A. INTRODUCTION

This section describes the geologic, soil, and topographic conditions of the Nation's four properties and immediately surrounding area.

B. AFFECTED ENVIRONMENT

REGIONAL GEOLOGY

The four properties owned by the Nation are located east and west of Cayuga Lake in Cayuga and Seneca Counties, as shown in Figure 1-2 and 2-1. In Cayuga County there are three properties: one in the Town of Montezuma, one in the Town of Springport, and one in the Village of Union Springs. In Seneca County there is one property in the Town of Seneca Falls.

Cayuga and Seneca Counties are in the Finger Lakes region of New York, near the geographic center of the State. There are 11 long, narrow, roughly parallel lakes that make up the Finger Lakes. These lakes formed over the last two million years by glacial carving of old stream valleys that run north-south. To the north and south of the lakes there are moraines and drumlins, geologic features characteristic of glacial activity. Seneca Lake and Cayuga Lake have bottoms below sea level, making them some of the deepest lakes in North America.

The bedrock in the region of the Nation's properties is nearly flat lying, with bedrock outcrops in narrow, east-west bands. Exposed bedrock is from mid-Paleozoic sedimentary rocks, specifically the Silurian and Devonian ages, 440 to 360 million years ago (mya). Sediments from the Silurian age formed fine grained clastic and carbonate rocks which indicate a shallow ocean environment. This shallow ocean retreated and evaporated repeatedly late in the Silurian due to sea level changes leaving thick deposits of evaporates, now known as the Syracuse Formation. During the Devonian age, 410 to 360 mya, New York was located in tropical regions and contained tropical shallow inland oceans where carbonates formed. These water environments accumulated a thick section of clay muds that produced massive thicknesses of shale bedrock common in the Finger Lakes area.

No geologic record for this area has been preserved from the late Paleozoic era to the late Cenozoic era, 300 to 65 mya, due to weathering and erosion by winds and rain, repeated freezing and thawing, and the erosive action of glaciers. Landforms, landscapes, and glacial sediments that dominate the region today are results of the Pleistocene age glacial activity.

ONSITE BEDROCK GEOLOGY

SENECA FALLS

The bedrock underlying the Nation's property in Seneca Falls is of the Akron Dolostone Formation, which is part of the Bertie Group. Akron Dolostone is hard, dense impure

magnesium limestone, and in this formation it is underlain by gypsum beds comprised of Camillus shale. It is exposed in places along the south side of the Seneca River but most commonly is deeply buried. This formation contributed lime to the glacial drift overburden. Harder, darker dolomitic limestone of the Cobleskill Formation occurs immediately above the Akron Dolostone. Above this is the Rondout Formation, a dark colored waterlime. The abundance of lime in these layers of bedrock creates lime-rich soils that are good for agriculture.[1]

UNION SPRINGS

The bedrock underlying the Nation's property in Union Springs is of the Akron Dolostone Formation, which is part of the Bertie Group. Akron Dolostone is hard, dense impure magnesium limestone, and in this formation it is underlain by gypsum beds comprised of Camillus shale. It is exposed in places along the south side of the Seneca River but most commonly is deeply buried. This formation contributed lime to the glacial drift overburden. Harder, darker dolomitic limestone of the Cobleskill Formation occurs immediately above the Akron Dolostone. Above this is the Rondout Formation, a dark colored waterlime. The abundance of lime in these layers of bedrock creates lime-rich soils that are good for agriculture.

The Nation's property in Union Springs is also underlain by the Port Ewen Formation composed of layers of hard limestone separated by thin partings of black, bituminous matter.

SPRINGPORT

The bedrock under the Nation's property in Springport is mostly Onondaga Limestone and partially of the Marcellus Formation. The Onondaga limestone formation consists of heavy beds of limestone embedded with nodules and nodular layers of chert. This thick limestone, which occurred at almost right angles to the movement of glacial ice, contributed an enormous amount of lime to the soils that extend for a considerable distance to the south creating soils well-suited for agriculture.

Marcellus shale lies immediately above the Onondaga limestone. The shale is characterized by numerous scattered concretions of calcium carbonate that contribute to productive agricultural soil.

MONTEZUMA

The bedrock under the Nation's property in Montezuma is part of the Syracuse Formation, derived from Silurian-age sediments. The Syracuse Formation is characterized by fine grained and clastic rocks, dolostone, gypsum, and evaporates. These characteristic features are a result of the evaporation episodes during the late Silurian.

ONSITE UNCONSOLIDATED DEPOSITS

The Pleistocene glaciation left deposits over bedrock in the Finger Lakes Region. From these glacial deposits, various soils formed over the past 15,000 to 20,000 years. Information on the

[1] "New York." Encyclopædia Britannica. 2006. Encyclopædia Britannica Premium Service. 10 Aug. 2006 <http://www.britannica.com/eb/article-78254>.

deposits underlying the Nation's properties was obtained from New York State Museum Surficial Geology Maps.

The unconsolidated deposit underlying the Nation's property in Montezuma is glacial till. The till is a poorly sorted, sand-rich sediment that varies in texture from boulders to silt. The permeability of glacial till depends on the level of compaction. Glacial till produces Ontario soils which are found on the Montezuma site.

In Springport, Union Springs, and Seneca Falls, the unconsolidated deposits are comprised of lacustrine silt and clay that was deposited in lakes created by the damming of melt-water from retreating glaciers. The silt and clay are generally laminated and calcareous with low permeability. Lacustrine sediments produce the Schoharie soils found on all three sites, the Odessa soils found on the Union Springs and Seneca Falls sites, and the Canandaigua soils found only on the Seneca Falls site.

ONSITE TOPOGRAPHY

SENECA FALLS

The topography of the Nation's property in Seneca Falls, as indicated by the 1978 USGS map, is generally level at an elevation of 460 feet above sea level. To the east of the property, on the other side of Route 89, the land slopes down toward Cayuga Lake. Onsite topography for the Nation's property in Seneca Falls is shown in Figure 3.1-1.

UNION SPRINGS

The topography of the Nation's property in Union Springs, as indicated in the 1978 USGS topographic map, slopes to the west toward Cayuga Lake with a depression around the two ponds on the property. The highest point is at the eastern border of the property adjacent to Route 90 with an elevation of 450 feet above sea level. The lowest point is at the western border of the property with an elevation of 400 feet above sea level. Onsite topography for the Nation's property in Union Springs is shown in Figure 3.1-2.

SPRINGPORT

The topography of the Nation's property in Springport, as indicated in the 1978 USGS topographic map,[1] slopes gradually to the west toward Cayuga Lake. The highest elevation is between 420 and 430 feet closest to Route 90 and the lowest is between 390 and 400 feet above sea level. Onsite topography for the Nation's property in Springport is shown in Figure 3.1-3.

MONTEZUMA

The topography of the Nation's property in Montezuma, as indicated in the 1978 USGS topographic map, is mostly level at approximately 400 feet above sea level. The property slopes slightly upward to the southeast. The NYS Thruway (I-90) runs along the southern border of the property and has a higher elevation than the surrounding land. Onsite topography for the Nation's property in Montezuma is shown in Figure 3.1-4.

[1] USGS maps available at http://www.nysgis.state.ny.us/gisdata/quads/.

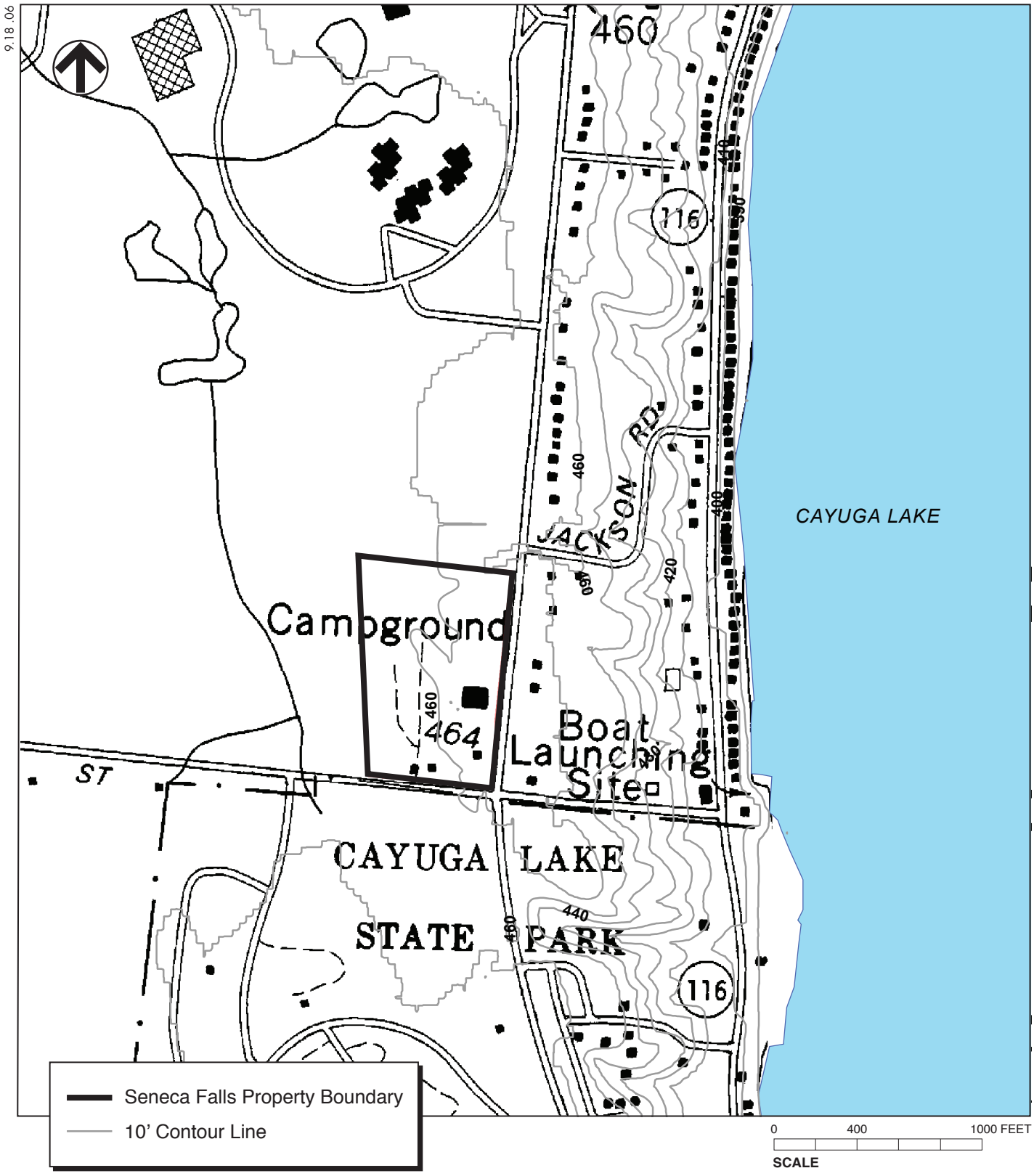


Figure 3.1-1

Seneca Falls Onsite Topography

9.19.06

Figure 3.1-2

Union Springs Onsite Topography

CAYUGA INDIAN NATION OF NEW YORK

9.19.06

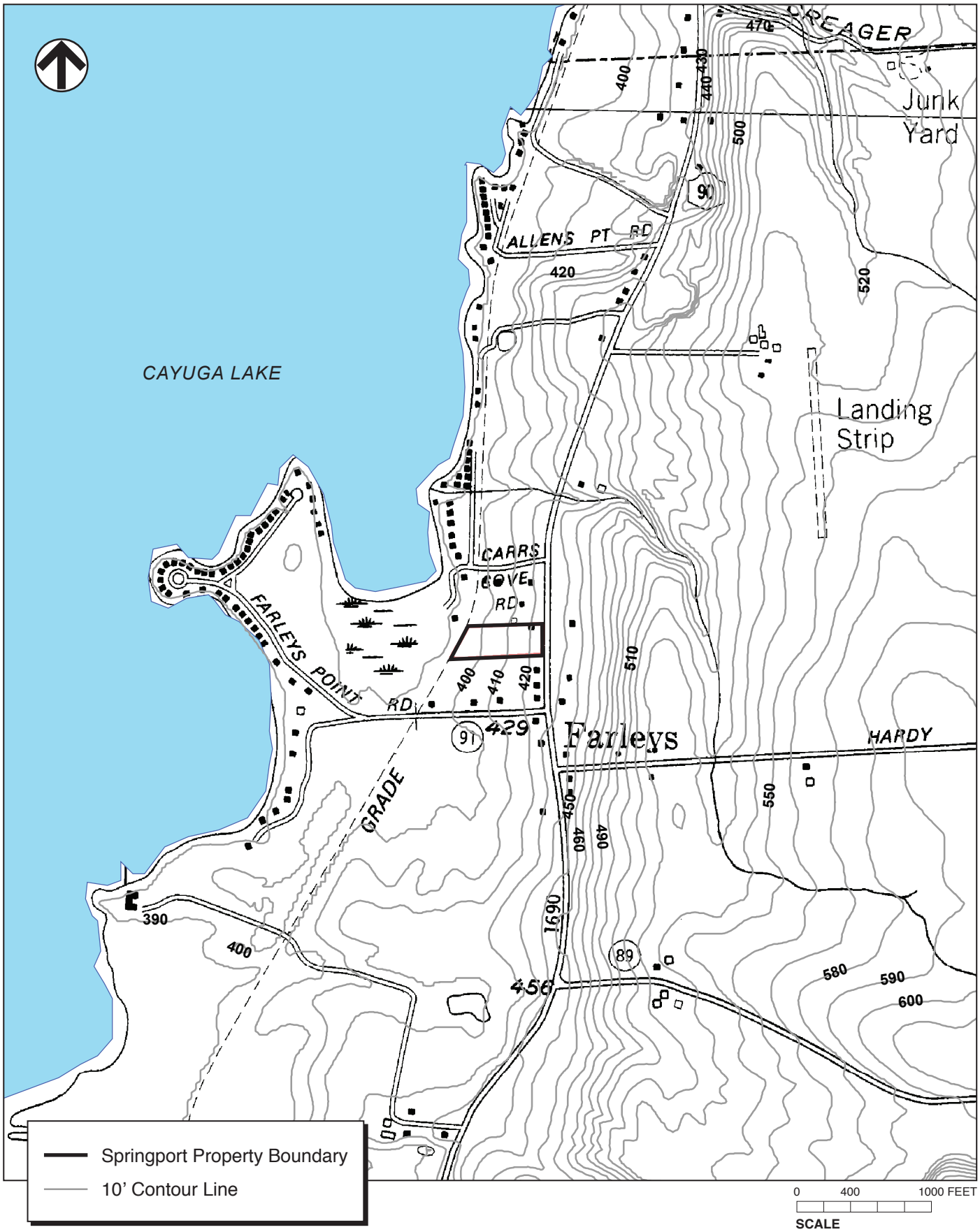


Figure 3.1-3

Springport Onsite Topography

CAYUGA INDIAN NATION OF NEW YORK

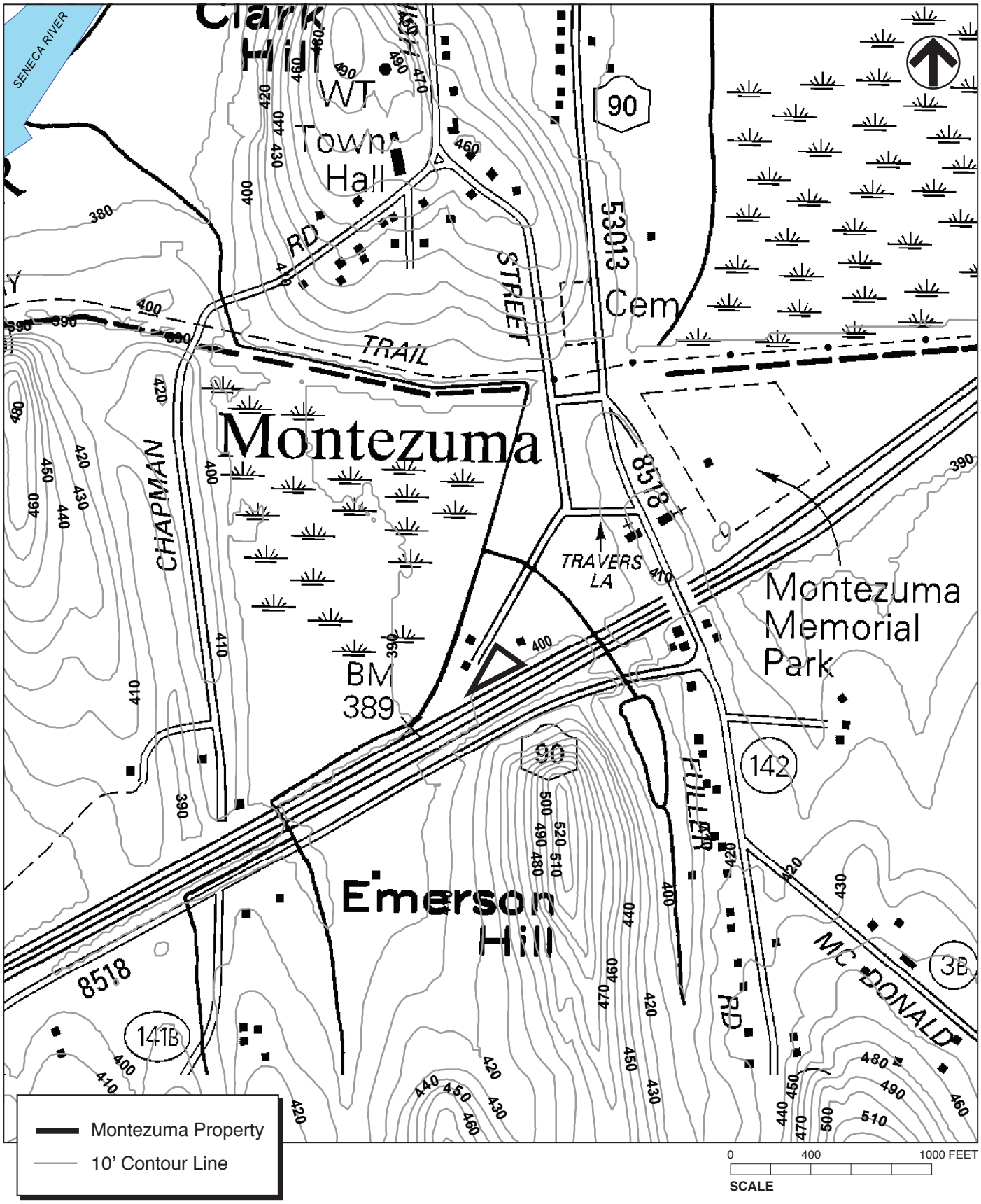


Figure 3.1-4

Montezuma Onsite Topography

ONSITE SOILS

Each of the Nation's properties contains a variety of soils that are classified according to guidelines set by the United States Department of Agriculture ("USDA").[1] USDA identifies major classifications of soils that have similar characteristics, such as texture and drainage, into a series. Within each series, soils can differ in slope and other characteristics that affect their use. On the basis of these differences, soil series are further divided into phases. Different soil phases exhibit variable water storage and erosion potential, and other characteristics. The information about the soils in Cayuga County was obtained from the Cayuga County Soil Survey (May 1971).[2] The information about the soils in Seneca County was obtained from the Seneca County Soil Survey (April 1972).[3]

Most of the soils in this region formed in glacial deposits containing various amounts of sandstone, shale, and limestone. For the most part, these soils are deep, gently to moderately sloping, and medium textured. They are mainly well drained and are medium to high in content of lime. They are well suited to the type of farming common in the county.

Several terms used in this section to describe onsite soil properties are defined below:

- **Permeability** is the ability of a soil to transmit water when saturated.
- A soil's **hydrologic group** is an indicator used to estimate surface runoff from long periods of precipitation. Generally speaking, Group A soils have a high infiltration rate, allowing the soil to absorb more precipitation before surface runoff begins. Group B soils have a moderate infiltration rate when thoroughly wet and Group C soils have a slow infiltration rate when thoroughly wet. Group D soils are the least able to absorb precipitation and therefore produce the greatest amount of runoff in the shortest period of time.
- **Depth to the seasonal high water table** is the depth below the surface at which the water table occurs at its seasonal high point. The water table in some soils may rise to the ground surface of the soil.
- **Capability groups** show, in a general way, the suitability of soils for most kinds of field crops. These groupings are made by the USDA Soil Conservation service and identify the limitation of the soils when used for field crops, the risk of damage when they are used for crops, and the way they respond to management. Capability groupings range from Class I to Class VIII where Class I soils have few limitations and Class VIII soils have limitations that prevent commercial agricultural uses. Soils on the Nation's property range from Class II to Class VI with limitations due to water in or on the soil interfering with plant growth and cultivation (w) and risk of erosion if no close growing plant cover is maintained (e).
- **Land Classification Groups** were developed by the New York State Department of Agriculture and Markets to establish a method for agricultural assessments. Land classification groups for mineral soils range from one to ten. Soils in land classification

[1] USDA soil surveys available at http://websoilsurvey.nrcs.usda.gov/app/.

[2] Available at Cayuga County Soil and Water Conservation District Office, 7413 County House Road, Auburn, NY 13021.

[3] Available at Seneca County Soil and Water Conservation District Office, 12 North Park Street, Academy Square Building, Seneca Falls, NY 13148.

group one have the highest productive capacity with well-drained sandy loam or silt loam textures and good structure with low erosion hazard. Soils in groups one to four are generally good for farming and group five to ten soils have severe limitations to agricultural production such as droughtiness, soil structure problems, wetness or erosiveness. Group six is the lowest group that contains major row crop producing soils. Soils on the Nation's properties range from group two to group seven.

SENECA FALLS

The Nation's properties in Seneca Falls, Union Springs, and Springport contain soils in the Schoharie-Odessa Association. The Schoharie-Odessa Association occupies one large area of nearly level or gently sloping soils near the Town of Waterloo and the Town of Seneca Falls and the nearly level to hilly lake plain bordering the north shore of Cayuga Lake. The soils of the Schoharie-Odessa Association include Schoharie, Odessa, Cazenovia, Angola, Darien, Fonda, Lakemont, Ontario, and Ovid.

Schoharie-Odessa Association soils underlying the Nation's properties in Springport, Union Springs, and Seneca Falls contain deep, well drained to somewhat poorly drained soils that have a silty clay loam to clay subsoil. The dominant soils formed in heavy, pinkish to reddish-brown lake-laid sediments and contain no stones or gravel.

Topography is generally favorable for irrigation of these soils, but their slow permeability and slow water intake rate are unfavorable. Only general farm crops are grown, and these usually do not respond well enough to justify supplemental irrigation.

These soils are subject to erosion, even on the gentle slopes, because their high content of silt and clay reduces the rate at which water permeates and moves through the soils.

The subsoil and substratum are high in content of silt and clay and contain few, if any, sand or gravel deposits.

These areas are not well suited to industrial or residential development, because of the slow drainage and the difficulty of working these clayey soils, particularly when wet.

The four soil mapping units located on the Nation's Seneca Falls property are shown in Table 3.1-1 below and on Figure 3.1-5.

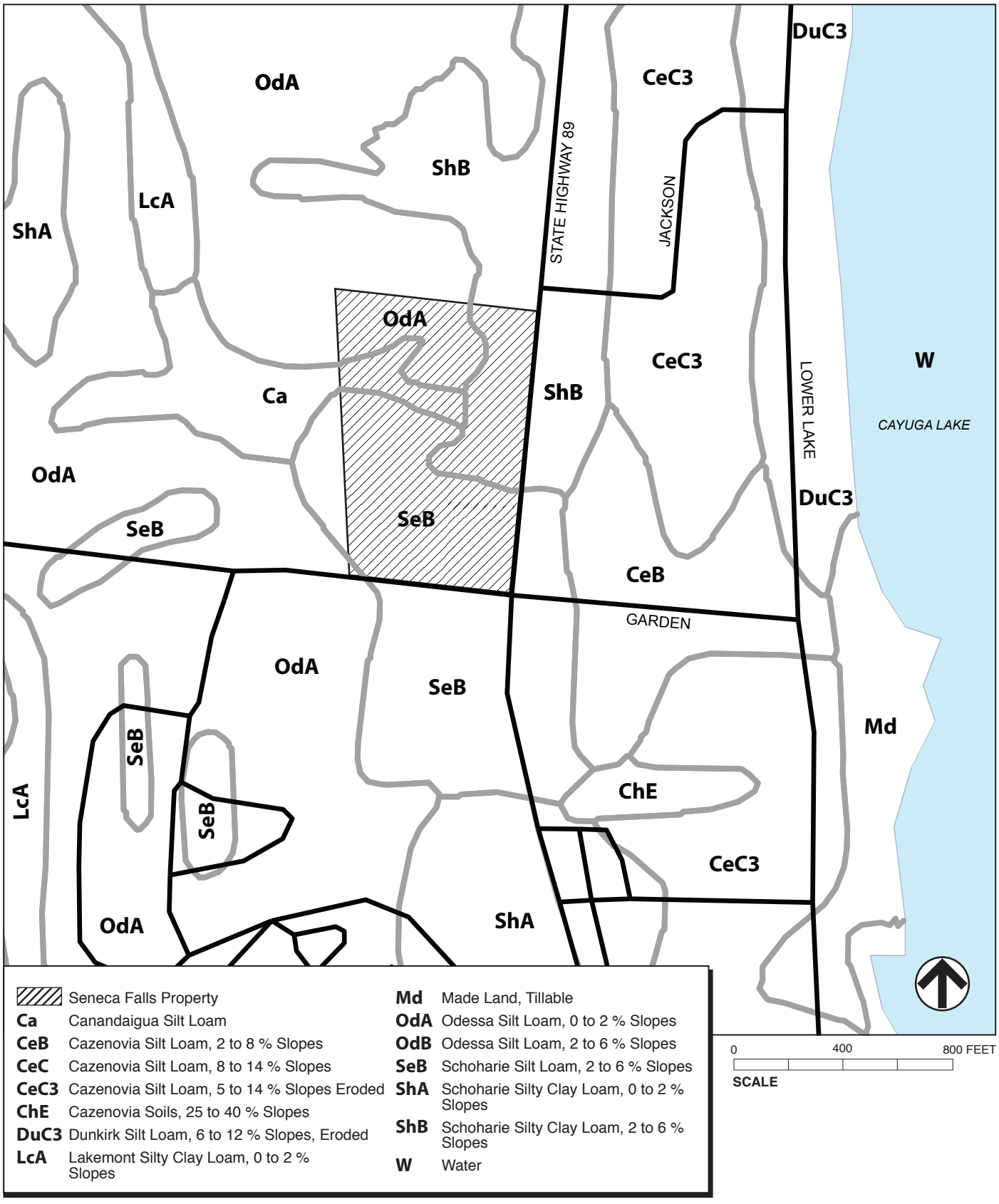


Figure 3.1-5

Seneca Falls Soils Map

Table 3.1-1
Seneca Falls Onsite Soils

Map Unit	Name	Capability Grouping	Seasonal High Water Table Depth	Depth to Bedrock	USDA Hydrologic Soil Group	NYS Land Classification Soil Group
Ca	Canandaigua silt loam, 0 to 2 percent slopes	III-w	0 to 0.5 ft	6 to 20 ft	D	7
OdA	Odessa silt loam, 0 to 2 percent slopes	III-w	0.5 to 1.5 ft	5+ ft	D	5
SeB	Schoharie silt loam, 2 to 6 percent slopes	II-e	1.5 to 3 ft	5+ ft	C	3
ShB	Schoharie silty clay loam, 2 to 6 percent slopes	II-e	1.5 to 3 ft	5+ ft	C	3

UNION SPRINGS

The five soil mapping units located on the Nation's property in Union Springs are shown in Table 3.1-2 below and on Figure 3.1-6.

Table 3.1-2
Union Springs Onsite Soils

Map Unit	Name	Capability Grouping	Seasonal High Water Table Depth	Bedrock Depth	USDA Hydrologic Soil Group	NYS Land Classification Soil Group
CeB	Cazenovia silt loam, 2 to 8 percent slopes	II-e	1 to 3 ft	3 to 25+ ft	B	3
Lc	Lakemont silty clay loam	IV-w	0 to 0.5 ft	2.5-50 ft	D	6
OdA	Odessa silt loam, 0 to 2 percent slopes	III-w	0.5 to 1 ft	4 to 50+ ft	D	5
OdB	Odessa silt loam, 2 to 6 percent slopes	III-w	0.5 to 1 ft	4 to 50+ ft	D	5
SeB	Schoharie silt loam, 2 to 6 percent slopes	II-e	1.5 to 3 ft	3 to 50+ ft	C	3

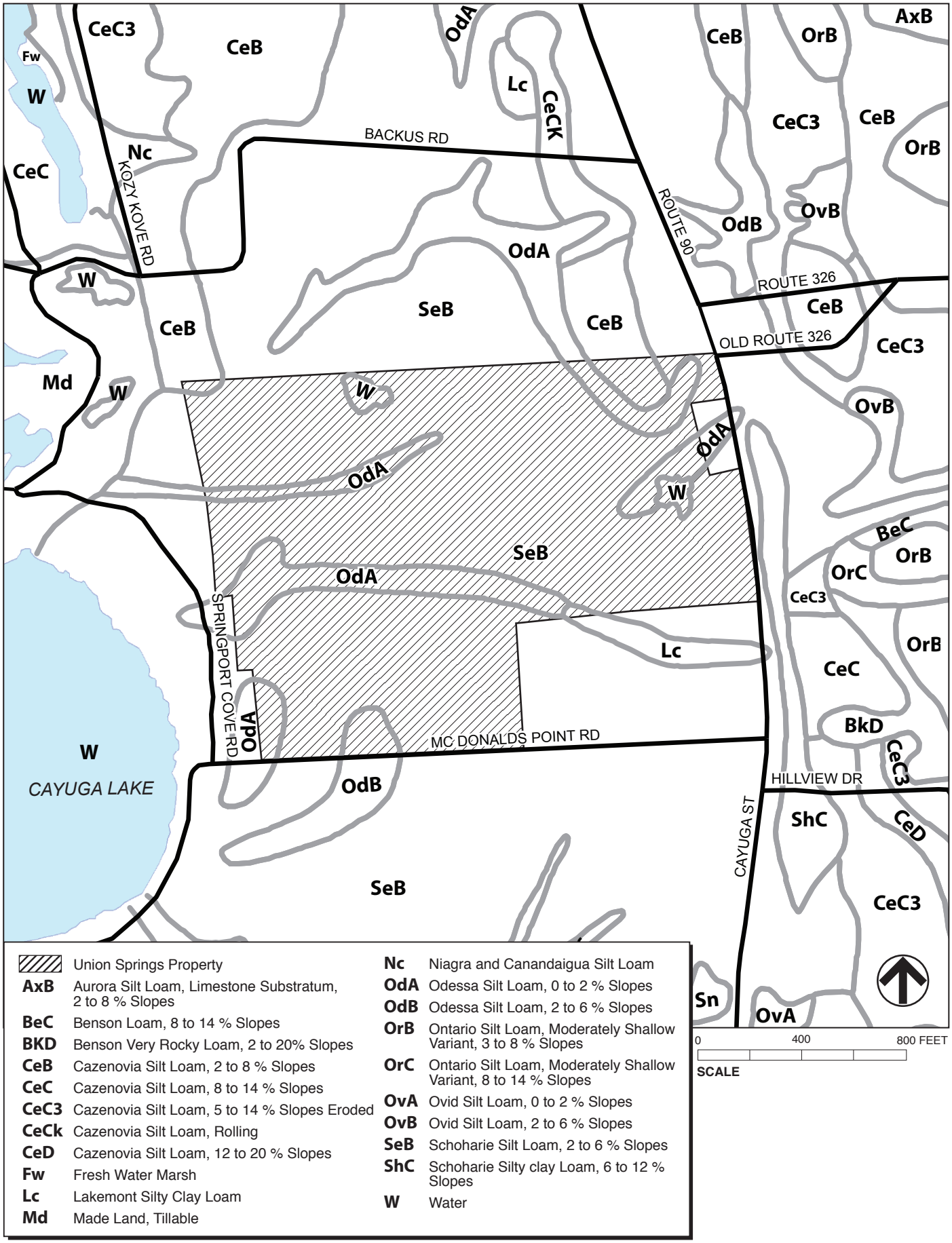


Figure 3.1-6

Union Springs Soils Map

SPRINGPORT

The three soil mapping units located on the Nation's property in Springport are listed in Table 3.1-3 below and shown in Figure 3.1-7.

Table 3.1-3
Springport Onsite Soils

Map Unit	Name	Capability Grouping	Seasonal High Water Table Depth	Bedrock Depth	USDA Hydrologic Soil Group	NYS Land Classification Soil Group
CeB	Cazenovia silt loam, 2 to 8 percent slopes	II-e	1 to 3 ft	3 to 25+ ft	B	3
Lc	Lakemont silty clay loam	IV-w	0 to 0.5 ft	2.5 to 50+ ft	D	6
SeB	Schoharie silt loam, 2 to 6 percent slopes	II-e	1.5 to 3 ft	3 to 50+ ft	C	3

MONTEZUMA

The Nation's Montezuma property contains deep, well-drained soils of the Ontario Association. These soils have a medium-texture to moderately coarse-textured subsoil. The Ontario Soil Association is formed on gently to steeply sloping drumlins and upland till plains that are interspersed with lower gently sloping lake plains. Drumlins are oriented in a north-south direction. The Ontario soils occupy the higher hills and till plains while the Collamer soils occupy the lower areas between drumlins. The soils on the Montezuma parcel follow this pattern, as shown in Figure 3.1-8.

Dairying is the principal type of farming on Ontario loam (14 to 20 percent slopes), mainly because the steep slopes characteristic of this soil are better suited to close-growing hay crops and pasture than to cultivated crops. Erosion is a moderate to severe hazard and steeper soils, like the Ontario loam found on the Montezuma site, are severely eroded.

In places the steep slopes are a limiting factor, but the soils have properties that make them favorable for residential or light industrial sites. The dominant soils are also well-suited to some types of recreational development.

Periodic flooding occurs mainly in spring, but the damage is negligible since the areas are mostly used for pasture. Ponding in winter and early spring is a hazard on the lower-lying Collamer soils and small areas of muck.

The two soil mapping units found on the Montezuma property are shown in Table 3.1-4 below.

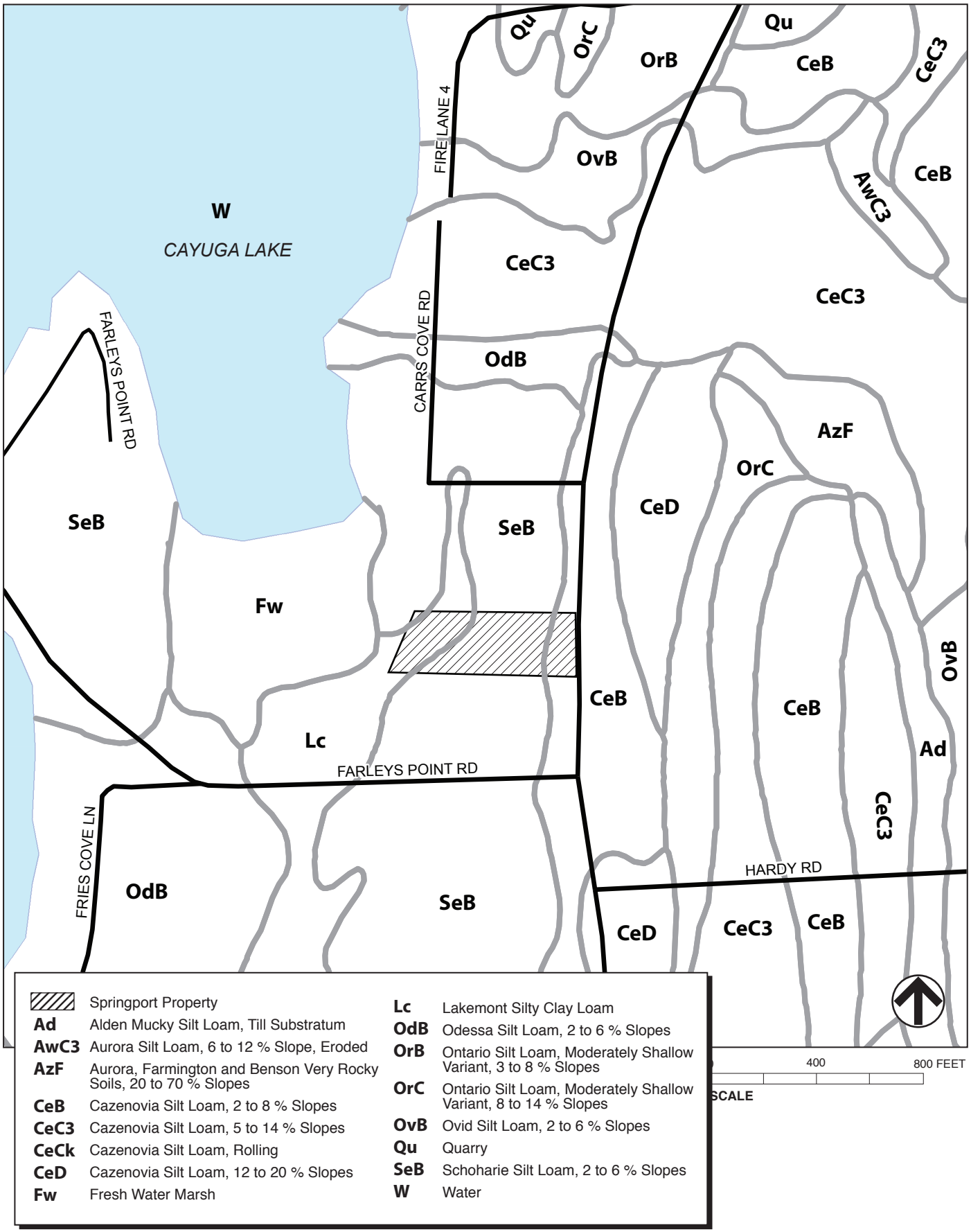
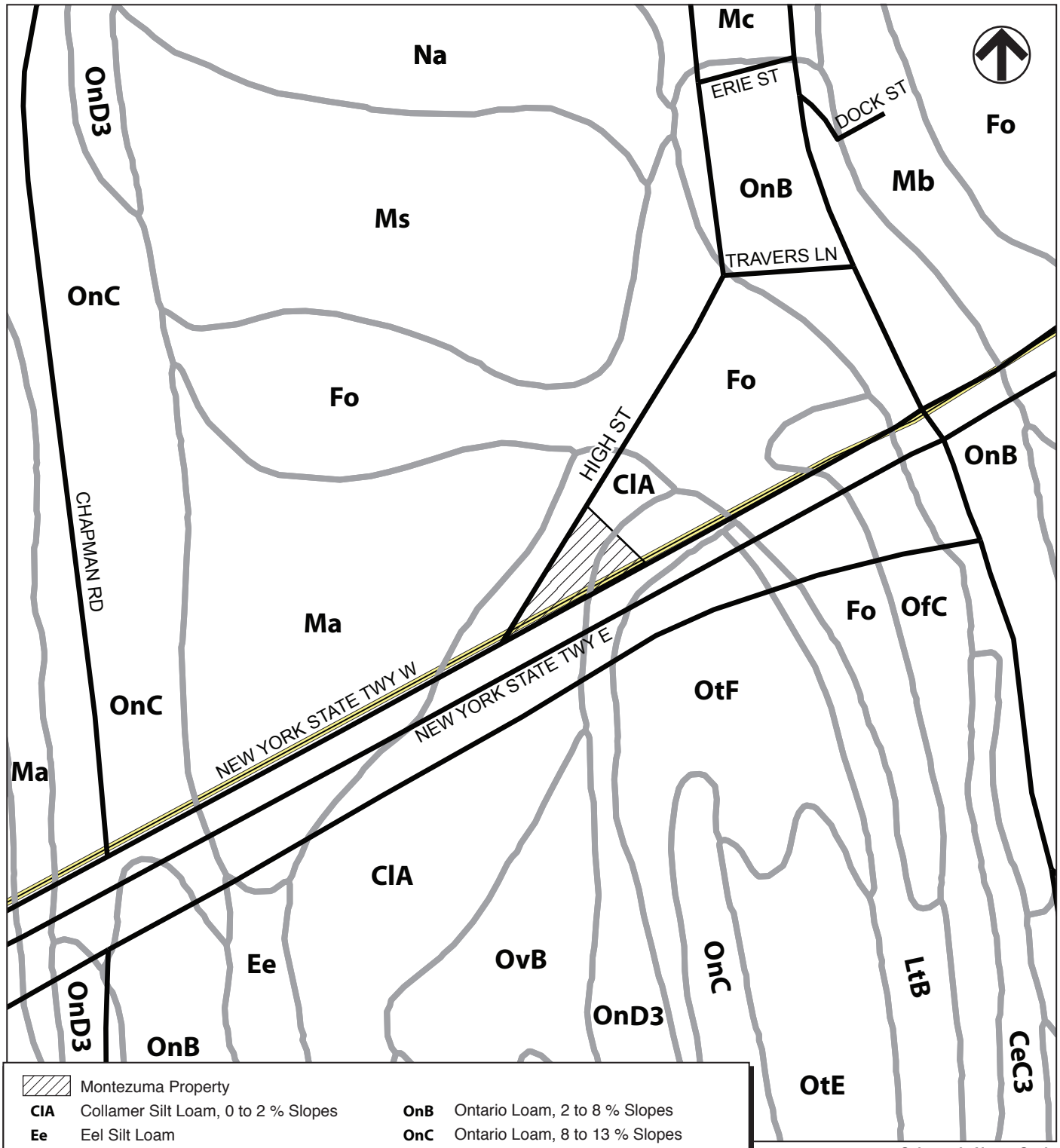


Figure 3.1-7

Springport Soils Map



Schematic Not to Scale

	Montezuma Property
ClA	Collamer Silt Loam, 0 to 2 % Slopes
Ee	Eel Silt Loam
Fo	Fonda Mucky Silt Loam
GaB	Galen Fine Sandy Loam, 2 to 6 % Slopes
HlB	Hilton Loam, 3 to 8 % Slopes
LtB	Lima Silt Loam, 3 to 8 % Slopes
Ma	Madalin Silt Loam
Mb	Madalin Silt Loam, Sandy Subsoil Variant
Mc	Made Land, Sanitary land Fill
Ms	Muck, Shallow
Na	Niagara Fine Sandy Loam
OfC	Ontario Fine Sandy Loam, 8 to 14 % Slopes
OnB	Ontario Loam, 2 to 8 % Slopes
OnC	Ontario Loam, 8 to 13 % Slopes
OnC3	Ontario Loam, 8 to 14 % Slopes, Eroded
OnD3	Ontario Loam,, 14 to 20 % Slopes, Eroded
OtE	Ontario, Honeoye and Lansing Soils, 20 to 35 % Slopes
OtF	Ontario, Honeoye and Lansing Soils, 35 to 50 % Slopes
OvB	Ovid Silt Loam, 2 to 6 % Slopes
PgB	Palmyra Gravelly Loam, 3 to 8 % Slopes
We	Warners Loam

Figure 3.1-8

Montezuma Soils Map

Table 3.1-4
Montezuma Onsite Soils

Map Unit	Name	Capability Grouping	Seasonal High Water Table Depth	Bedrock Depth	USDA Hydrologic Soil Group	NYS Land Classification Soil Group
CIA	Collamer silt loam, 0 to 2 percent slopes	II-w	1 to 2 ft	5 to 40+ ft	C	2
OnD3	Ontario loam, 14 to 20 percent slopes	VI-e	2 to 3+ ft	3 to 50+ ft	B	6

DETAILED SOIL DESCRIPTIONS

As discussed above, the information about the soils in Cayuga County was obtained from the Cayuga County Soil Survey (May 1971),[1] and the information about the soils in Seneca County was obtained from the Seneca County Soil Survey (April 1972).[2] The following soil descriptions were derived from these sources, and comprise descriptions of the soil types as they generally occur in the area. References in the descriptions to specific landforms or conditions, such as drainageways, depressions, slopes, etc., are included in the Soil Survey soil descriptions, and do not reflect site conditions on the Nation's properties unless so specified.

- **Canandaigua silt loam, 0 to 2 percent slopes (Ca).** The Canandaigua Series consists of medium-textured soils that formed in lacustrine deposits of calcareous silt and very fine sand. This soil is generally level or nearly level and occurs in low areas where only a few slopes are more than two percent. Included in mapping are small areas of somewhat poorly drained Niagara soils on slight rises or on knolls, which make up as much as 15 percent of some areas. Also included are small areas of very poorly drained Alden soil in small depressions and drainageways. Canandaigua soil receives runoff from the associated better drained Collamer and Dunkirk soils that are in adjacent higher lying areas. This soil is suited to most crops commonly grown in the area if it is adequately drained and fertilized; wetness is the main limitation to farming this soil.
- **Cazenovia silt loam, 2 to 8 percent slopes (CeB).** The Cazenovia series consists of moderately well drained and well drained soils that formed in calcareous, reddish glacial till of moderately fine texture. Cazenovia soils are formed in reddish till that is a mixture of limestone, shale, and reworked red lacustrine clay. This soil has convex slopes and is on hilltops that receive little or no runoff from higher areas. The dominant inclusions in mapping were the somewhat poorly drained Ovid soils in depressions and along drainageways. Also included were spots of poorly drained Romulus soils in the deeper

[1] Available at Cayuga County Soil and Water Conservation District Office, 7413 County House Road, Auburn, NY 13021.

[2] Available at Seneca County Soil and Water Conservation District Office, 12 North Park Street, Academy Square Building, Seneca Falls, NY 13148.

depression and drainageways. These wetter soils commonly delay tillage of entire fields in the spring. The soil is well suited to crops, pasture, forest, and some vegetables. This soil is moderately susceptible to erosion and clods readily. Slow permeability, seasonal wetness, and slope are the main limitations to many nonfarm uses.

- **Collamer silt loam, 0 to 2 percent slopes (CIA).** The Collamer series consists of deep, moderately well drained, medium-textured soils that formed in deep, alkaline to calcareous silty deposits. These are nearly level to gently sloping oils in small areas scattered among drumlins on the lake plains. This soil receives little or no runoff from higher areas. Included in mapping were areas of somewhat poorly drained Niagara soils in shallow depression and along narrow drainageways and a few wet spots of poorly drained Canandaigua soils in the lowest parts of the drainageways. These wetter soils delay tillage in the spring. Dunkirk soils on minor knolls were also included in mapping.
- **Lakemont silty clay loam (Lc).** The Lakemont series consists of deep, poorly drained, moderately fine textured and fine textured soils derived from calcareous, reddish lacustrine clay and silty clay. These soils occur as low level areas, depression, or narrow drainageways among better drained Odessa and Schoharie soils. In many of these areas there are deposits of eroded material as many as 24 inches thick. This soil occurs mostly as small to medium-sized areas on the lake plain. The larger areas are low and flat and are surrounded by gently sloping Schoharie and Odessa soils or by Cazenovia and Ovid soils. Some areas are suitable sites for ponds or wildlife marshes. Prolonged wetness, slow permeability, and texture are the main limitations so most nonfarm uses.
- **Odessa silt loam, 0 to 2 percent slopes (OdA).** The Odessa series consists of deep, somewhat poorly drained, moderately fine textured soils that formed in calcareous, reddish lacustrine clay and silt. These are nearly level to gently sloping soils on the lake plain in the northern part of the county. There is little or no surface ponding of water during wet periods and little or no runoff is received from adjacent soils. The moderately large and large areas of this soil are broad flats on the lake plain. The small areas are commonly along drainageways where they receive runoff from gently sloping Schoharie soils. Included in mapping were Lakemont soils in slight depressions or along the lowest parts of drainageways. These wetter soils delay tillage in the spring. The soil is suited to crops, pasture, and forest. Its suitability for crops is limited by wetness and the clayey texture. Seasonal wetness, slow permeability, and texture are the main limitations to nonfarm uses.
- **Odessa silt loam, 2 to 6 percent slopes (OdB).** This soil is also part of the Odessa series and has slopes that are mostly smooth, and runoff is moderately slow. As a result of runoff from adjacent areas, this soil remains wet for moderately long periods following heavy rains. Included in mapping were dark-colored, poorly drained Lakemont soils in depressions or along narrow drainageways. These wetter soils commonly delay tillage in the spring. Spots of better drained Schoharie soils on slight rises or knolls were also included. This soil is suitable to crops, pasture, or forest. Wetness and fine texture limit the suitability for cultivated crops. Erosion is a hazard, even on the gentle slopes. Seasonal wetness, slow permeability, texture, and slope are limitations to nonfarm use.
- **Ontario loam, 14 to 20 percent slopes, eroded (OnD3).** The Ontario series consists of deep, well-drained, medium-textured soils that formed in firm, calcareous glacial till. The till is derived mainly from red and gray Medina and Oswego sandstone and from Lockport dolomitic limestone. It is also derived from Rochester, Vernon, and Camillus shale. The till

generally contains enough red sandstone and shale to have a pinkish or reddish cast. Ontario soils are nearly level to steeply sloping. They are the dominant soils of the drumlins. For the 14 to 20 percent sloping soils erosion has removed nearly all of the original plow layer and from 25 to 75 percent of the upper subsoil. There are reddish bald spots where the lower subsoil is exposed. This soil occupies the moderately steep sides of drumlins or the steeply rolling and hilly areas between drumlins. Some of the slopes are simple, some are complex, and nearly all are short and slightly convex. The simply sloping areas are generally long and narrow. The complexly sloping areas vary in shape. Most areas are only two to ten acres in size; few exceed 30 acres. Included in mapping were moderately well drained Hilton and Lima soils and somewhat poorly drained Appleton and Kendaia soils in the bottom of depressions and drainageways. These wetter soils delay tillage in the spring. Also included were sports of clayey Cazenovia and gravelly Palmyra soils. Slope and moderately slow and slow permeability are the main limitations to most nonfarm uses that require good drainage. Runoff is excessive and difficult to control because the clayey surface sheds water readily. Loss of soil by erosion has greatly reduced the water-holding capacity of the soil.

- **Schoharie silt loam, 2 to 6 percent slopes (SeB).** The Schoharie series consists of deep, well drained and moderately well drained, fine textured soils that formed in reddish lacustrine clay and silty clay. These soils occur on the higher, nearly level to strongly dissected areas of the lake plain. The surface layer or plow layer of this soil is generally heavy silt loam, but in some areas it is coarser silt loam, and in moderately eroded areas it is coarse silty clay loam. The more smoothly sloping areas have moderately long to short slopes that are convex at the top and grade to concave in fairly straight drainageways. The undulating areas have short, convex slopes that are separated by narrow, concave, irregular drainageways and depressions. Included in mapping were somewhat poorly drained Odessa soils along narrow drainageways or in depressions. These wetter soils delay fieldwork in spring and hamper harvest during a wet fall. Also included were spots of poorly drained Lakemont soils where water ponds in the drainageways. Other common inclusions were spots of silty Dunkirk, Collamer, and Cazenovia soils where the lake-deposited clay is thin over firm glacial till. Many farmed areas are moderately eroded and the upper part of the more clayey subsoil has been mixed with the plow layer. Small clay spots are common where there is severe erosion, especially on the steeper, undulating slopes. The drainageways and depressions often contain deposits of the eroded material. This soil is suited for crops, pasture, and forest but is better suited to hay and pasture than to row crops. Maintaining good structure and controlling erosion are the main problems. Water is absorbed slowly so runoff is moderately rapid, and erosion is a continuing factor. Seasonal wetness, slow permeability, and texture are the main limitations to nonfarm uses.
- **Schoharie silty clay loam, 0 to 2 percent slopes (ShB).** The Schoharie series consists of deep, well drained and moderately well drained, fine textured soils that formed in reddish lacustrine clay and silty clay. These soils occur on the higher, nearly level to strongly dissected areas of the lake plain. The more smoothly sloping areas have moderately long to short, convex slopes that grade into concave drainageways. The undulating areas have short, convex slopes that are separated by narrow, concave drainageways and depressions. Included in mapping are somewhat poorly drained Odessa soils along narrow drainageways or in depressions and poorly drained Lakemont soils where ponding occurs in the drainageways. These wetter soils may delay fieldwork in the spring and when it is wet in the fall. Also included are spots of silty Dunkirk or Collamer soils, areas of Cazenovia soils, and unnamed soils that formed in 20 to 40 inches of reddish clay over dense, reddish, clayey,

calcareous till. These inclusions have little or no effect on use and management. Much of the farmed areas are moderately eroded, and small clay patches are common, especially on the steeper, undulating slopes. Drainageways and depressions commonly contain deposits of eroded material. This soil is suited to crops, pasture, or forest. Maintenance of good structure in the surface layer and control of erosion are among the main needs in management. Water is absorbed slowly and runoff is moderately rapid, so erosion is a continuing hazard.

AGRICULTURAL SOILS

All of the Nation's properties are located within the Cayuga Lake Watershed, an area known to have fertile soils. The abundance of lime in the soils helps to maintain pH neutrality which allows for microorganism activity and the transfer of nutrients within the soil. Another factor that makes the soils fertile is their porosity. All of the soils on the Nation's properties are loams, which have medium porosity allowing space for providing oxygen to plant root cells and storing water for roots to absorb without being waterlogged.

The 1992 Census of Agriculture[1] found that the cash crops, beef and dairy farms in the region generate receipts of approximately $176,423,000 per year. None of the Nation's properties are agricultural in use or are located within a designated agricultural district.

A Farmland Conversion Impact Rating Form (AD-1006) was completed and submitted to the United States Department of Agriculture Natural Resources Conservation Service in New York. This form and the associated correspondence are located in Appendix C.

PRIME FARMLAND[2]

Prime farmland, as defined by the USDA, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent.

The Nation's property in Springport contains two soils considered by the USDA to be prime farmland soils: Cazenovia silt loam and Schoharie silt loam.

The Nation's property in Union Springs contains two soils considered by the USDA to be prime farmland soils: Cazenovia silt loam and Schoharie silt loam.

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[1] Available at http://www.agcensus.usda.gov.

[2] http://soildatamart.nrcs.usda.gov

The Nation's property in Seneca Falls contains two soils considered by the USDA to be prime farmland soils: Schoharie silt loam and Schoharie silty clay loam.

The Nation's property in Montezuma does not contain prime farmland soils.

Odessa silt loam soils exist on the Union Springs and Seneca Falls properties. This soil is classified as prime farmland if it is drained. Neither the Union Springs, nor the Seneca Falls properties are drained, and therefore these Odessa silt loam soil occurrences do not meet prime farmland criteria.

UNIQUE FARMLAND

"Unique farmland" is land other than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables. It has the special combination of soil quality, growing season, moisture supply, temperature, humidity, air, drainage, elevation, and aspect needed for the soil to economically produce sustainable high yields of these crops when properly managed. The water supply is dependable and of adequate quality. Proximity to markets is an additional consideration. Unique farmland is not based on national criteria. It commonly is in areas where there is a special microclimate, such as the wine country in California.

None of the Nation's properties contain unique farmland soils.

FARMLAND OF STATEWIDE IMPORTANCE

In some areas, land that does not meet the criteria for prime or unique farmland is considered to be "farmland of statewide importance" for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the appropriate state agencies. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable. Farmland of statewide importance may include tracts of land that have been designated for agriculture by state law. In some areas that are not identified as having national or statewide importance, land is considered to be "farmland of local importance" for the production of food, feed, fiber, forage, and oilseed crops. This farmland is identified by the appropriate local agencies. Farmland of local importance may include tracts of land that have been designated for agriculture by local ordinance.

The Nation's properties in Springport and Union Springs contain Lakemont silty clay loam which the USDA classifies as farmland of statewide importance.

The Nation's property in Seneca Falls contains Canandaigua silt loam which the USDA classifies as farmland of statewide importance.

The Nation's property in Montezuma does not contain soils classified as farmland of statewide importance.