Appendix E
Agency Coordination

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 Niagara County Area, New York

Niagara Falls International Airport

December 3, 2012

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://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

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 Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the 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.

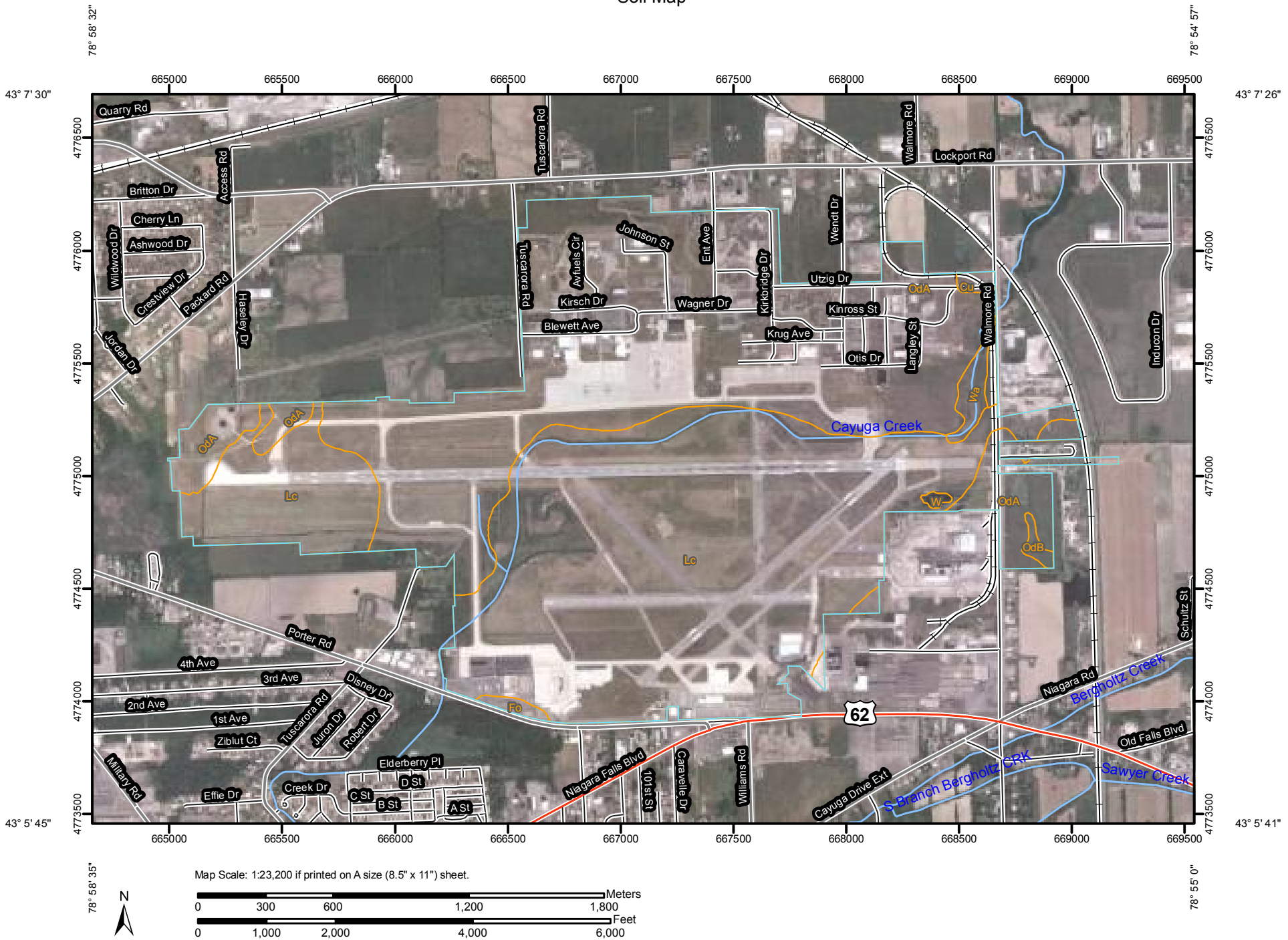
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree 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 Units

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
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Streams and Canals

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

MAP INFORMATION

Map Scale: 1:23,200 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 17N NAD83

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

Soil Survey Area: Niagara County Area, New York
Survey Area Data: Version 10, Dec 1, 2011

Date(s) aerial images were photographed: 6/17/2006

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

Niagara County Area, New York (NY664)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Cu	Cut and fill land	3.7	0.3%
Fo	Fonda mucky silt loam	4.0	0.3%
Lc	Lakemont silty clay loam	668.2	51.1%
OdA	Odessa silty clay loam, 0 to 2 percent slopes	616.6	47.1%
OdB	Odessa silty clay loam, 2 to 6 percent slopes	3.5	0.3%
ShB	Schoharie silty clay loam, 2 to 6 percent slopes	0.1	0.0%
W	Water	1.6	0.1%
Wa	Wayland silt loam	11.2	0.9%
Totals for Area of Interest		**1,308.8**	**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.

Niagara County Area, New York

Cu—Cut and fill land

Map Unit Setting

Mean annual precipitation: 31 to 37 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 145 to 190 days

Map Unit Composition

Udorthents and similar soils: 80 percent
Minor components: 20 percent

Description of Udorthents

Properties and qualities

Slope: 0 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to 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 capacity: Low (about 5.4 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 7s
Hydrologic Soil Group: A

Typical profile

0 to 10 inches: Gravelly sandy loam
10 to 72 inches: Very gravelly sandy loam

Minor Components

Canandaigua

Percent of map unit: 5 percent
Landform: Depressions

Cayuga

Percent of map unit: 5 percent

Hudson

Percent of map unit: 5 percent

Odessa

Percent of map unit: 5 percent

Fo—Fonda mucky silt loam

Map Unit Setting

Elevation: 50 to 650 feet
Mean annual precipitation: 31 to 37 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 145 to 190 days

Map Unit Composition

Fonda and similar soils: 80 percent
Minor components: 20 percent

Description of Fonda

Setting

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

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 moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Available water capacity: High (about 9.3 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 5w
Hydrologic Soil Group: C/D

Typical profile

0 to 7 inches: Mucky silt loam
7 to 15 inches: Silty clay
15 to 29 inches: Silty clay
29 to 60 inches: Silty clay

Minor Components

Odessa

Percent of map unit: 4 percent

Canandaigua
Percent of map unit: 4 percent
Landform: Depressions

Lakemont
Percent of map unit: 4 percent
Landform: Depressions

Madalin
Percent of map unit: 4 percent
Landform: Depressions

Muck
Percent of map unit: 4 percent
Landform: Marshes, swamps

Lc—Lakemont silty clay loam

Map Unit Setting
Mean annual precipitation: 31 to 37 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 145 to 190 days

Map Unit Composition
Lakemont and similar soils: 70 percent
Minor components: 30 percent

Description of Lakemont

Setting
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Reddish clayey and silty glaciolacustrine deposits

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 (0.02 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Occasional
Calcium carbonate, maximum content: 15 percent
Available water capacity: Moderate (about 8.6 inches)

Interpretive groups
Farmland classification: Farmland of statewide importance

Land capability (nonirrigated): 4w
Hydrologic Soil Group: C/D

Typical profile
0 to 8 inches: Silty clay loam
8 to 26 inches: Silty clay
26 to 60 inches: Silty clay loam

Minor Components

Churchville
Percent of map unit: 4 percent

Canandaigua
Percent of map unit: 4 percent
Landform: Depressions

Fonda
Percent of map unit: 4 percent
Landform: Depressions

Madalin
Percent of map unit: 4 percent
Landform: Depressions

Odessa
Percent of map unit: 4 percent

Rhinebeck
Percent of map unit: 4 percent

Cosad
Percent of map unit: 3 percent

Cheektowaga
Percent of map unit: 3 percent
Landform: Depressions

OdA—Odessa silty clay loam, 0 to 2 percent slopes

Map Unit Setting
Mean annual precipitation: 31 to 37 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 145 to 190 days

Map Unit Composition
Odessa and similar soils: 75 percent
Minor components: 25 percent

Description of Odessa

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

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

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): 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 capacity: Moderate (about 8.8 inches)

Interpretive groups

Farmland classification: Prime farmland if drained
Land capability (nonirrigated): 3w
Hydrologic Soil Group: C/D

Typical profile

0 to 8 inches: Silty clay loam
8 to 33 inches: Silty clay
33 to 60 inches: Silty clay

Minor Components

Cayuga

Percent of map unit: 5 percent

Churchville

Percent of map unit: 5 percent

Unnamed soils

Percent of map unit: 4 percent

Rhinebeck

Percent of map unit: 4 percent

Schoharie

Percent of map unit: 4 percent

Lakemont

Percent of map unit: 3 percent
Landform: Depressions

OdB—Odessa silty clay loam, 2 to 6 percent slopes

Map Unit Setting

Mean annual precipitation: 31 to 37 inches
Mean annual air temperature: 46 to 50 degrees F

Frost-free period: 145 to 190 days

Map Unit Composition

Odessa and similar soils: 75 percent
Minor components: 25 percent

Description of Odessa

Setting

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

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): 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 capacity: Moderate (about 8.8 inches)

Interpretive groups

Farmland classification: Prime farmland if drained
Land capability (nonirrigated): 3w
Hydrologic Soil Group: C/D

Typical profile

0 to 8 inches: Silty clay loam
8 to 33 inches: Silty clay
33 to 60 inches: Silty clay

Minor Components

Cayuga

Percent of map unit: 4 percent

Churchville

Percent of map unit: 4 percent

Lakemont

Percent of map unit: 4 percent
Landform: Depressions

Schoharie

Percent of map unit: 4 percent

Niagara

Percent of map unit: 3 percent

Unnamed soils

Percent of map unit: 3 percent

Rhinebeck
Percent of map unit: 3 percent

ShB—Schoharie silty clay loam, 2 to 6 percent slopes

Map Unit Setting
Mean annual precipitation: 31 to 37 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 145 to 190 days

Map Unit Composition
Schoharie and similar soils: 80 percent
Minor components: 20 percent

Description of Schoharie

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

Properties and qualities
Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: Moderate (about 8.9 inches)

Interpretive groups
Farmland classification: All areas are prime farmland
Land capability (nonirrigated): 2e
Hydrologic Soil Group: D

Typical profile
0 to 12 inches: Silty clay loam
12 to 30 inches: Silty clay
30 to 60 inches: Stratified clay to silt loam

Minor Components

Unnamed soils
Percent of map unit: 4 percent

Cayuga
Percent of map unit: 4 percent

Cazenovia
Percent of map unit: 4 percent

Churchville
Percent of map unit: 4 percent

Odessa
Percent of map unit: 4 percent

W—Water

Map Unit Setting
Mean annual precipitation: 31 to 37 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 145 to 190 days

Map Unit Composition
Water: 100 percent

Wa—Wayland silt loam

Map Unit Setting
Elevation: 200 to 1,500 feet
Mean annual precipitation: 31 to 37 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 145 to 190 days

Map Unit Composition
Wayland and similar soils: 75 percent
Minor components: 25 percent

Description of Wayland

Setting
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty and clayey alluvium washed from uplands that contain some calcareous drift

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Available water capacity: High (about 9.7 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 5w
Hydrologic Soil Group: C/D

Typical profile

0 to 8 inches: Silt loam
8 to 30 inches: Silt loam
30 to 60 inches: Silty clay loam

Minor Components

Fluvaquents

Percent of map unit: 5 percent
Landform: Flood plains

Hamlin

Percent of map unit: 5 percent

Muck

Percent of map unit: 5 percent
Landform: Marshes, swamps

Raynham

Percent of map unit: 5 percent

Sun

Percent of map unit: 5 percent
Landform: Depressions

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

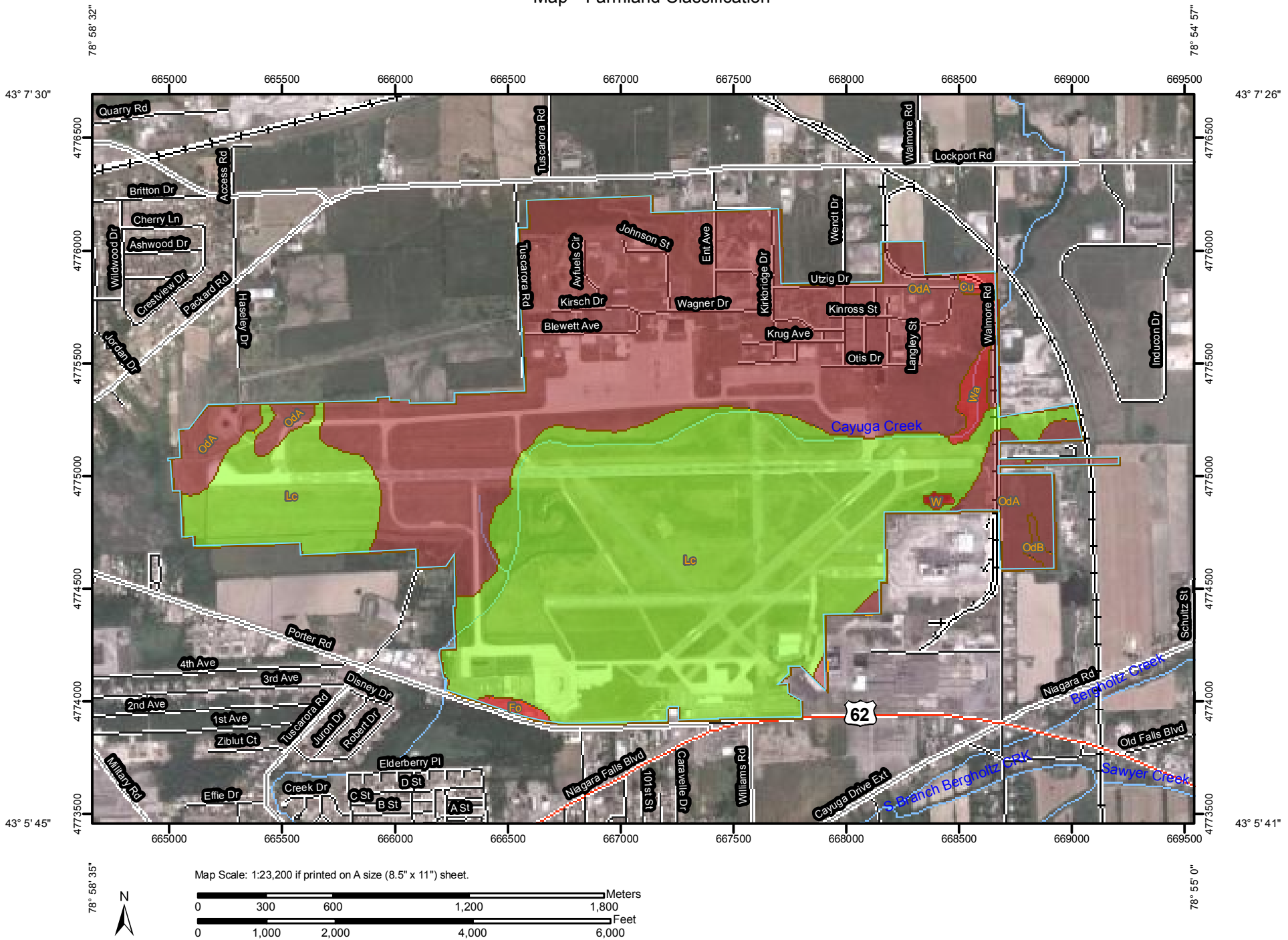
Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Farmland Classification

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Custom Soil Resource Report
Map—Farmland Classification



Map Scale: 1:23,200 if printed on A size (8.5" x 11") sheet.

N

Meters
0 300 600 1,200 1,800

Feet
0 1,000 2,000 4,000 6,000

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

Soil Ratings

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Political Features

- Cities

Water Features

- Streams and Canals

Transportation

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

MAP INFORMATION

Map Scale: 1:23,200 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 17N NAD83

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

Soil Survey Area: Niagara County Area, New York
Survey Area Data: Version 10, Dec 1, 2011

Date(s) aerial images were photographed: 6/17/2006

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.

Table—Farmland Classification

Farmland Classification— Summary by Map Unit — Niagara County Area, New York (NY664)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Cu	Cut and fill land	Not prime farmland	3.7	0.3%
Fo	Fonda mucky silt loam	Not prime farmland	4.0	0.3%
Lc	Lakemont silty clay loam	Farmland of statewide importance	668.2	51.1%
OdA	Odessa silty clay loam, 0 to 2 percent slopes	Prime farmland if drained	616.6	47.1%
OdB	Odessa silty clay loam, 2 to 6 percent slopes	Prime farmland if drained	3.5	0.3%
ShB	Schoharie silty clay loam, 2 to 6 percent slopes	All areas are prime farmland	0.1	0.0%
W	Water	Not prime farmland	1.6	0.1%
Wa	Wayland silt loam	Not prime farmland	11.2	0.9%
Totals for Area of Interest			**1,308.8**	**100.0%**

Rating Options—Farmland Classification

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Land Classifications

This folder contains a collection of tabular reports that present a variety of soil groupings. The reports (tables) include all selected map units and components for each map unit. Land classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Hydric rating by map unit(5 categories)

This *Hydric Soil Category* rating indicates the proportion of map units that meet the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is designated as "all hydric,""predominantly hydric," "partially hydric,""predominantly non-hydric," "not hydric," or "unknown hydric," depending on the rating of its respective components.

"All hydric" means that all components listed for a given map unit are rated as being hydric. “Predominantly hydric” means that more than 66 percent to less than 100 percent of components are hydric. "Partially hydric" means that more than 33 percent to less than 67 percent of components are hydric. “Predominantly non-hydric” means that more than 0 percent and less than 34 percent of components are hydric. "Not hydric" means that all components are rated as not hydric. "Unknown hydric" indicates that at least one component is not rated so a definitive rating for the map unit cannot be made.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

If soils are wet enough for a long enough period of time to be considered hydric, they typically exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Vasilas, Hurt, and Noble, 2010).

The NTCHS has developed criteria to identify those soil properties unique to hydric soils (Federal Register, 2012). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria use selected soil properties that are described in “Field Indicators of Hydric Soils in the United States” (Vasilas, Hurt, and Noble, 2010), "Soil Taxonomy" (Soil Survey Staff, 1999), "Keys to Soil Taxonomy" (Soil Survey Staff, 2010), and the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

References:

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

Federal Register. February, 28, 2012. Hydric soils of the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Vasilas, L.M., G.W. Hurt, and C.V. Noble, editors. Version 7.0, 2010. Field indicators of hydric soils in the United States.

Report—Hydric rating by map unit(5 categories)

Hydric rating by map unit(5 categories)

Hydric rating by map unit(5 categories)– Niagara County Area, New York			
Mapunit symbol	**Map symbol and map unit name**	**Hydric Percent of map unit**	**Hydric category**
Cu	Cu—Cut and fill land	5	Predominantly Non Hydric
Fo	Fo—Fonda mucky silt loam	96	Predominantly Hydric
Lc	Lc—Lakemont silty clay loam	85	Predominantly Hydric
OdA	OdA—Odessa silty clay loam, 0 to 2 percent slopes	3	Predominantly Non Hydric
OdB	OdB—Odessa silty clay loam, 2 to 6 percent slopes	4	Predominantly Non Hydric
ShB	ShB—Schoharie silty clay loam, 2 to 6 percent slopes	0	Non Hydric
W	W—Water	0	Non Hydric
Wa	Wa—Wayland silt loam	90	Predominantly Hydric

References

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

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

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

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

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

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

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

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://soils.usda.gov/

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://soils.usda.gov/

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://soils.usda.gov/

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

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

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://soils.usda.gov/

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.glti.nrcs.usda.gov/

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://soils.usda.gov/

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://soils.usda.gov/

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210.

Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

New York State Office of Parks,
Recreation and Historic Preservation

Division for Historic Preservation
P.O. Box 189, Waterford, New York 12188-0189
518-237-8643

March 11, 2013

RECEIVED
MAR 14 2013
McFARLAND-JOHNSON, INC.

Zachary Staff
MacFarland Johnson Inc
PO Box 1980
Binghamton, New York 13902

Re: FAA, DOT
Sustainable Master Plan Update
2035 Niagara Falls Blvd
Towns of Niagara & Wheatfield
Niagara County
13PR01002

Dear Mr. Staff:

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP) concerning your project's potential impact/effect upon historic and/or prehistoric cultural resources. Our staff has reviewed the documentation that you provided on your project. Preliminary comments and/or requests for additional information are noted on separate enclosures accompanying this letter. A determination of impact/effect will be provided only after ALL documentation requirements noted on any enclosures have been met. Any questions concerning our preliminary comments and/or requests for additional information should be directed to the appropriate staff person identified on each enclosure.

In cases where a state agency is involved in this undertaking, it is appropriate for that agency to determine whether consultation should take place with OPRHP under Section 14.09 of the New York State Parks, Recreation and Historic Preservation Law. In addition, if there is any federal agency involvement, Advisory Council on Historic Preservation's regulations, "Protection of Historic and Cultural Properties" 36 CFR 800 requires that agency to initiate Section 106 consultation with the State Historic Preservation Officer (SHPO).

When responding, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Ruth L. Pierpont

Ruth L. Pierpont
Deputy Commissioner for Historic Preservation

Enclosures

BUILDINGS/STRUCTURES/DISTRICTS
EVALUATION COMMENTS

PROJECT NUMBER 13PR01002

(Sustainable Master Plan Update/2035 Niagara Falls Blvd/T/NIAGARA /T/WHEATFIELD)

☑ There are no properties listed in the State or National Register of Historic Places within or adjacent to your project site.

☐ The following properties listed in the State/National Registers of Historic Places are located within or adjacent to your project area:

☑ Your project area has not been comprehensively surveyed for historic resources. If you would like the NYS Office of Parks, Recreation and Historic Preservation (OPRHP) to comment regarding properties potentially eligible for inclusion in the State or National Register of Historic Places, please submit original photographs of structures over fifty years old within or adjacent to the project area and key them to a site map.

☐ Other: If any state or federal agencies are involved in this project, further review may be required in accordance with section 14.09 of the New York State Parks, Recreation and Historic Preservation Law or Section 106 of the National Historic Preservation Act of 1966.

If you have any questions concerning this information, please call Robert T. Englert at 518-237-8643. ext 3268

PLEASE BE SURE TO REFER TO THE PROJECT NUMBER NOTED ABOVE WHEN RESPONDING TO THIS REQUEST

ARCHEOLOGY COMMENTS
13PR01002

Based upon a review of the project the State Historic Preservation Office (SHPO) has no concerns regarding potential project effects on archeological resources and does not consider an archeological survey to be warranted.

If you have any questions concerning archeology, please contact Nancy L. Herter at (518) 237-8643. ext 3280

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 LUKER ROAD
CORTLAND, NY 13045
PHONE: (607)753-9334 FAX: (607)753-9699
URL: www.fws.gov/northeast/nyfo/es/section7.htm

Consultation Code: 05E1NY00-2015-SLI-0755 April 27, 2015
Event Code: 05E1NY00-2015-E-02152
Project Name: NFIA Master Plan

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). This list can also be used to determine whether listed species may be present for projects without federal agency involvement. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list.

Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list. If listed, proposed, or candidate species were identified as potentially occurring in the project area, coordination with our office is encouraged. Information on the steps involved with assessing potential impacts from projects can be found at: http://www.fws.gov/northeast/nyfo/es/section7.htm

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (

http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the Services wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the ESA. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: NFIA Master Plan

Official Species List

Provided by:

New York Ecological Services Field Office
3817 LUKER ROAD
CORTLAND, NY 13045
(607) 753-9334
http://www.fws.gov/northeast/nyfo/es/section7.htm

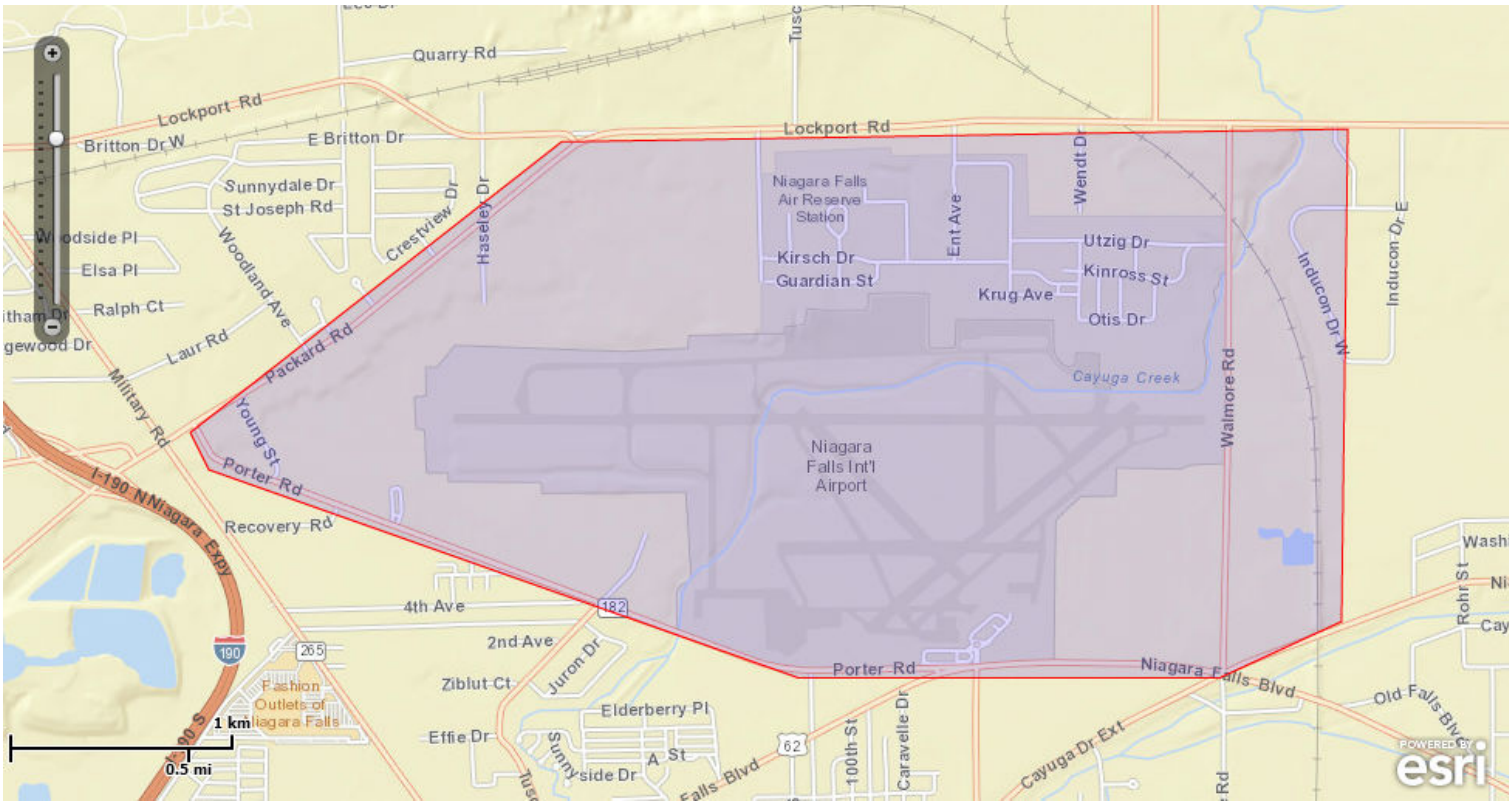
Consultation Code: 05E1NY00-2015-SLI-0755
Event Code: 05E1NY00-2015-E-02152

Project Type: Transportation

Project Name: NFIA Master Plan
Project Description: This project is for the Sustainable Master Plan Update. An airports master plan designates projects for an airport for the next twenty years. These projects typically may include, but are not limited to, obstruction removal, construction of buildings, and runway and taxiway improvements.

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-78.9844823 43.1089384, -78.9638915 43.120705, -78.9202895 43.1212124, -78.9206328 43.1012932, -78.9273276 43.0990371, -78.9508452 43.0990371, -78.9834609 43.1074345, -78.9844823 43.1089384)))

Project Counties: Niagara, NY

Endangered Species Act Species List

There are a total of 1 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Mammals	Status	Has Critical Habitat	Condition(s)
Northern long-eared Bat *(Myotis septentrionalis)*	Threatened		

Critical habitats that lie within your project area

There are no critical habitats within your project area.