NORBUT SOLAR FARMS
ENGINEERING · PROCUREMENT · CONSTRUCTION

Memorandum

To: **Town of Kirkwood Planning Board**

From: **Paul Congdon, PE**

Date: **September 4, 2025**

Subject: **Solar Construction Water Well Impact Assessment**

During a public hearing for the proposed NSF Kirkwood Solar Project, a comment was received expressing concerns about contamination of shallow wells (less than 50' deep) on the properties surrounding the site.

With shallow wells, the primary source of water is an elevated water table typically found in layers of bedrock or gravel. This water travels through the porosity of the soil and rock material found on site, which has a natural filtering capacity for sediment and pathogens. The predominant type of soil found on the site is silt loam, which consists mostly of clay and silt with fine pores. These types of soil have a high capacity for moisture and particulate retention and exhibit good filtering properties.

In the case of drinking water wells, the NYSDOH has published standards on the location and separation of wells from various contamination sources (Part 5, Subpart 5-1 Standards for Water Wells-Appendix 5B). For reference, the following is a selection of minimum separation distances from Section 5-B.7 Table 1, Separability:

Contaminant Source	Distance
Landfill waste disposal area, or hazardous or radiological waste disposal area	300'
Land surface application or subsurface injection of septage waste	200'
Storage Areas for Manure piles	200'
Fertilizer and/or pesticide mixing and/or clean up areas	150'
Absorption field or bed	100'
Surface wastewater recharge absorption system constructed to discharge storm water from parking lots, roadways or driveways	100'
Septic tank, aerobic unit, watertight effluent line to distribution box	50'
Sanitary sewer or combined sewer	50'

Surface water recharge absorption system with no automotive-related Wastes (e.g., clear-water basin, clear-water dry well)	50'
Stream, lake, watercourse, drainage ditch, or wetland	25'
All known sources of contamination otherwise not shown above	100'

Structures, or solar in particular, is not listed on the chart as they are considered non-toxic when installed on a site and do not pose a threat to well water quality. The applicable separation distance for the project would be the stormwater management practices (SMP's) installed on site to treat and promote recharge of surface water run-off. The site proposes a variety of these practices including treatment swales, filtering basins and shallow gravel level spreaders.

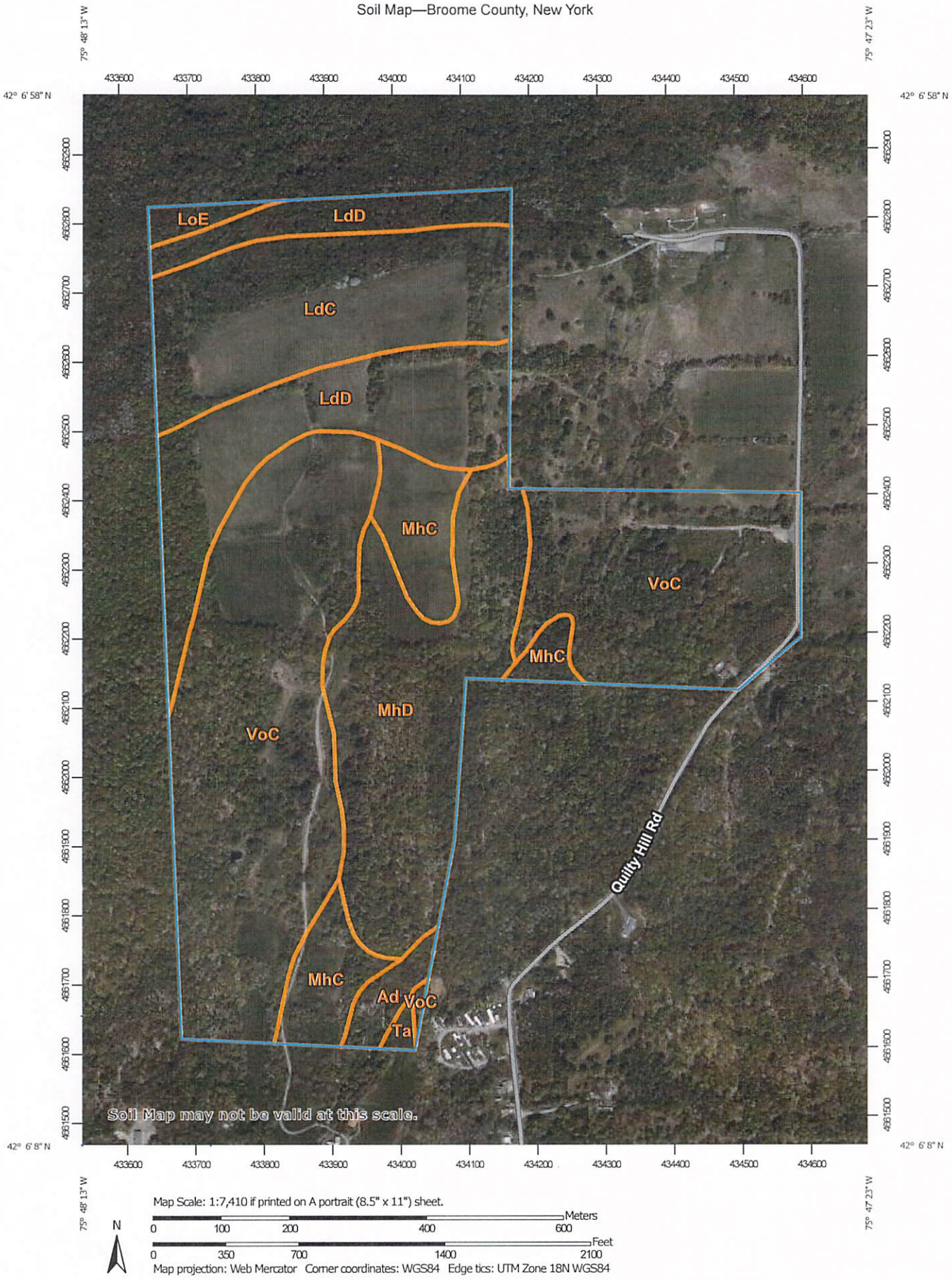
The exact location of the private wells is unknown, but the nearest residential structure to the project extents is anticipated to be 257', which exceeds the minimum distance of 100' for these types of practices. The proposed project would not pose a risk of groundwater contamination for the neighboring wells.

In addition to groundwater contamination, another potential concern for well contamination is sediment laden runoff from the construction activities. The project will be designed and construction in accordance with the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activities (GP-0-25-001). This permit does not allow sediment to flow offsite and requires the implementation of construction techniques and practices to achieve this goal.

The project will use a variety of approved practices including silt fences, silt filtering socks, and soil stabilization that meet these requirements. After construction, the previously mentioned BMP's will control and treat runoff to maintain the water quality of the site and adjacent wells.

Attachments:

A. Site Soil Map
B. Residential Distance Map



Map Scale: 1:7,410 if printed on A portrait (8.5" x 11") sheet.

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Meters: 0 100 200 400 600

Feet: 0 350 700 1400 2100

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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: Broome County, New York
Survey Area Data: Version 22, Aug 28, 2024

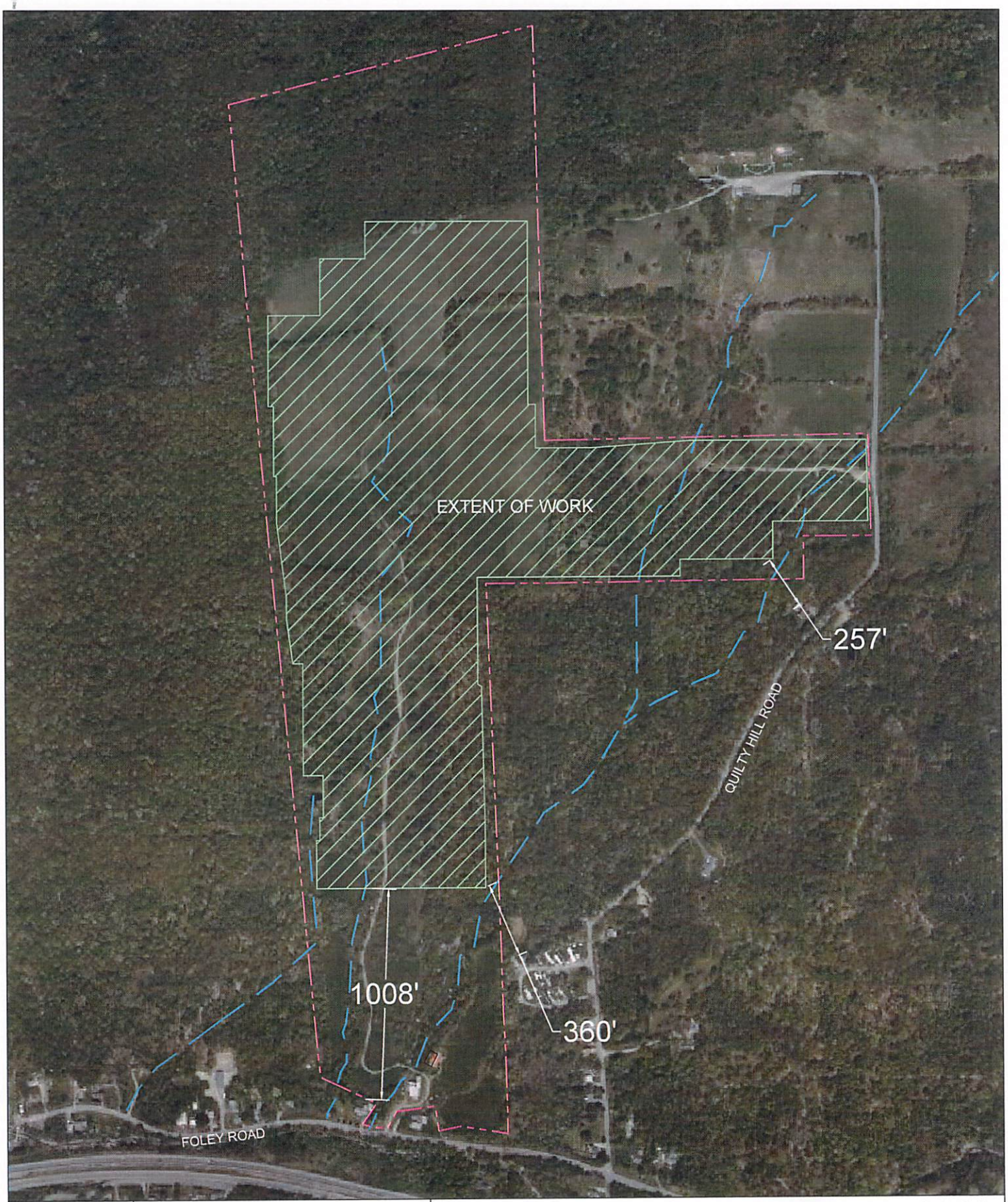
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 21, 2023—May 28, 2023

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ad	Alluvial land	2.4	1.4%
LdC	Lordstown channery silt loam, 5 to 15 percent slopes	25.2	14.8%
LdD	Lordstown channery silt loam, 15 to 25 percent slopes	26.8	15.7%
LoE	Lordstown and Oquaga channery silt loams, 25 to 35 percent slopes	1.5	0.9%
MhC	Mardin channery silt loam, 8 to 15 percent slopes	12.4	7.3%
MhD	Bath channery silt loam, 15 to 25 percent slopes	29.4	17.3%
Ta	Tioga silt loam	0.6	0.3%
VoC	Volusia channery silt loam, 8 to 15 percent slopes	72.0	42.3%
Totals for Area of Interest		**170.2**	**100.0%**



0 300 600 1200

SCALE: 1" = 600'

BY: PEC
REV:

RESIDENTIAL DISTANCES

NSF KIRKWOOD

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