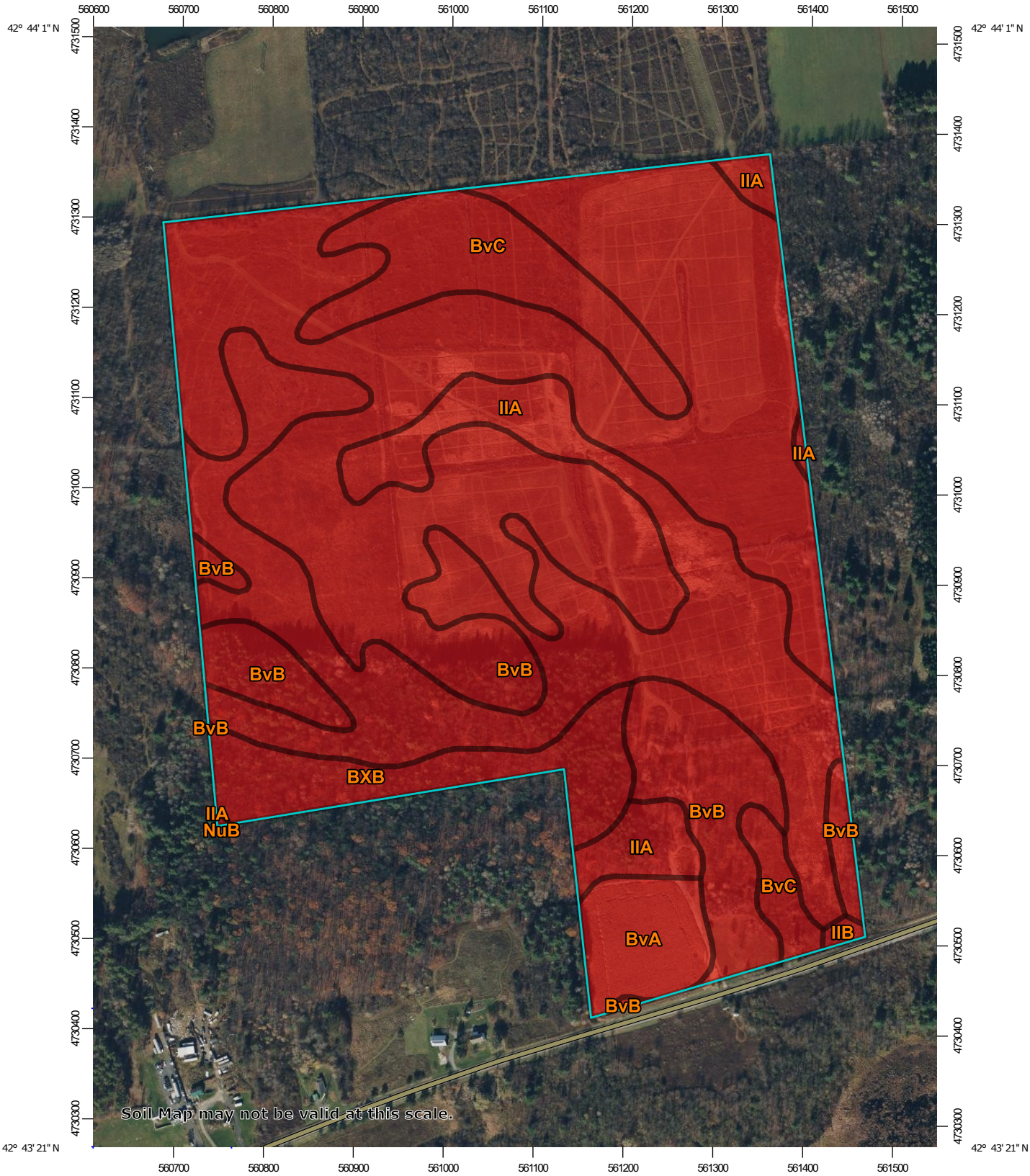
Solar Arrays, Soil-based Anchor Systems—Schenectady County, New York
(Oak Hill Solar 1, LLC and Oak Hill Solar 2 LLC)



Map Scale: 1:6,050 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

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 Rating Polygons
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

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.

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 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: Sep 4, 2020—Nov 7, 2020

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.

Solar Arrays, Soil-based Anchor Systems

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BvA	Burdett-Scriba channery silt loams, 0 to 3 percent slopes	Very limited	Burdett (50%)	Depth to saturated zone (1.00)	4.5	3.4%
				Frost action (1.00)		
				Steel corrosion (0.75)		
			Scriba (30%)	Depth to saturated zone (1.00)		
				Frost action (1.00)		
				Steel corrosion (0.75)		
BvB	Burdett-Scriba channery silt loams, 3 to 8 percent slopes	Very limited	Burdett (50%)	Depth to saturated zone (1.00)	71.2	54.0%
				Frost action (1.00)		
				Steel corrosion (0.75)		
			Scriba (30%)	Depth to saturated zone (1.00)		
				Frost action (1.00)		
				Steel corrosion (0.75)		
BvC	Burdett-Scriba channery silt loams, 8 to 15 percent slopes	Very limited	Burdett (45%)	Depth to saturated zone (1.00)	10.9	8.2%
				Frost action (1.00)		
				Steel corrosion (0.75)		
				Slope (0.63)		
				Slope direction and gradient (0.55)		
			Scriba (30%)	Depth to saturated zone (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Frost action (1.00)		
				Steel corrosion (0.75)		
				Slope (0.63)		
				Slope direction and gradient (0.55)		
BXB	Burdett-Scriba association, extremely stony, gently sloping	Very limited	Burdett (45%)	Depth to saturated zone (1.00)	7.5	5.7%
				Frost action (1.00)		
				Steel corrosion (0.75)		
				Slope direction and gradient (0.23)		
			Scriba (30%)	Depth to saturated zone (1.00)		
				Frost action (1.00)		
				Steel corrosion (0.75)		
				Slope direction and gradient (0.23)		
IIA	Ilion silt loam, 0 to 3 percent slopes	Very limited	Ilion (75%)	Ponding (1.00)	37.5	28.4%
				Depth to saturated zone (1.00)		
				Frost action (1.00)		
				Steel corrosion (0.75)		
				Slope shape across (0.30)		
IIB	Ilion silt loam, 3 to 8 percent slopes	Very limited	Ilion (75%)	Ponding (1.00)	0.3	0.2%
				Depth to saturated zone (1.00)		
				Frost action (1.00)		
				Steel corrosion (0.75)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Slope shape across (0.30)		
NuB	Nunda channery silt loam, 3 to 8 percent slopes	Very limited	Nunda (75%)	Frost action (1.00)	0.0	0.0%
				Depth to saturated zone (0.94)		
				Steel corrosion (0.75)		
				Hillslope position (0.25)		
				Slope shape across (0.20)		
Totals for Area of Interest					**131.9**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	131.9	100.0%
Totals for Area of Interest	**131.9**	**100.0%**

Description

Ground-based Solar Arrays, Soil-penetrating Anchor Systems

Ground-based solar arrays are sets of photovoltaic panels that are not situated on a building or pole. These installations consist of a racking system that holds the panel in the desired orientation and the foundation structures that hold the racking system to the ground. Two basic methods are used to hold the systems to the ground, based on site conditions and cost. One method employs driven piles, screw augers, or concrete piers that penetrate into the soil to provide a stable foundation. The ease of installation and general site suitability of soil-penetrating anchoring systems depends on soil characteristics such as rock fragment content, soil depth, soil strength, soil corrosivity, shrink-swell tendencies, and drainage. The other basic anchoring system utilizes precast ballasted footings or ballasted trays on the soil surface to make the arrays too heavy to move. The site considerations that impact both basic systems are slope, slope aspect, wind speed, land surface shape, flooding, and ponding. Other factors that will contribute to the function of a solar power array include daily hours of sunlight and shading from hills, trees or buildings.

Soil-penetrating anchoring systems can be used where the soil conditions are not limited. Installation of these systems requires some power equipment for hauling components and either driving piles, turning helices, or boring holes to install the anchoring apparatus.

Soils can be a non-member, partial member or complete members of the set of soils that are limited for "Ground-based Solar Panel Arrays". If a soil's property within 150 cm (60 inches) of the soil surface has a membership indices greater than zero, then that soil property is limiting and the soil restrictive feature is identified. The overall interpretive rating assigned is the maximum membership indices of each soil interpretive property that comprise the "Ground-based Solar Panel Array" interpretive rule. Minor restrictive soil features are identified but not considered as part of the overall rating process. These restrictive features could be important factors where the major restrictive features are overcome through design application.

Soils are placed into interpretive rating classes per their rating indices. These are not limited (rating index = 0), somewhat limited (rating index greater than 0 and less than 1.0), or very limited (rating index = 1.0).

Numerical ratings indicate the degree of limitation. The ratings are shown in decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil has the least similarity to a good site (1.00) and the point at which the soil feature is very much like known good sites (0).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The

percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

References:

Canada, S. 2012. Corrosion impacts on steel piles. Solarpro. Solarprofessional.com.

Romanoff, Melvin. 1962. Corrosion of Steel Pilings in Soils. Journal of Research of the National Bureau of Standards. (Volume 66C, No. 3). July/September, 1962.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher