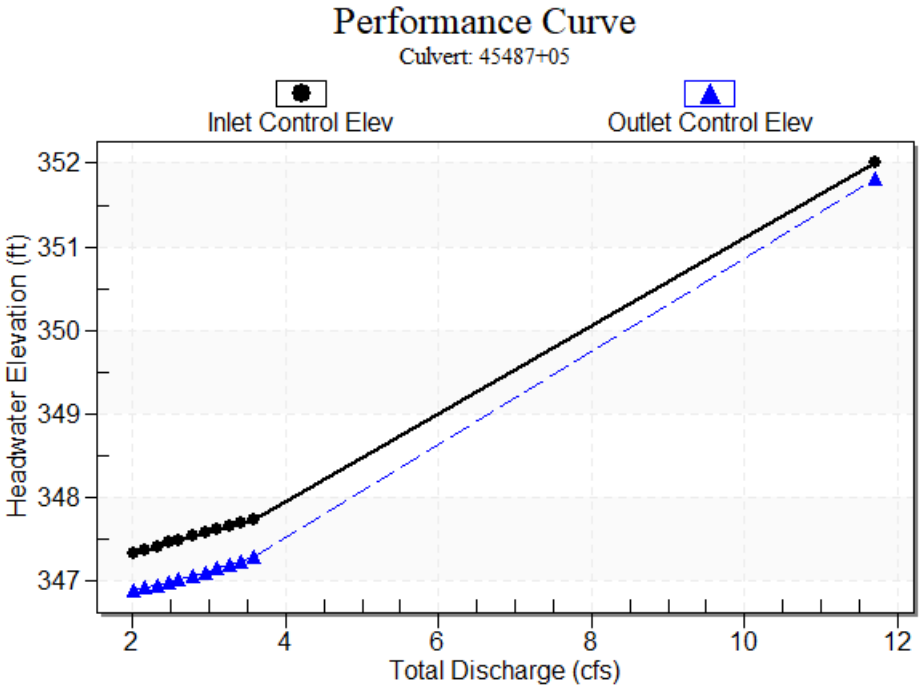
Straight Culvert

Inlet Elevation (invert): 346.50 ft, Outlet Elevation (invert): 340.50 ft

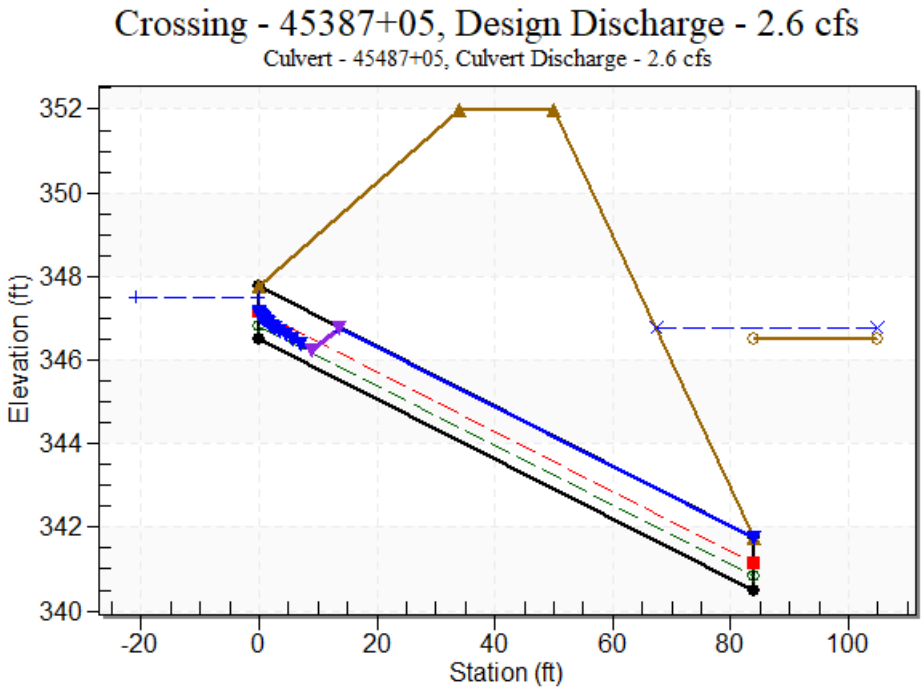
Culvert Length: 84.21 ft, Culvert Slope: 0.0714

****

Culvert Performance Curve Plot: 45487+05



Water Surface Profile Plot for Culvert: 45487+05



Site Data - 45487+05

Site Data Option: Culvert Invert Data
Inlet Station: 0.00 ft
Inlet Elevation: 346.50 ft
Outlet Station: 84.00 ft
Outlet Elevation: 340.50 ft
Number of Barrels: 1

Culvert Data Summary - 45487+05

Barrel Shape: Circular
Barrel Diameter: 1.25 ft
Barrel Material: Corrugated Steel
Embedment: 0.00 in
Barrel Manning's n: 0.0120
Culvert Type: Straight
Inlet Configuration: Thin Edge Projecting
Inlet Depression: None

Table 3 - Downstream Channel Rating Curve (Crossing: 45387+05)

Flow (cfs)	Water Surfac Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
2.01	346.74	0.24	4.79	1.08	2.04
2.17	346.75	0.25	4.89	1.12	2.05
2.32	346.76	0.26	4.98	1.16	2.06
2.48	346.77	0.27	5.07	1.20	2.07
2.61	346.78	0.28	5.14	1.23	2.08
2.79	346.79	0.29	5.24	1.28	2.09
2.95	346.79	0.29	5.32	1.31	2.09
3.11	346.80	0.30	5.39	1.35	2.10
3.27	346.81	0.31	5.46	1.38	2.11
3.42	346.82	0.32	5.54	1.41	2.11
3.58	346.82	0.32	5.60	1.44	2.12

Tailwater Channel Data - 45387+05

Tailwater Channel Option: Trapezoidal Channel
Bottom Width: 1.00 ft
Side Slope (H:V): 3.00 (_:1)
Channel Slope: 0.0714
Channel Manning's n: 0.0250
Channel Invert Elevation: 346.50 ft

Roadway Data for Crossing: 45387+05

Roadway Profile Shape: Constant Roadway Elevation
Crest Length: 84.00 ft
Crest Elevation: 352.00 ft
Roadway Surface: Gravel
Roadway Top Width: 16.00 ft

APPENDIX C

NRCS SOIL SURVEY MAP

United States Department of Agriculture

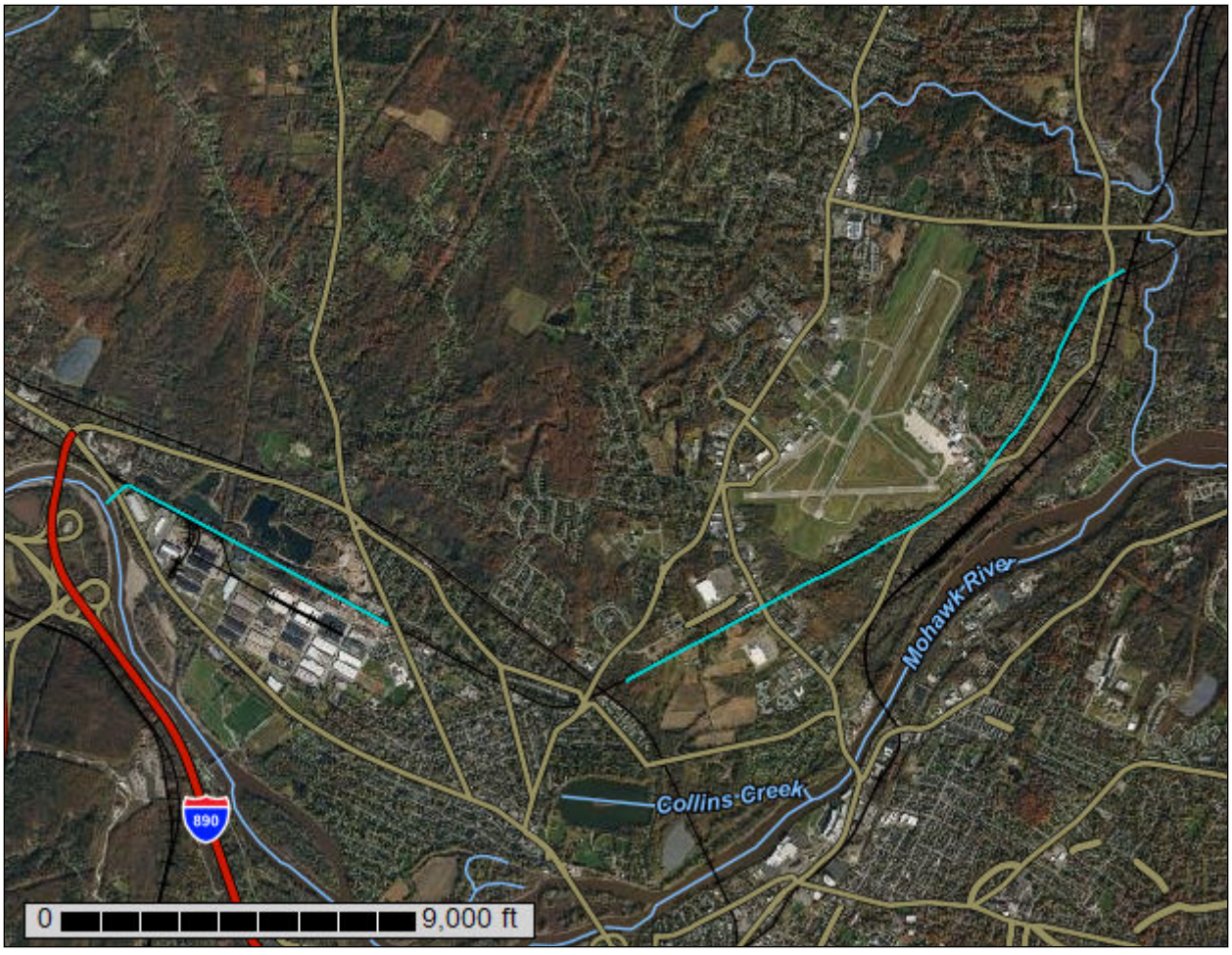
NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Schenectady County, New York

glenville



December 12, 2022

Preface

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

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

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

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

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

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

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Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

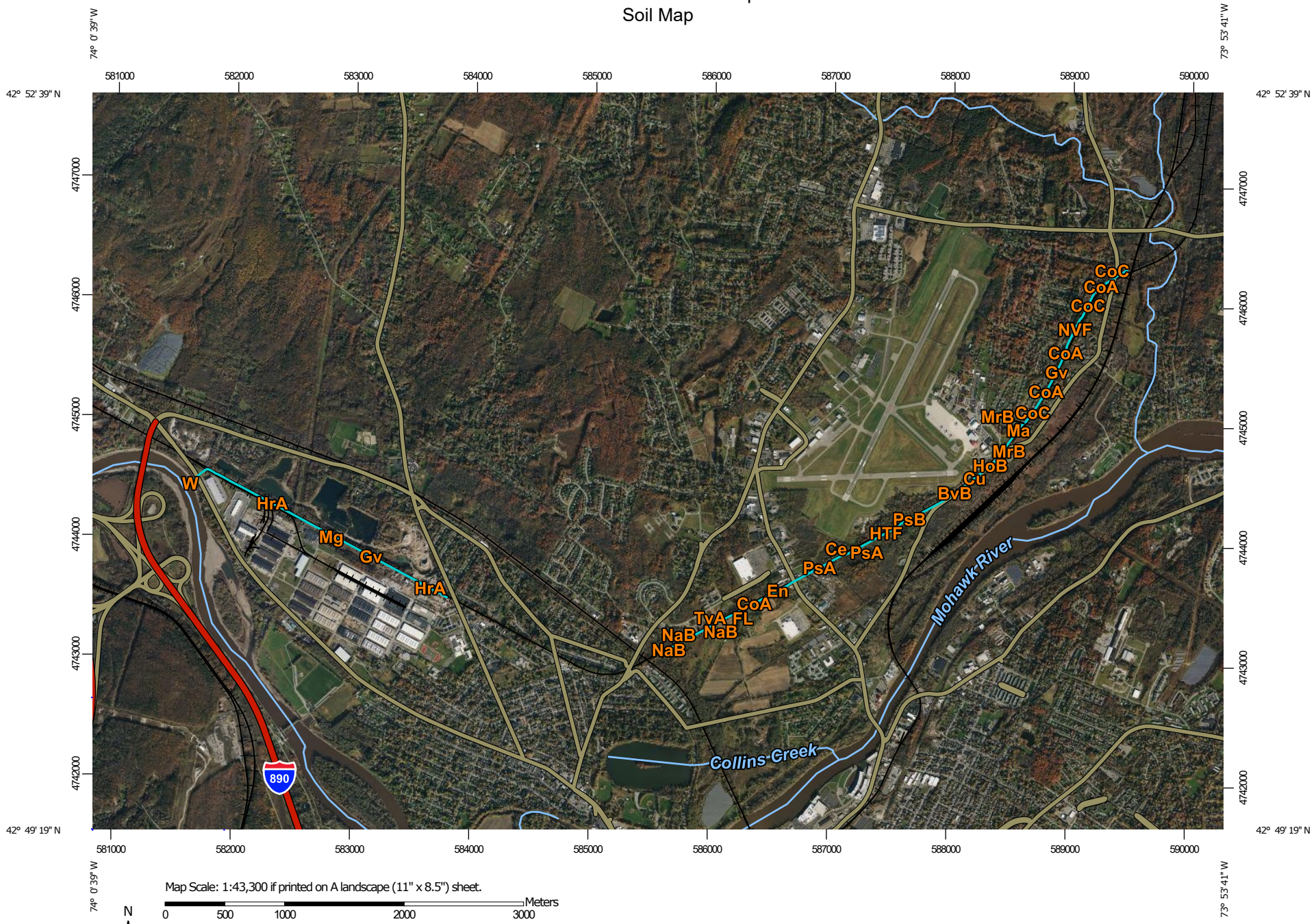
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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

Soil Map

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

Custom Soil Resource Report
Soil Map



MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BvB	Burdett-Scriba channery silt loams, 3 to 8 percent slopes	0.4	6.4%
Ce	Cheektowaga fine sandy loam	0.1	1.9%
CoA	Colonie loamy fine sand, 0 to 3 percent slopes	0.7	12.5%
CoC	Colonie loamy fine sand, 3 to 15 percent slopes	0.5	9.0%
CPE	Colonie and Plainfield soils, steep	0.0	0.4%
Cu	Cut and fill land	0.0	0.1%
En	Elnora loamy fine sand	0.3	5.4%
FL	Fluvaquents, loamy	0.0	0.3%
Gv	Gravel pits	0.5	8.9%
HoB	Hornell silt loam, 3 to 8 percent slopes	0.2	4.1%
HrA	Howard gravelly silt loam, 0 to 3 percent slopes	1.3	23.0%
HTF	Howard soils, very steep	0.1	0.9%
Ma	Madalin silty clay loam, 0 to 3 percent slopes	0.0	0.8%
Mg	Made land	0.1	1.1%
MrB	Mardin gravelly silt loam, 3 to 8 percent slopes	0.2	3.8%
NaB	Nassau channery silt loam, 0 to 8 percent slopes	0.2	3.3%
NVF	Nunda soils, very steep	0.1	1.3%
PsA	Plainfield loamy sand, 0 to 3 percent slopes	0.4	7.8%
PsB	Plainfield loamy sand, 3 to 10 percent slopes	0.3	4.5%
Ra	Raynham silt loam	0.1	0.9%
TvA	Tuller-Brockport complex, 0 to 3 percent slopes	0.1	2.4%
W	Water	0.1	0.9%
Totals for Area of Interest		**5.8**	**100.0%**

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.

Schenectady County, New York

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

Map Unit Setting

National map unit symbol: bd3j
Elevation: 200 to 1,600 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

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

Description of Burdett

Setting

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

Typical profile

H1 - 0 to 9 inches: channery silt loam
H2 - 9 to 16 inches: channery silt loam
H3 - 16 to 44 inches: very gravelly silty clay loam
H4 - 44 to 60 inches: very gravelly silty clay loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Moderate (about 7.3 inches)

Interpretive groups

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

Description of Scriba

Setting

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

Typical profile

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

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 12 to 18 inches to fragipan
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

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

Minor Components

Varick

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

Darien

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

Angola

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

Ilion

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

Ce—Cheektowaga fine sandy loam

Map Unit Setting

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

Map Unit Composition

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

Description of Cheektowaga

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

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

Hydric soil rating: Yes

Minor Components

Palms

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

Claverack

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

Junius

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

Granby

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

Madalin

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

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

Map Unit Setting

National map unit symbol: bd3v
Elevation: 150 to 1,000 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Colonie

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

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

Map Unit Setting

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

Map Unit Composition

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

Description of Colonie

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

CPE—Colonie and Plainfield soils, steep

Map Unit Setting

National map unit symbol: bd3x
Elevation: 150 to 1,150 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Colonie

Setting

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

Typical profile

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

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: More than 80 inches

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

Interpretive groups

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

Description of Plainfield

Setting

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

Typical profile

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

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.7 inches)

Interpretive groups

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

Minor Components

Hudson

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

Howard

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

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

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

Cu—Cut and fill land

Map Unit Setting
National map unit symbol: 1vggp
Elevation: 180 to 1,380 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

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

Description of Udorthents

Typical profile
H1 - 0 to 4 inches: gravelly loam
H2 - 4 to 70 inches: very gravelly loam

Properties and qualities
Slope: 0 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 5.95 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 5.4 inches)

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

Minor Components

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

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

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

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

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

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

En—Elnora loamy fine sand

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

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

Description of Elnora

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 14 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

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

FL—Fluvaquents, loamy

Map Unit Setting

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

Map Unit Composition

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

Description of Fluvaquents

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Granby

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

Teel

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

Wayland

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

Hamlin

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

Saprists

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

Aquents

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

Gv—Gravel pits

Map Unit Setting

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

Map Unit Composition

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

Description of Gravel Pits

Typical profile

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

Interpretive groups

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

Minor Components

Fredon

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

Ilion

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

Herkimer

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

Howard

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

Farmington

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

Palmyra

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

HoB—Hornell silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: bd4j
Elevation: 600 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Hornell

Setting

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

Typical profile

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

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: F140XY028NY - Moist Till Upland
Hydric soil rating: No

Minor Components

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

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

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

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

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

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

Map Unit Setting
National map unit symbol: bd4l
Elevation: 210 to 870 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: All areas are prime farmland

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

Description of Howard

Setting
Landform: Valley trains, terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, containing significant amounts of limestone

Typical profile
H1 - 0 to 9 inches: gravelly silt loam

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

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

Minor Components

Phelps

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

Colonie

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

Alton

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

Palmyra

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

Unnamed soils

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

HTF—Howard soils, very steep

Map Unit Setting

National map unit symbol: bd4c
Elevation: 230 to 1,030 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F

Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Howard

Setting

Landform: Valley trains, terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, containing significant amounts of limestone

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Palmyra

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

Mohawk

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

Nunda

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

Phelps

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

Lansing

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

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

Map Unit Setting

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

Map Unit Composition

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

Description of Madalin

Setting

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

Typical profile

Ap - 0 to 7 inches: silty clay loam
Bg - 7 to 9 inches: silty clay loam
Btg1 - 9 to 21 inches: clay
Btg2 - 21 to 30 inches: silty clay
Cg - 30 to 79 inches: stratified silt to clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 0 to 7 inches
Frequency of flooding: None

Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

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

Minor Components

Rhinebeck

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

Canandaigua

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

Fonda

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

Barre

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

Mg—Made land

Map Unit Setting

National map unit symbol: bd5c
Elevation: 210 to 870 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Udorthents

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Nellis

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

Copake

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

Burdett

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

Ilion

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

Raynham

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

Cheektowaga

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

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

Map Unit Setting

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

Map Unit Composition

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

Description of Mardin

Setting

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

Typical profile

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

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 14 to 27 inches to fragipan
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C
Ecological site: F140XY024NY - Moist Dense Till
Hydric soil rating: No

Minor Components

Burdett

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

Mosherville

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

Nunda

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

Nassau

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

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

Map Unit Setting

National map unit symbol: bd5w
Elevation: 600 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Nassau

Setting

Landform: Till plains, ridges, benches
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex

Across-slope shape: Convex
Parent material: Channery loamy till derived mainly from local slate or shale

Typical profile

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

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.7 inches)

Interpretive groups

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

NVF—Nunda soils, very steep

Map Unit Setting

National map unit symbol: bd5t
Elevation: 400 to 1,600 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Nunda

Setting

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

Typical profile

H1 - 0 to 7 inches: channery silt loam
H2 - 7 to 25 inches: channery silt loam
H3 - 25 to 42 inches: gravelly silty clay loam
H4 - 42 to 60 inches: gravelly loam

Properties and qualities

Slope: 25 to 45 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 15 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C/D
Ecological site: F101XY013NY - Moist Till
Hydric soil rating: No

Minor Components

Lansing

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

Burdett

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

Nassau

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

Rock outcrop

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

Manlius

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

PsA—Plainfield loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: bd6j
Elevation: 720 to 1,150 feet

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

Map Unit Composition

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

Description of Plainfield

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.7 inches)

Interpretive groups

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

Minor Components

Otisville

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

Alton

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

Colonie

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

Elnora

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

PsB—Plainfield loamy sand, 3 to 10 percent slopes

Map Unit Setting

National map unit symbol: bd6k
Elevation: 720 to 1,150 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Plainfield

Setting

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

Typical profile

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

Properties and qualities

Slope: 3 to 10 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash

Hydric soil rating: No

Minor Components

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

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

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

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

Ra—Raynham silt loam

Map Unit Setting
National map unit symbol: bd6n
Elevation: 50 to 500 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition
Raynham, somewhat poorly drained, and similar soils: 40 percent
Raynham, poorly drained, and similar soils: 40 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Raynham, Somewhat Poorly Drained

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

Typical profile
H1 - 0 to 8 inches: silt loam
H2 - 8 to 23 inches: silt loam
H3 - 23 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: High (about 11.7 inches)

Interpretive groups

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

Description of Raynham, Poorly Drained

Setting

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

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 23 inches: silt loam
H3 - 23 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: High (about 11.7 inches)

Interpretive groups

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

Minor Components

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

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

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

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

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

Map Unit Setting
National map unit symbol: bd6y
Elevation: 210 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Farmland of statewide importance

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

Description of Tuller, Somewhat Poorly Drained

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

Typical profile
H1 - 0 to 7 inches: channery silt loam

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

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

Description of Brockport

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups

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

Description of Tuller, Poorly Drained

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: F101XY013NY - Moist Till
Hydric soil rating: Yes

Minor Components

Angola

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

Ilion

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

Arnot

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

Varick

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

W—Water

Map Unit Setting

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

Map Unit Composition

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

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United States Department of Agriculture

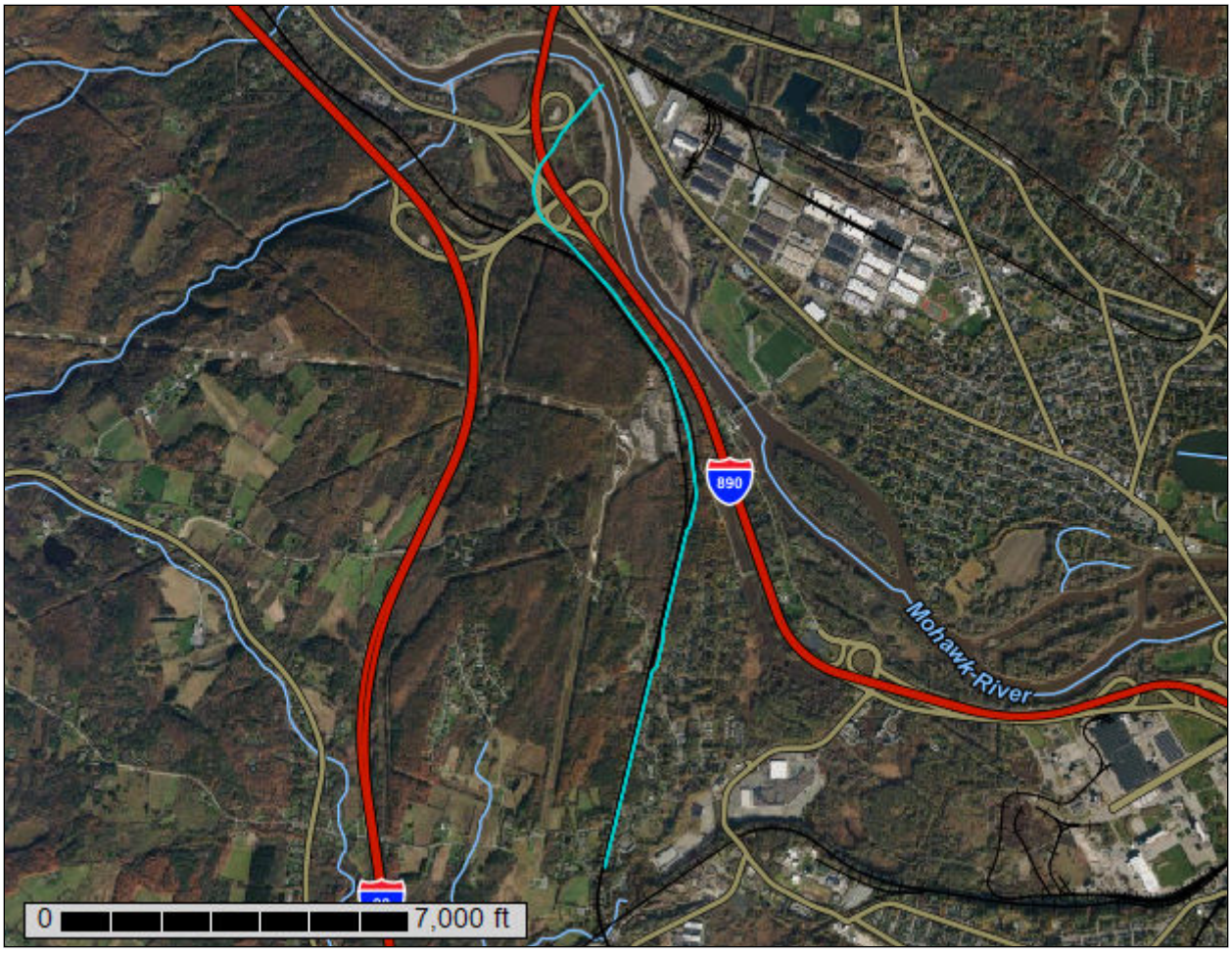
NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Schenectady County, New York

rotterdam



December 12, 2022

Preface

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

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

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

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

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

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

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Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

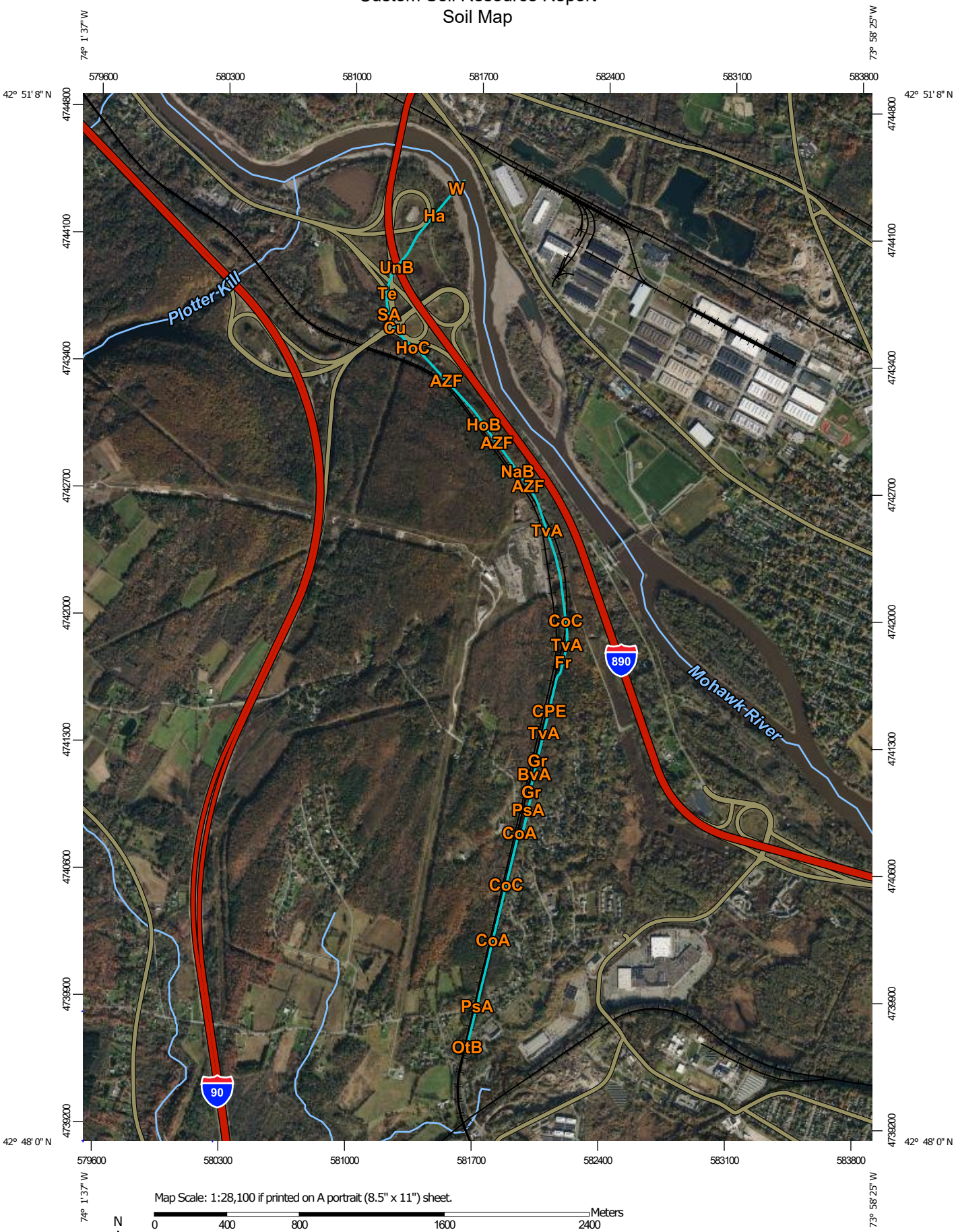
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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

Soil Map

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

Custom Soil Resource Report
Soil Map



Map Scale: 1:28,100 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 400 800 1600 2400

Feet: 0 1000 2000 4000 6000

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AZF	Arnot-Rock outcrop association, very steep	0.3	7.3%
BvA	Burdett-Scriba channery silt loams, 0 to 3 percent slopes	0.1	3.0%
CoA	Colonie loamy fine sand, 0 to 3 percent slopes	0.3	8.3%
CoC	Colonie loamy fine sand, 3 to 15 percent slopes	0.4	8.9%
CPE	Colonie and Plainfield soils, steep	0.0	0.2%
Cu	Cut and fill land	0.1	1.3%
Fr	Fredon silt loam	0.1	3.7%
Gr	Granby loamy fine sand	0.0	0.6%
Ha	Hamlin silt loam	0.3	6.9%
HoB	Hornell silt loam, 3 to 8 percent slopes	0.2	5.2%
HoC	Hornell silt loam, 8 to 15 percent slopes	0.2	4.3%
NaB	Nassau channery silt loam, 0 to 8 percent slopes	0.2	4.8%
OtB	Otisville gravelly loamy sand, 0 to 8 percent slopes	0.0	1.0%
PsA	Plainfield loamy sand, 0 to 3 percent slopes	0.5	12.2%
SA	Saprists and Aquents	0.1	1.6%
Te	Teel silt loam	0.1	2.1%
TvA	Tuller-Brockport complex, 0 to 3 percent slopes	0.9	21.9%
UnB	Unadilla silt loam, 0 to 8 percent slopes	0.2	4.5%
W	Water	0.1	2.1%
Totals for Area of Interest		**4.0**	**100.0%**

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.

Schenectady County, New York

AZF—Arnot-Rock outcrop association, very steep

Map Unit Setting

National map unit symbol: bd37
Elevation: 1,000 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Arnot

Setting

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

Typical profile

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

Properties and qualities

Slope: 35 to 60 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

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

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

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

Interpretive groups

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

Minor Components

Nassau

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

Manlius

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

Tuller

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

Lordstown

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

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

Map Unit Setting

National map unit symbol: bd3h
Elevation: 210 to 1,600 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Prime farmland if drained

Map Unit Composition

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

Description of Burdett

Setting

Landform: Drumlinoid ridges, till plains, hills
Landform position (two-dimensional): Summit, footslope

Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: A thin silt mantle overlying till that is strongly influenced by shale

Typical profile

H1 - 0 to 9 inches: channery silt loam
H2 - 9 to 16 inches: channery silt loam
H3 - 16 to 44 inches: very gravelly silty clay loam
H4 - 44 to 60 inches: very gravelly silty clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Moderate (about 7.3 inches)

Interpretive groups

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

Description of Scriba

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 12 to 18 inches to fragipan
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent

Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

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

Minor Components

Darien

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

Varick

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

Ilion

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

Angola

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

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

Map Unit Setting

National map unit symbol: bd3v
Elevation: 150 to 1,000 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Colonie

Setting

Landform: Beach ridges, deltas
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex

Parent material: Sandy glaciofluvial or eolian deposits

Typical profile

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

Properties and qualities

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

Interpretive groups

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

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

Map Unit Setting

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

Map Unit Composition

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

Description of Colonie

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

CPE—Colonie and Plainfield soils, steep

Map Unit Setting

National map unit symbol: bd3x
Elevation: 150 to 1,150 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Colonie

Setting

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

Typical profile

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

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: More than 80 inches

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

Interpretive groups

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

Description of Plainfield

Setting

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

Typical profile

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

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.7 inches)

Interpretive groups

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

Minor Components

Hudson

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

Howard

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

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

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

Cu—Cut and fill land

Map Unit Setting
National map unit symbol: 1vggp
Elevation: 180 to 1,380 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

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

Description of Udorthents

Typical profile
H1 - 0 to 4 inches: gravelly loam
H2 - 4 to 70 inches: very gravelly loam

Properties and qualities
Slope: 0 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 5.95 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 5.4 inches)

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

Minor Components

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

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

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

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

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

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

Fr—Fredon silt loam

Map Unit Setting
National map unit symbol: bd47
Elevation: 250 to 1,200 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Prime farmland if drained

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

Description of Fredon, Poorly Drained

Setting
Landform: Depressions
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave

Across-slope shape: Linear
Parent material: Loamy over sandy and gravelly glaciofluvial deposits

Typical profile

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

Properties and qualities

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

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Ecological site: F101XY007NY - Wet Outwash
Hydric soil rating: Yes

Description of Fredon, Somewhat Poorly Drained

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Moderate (about 7.3 inches)

Interpretive groups

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

Minor Components

Raynham

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

Ilion

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

Phelps

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

Howard

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

Madalin

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

Gr—Granby loamy fine sand

Map Unit Setting

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

Map Unit Composition

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

Description of Granby

Setting

Landform: Depressions

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups

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

Minor Components

Palms

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

Plainfield

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

Junius

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

Cheektowaga

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

Elnora

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

Ha—Hamlin silt loam

Map Unit Setting

National map unit symbol: bd4f
Elevation: 180 to 800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Hamlin

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Ecological site: F101XY001NY - High Floodplain
Hydric soil rating: No

Minor Components

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

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

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

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

Unnamed soils
Percent of map unit: 2 percent

HoB—Hornell silt loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: bd4j
Elevation: 600 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Farmland of statewide importance

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

Description of Hornell

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

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

H4 - 32 to 36 inches: weathered bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: F140XY028NY - Moist Till Upland
Hydric soil rating: No

Minor Components

Brockport

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

Angola

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

Tuller

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

Varick

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

Manlius

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

HoC—Hornell silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: bd4k
Elevation: 600 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Hornell

Setting

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

Typical profile

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

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: F140XY028NY - Moist Till Upland
Hydric soil rating: No

Minor Components

Arnot

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

Brockport

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

Manlius

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

Varick

Percent of map unit: 5 percent
Landform: Depressions

Hydric soil rating: Yes

Lordstown

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

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

Map Unit Setting

National map unit symbol: bd5w
Elevation: 600 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Nassau

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: D
Ecological site: F144AY033MA - Shallow Dry Till Uplands

Hydric soil rating: No

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

Map Unit Setting

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

Map Unit Composition

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

Description of Otisville

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

PsA—Plainfield loamy sand, 0 to 3 percent slopes

Map Unit Setting

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

Map Unit Composition

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

Description of Plainfield

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.7 inches)

Interpretive groups

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

Minor Components

Otisville

Percent of map unit: 5 percent

Hydric soil rating: No

Alton

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

Colonie

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

Elnora

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

SA—Saprists and Aquents

Map Unit Setting

National map unit symbol: bd6r
Elevation: 10 to 2,400 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Saprists

Setting

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

Typical profile

H1 - 0 to 70 inches: muck

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (0.20 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent

Available water supply, 0 to 60 inches: Very high (about 22.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: A/D
Ecological site: F101XY004NY - Mucky Depression
Hydric soil rating: Yes

Description of Aquents

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydrologic Soil Group: A/D
Ecological site: F101XY004NY - Mucky Depression
Hydric soil rating: Yes

Minor Components

Palms

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

Fluvaquents

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

Carlisle

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

Fredon

Percent of map unit: 5 percent

Landform: Depressions
Hydric soil rating: Yes

Te—Teel silt loam

Map Unit Setting

National map unit symbol: bd6w
Elevation: 600 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Teel

Setting

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

Typical profile

H1 - 0 to 13 inches: silt loam
H2 - 13 to 38 inches: silt loam
H3 - 38 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F101XY002NY - Low Floodplain

Hydric soil rating: No

Minor Components

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

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

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

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

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

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

Map Unit Setting
National map unit symbol: bd6y
Elevation: 210 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Farmland of statewide importance

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

Description of Tuller, Somewhat Poorly Drained

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

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

Description of Brockport

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups

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

Description of Tuller, Poorly Drained

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: F101XY013NY - Moist Till
Hydric soil rating: Yes

Minor Components

Angola

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

Ilion

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

Arnot

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

Varick

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

UnB—Unadilla silt loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: bd71
Elevation: 600 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Unadilla

Setting

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

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 28 inches: very fine sandy loam
C - 28 to 50 inches: very fine sandy loam
2C - 50 to 60 inches: stratified very gravelly sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

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

Hydrologic Soil Group: B
Ecological site: F101XY008NY - Well Drained Lake Plain
Hydric soil rating: No

Minor Components

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

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

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

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

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

W—Water

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

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

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United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Schenectady County, New York

scotia

December 12, 2022

Preface

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

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

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

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

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

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

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Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Custom Soil Resource Report
Soil Map

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CoA	Colonie loamy fine sand, 0 to 3 percent slopes	0.8	48.4%
CoC	Colonie loamy fine sand, 3 to 15 percent slopes	0.2	13.3%
HrA	Howard gravelly silt loam, 0 to 3 percent slopes	0.2	12.5%
NaB	Nassau channery silt loam, 0 to 8 percent slopes	0.1	7.3%
ScA	Scio silt loam, 0 to 3 percent slopes	0.2	12.4%
Wy	Wayland soils complex, 0 to 3 percent slopes, frequently flooded	0.1	6.2%
Totals for Area of Interest		**1.6**	**100.0%**

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.

Schenectady County, New York

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

Map Unit Setting

National map unit symbol: bd3v
Elevation: 150 to 1,000 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Colonie

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

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

Map Unit Setting

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

Map Unit Composition

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

Description of Colonie

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

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

Map Unit Setting

National map unit symbol: bd4l
Elevation: 210 to 870 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Howard

Setting

Landform: Valley trains, terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, containing significant amounts of limestone

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

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

Minor Components

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

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

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

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

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

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

Map Unit Setting
National map unit symbol: bd5w
Elevation: 600 to 1,800 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: Farmland of statewide importance

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

Description of Nassau

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

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

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.7 inches)

Interpretive groups

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

ScA—Scio silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: bd6s
Elevation: 100 to 1,000 feet
Mean annual precipitation: 38 to 44 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Scio

Setting

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

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 33 inches: silt loam
H3 - 33 to 60 inches: stratified very fine sandy loam to silt loam to loamy very fine sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

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

Minor Components

Rhinebeck

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

Raynham

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

Unadilla

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

Elnora

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

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

Map Unit Setting

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

Map Unit Composition

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

Description of Wayland

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Description of Wayland, Very Poorly Drained

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches

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

Interpretive groups

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

Minor Components

Wakeville

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

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APPENDIX D

NYSDOT Highway Design Manual Exhibits

Exhibit 8-3 Design Flood Frequencies (in years) For Drainage Structures and Channels[1]

Road type or Functional Class	Culvert[2]	Storm Drainage Systems	Driveway Culverts	Ditches [4]
Interstates and Other Freeways	50	10[5]	n/a	25
Principal Arterials	50	10[5]	25	25
Minor Arterials	50[6]	5[7]	10	10
Major Collectors	50[6]	5[7]	10	10
Minor Collectors	50[6]	5[7]	10	10
Local Roads & Streets w/ AADT>400	50[6]	5[7]	10	10
A or B type highways (AADT < 400) [8, 10]	50[6]	5[7]	10	10
C [8,9,10]				

NOTES

1. The values in this table are typical. The selected value for a project should be based upon an assessment of the likely damage to the highway and adjacent landowners from a given flow and the costs of the drainage facility. Note: 100-year requirements must be checked if the proposed highway is in an established regulatory floodway or floodplain.
2. The check flow, used to assess the performance of the facility, should be the 100 year storm event.
3. Relocated natural channels should have the same flow characteristics (geometrics and slope) as the existing channel and should be provided with a lining having roughness characteristics similar to the existing channel.
4. Including lining material (All ditches should have a lining material and not be left untreated).
5. As per 23CFR650A, and Table 1-1 of HDS 2, a 50-year frequency shall be used for stormwater design at the following locations where no overflow relief is available:
   a. sag vertical curves connecting negative and positive grades.
   b. other locations such as underpasses, depressed roadways, etc.
6. A design flood frequency of 10 or 25 years is acceptable if documented in the Design Approval Document, and when identified after design approval, in the drainage report. A design flood frequency of 10 or 25 years should be used in the design of driveway culverts and similar structures.
7. Use a 25-year frequency at the following locations where no overflow relief is available:
   a. sag vertical curves connecting negative and positive grades.
   b. other locations such as underpasses, depressed roadways, etc.
8. Dead end highways should use the Local Road Standard as a minimum for sizing, but the roadway and structure should be armored to handle a larger event without washing out.
9. Existing structures are considered acceptable unless there are known flooding issues which require a more detailed design. In such a case, the A/B standard should be followed.
10. See HDM Chapter 4, Table 4-1 for the definition of Type A, B and C Low Volume Highways.

A. Rational Method

This method is recommended to determine the peak discharge, or runoff rate, from drainage areas up to 200 acres. If a hydrograph is required to consider the effects of storage, use the Modified Soil Cover Complex method, or a similar method.

The Rational Method assumes the following:

1. Peak discharge occurs when all of the drainage area is contributing,
2. A storm that has a duration equal to the time of concentration (T_c) produces the highest peak discharge for the selected frequency,
3. Intensity is uniform over a duration of time equal to or greater than the T_c, and
4. The frequency of the peak flow is equal to the frequency of the intensity.

The rational method formula is:

$Q = CiA$, where:

Q = peak discharge or rate of runoff (cfs)
C = runoff coefficient
i = intensity (in/hr)
A = drainage area (acres)

1. Runoff coefficient. The runoff coefficient selected shall represent the characteristics of the drainage area being analyzed. A weighted runoff coefficient (C_w) should be used in the Rational formula for drainage areas having different runoff characteristics. C_w should be calculated as follows:

$C_w = \sum C_i A_i / A$, where

C_i = runoff coefficient for subarea "i"
A_i = subarea

Refer to Exhibit 8-4 for recommended runoff coefficients.

Exhibit 8-4 Values of Runoff Coefficient (C) for Use in the Rational Method

Type of Surface	Runoff Coefficient (C)[1]
Rural Areas	
Concrete, or Hot Mix Asphalt pavement	0.95 - 0.98
Gravel roadways or shoulders	0.4 - 0.6
Steep grassed areas (1:2, vert.:horiz.)	0.6 - 0.7
Turf meadows	0.1 - 0.4
Forested areas	0.1 - 0.3
Cultivated fields	0.2 - 0.4
Urban/Suburban Areas	
Flat residential, @ 30% of area impervious	0.40
Flat residential, @ 60% of area impervious	0.55
Moderately steep residential, @ 50% of area impervious	0.65
Moderately steep built up area, @ 70% of area impervious	0.80
Flat commercial, @ 90% of area impervious	0.80

NOTE

1. For flat slopes and/or permeable soil, use lower values. For steep slopes and/or impermeable soil, use the higher values.

2. Intensity. Determine intensity i.e., the rate of rainfall upon the drainage area, using intensity-duration-frequency (IDF) curves developed for the area being analyzed, a duration equal to the time of concentration (T_c), and a frequency equal to the design flood frequency.

   IDF relationships are based upon statistical analysis of rainfall data. They describe, for a given flood frequency, the average intensity of rainfall for a storm of a given duration (equal to the time of concentration). The statistical data for New York State is based upon "Technical Paper No. 40" (TP-40) and the "NOAA Technical Memorandum NWS HYDRO-35". The methodology for developing IDF curves is presented in "Drainage of Highway Pavements", Highway Engineering Circular (HEC) No. 12. To construct a set of IDF curves for a given location, HEC-12 uses six data points from HYDRO-35: the 2-year 5, 15 and 60 minute rainfalls and the 100-year 5, 15 and 60 minute rainfalls. the 60 minute rainfall for each intermediate return period is calculated from these points, and then the rainfall intensities for other durations are calculated. IDF curves for some locations are available from the Regional Design Group or should be constructed from known rainfall data.

   To obtain the intensity, the T_c must first be estimated. The T_c is defined as the time required for water to travel from the most remote point in the watershed to the point of interest. The time of concentration path is the longest in time, and is not necessarily the longest in distance. Various methods can be used to determine the T_c of a drainage area. The method used to determine the T_c should be appropriate for the flow path (sheet flow, concentrated flow, or channelized flow). The minimum T_c used shall be 5 minutes.