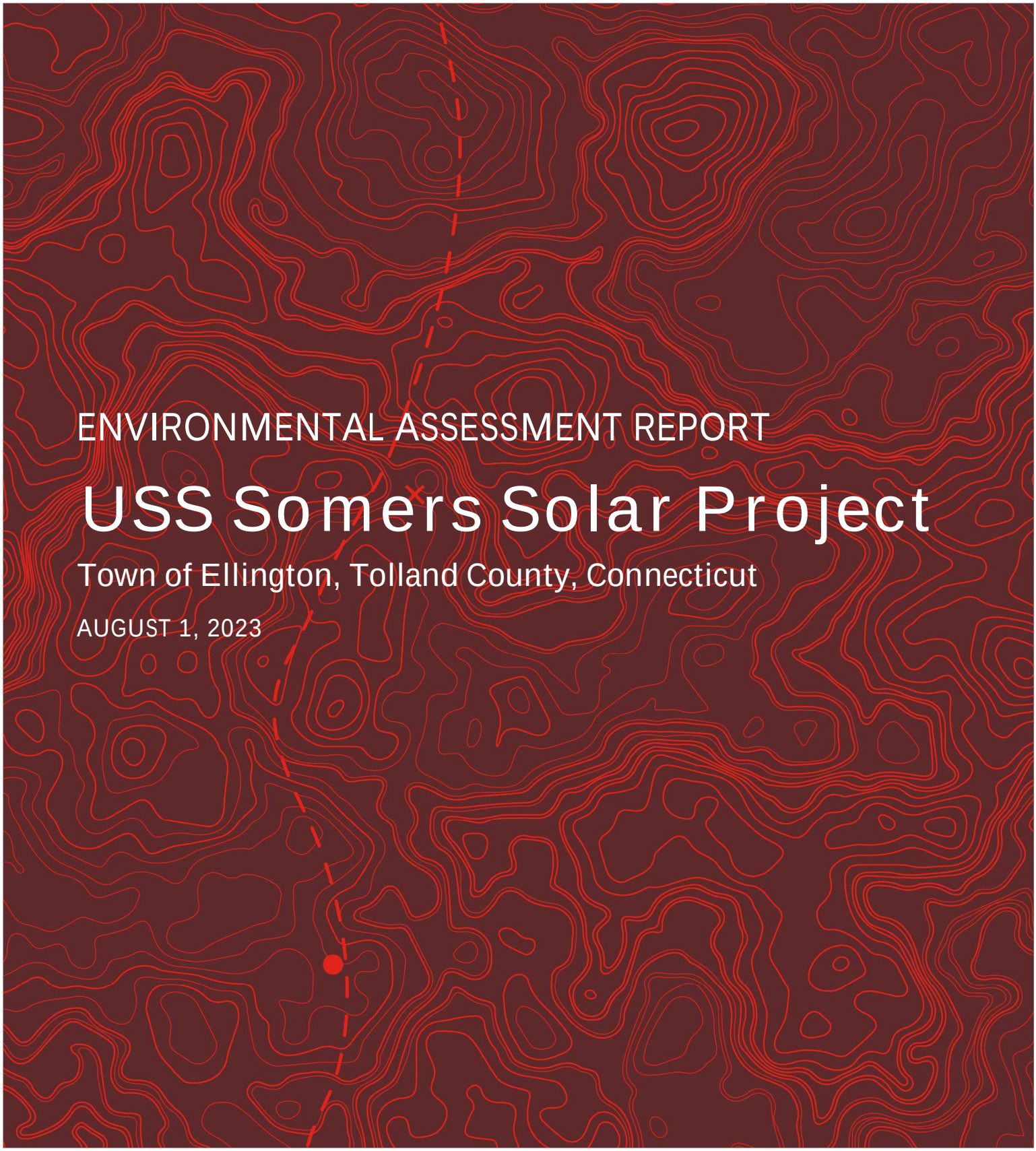

ENVIRONMENTAL ASSESSMENT REPORT

USS Somers Solar Project

Town of Ellington, Tolland County, Connecticut

AUGUST 1, 2023

PREPARED FOR:

US SOLAR

PREPARED BY:

Westwood
Surveying & Engineering
ww-pc.com

Environmental Assessment Report

USS Somers Solar Project

Town of Ellington, Tolland County, Connecticut

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1.0 Introduction

Westwood Surveying and Engineering, P.C. (Westwood) prepared this Environmental Assessment Report (EA) on behalf of USS Somers Solar, LLC (USS or Petitioner) for the proposed installation of a 3.0 megawatt alternating current (MW) photovoltaic (PV) solar energy generating facility and associated systems (USS Somers Solar Project or Project) planned to be located within the Town of Ellington, Tolland County, Connecticut (Town). This EA has been completed to support the Petitioner's submission to the Connecticut Siting Council (Council) of a petition for declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the construction, maintenance, and operation of the Project.

The results of this assessment demonstrate that the proposed development will comply with the Connecticut Department of Energy and Environmental Protection's (DEEP) air and water quality standards and will not have an undue adverse effect on the existing environment and ecology.

The Project will be located on a portion of the property at 360 Somers Road, Ellington, Connecticut (Site). The Site consists of an approximately 127-acre parcel with a mixed use including an airport facility with related development open space, buildings, and impervious surfaces ("Ellington Airport"), agricultural/cultivated crops, hay fields/grassland, and deciduous and evergreen wooded (mixed forest) areas. The Project will occupy approximately 19.2 acres of predominantly cultivated crop and hay area in the northern and western portions of the parcel. The Project Area previously was to be located on 33 acres of the Parcel but has been reduced to 19.2 acres and Project Features were removed from the Southern Project Area altogether. It should be noted that multiple reports were done with the larger Project Area and show the previous Project Area on exhibits. The new Project Area is completely encompassed in the old Project Area and thus, these reports cover the new 19.2-acre Project Area. The buildings and facilities associated with Ellington Airport are located in the eastern and central portions of the Site and will remain undisturbed by the proposed solar development. The portions of the Site outside of the developed airport facility are a combination of cultivated crop, pasture/hay, mixed forest, and barren land areas. The wooded areas are predominantly located in the northern portion and along the western perimeter of the Site. The barren land centrally located within the Site consists of a gravel surfaced contractor's yard facility with metal building, storage trailers, material stockpiles, and vehicle/equipment parking. The area in the vicinity of the building and storage trailers is outside of the proposed development. The Site is privately-owned and zoned Industrial (I) under the Town of Ellington's Zoning Code.

Figure 1, *Site Location*, depicts the location of the Site and surrounding area. Figure 2, *Existing Conditions*, depicts the existing land cover of the Site. Both figures are included in the Figures Section of this report.

2.0 Project Description

2.1 Overall Project Description

The Project will be located within an existing agricultural field north and west of the airport facility located on the parcel. Three watercourses are present on the Site. Hydes Brook bisects the Project Boundary toward the southern end of the Site. Broad Brook and a small unnamed drainage tributary to Broad Brook traverse the Site northwest and northeast of the proposed

development, respectively. All of the watercourses are outside of the proposed development area and will remain undisturbed by construction activities. There are no mapped FEMA Floodplains associated with the Site streams. Wetlands, associated with Broad Brook, are located to the north and west of the proposed Project.

Overall, the Site gently slopes from the east to the west. There are steeper slope areas that are present in the wooded northeastern portion of the Site. Within the Project area, elevations range from approximately 255 feet AMSL along the eastern Project boundary near Somers Rd. to approximately 235 along the western and northwestern Project boundary near Broad Brook.

Figure 2, *Existing Conditions*, provided in the Figures section of this report, as well as the *Project Plans* in Appendix A depict the current conditions on the Site and within the Project development area.

The surrounding land use is characterized by residential, commercial, agricultural, and industrial development, with Somers Rd (State Route 83) to the east. A private airport, Ellington Airport, is located on the property directly east of the southern portion of the Site. Undeveloped land becomes more prevalent farther to the east beyond the commercial, industrial, and residential uses abutting Somers Rd. while there are primarily residential and agricultural areas in all other directions. The Ellington town center (intersection of State Route 286 and Main St) is located approximately 1 mile south of the Site.

2.2 Project Development and Operation

Upon its completion, the solar energy generating facility (Facility) will have a potential energy generating capacity of approximately 3.0 MWac and will consist of approximately 7,074 Jinko Solar Eagle 72HM G6B photovoltaic modules (panels), 18 Ginlong Solis-185k-EHV-5G-US inverters, One (1) switchboard and transformer pad, and approximately 1,300 lf of new gravel access roads. There will be approximately 1,200 lf of underground medium voltage electrical cables connecting to one (1) service interconnection. The underground alignment will follow the proposed Project access roads and the existing gravel access road extending to Somers Rd. The proposed electrical interconnection will be located on new utility poles near the Site's existing gravel entrance from Somers Rd. and will interconnect with Eversource's electrical system in the Somers Rd. right-of-way. A ground-mounted tracker racking system will be used to secure the panel arrays. The Facility will be surrounded by a seven (7)-foot tall woven wire security fence. The Facility will occupy approximately 17.5 acres within its perimeter fence line (Project Area).

Proposed development drawings are provided in Appendix A, *Project Plans*.

The general array area will occupy a total of approximately 12 acres including the open space between racks. The remaining area within the fence lines will be utilized for storm water and drainage facilities, any necessary transition grading, and general areas needed for operations and maintenance. The leading edge of the panels will be approximately thirty-six (36) inches above the existing ground surface when they are at full tilt, which will provide adequate room for any accumulating snow to "sheet" off. Any production degradation due to snow build-up has already been modeled into the annual system output and performance calculations. The Petitioner does not envision requiring any "snow removal" operations for the arrays; rather, the snow will be allowed to melt or slide off. Access roads will be plowed as necessary to maintain access for operations and maintenance staff.

Construction activities within the Project Area will include minor tree clearing of less than 1 acre of trees and brush, grading, incorporating stormwater best management practices, installing erosion and sedimentation (E&S") control measures, grass berm construction, racking and module installation, electrical trenching, landscape screening installation, and new access road development. Tree clearing beyond the fenced area will generally not be required to facilitate construction. Some minor tree and branch trimming outside of the fenced area may be necessary. Existing grades throughout the Project Area will generally remain except in areas of the stormwater management/E&S features and the grass berms, which will require some manipulation (cuts/fills) and regrading along with transitions back to existing grades.

The Facility will be unstaffed; after construction is complete and the Facility is operable, traffic at the Site will be minimal. It is anticipated that the Facility will require mowing and routine maintenance of the electrical equipment one (1) time per year. Annual maintenance will typically involve two (2) technicians for one to two days. Repairs will be made on an as-needed basis. Vegetation restoration within the Facility is to be a CT DEEP approved meadow grass mix and will include pollinator species. Mowing within the Facility will be completed approximately two times a year to allow for establishment, growth, and germination of the meadow seed mix.

2.3 Access

The Facility will be accessed from the east, utilizing the existing paved entrance and gravel access road from Somers Rd., which abuts the Site to the east. Gravel access roads will be constructed to connect the array development areas to the existing gravel access road.

Improvements will be made as necessary to the existing access road within the Project Area. A new ±1,300-foot gravel road, using 435 lf of existing gravel road, will be constructed to provide access into the Project Area for construction, service, and maintenance vehicles. Both the improvements to the existing access road and the new access road will require minimal grading and consist primarily of gravel resurfacing. See Figure 3, *Proposed Conditions* and Appendix A, *Project Plans*.

2.4 Public Health and Safety

The Project will meet or exceed applicable local, state, national, and industry health and safety standards and requirements related to electric power generation. The Facility will not consume any raw materials, will not produce any by-products and will be unstaffed during normal operating conditions. The Facility will be enclosed by a seven (7)-foot tall woven wire fabric fence. The main entrance to the Facility will be gated, limiting access to authorized personnel only. Regional emergency response personnel will be provided access via a Knox Pad lock. The system will be remotely monitored and will have the ability to remotely de-energize in case of an emergency.

2.5 Local, State, and Federal Land Use Plans

The Project is consistent with state and federal policies and will support the state's energy goals by developing a renewable energy resource while not having a substantial adverse environmental effect. Although local land use requirements do not apply to this Project, it has been designed to meet the intent of the Town's land use regulations, to the extent feasible. The Site is located within the Town's Industrial (I) Zone.

Additionally, the Project supports Ellington's goal to create a sustainable and resilient community. The Town's 2019 Plan of Conservation & Development Chapter 2 "seeks to create a

dynamic balance between social wellbeing, economic opportunity, and environmental quality of the community within the context of the authority granted to the Planning and Zoning Commission under Connecticut State law." The Project will benefit the local community by improving electrical service for existing and future development in the Town through the availability of enhanced local generating capacity that does not rely on the congested regional electrical transmission networks.

3.0 Environmental Conditions

This section provides an overview of the current environmental conditions at the Site and an evaluation of the Project's potential impacts on the environment. The results of this assessment demonstrate that the Project will comply with the Connecticut Department of Energy and Environmental Protection's (DEEP) air and water quality standards and will not have an undue adverse effect on the existing environment and ecology.

Please refer to Figure 3, *Proposed Conditions,* for a depiction of the Project and its compatibility with the Site resources discussed herein.

3.1 Habitat and Wildlife

Five (5) habitat types (vegetative communities) have been identified on the Site. Transitional ecotones separate these distinct habitat types while peripheral wetland habitats are also located in proximity to the Project Area. Wetland habitats observed are described within their larger habitat types; detailed descriptions of the wetland habitats can be found in Section 3.3 Water Resources.

The varied habitats, which have the ability to support several species, are as follows:

- Active Agriculture/Cultivated Crops
- Grasslands
- Upland Forest – Scrub-Shrub Edge Ecotones
- Wetland Forest
- Developed

Figure 2, *Existing Conditions*, depicts current conditions on the Site, abutting properties, and several features discussed below. GZA GeoEnvironmental Inc.'s Habitat Assessment Report included in Appendix B also provides additional discussion regarding Project area habitat information.

3.1.1 Habitat Types

Active Agriculture/Cultivated Crop habitat, located throughout the Site, is generally composed of active corn production with some areas fallow. During the site review in March 2021, the corn areas were unvegetated while the fallow fields were vegetated with mostly cool season grasses and forbs. The majority of the Project is located in areas that are currently active agriculture/cultivated crop and fallow fields.

Grassland communities are around the airfield portion of the Site. This area is actively managed by the airport to maintain low growing grassland vegetation. These communities are mostly a mix of warm and cool season grasses and forbs. Weed species such as red clover (*Trifolium*

pratense), common and English plantain (*Plantago major* and *P. lanceolata*), and sheep sorrel (*Rumex acetosella*) are common.

Upland Forest – Scrub-Shrub Edge Ecotones occur along the majority of the Project Boundary, mainly along the edges of the agricultural and grassland fields. Additionally, some small upland, forested – scrub-shrub upland areas are centrally located within the parcel. Upland species observed include red oak (*Quercus rubra*), red maple (*Acer rubrum*), cottonwood (*Populus spp.*), and Big-toothed aspen (*Populus grandidentia*) canopy tree species. The invasive plant species observed includes multiflora rose (*Rosa multiflora*) and oriental bittersweet (*Celastrus orbiculatus*), found primarily along the tree line.

Wetland Forest habitat containing Broad Brook is present in the extreme north and western sides of the property, most of this system extends off property to the west and northwest. All of this habitat is outside of the Project development area. The predominant wetland vegetation observed include red maple (*Acer rubrum*), cottonwood (*Populus spp.*), big-toothed aspen (*Populus grandidentia*), spicebush (*Lindera benzoin*), sensitive fern (*Onoclea sensibilis*), skunk cabbage (*Symplocarpus foetidus*), and marsh marigold (*Caltha palustris*). Hydes Brook which flows east to west is found on the southern section of Site.

Developed Areas consist of areas where pavement, gravel, exposed earth, or buildings are present. Developed areas are centrally located within the Site and within the airport development area. The Project would have no substantive adverse impacts to developed areas of the Site.

3.1.2 Wildlife

While a diversity of habitat is present on the Site, in general the size of these habitats and surrounding development characteristics create a limiting factor for utilization by wildlife. Despite their relatively small size, the complexity of habitats on Site do provide higher quality habitat for species that are more tolerant of human disturbance, habitat fragmentation and 'edge' effects. Generalist wildlife species, including several songbirds and mammals such as raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), grey squirrel (*Sciurus carolinensis*), Virginia opossum (*Didelphus virginiana*), and eastern chipmunk (*Tamias striatus*), could be expected to use these areas on the Site. Additional discussion regarding rare, threatened, and endangered (RTE) species is included in Section 3.2 below.

3.1.3 Core Forest Determination

Westwood evaluated the size and extent of the contiguous interior forest habitat (core forest) present within and adjacent to the Project using DEEP's Bureau of Natural Resources screening tool "Forestland Habitat Impact Map". Based on the review of the database mapping, core forest areas are not located on the Site or within the Project area. The closest mapped core forest is more than 1,800 feet east of the proposed development area. This is consistent with Westwood's site analysis, which indicates that no core forest will be impacted by the Project. See Appendix B, *Habitat Assessment and Wetlands and Watercourse Assessments and Figures*.

In accordance with Connecticut General Statutes 16-50k(a) and based on the proposed energy generating capacity of the Project (>2.0 MW), correspondence was sent to DEEP Bureau of Natural Resources in March of 2022 documenting the results of the Site visit and the assessment that the Project will not materially affect core forest. On May 5, 2022, the DEEP

Bureau of Natural Resources responded with the determination that the Project will not materially affect core forest.

3.2 Rare, Threatened, and Endangered Species

3.2.1 Natural Diversity Database

The DEEP Natural Diversity Database ("NDDB") program performs environmental reviews to determine the impact of proposed development projects on state listed species and to help landowners conserve the state's biodiversity. DEEP also developed mapping to serve as a pre-screening tool to help applicants determine if there is the potential project-related impact to state-listed species.

The NDDB maps represent approximate locations of (i) endangered, threatened, and special concern species and, (ii) significant natural communities in Connecticut. The locations of species and natural communities depicted on the maps are based on data collected over the years by DEEP staff, scientists, conservation groups, and landowners. In some cases, an occurrence represents a location derived from literature, museum records and/or specimens. These data are compiled and maintained in the NDDB. The general locations of species and communities are symbolized as shaded (or cross-hatched) areas on the maps. Exact locations have been masked to protect sensitive species from collection and disturbance and to protect landowner's rights whenever species occur on private property.

Westwood reviewed the most recent DEEP NDDB mapping (December 2022) to determine if any such species or habitats occur on or within 0.25-mile of the Site. The NDDB mapping reveals a portion of the Site is located within an area potentially containing Threatened, Endangered, or Special Concern species and/or critical habitats. As such, Westwood submitted a Request for NDDB State Listed Species Review to DEEP on June 11, 2021. A determination response from DEEP was provided on June 25, 2021 and remains valid through June 25, 2023.

3.2.2 NDDB Consultation

In conformance with DEEP and Council requirements, Westwood, on behalf of the Petitioner, submitted a Request for NDDB State Listed Species Review to DEEP on June 11, 2021. A response from DEEP was received on June 25, 2021, stating that records indicate two State-listed Special Concern species exist in the vicinity of the Site: Eastern box turtle (*Terrapene carolina carolina*) and Savannah sparrow (passerculus sanwichensis). Copies of USS's submission and DEEP's response are provided in Appendix C, *DEEP NDDB Correspondence.* Given the changes to the Project Area, a new Request for NDDB State Listed Species Review, in order to renew the previous determination, was submitted to DEEP on May 1, 2023, through their ezFile Portal. An updated response from DEEP was received on May 12, 2023 stating that records indicate only one State-listed Species Concern species exists in the vicinity of the site: Savannah sparrow (passerculus sanwichensis).

Savannah sparrow: DEEP identified the Site and Project as potential habitat for the Savannah sparrow, a state special concern species, and DEEP is recommending site management strategies to promote the development of suitable habitat. Savannah sparrows are grassland birds that require open grassy areas to forage, breed and nest with the species being most sensitive to disturbance between April 1 – August 30. As a result of DEEP's correspondence, Westwood conducted a site study on June 29, 2021 to determine the presence/absence of Savannah sparrows within the areas to be disturbed by the Project. The site survey did not identify any Savannah

sparrows within the proposed Project limits. As one of the site management strategies, DEEP recommended utilizing several warm season grass species to promote development of suitable grassland habitat. However, due to the potential growing height of the grasses and the potential shading of the proposed arrays, planting of these recommended species would need to occur outside of the array operation areas. The Petitioner will look to implement the recommended site management recommendations where possible. This will include utilizing meadow grass seed mix within the array areas that is compatible with the solar operation to promote potential development of Savannah sparrow habitat as well as pollinator species.

3.2.3 USFWS Consultation

Westwood, on behalf of the Petitioner, submitted an Information for Planning and Consultation (IPaC) request using U.S Fish & Wildlife Service's (USFWS) online project planning tool on June 1, 2021 and updated requests on January 12, 2022 and May 18, 2023. The most recent IPaC results listed two species further discussed below. In addition to an updated species list, a consistency letter confirming the Project will have no effect on the NLEB has been provided in Appendix D.

The northern long-eared bat (NLEB), *Myotis septentrionalis,* is a federally listed endangered species known to occur in the vicinity of the Site. The NLEB's range encompasses the entire State of Connecticut and suitable NLEB roost habitat includes trees (live, dying, dead, or snag) with a diameter at breast height (DBH) of three (3) inches or greater.

The *Northern long-eared bat areas of concern in Connecticut to assist with Federal Endangered Species Act Compliance Map* (March 6, 2019) was reviewed to determine the locations of any known maternity roost trees or hibernaculum in the state. This map indicates that there are currently no known NLEB maternity roost trees in Connecticut. The nearest NLEB habitat resource to the Site is located in East Granby, approximately 13 miles to the west.

The Project will result in the removal of several trees with greater than three (3) inches DBH. Since tree removal activities can potentially impact NLEB habitat, Westwood completed a determination of compliance with Section 7 of the Endangered Species Act of 1973 for the Project. In compliance with the US Fish and Wildlife Service (USFWS) criteria for assessing NLEB, the Project will not likely result in an adverse effect or incidental take of NLEB and does not require a permit from USFWS. A letter confirming compliance was received by USFWS on January 9, 2020. Thus, no further consultation with USFWS is required.

Tree clearing should be restricted to the NLEB inactive season (November 1 – March 31), or at a minimum outside of the pup-rearing season of June 1 – July 31. If tree clearing is scheduled to occur during the bat active season (April 1 – October 31), a habitat assessment is recommended to occur prior to construction and further coordination with the USFWS and (enter state agency here) may be required.

The Monarch butterfly, *Danaus plexippus*, is a federally listed candidate species that has the potential to occur in the Project's vicinity. Candidate species are those for which the USFWS has sufficient information on their biological status and threats to propose them as endangered or threatened under the Endangered Species Act (ESA), but for which development of a proposed listing regulation is preclude by other higher listing activities. Candidate species receive no statutory protection under the ESA. The USFWS encourages cooperative conservation efforts for these species because they are, by definition, species that may warrant future protection under

the ESA. It should be noted that the Project's incorporation of grasses and pollinator species within the array areas will provide potential opportunities for Monarch butterfly compatible habitat.

The full ESA Compliance Determination is provided in Appendix D, *IPaC Correspondence and USFWS Compliance Statement*.

3.3 Water Resources

3.3.1 Wetlands and Watercourses

On behalf of the Petitioner, Westwood retained GZA GeoEnvironmental, Inc. (GZA) to complete a wetlands and watercourses assessment (Assessment) and delineation of land on, or immediately adjacent to, the USS Somers Solar Project Site in Ellington, CT (Site). The purpose of the Assessment was to determine the presence or absence of regulated wetlands or watercourses under Connecticut General Statues (CGS) Section 22a-35 through 22a-45. as well as Waters of the U.S. as defined under Section 404 of the Federal Clean Water Act. GZA's Registered Soil Scientist, Steven Riberdy, identified portions of one (1) wetland, two (2) named watercourses (Hydes Brook and Broad Brook), and one (1) unnamed watercourse on or proximate to the Site during a field inspection and wetland delineation completed on March 25, 2021. All of the wetlands and watercourses are outside of the proposed Project development area. The results of the field delineation are summarized below, and additional information is provided in Appendix B, *Wetland and Watercourse Assessment Report*. The locations of these resources are also depicted on Figure 2, *Existing Conditions.*

2B Series Watercourse and Wetland are located in the northern section of the site in the forest. The 2B-Series consists of unnamed watercourse that feeds into Broad Brook and the adjacent off-site wetland that flows north to south. The unmanned watercourse had no watercourse flow present at the time of the survey and the streambed was mostly dry. The streambed substrate appeared to be largely of sandy substrate. The channel was observed to be 1-3 feet wide and only marginally channelized into the floor of the adjacent upland forest. The predominant wetland vegetation observed included red maple, cottonwood, big tooth aspen, Spicebush, sensitive fern, skunk cabbage, and marsh marigold. Our assessment concluded that the wetland is predominantly a forested wetland and potentially extends to the north and northwest away from the project development area. Soils mapped for this wetland as Ellington silt loam, 0 to 5 percent slopes which were consistent with Site soil observations.

B-Series Watercourse is located in the southern section of site and consists of Hydes Brook which flows east to west. The streambed substrate consisted largely of sand and gravel with small to large cobbles. The bank was majority unvegetated with a steep drop from the top of bank to top of water. Adjacent vegetation included red oak, red maple, cottonwood, and big tooth aspen. Soils mapped for this area include Manchester gravelly sandy loam, 3 to 15 percent slopes which were consistent with Site soil observations. No wetland areas were found along the edges of this watercourse.

3.3.2 Wetland Impacts

No wetlands or watercourses will be directly impacted by the Project's construction. Additionally, all clearing and grading limits for the Project's infrastructure (solar arrays, associated equipment, and fencing) would maintain a minimum setback of ±100 feet to wetlands and

watercourses where possible. A total of 0.082 acres within the 100 foot buffer will be impacted due to grading.

To promote protection of wetlands and watercourses during construction, safeguards have been developed to avoid unintentional impacts to these resources, including the implementation of construction details incorporation NDDB response recommendations and the installation and maintenance of E&S controls in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

Potential long-term secondary impacts to wetland and watercourse resources associated with the operation of this Facility will minimized by several factors. The development will be unstaffed (generating negligible traffic), use an existing gravel/dirt access drive (reducing the creation of impervious surfaces), and treating the majority of the ground beneath the solar arrays with native grass/vegetation (providing ample opportunity for surface water to infiltrate or slow prior to discharge to surrounding resources). As such, the Project will not have a likely adverse impact to wetland and watercourse resources.

3.3.3 Vernal Pools

During its field inspection, GZA assessed the wetland resource area for indications of vernal pool resources. Based on a lack of seasonally flooded areas observed on that date, it does not appear that any potential vernal pool breeding habitat exists on the Site within proximity to the Project Areas. Therefore, the Project will not result in any impacts to vernal pool resources.

3.3.4 Floodplain Areas

Westwood reviewed the United States Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) for the Site. A FIRM is the official map of a community on which FEMA has delineated both the special hazard areas and risk premium zones applicable to the community. FEMA has completed a study to determine flood hazards for the Site and Project vicinity and floodplain mapping is contained on FIRM PANEL #0901580005C, dated February 5, 1997. This FIRM with an overlay of the approximate Site boundary is included in Appendix E, *FEMA FIRM Panel*. A small area in the northwestern portion of the site is within a FEMA Zone AE flood hazard zone. A FEMA Zone AE flood hazard is a 100-year flood hazard with base flood elevation determined. No preliminary or pending FEMA changes are proposed within the project area. This depicted floodplain area borders the Project development area to the northwest. Based on the analysis completed to date, the Project is outside the influence of 100-year floodplains and will have no effect on the resources. No special considerations or precautions relative to flooding are required for the Project.

3.3.5 Water Quality

The Facility will be unstaffed, and no potable water uses, or sanitary discharges are planned. No liquid fuels are associated with the operation of the Facility. Once operative, the stormwater generated by the proposed development will be properly handled and treated in accordance with the 2004 *Connecticut Stormwater Quality Manual*.

3.3.6 Groundwater

Groundwater underlying the Site is classified by DEEP as “GA”. This classification indicates groundwater within the area is presumed to be suitable for human consumption without

treatment. Based upon a review of available DEEP mapping, the Site is not located within a mapped preliminary or final Aquifer Protection Area.

The Project will have no adverse environmental effect on ground water quality.

3.3.7 Surface Water

Based upon a review of DEEP mapping, the majority of the Site is located in the Major Drainage Basin 4 (Connecticut River), Regional Basin 42 (Scantic River), and Broad Brook Sub Regional Drainage Basin 4206 (Broad Brook). The northern portion of the Site, including the majority of the Project Area, is located in Local Drainage Basin 4206-00-1 while the southern portion of the Site is located in Local Drainage Basin 4206-01-1.

Based upon DEEP mapping, two (2) named watercourses (Broad Brook and Hydes Brook) and one (1) unnamed watercourse (tributary to Broad Brook) are in proximity to the Site. The Site's watershed area encompasses approximately 11 square miles that generally slopes to the west. Broad Brook flows southwest to the north and west of the project area. The unnamed tributary to Broad Brook, located northeast of the Project Area, flows to the north and merges into Broad Brook north of the northern Project Area. Hydes Brook flows west through the Site, south of the southern Project Area. Hydes Brook merges with Broad Brook southwest of the southern Project Area. All three watercourses are classified by the DEEP as Class A.

The Project will have no adverse environmental effect on surface water quality.

3.3.8 Stormwater Management

The Project has been designed to meet the current version of the *2004 Connecticut Stormwater Quality Manual* and DEEP's *General Permit for Discharge of Stormwater and Dewatering Wastewaters from Construction Activities.* The requirements include having stormwater practices to infiltrate 1 inch of runoff for the site and to control the post-development peak discharge rates. Gravel access roads and transformer pads will be included in the effective impervious cover when calculating the Water Quality Volume. Solar panels are not considered impervious cover if the post-construction slopes are less than 15% and proper stabilization practices are put in place. Any increases in stormwater runoff within the Project Area, including those resulting from DEEP's on-Site soils Hydrologic Soil Group reduction requirements, will be mitigated through the installation of stormwater management basins and/or other approved best management practices (BMPs). See Figure 3, *Proposed Conditions and* Appendix A, *Project Plans.*

For more detail regarding stormwater management, please refer to the Stormwater Management Report submitted under separate cover.

Portions of the Project Area that will be cleared and grubbed during construction will be stabilized with rye grass. To safeguard water resources from potential impacts during construction, the Petitioner is committed to implementing protective measures in the form of a Stormwater Pollution Control Plan (SWPCP) to be finalized and submitted to the Council, pending approval by DEEP Stormwater Management. The SWPCP includes monitoring of established E&S controls that will be installed and maintained in accordance with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*. The Petitioner will also apply for a *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities* from DEEP. Therefore, with the incorporation of adequate protective measures, stormwater runoff

from Project development will not result in an adverse impact to water quality associated with nearby surface water bodies.

3.4 Air Quality

The Project Area is currently undeveloped and as such, no air emissions are generated. Due to the nature of a solar energy generating facility, no air emissions will be generated during operations and, therefore, the operation of the Project will have no adverse effects on air quality and no permit is required. The existing airport operation, and the associated air emissions related to the airport, occurring on other portions of the Site will remain unchanged with the proposed development.

Temporary, potential, construction-related mobile source emissions will include those associated with construction vehicles and equipment. Any potential air quality impacts related to construction activities will be temporary and will be controlled by enacting appropriate mitigation measures. Mitigation measures would include, but not be limited to, limiting idling times of equipment; proper maintenance of all vehicles and equipment; and watering/spraying to minimize dust and particulate releases. In addition, all on-site and off-road equipment will meet the latest standards for diesel emissions, as prescribed by the United States Environmental Protection Agency and will consider reducing exhaust emissions by utilizing effective controls.

3.5 Soils and Geology

Once vegetative clearing and topsoil stripping activities are completed, grading for the proposed stormwater management basins and swales will occur. Any stripped topsoil will be stockpiled and will be re-spread on the site during re-vegetation of the disturbed areas. The construction of the stormwater management basins will be generally balanced from a cut/fill basis so that the excavated materials generated from the pool areas will be utilized to construct the perimeter berms of the basins and the proposed stormwater berms along the western property lines. The grass berms will assist in directing stormwater to the proposed swales and basins. Additionally, minor site grading may be necessary in various areas across the Project Areas to create stormwater drainage swales and to transition any proposed grades into existing Site grades. The reuse of this material onsite will result in a balanced site resulting in approximately 0 cubic yards net cut/fill for the Site. This will reduce the amount of truck traffic entering and leaving the site.

Once the proposed stormwater best management practices are installed, minimal grading is required for construction of the remainder of the Project. Some minor grading may be required in connection with installation of the gravel access road and concrete equipment pads. See Appendix A, *Project Plans*, for site grading and construction plans.

All exposed soils resulting from construction activities will be properly and promptly treated in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*.

Surficial materials on and within the vicinity of the Project are comprised of primarily of sand and gravel overlying sand. The surficial materials along the Broad Brook corridor are described as alluvium overlying undifferentiated coarse deposits. Soils located within the Project are identified as the Udorthents-Pits complex, Manchester gravelly sandy loam, and Ellington silt loam. Udorthents-Pit complex is a moderately well drained gravelly sand. Manchester gravelly sandy loam is an excessively drained sandy and gravelly glaciofluvial deposit derived from sandstone, shale, and/or basalt. Ellington silt loam is a moderately well drained coarse-loamy

eolian deposit over sandy and gravelly glaciofluvial deposits derived from sandstone and shale and/or basalt.

Bedrock geology beneath the Site is identified as Portland Arkose. Portland Arkose is described as a reddish-brown to maroon micaceous arkose and siltstone and red to black fissile silty shale.

The Petitioner does not anticipate encountering bedrock during Project development.

3.6 Prime Farmland Soils

In accordance with the Code of Federal Regulations, CFR Title 7, part 657, farmland soils include land that is defined as prime, unique, or farmlands of statewide or local importance based on soil type. USDA NRCS defines Prime Farmland as soils most suitable land for producing food, feed, fiber, forage, and oil seed crops.

According to the Connecticut Environmental Conditions Online Resource Guide, the Site contains Prime Farmland Soils located primarily within the southern portion of the parcel with small areas extending into the Project Area. The Site also contains several areas designated as and Statewide Important Farmlands which are located in the northern, northeastern, and southern portions of the parcel. No Locally Important Farmland soils are mapped on the Project Site. See Figure 2, *Existing Conditions*, for farmland soils mapping.

A majority of the Project Area has remained undeveloped and used as agricultural land for over 80 years. Development within the central portion of the Site (including a small area in the southeastern portion of the Project Area) began in between 1960 and 1965 and correlates with the construction of the runway and related buildings on the Site. The central portion has been used for storage, soil borrow, and non-agricultural uses since the early 1960s and buildings have been present in the central portion of the Site for the past 35 years. These continued activities have subjected the majority of the Project Area to compaction from equipment and vehicles.

A very small portion of the proposed access road (0.09 acres) extends across an area of soil mapped as Prime Farmland. However, the portion of road in this section is currently an existing gravel access road used for access to the airport facilities. This existing access road will be utilized by the proposed development and the proposed development will not increase the existing impact to mapped areas of Prime Farmland soils. The northernmost portion of the Project Area extends into an area of mapped Statewide Important Farmland soil. Solar arrays and stormwater facilities are proposed in the mapped Statewide Important Farmland soil area.

Recognizing that the Project has a useful life and could be considered temporary in nature, the Petitioner has proposed using minimally intrusive methods for construction of the Facility. The use of a ground-mounted racking system for the installation of the solar panels and associated equipment minimizes the need for substantive grading. The northern portion of the Project will require minor excavation and grading within an area mapped as Statewide Important Farmland soil for a stormwater basin and solar arrays. Topsoil removed from this area will be segregated from underlying horizons and either stockpiled or spread elsewhere as top dressing for reestablishing vegetation. No topsoil will leave the Site.

Further measures to be implemented at the Project include the use of the development area for rotational sheep grazing, see Appendix I, *Sheep Pasture Rotation and Grazing Plan*. Additionally, the proposed seed mixture to be utilized for revegetation, where compatible with the proposed grazing, will contain a mix of native meadow grass and pollinator species to

promote the preservation and creation of pollinator habitats. Planting pollinator-friendly vegetation in solar farms provides multiple ecological benefits to stakeholders and can provide habitat diversity, help nearby agricultural land to be pollinated, recharge groundwater, and reduce erosion. At the end of the Facility's life cycle, removal of the installed equipment will allow the potential return of the property to agricultural use. The proposed implementation of these design strategies demonstrates that the Project will not materially affect Prime Farmland Soils.

In accordance with Connecticut General Statutes §16-50k(a), the Petitioner initiated consultation with the Connecticut Department of Agriculture (DOA) in March 2022 to provide Project details and discuss the presence of Prime Farmland Soils on the Site and within the Project footprint. On October 14, 2022, the Petitioner revised the initial outreach letter to include a grazing plan and sent it to the DOA and is awaiting a written response from the agency. The grazing plan proposed the potential use of rotational sheep grazing and the use of pollinator seed mixtures and beehives to offset impacts to Prime Farmland and Farmland of Statewide Importance. Table 1, *Farmland Soils Assessment and Impacts Table* provided below details the amount of mapped farmland soils located on the Site parcel and the proposed impact from the Project.

Table 1 Farmland Soils Assessment and Impacts Table

Farmland Soil Classification	Total Area within 127-acre Site Parcel (acre +/-)	Impacted Area within Project Limits (acre +/-)
Prime Farmland Soils	33.52	0.09*
Farmland of Statewide Importance	29.94	4.28

*this indicated impact area is an existing gravel access road for the airport facility that will be utilized for access to the proposed solar development

The Department of Agriculture concluded on March 6, 2023 that the Project will not materially affect the status of project land as prime farmland. The conditions set forth in the official determination from the Connecticut Department of Agriculture will be met by the Applicant.

3.7 Historic and Archaeological Resources

EAC/Archaeology, Inc. (EAC/A) was contracted by Westwood Surveying and Engineering, P.C. on behalf of the Petitioner to complete cultural resources reconnaissance and consultation for the Project with the Connecticut State Historic Preservation Office (SHPO). The work completed by EAC/A complies with Environmental Review Primer for Connecticut's Archaeological Resources and the Project Review Process set out by SHPO.

EAC/A reviewed relevant historic and archaeological information and conducted a pedestrian survey to determine whether the Site holds potential cultural resource significance. The SHPO office was closed due to pandemic restriction during the period that research was conducted for this study. EAC/A corresponded via email with SHPO staff, in lieu of a physical research visit. SHPO staff confirmed via correspondence dated April 1, 2021 that there are no known archaeological sites within the proposed project limits, and no reported sites within a one-mile radius of the proposed project. There are also no known above ground historic resources within the project limits or within a one-mile radius of the project limits. SHPO staff confirmed that there have been no previous Cultural Resource Management (CRM) surveys within or near the project vicinity.

In terms of archaeological potential, EAC/A's assessment was that the Project development area had minimal potential for intact archaeological resources from any period due to previous soil disturbance within the Project's proposed limit of disturbance (LOD).

EAC/A, on behalf of the Petitioner, submitted Project and Site historic/cultural information, including a Cultural Resources Reconnaissance Report, dated June 14, 2021, to SHPO for agency review and comment on June 28, 2021. Comments were received from SHPO on July 30, 2021, which recommended the completion of an archaeological reconnaissance survey in areas that were determined to retain moderate potential to contain intact archaeological deposits in the subsoil as well as a refined analysis of the potential direct and indirect Area of Potential Visual Effects (APE-Visual) impacts resulting from the proposed Project.

In October 2021, on behalf of the Petitioner, EAC/A completed an Archaeological Identification Survey and Built Environment Reconnaissance Study for the previous Project Area. The archaeological survey consisted of conducting 258 shovel test pits (STPs) within 34-acres area of the previous Project LOD. The Built Environment Study utilized an APE-Visual defined for the project which included 182 acres. No prehistoric material was recovered, and no archaeological sites were identified by the archaeological survey.

The archaeological survey included the excavation of 258 STPs and photo-documentation. It documented shallow soil profiles consistent with past stripping and soil deflation. An artifact assemblage of 45 artifacts was recovered from 30 test locations. Of the 45 artifacts found in the original Project Area, 28 of the artifacts were found in the new Project Area, as shown on Figure 19 of Appendix F. The assemblage was primarily non-diagnostic container glass fragments and overall was consistent with field scatter. No prehistoric material was recovered. No archaeological sites were identified.

The Built Environment Study identified six structures within the APE-Visual which were greater than 50 years in age. One structure (368 Somers Road) was determined to have no clear line of sight and the remaining five structures (360 Somers Road, 381 Somers Road, 389 Somers Road, 403 Somers Road, and 406 Somers Road) were examined and determined to have been extensively altered through time and did not retain integrity. No resources meeting National Register criteria of eligibility were identified by the Reconnaissance Study.

Based on the findings of these studies, there are no archaeological or historic resources potentially impacted by the proposed Somers Solar Project, and no further cultural resources study is recommended. The Archaeological Identification Survey and Built Environment Reconnaissance Study, dated December 2, 2021, was submitted to SHPO on December 14, 2021. Response from SHPO was issued on January 20, 2022. SHPO concurs with the findings that no additional archaeological testing of the project area is warranted, and no historic properties will be affected by the proposed solar development.

Copies of the SHPO correspondence, Cultural Resources Reconnaissance, and Archaeological Identification Survey and Built Environment Reconnaissance conducted for the Project are included in Appendix F, *SHPO Correspondence and Cultural Resources Reconnaissance Reports.*

3.8 Scenic and Recreational Areas

A review of scenic and recreational resources located within one mile of the Project was conducted. Identified features include public and privately-owned open space and recreational areas in Ellington.

The nearest open space, Meadow Brook Estates Open Space, is located southwest of the Project off of Bridge Street and consists of approximately 15.3 acres of undeveloped open space with no trails or facilities. The property's closest point to the proposed solar development is approximately 735 feet. Trees and vegetation are present between the open space property and the proposed development area.

No state designated scenic roads or scenic areas are located near the Site. The nearest recreational area are properties associated with Shenipsit State Forest located approximately 0.5 mile to the north. These properties are separated from the Project by forests and developed properties. See Figure 4, *Surrounding Features Map,* for community features located within one mile of the Site.

No designated scenic roads, open spaces, or recreational areas will be physically or visually impacted by development of the Project.

3.9 Noise

The Ellington Airport occupies a portion of the Site and noise sources for this use includes occasional small aircrafts and helicopters in addition to car and truck vehicles operating in and around the airport buildings located along Somers Rd. These noise sources will remain unchanged with the proposed development. The Town of Ellington does not have a CT DEEP approved municipal noise ordinance. As such, the Project's compliance with Regulations of Connecticut State Agencies (RCSA) Control of Noise, Sections 22a-69-1 through 22a-69-7.4 are discussed herein.

During construction of the Project, temporary higher levels of noise may occur. However, all work will be conducted during normal working hours and the levels of noise are not anticipated to exceed State noise standards or limits.

The Project is located on an industrial (I) zoned parcel with airport transportation facilities and related operations as well as agricultural uses and abuts residential parcels. The Project would be considered a CT DEEP Class C (Industrial) Land Use noise emitter to CT DEEP Class A (Residential) Land Use receptor. As such, it is subject to noise standards of 61 dBA during the daytime and 51 dBA at night.

The only noise generating equipment planned at the Facility are the inverters, transformers, and tracker motor operators. Based on the most conservative information provided by specified equipment manufacturers, the loudest piece of proposed equipment are the 2,000 kVA transformers that will generate a maximum sound level of approximately 61 dBA (measured at 1-foot away).

Sound reduces with distance and the inverters, tracker motors, and transformers are inactive at night. The closest property line relative to the nearest inverter/transformer is approximately 300 feet from the nearest property line and over 500 feet from the nearest residential building. The parcels along the Project's western property line are zoned Rural Agricultural Residential (RAR). The parcels to the south of the Site are currently developed with single family residences

that front on Bridge Street and Gloria Lane. Parcels west of the Site are currently developed with single family residences that access Hoffman Road. These residences are located over 1,000 feet from the project's fence line.

Westwood applied the Inverse Square Law to evaluate the relative sound level of the largest transformer at the nearest property lines. Based on these calculations, nearby receptors are of sufficient distances from the proposed Project-related equipment and noise levels during Facility operation will be below the applicable CT DEEP noise standards at surrounding property lines.

Please refer to the inverter, transformer and tracker motor specification sheets provided in Appendix G, *Product Information Sheets.*

3.10 Lighting

The Project Area is undeveloped; no light sources currently exist. The overall Site contains the Ellington Airport which has existing buildings with exterior lighting and uses associated with airport operations. The existing light sources will remain unchanged with the planned development.

No exterior lighting is planned for the Facility. There will be some small, non-intrusive lighting fixtures within the equipment enclosures to aid in maintenance.

3.11 FAA Determination

Westwood submitted relevant Project information to the Federal Aviation Administration (FAA) for an aeronautical study to evaluate potential hazards to air navigation. The information included the submission of 23 Notices of Proposed Construction or Alteration (FAA Form 7460-1, "Notice") to FAA for Obstruction Evaluation / Airport Airspace Analysis (OE/AAA). Twenty of the Notices were selected to define the perimeter of the proposed Project and the remaining three Notices defined the utility poles to be installed at the electrical interconnection to the existing overhead lines along Somers Road. FAA provided a Determination of No Hazard to Air Navigation for the 20 locations that defined the Project's solar arrays and fence lines. Although the proposed poles are to be located in the vicinity of existing mature trees and utility poles near Somers Road, the FAA provided notification that the three proposed utility poles exceed obstruction standards. As part of the process the Petitioner requested FAA perform additional aeronautical study under the provisions of 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77. FAA completed the additional aeronautical study and issued Determination of No Hazard to Air Navigation for the three poles (FAA Aeronautical Study Numbers: 2021-ANE-5690-OE, 2021-ANE-5990-OE and 2021-ANE-5991-OE) on February 11, 2022. The Determinations indicated that the proposed poles would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. The Determinations are conditioned that each pole structure is to be marked/lighted in accordance with FAA Advisory Circular 70/7460-1 M, Obstruction Marking and Lighting, red lights-Chapters 4, 5(Red), & 15. The Petitioner will comply with conditions of the Determinations.

Appendix H, *FAA Determination* contains the FAA related correspondence.

3.12 Visibility

The Facility will consist of 7,074 non-reflective solar panels measuring approximately 12 feet above final grade surrounded by a seven (7) foot tall security fence. The proposed electrical interconnection to the existing electrical distribution line located on Somers Rd will require the installation of up to three (3) new wood utility poles for the placement of electrical disconnect equipment. A majority of the perimeter of the proposed Project development is screened from adjacent residential properties by a vegetated buffer of deciduous and evergreen trees, shrubs and undergrowth that ranges from approximately 50 feet to over 150 feet in width.

Year-round visibility of the proposed Facility will be confined to areas within the immediate vicinity of the Project, primarily directly southeast from airport operations area and the Industrial zoned properties along Somers Rd. Limited seasonal views, when the leaves are off the deciduous trees and shrubs, would include abutting properties to the south, east and west and could extend as far as approximately 0.25 mile in all directions. In general, views beyond the immediate area would be minimized by a combination of the Facility's relatively low height and the presence of intervening vegetation and infrastructure.

The solar modules are designed to absorb incoming solar radiation and minimize reflectivity, such that only a small percentage of incidental light will be reflected off the panels. This incidental light is significantly less reflective than common building materials, such as steel, or the surface of smooth water. The panels will track the sun from east to west rotating on a north-south aligned facing axis. The panels will tilt through angles ranging from facing east at 52 degrees from vertical at sunrise to facing west at 52 degrees from vertical at sunset, thereby further reducing reflectivity.

4.0 Conclusion

As demonstrated in this Environmental Assessment, the Project will comply with the DEEP air and water quality standards. Further, it will not have an undue adverse effect on the existing environment and ecology; nor will it affect the scenic, historic, and recreational resources in the vicinity of the Project. Once operative, the Facility will be unstaffed and generate minimal traffic.

The Project will result in the removal of approximately 1.0 acres of trees within the central portion of the property. This area is entirely located within existing upland mixed forest, habitat that occurs elsewhere on and adjacent to the Site. The Project is not expected to result in a significant negative impact to this habitat or to wildlife.

A very small portion of the Project Area (0.09 acres) are located within mapped prime farmland soils. The Petitioner has designed the Project to minimize disturbances to these soils and soils of Statewide Importance by proposing minimally intrusive methods for construction and installation of Facility components, limiting the amounts of cuts/fills, and grading to the extent feasible, ensuring that no soil will be exported from the Site, and incorporating revegetation with a meadow native grass seed mix that includes pollinator species. Once the Facility has reached the end of its projected useful life, the panels and equipment can be removed, and the Project Area restored.

No wetlands or watercourses will be directly impacted by the Project. To promote protection of nearby wetlands and watercourses during construction, safeguards have been developed to avoid

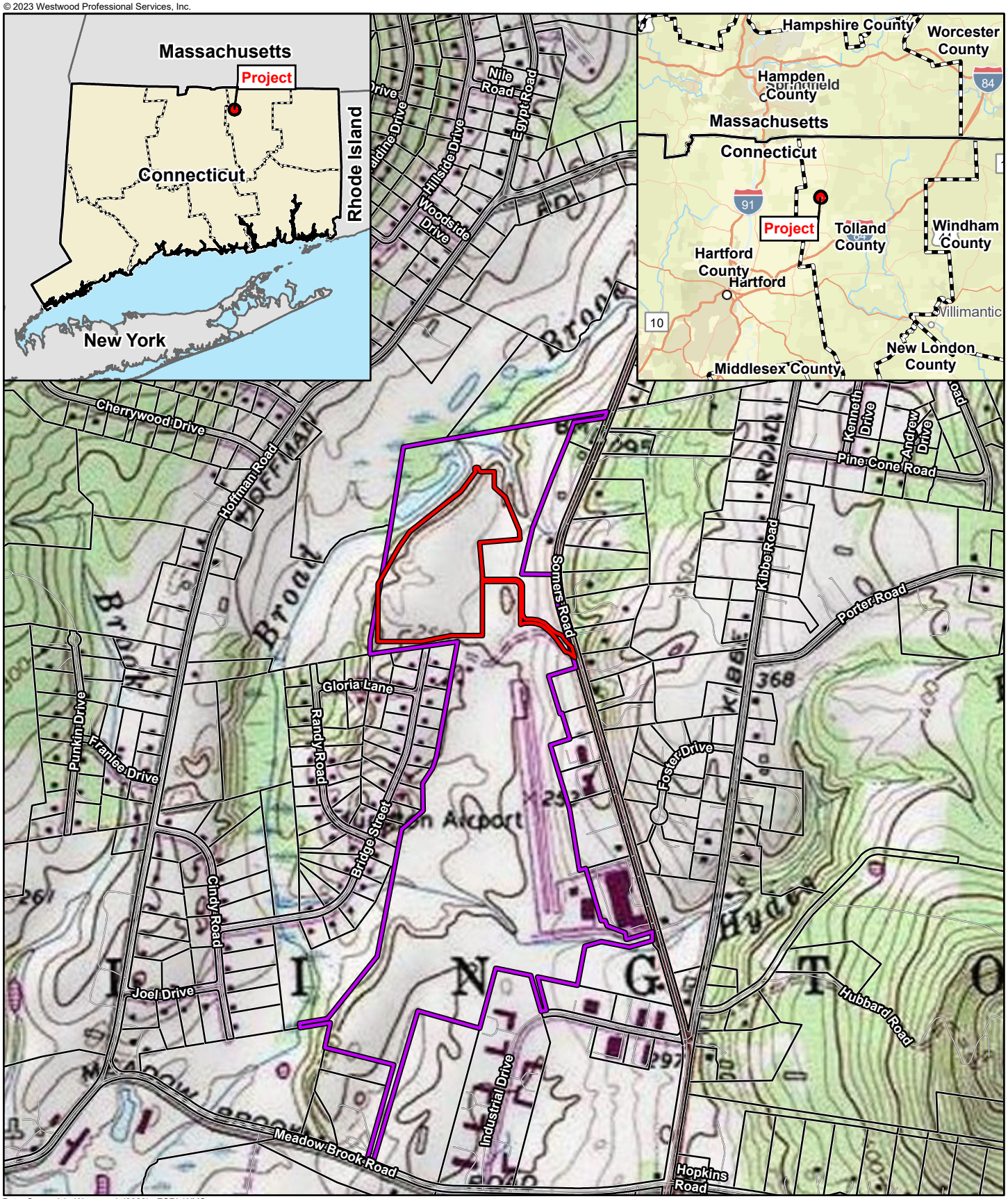
unintentional impacts to these resources. In addition, E&S controls will be installed and maintained throughout construction in accordance with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*. Implementing these management techniques will mitigate the potential for adverse impacts to wetland resources.

While one state species of special concern, one federally listed endangered species and one federally listed candidate species have been identified as potentially occurring within the vicinity of the site, protection measures will be implemented during construction to avoid and/or minimize potential impacts to these species. Additionally, site management strategies will be implemented to promote the habitat development and operational compatibility with these species.

Portions of the Facility will likely be seen from surrounding areas, including adjoining residential properties and nearby public roadways. An existing vegetation buffer consisting of a mix of deciduous and evergreen trees and shrubs is present around a majority of the Project's perimeter. Most views of the Facility would occur from properties immediately abutting the Site during leaf off times of year. Views from beyond this distance would be minimized by a combination of the Facility's relatively low height and the presence of intervening vegetation and infrastructure.

Overall, the Project's design minimizes the creation of impervious surfaces. The Project has been designed to adequately handle stormwater runoff through the creation of multiple stormwater infiltration basins and drainage swales proposed at peripheral locations of the Facility. Some minor Site manipulation (cuts/fills), regrading, and trenching will be required to allow for stormwater management basin and swale development, access road construction, and electrical infrastructure installation, but the majority of the Project Area will maintain existing grades for the installation of the solar arrays. The Project has been designed in accordance with the DEEP's *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities*. The Petitioner will implement a SWPCP, in accordance with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*, that will include provisions for monitoring of development activities and the establishment of E&S controls to be installed and maintained throughout construction.

Figures



Data Source(s): Westwood (2023); ESRI WMS U.S. Topography & World Streets Basemaps (Accessed 2023); U.S. Census Bureau (2022); CT DEEP (2022); OpenStreetMap (2022).

Feet
0 1,000

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Legend

- Project Area
- Property Boundary
- Parcel Boundary
- Local Road

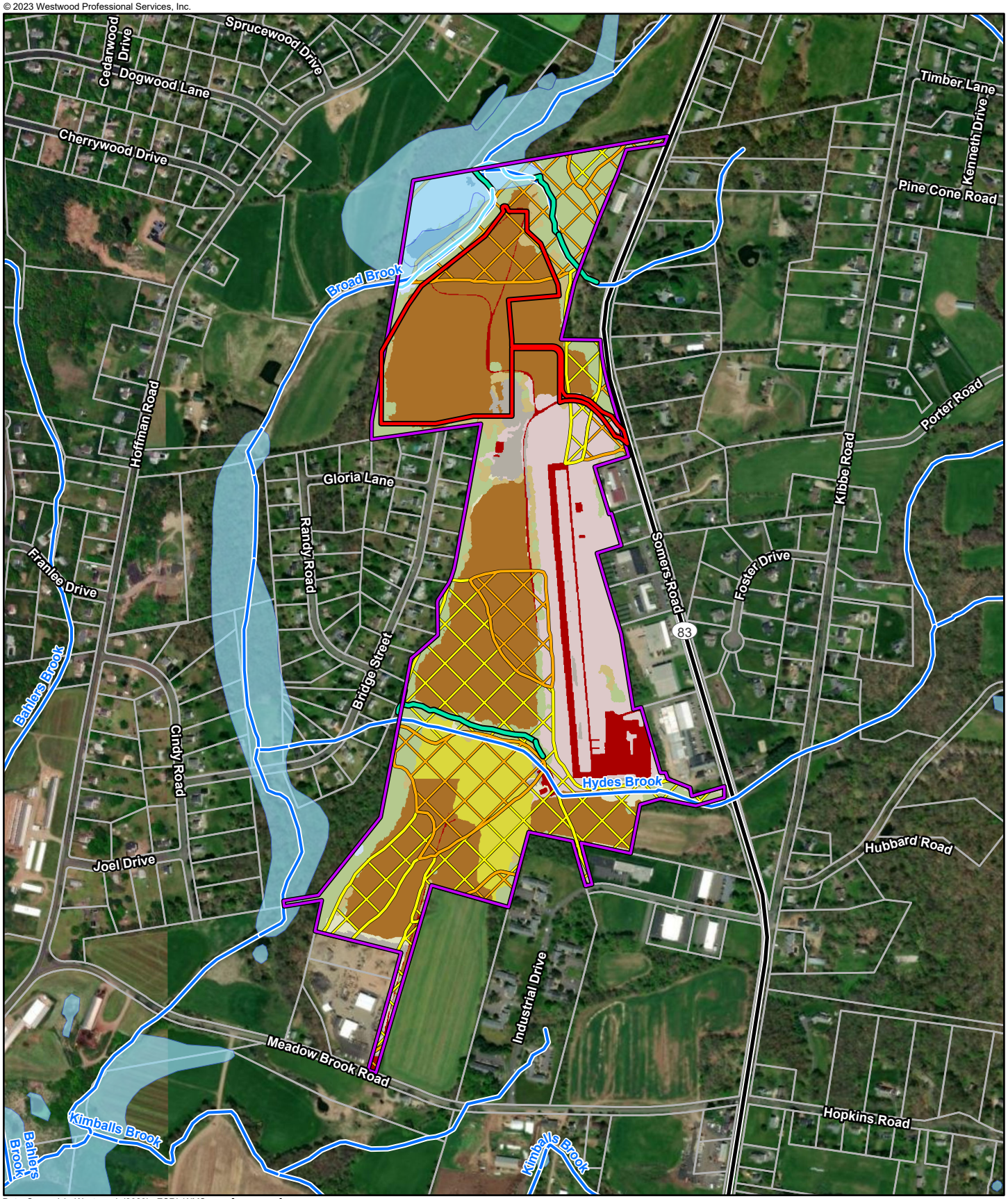
N

Somers Solar Project

Town of Ellington, Connecticut

Project Location & USGS Topography

EXHIBIT 1



Data Source(s): Westwood (2023); ESRI WMS World Imagery Basemaps (Accessed 2023); CT DEEP (2022); NRCS Web Soil Survey (Accessed 2023); C-Cap Land Cover (2020); OpenStreetMap (2022); NHD (2021).

0 800 Feet

Legend

- Project Area
- Property Boundary
- Parcel Boundary
- Major Road
- Delineated Stream
- Delineated Wetland Boundary
- NHD Flowline
- NHD Waterbody

Prime Farmland

- All areas are prime farmland
- Farmland of statewide importance

Land Classification

- Barren Land
- Cultivated Crops
- Developed, High Intensity
- Developed, Open Space
- Grassland/ Herbaceous
- Mixed Forest
- Open Water
- Palustrine Forested Wetland
- Pasture/Hay
- Scrub/Shrub

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Westwood Professional Services, Inc.

Somers Solar Project

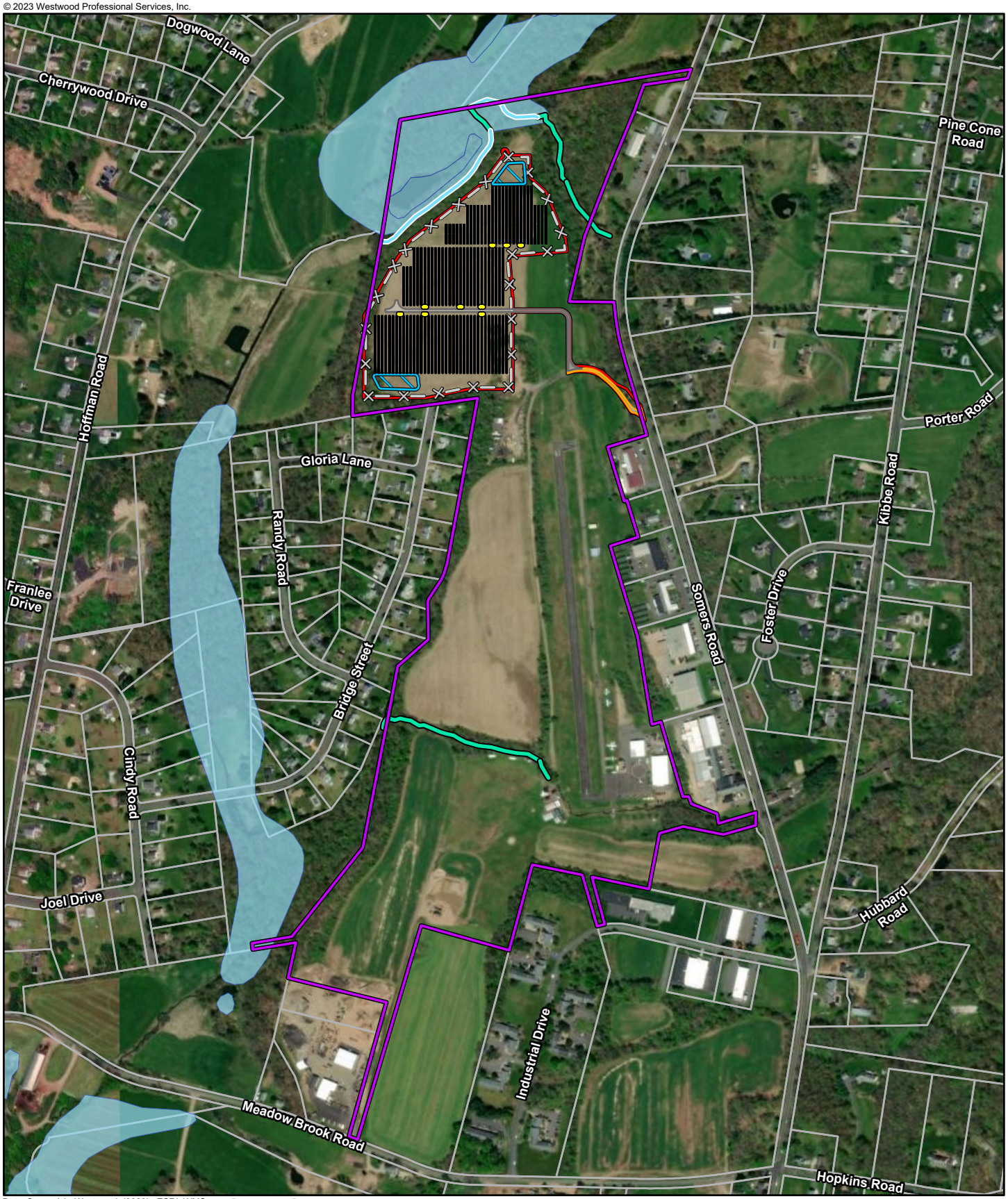
Town of Ellington, Connecticut

N

Existing Conditions

EXHIBIT 2

Map Document: \\westwoodps.local\Global Projects\0028111.00\GIS\ArcPro\R0028111_Somers_Solar_EAExhibitsUpdate\Somers_Exhibits_210518\Somers_Exhibits_210518.aprx 7/10/2023 9:43 AM LMaldonado



Data Source(s): Westwood (2023); ESRI WMS World Imagery Basemaps (Accessed 2023); CT DEEP (2022); OpenStreetMap (2022).

Feet
0 700

Legend

- Project Area
- Property Boundary
- Parcel Boundary
- Delineated Stream
- Delineated Wetland Boundary
- NHD Waterbody
- NHD Flowline

Project Features

- Inverter
- Array
- Access Road
- Existing Access Road
- Water Basin
- Fence Line

Somers Solar Project

Town of Ellington, Connecticut

N

Proposed Conditions

EXHIBIT 3

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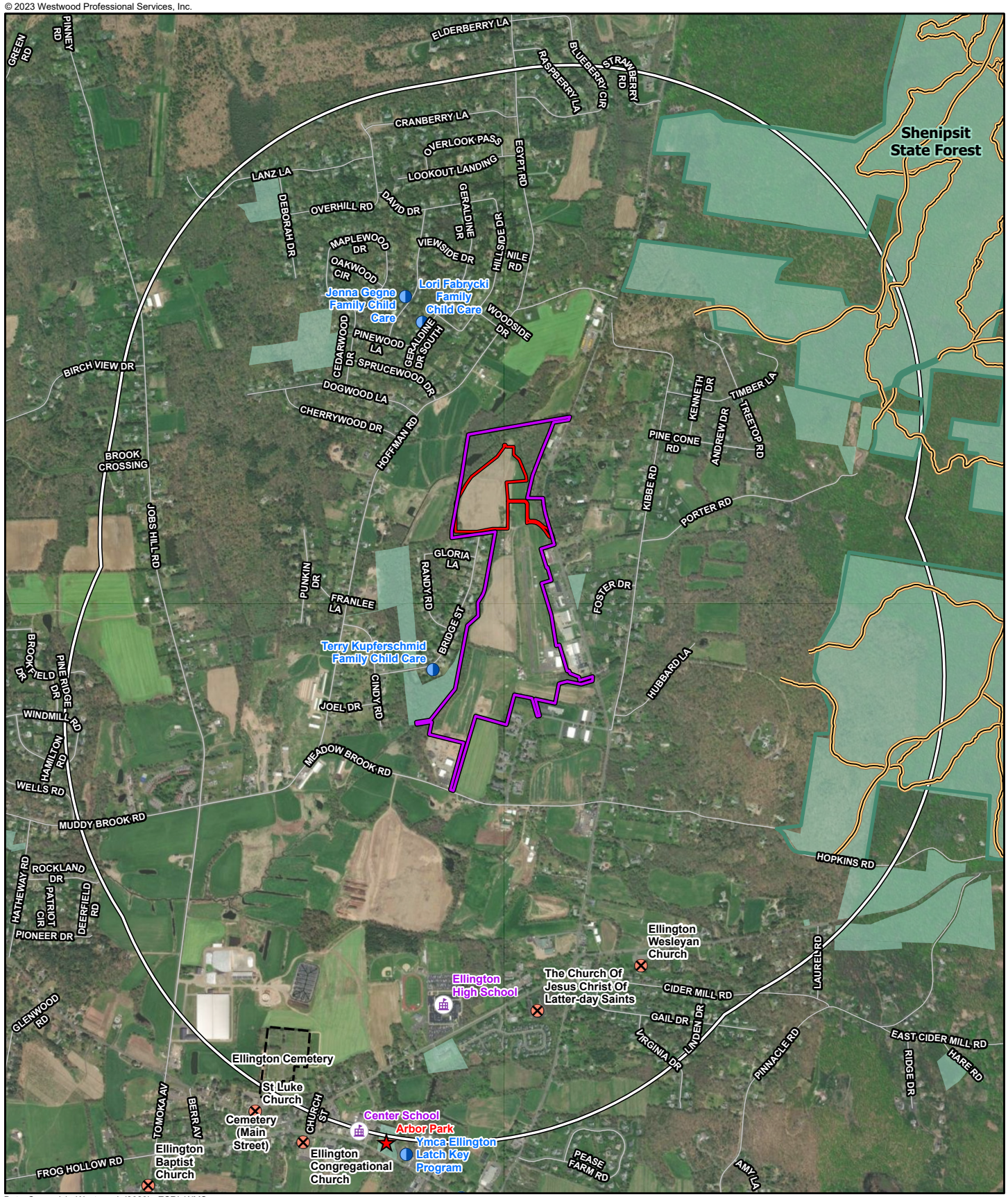
Map Document: \\westwoodps.local\Global Projects\0028111.00\GIS\ArcPro\R0028111_Somers_Solar_EAExhibitsUpdate\Somers_Exhibits_210518\Somers_Exhibits_210518.aprx 7/10/2023 9:44 AM LMaldonado



Data Source(s): Westwood (2023); ESRI WMS World Imagery Basemaps (Accessed 2023); CT DEEP (2023); USGS (2020); NLCD (2019).

Legend

- Project Area
- Property Boundary
- 1 Mile Project Buffer
- State Forest
- Protected Open Space
- Cemetery
- Trail
- Local Road
- Religious Facility
- Park
- Daycare Facility
- School

Feet
0 2,000

Westwood

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Somers Solar Project

Town of Ellington, Connecticut

N

Surrounding Features

EXHIBIT 4

Data Source(s): Westwood (2023); ESRI WMS World Imagery Basemaps (Accessed 2023); CT DEEP (2023); USGS (2020).

Legend

- Project Area
- Property Boundary
- Forestland Habitat Impact
- Local Road

Feet
0 1,300

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Somers Solar Project

Town of Ellington, Connecticut

N

Forestland Habitat Impact

EXHIBIT 5

Appendix A

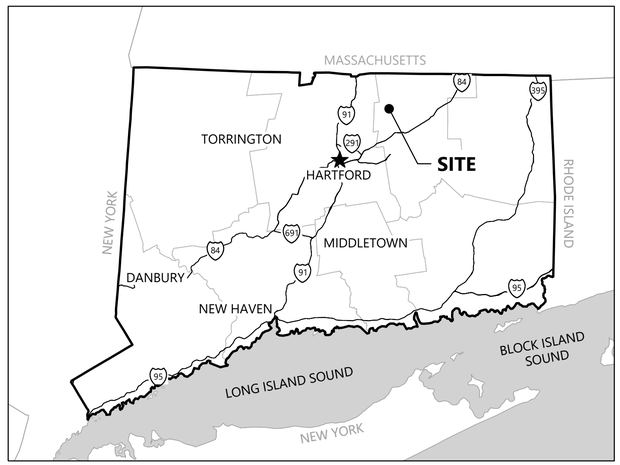
Project Plans

USS Somers Solar LLC

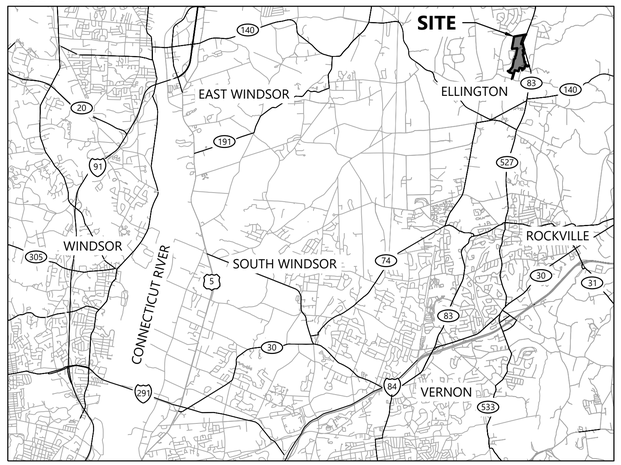
Tolland County, CT

Sediment Erosion and Sediment Control Plans

REGIONAL MAP



VICINITY MAP



Sheet List Table	
SHEET NUMBER	SHEET TITLE
C001	Cover
C100	Existing Conditions
C101	Existing Conditions
C102	Existing Conditions
C103	Existing Conditions
C106	Overall Site Plan
C200	PV Site Plan
C201	PV Site Plan
C202	PV Site Plan
C203	PV Site Plan
C300	Sedimentation & Erosion Control Plan - Phase 1
C301	Sedimentation & Erosion Control Plan - Phase 1
C302	Sedimentation & Erosion Control Plan - Phase 1

Sheet List Table	
SHEET NUMBER	SHEET TITLE
C303	Sedimentation & Erosion Control Plan - Phase 1
C310	Sedimentation & Erosion Control Plan - Phase 2
C311	Sedimentation & Erosion Control Plan - Phase 2
C312	Sedimentation & Erosion Control Plan - Phase 2
C313	Sedimentation & Erosion Control Plan - Phase 2
C320	Sedimentation & Erosion Control Plan - Phase 3
C321	Sedimentation & Erosion Control Plan - Phase 3
C322	Sedimentation & Erosion Control Plan - Phase 3
C323	Sedimentation & Erosion Control Plan - Phase 3
C400	Construction Details
C401	Construction Details
C402	Construction Details
C403	Construction Notes

CONTACT INFORMATION				
	COMPANY	CONTACT	PHONE	ADDRESS
PROJECT OWNER/DEVELOPER	UNITED STATES SOLAR CORPORATION	PETER SCHMITT	612-299-1434	100 N 6TH ST. #218C, MINNEAPOLIS, MN, 55403
PROJECT MANAGER	WESTWOOD SURVEYING AND ENGINEERING, P.C.	MITCHELL OTT, P.E. (WI)	608-821-6603	8401 GREENWAY BLVD., #400 MIDDLETON, WI 53562
PROJECT CIVIL ENGINEER	WESTWOOD SURVEYING AND ENGINEERING, P.C.	JOE DIETRICH, P.E. (CT)	215-855-7477	1684 S. BROAD ST., #120 LANSDALE, PA 19446

PROJECT LOCATION (APPROXIMATE CENTER OF SITE)
LATITUDE = 41.928319° N
LONGITUDE = 72.455663° W

PROJECT COORDINATE SYSTEM
BEARINGS & DIMENSIONS ARE BASED ON
NSRS 2011, CONNECTICUT STATE PLANES ZONE, US FOOT

Westwood
Phone (608) 821-6600
12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343
westwoodps.com
Westwood Surveying and Engineering, P.C.

PREPARED FOR:

US SOLAR
100 N 6th St. #410B
Minneapolis, MN, 55403

REVISIONS:

#	DATE	COMMENT
A	11/18/22	Issued for CSC Petition
B	03/20/23	Issued for CSC Petition
C	05/17/23	Issued for CSC Petition
D	07/28/23	Issued for CSC Petition

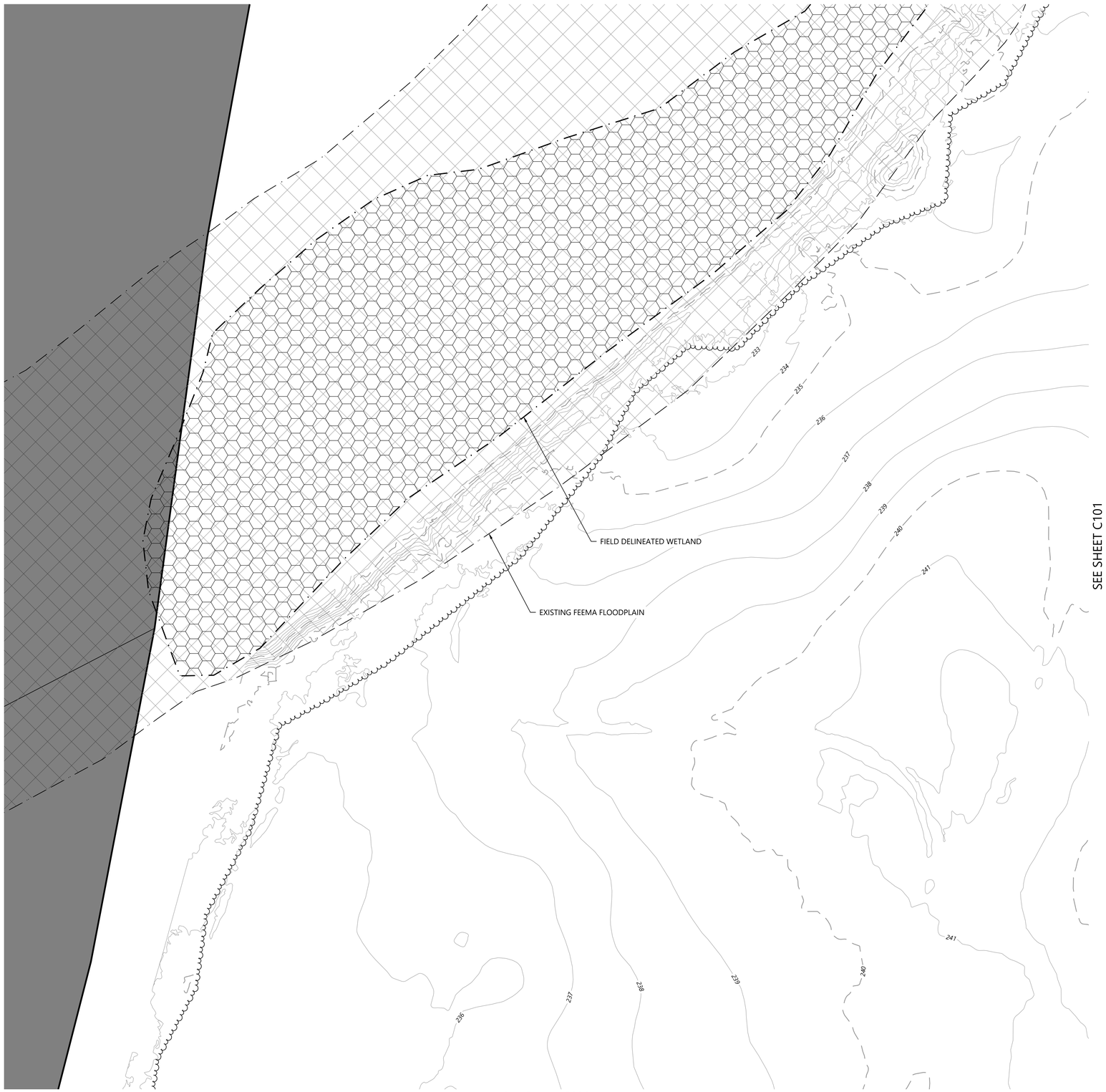
USS Somers Solar LLC
Tolland County, Town of Ellington, CT

Cover

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

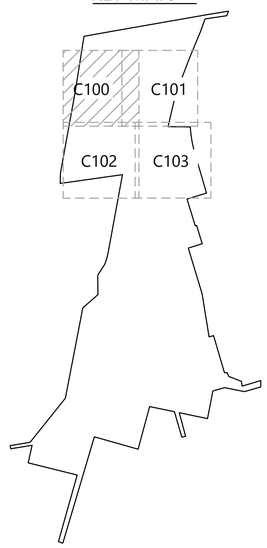
SHEET: C001



LEGEND

- PROPERTY LINE
- EX. RIGHT-OF-WAY LINES
- EX. LOT LINES
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER LINE
- EX. CULVERT
- EX. 5' INDEX CONTOUR
- EX. 1' INTERVAL CONTOUR
- EX. FIELD DELINEATED WETLAND
- EX. FEMA FLOOD ZONE
- EX. BUILDING

KEY MAP:



Westwood

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Minnetonka, MN 55343
westwoodps.com

Westwood Surveying and Engineering, P.C.

PREPARED FOR:

US SOLAR

100 N 6th St. #410B
Minneapolis, MN, 55403

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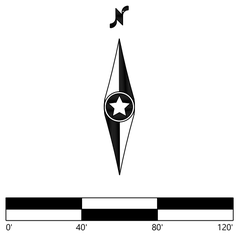


USS Somers Solar LLC

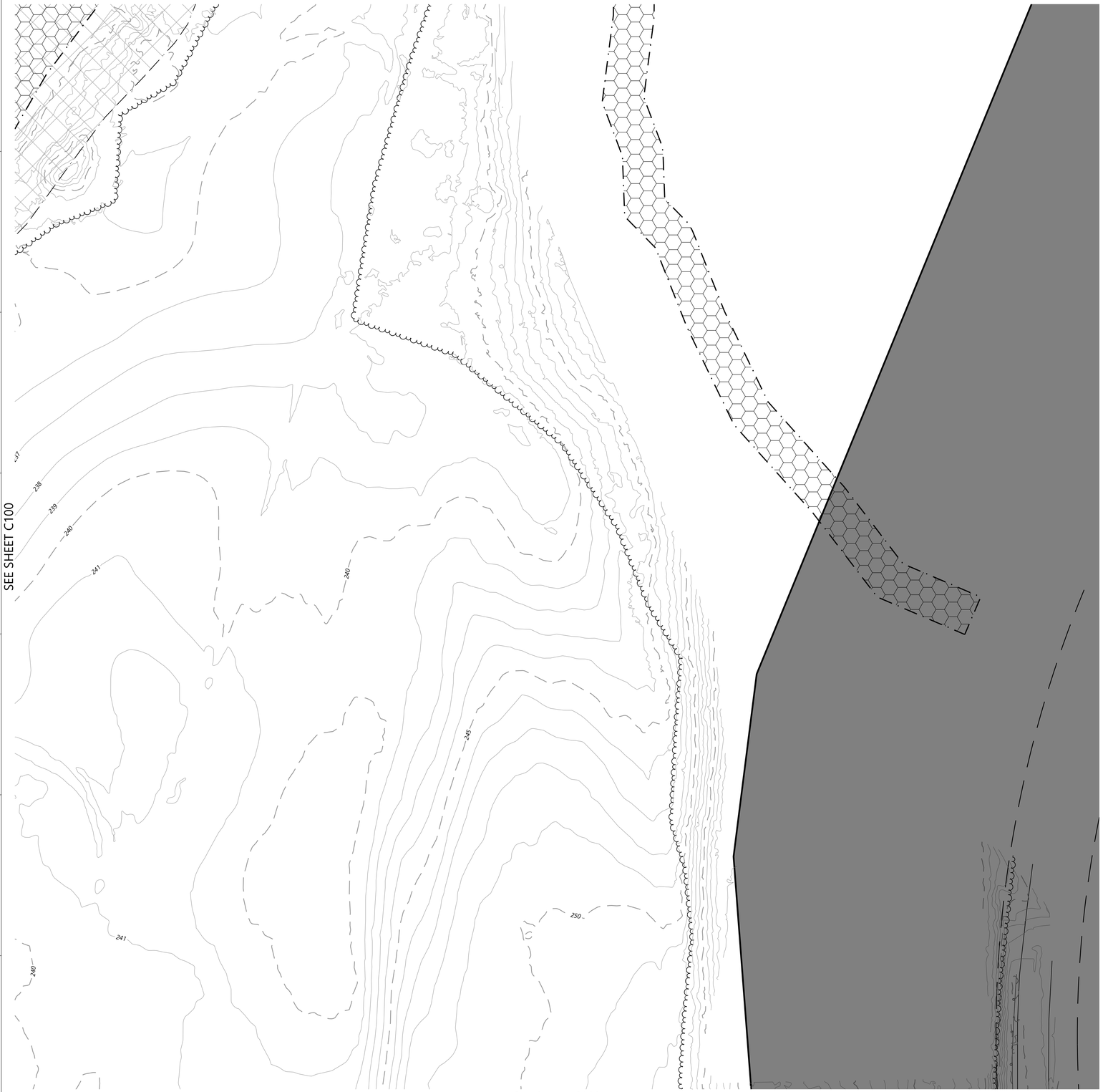
Tolland County, Town of Ellington, CT

Existing Conditions

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

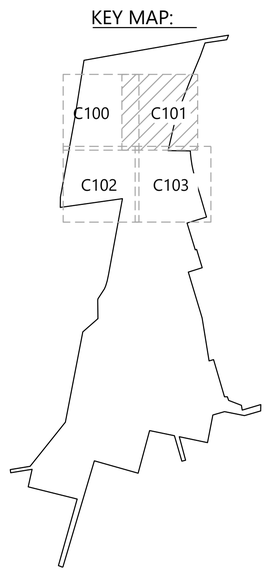
SHEET: C100

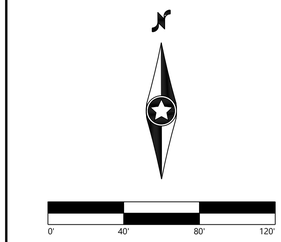


LEGEND

- PROPERTY LINE
- EX. RIGHT-OF-WAY LINES
- EX. LOT LINES
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER LINE
- EX. CULVERT
- EX. 5' INDEX CONTOUR
- EX. 1' INTERVAL CONTOUR
- EX. FIELD DELINEATED WETLAND
- EX. FEMA FLOOD ZONE
- EX. BUILDING

KEY MAP:





Westwood

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PREPARED FOR:

US SOLAR

100 N 6th St. #410B
Minneapolis, MN, 55403

REVISIONS:

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USS Somers Solar LLC

Tolland County, Town of Ellington, CT

Existing Conditions

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

SHEET: C101

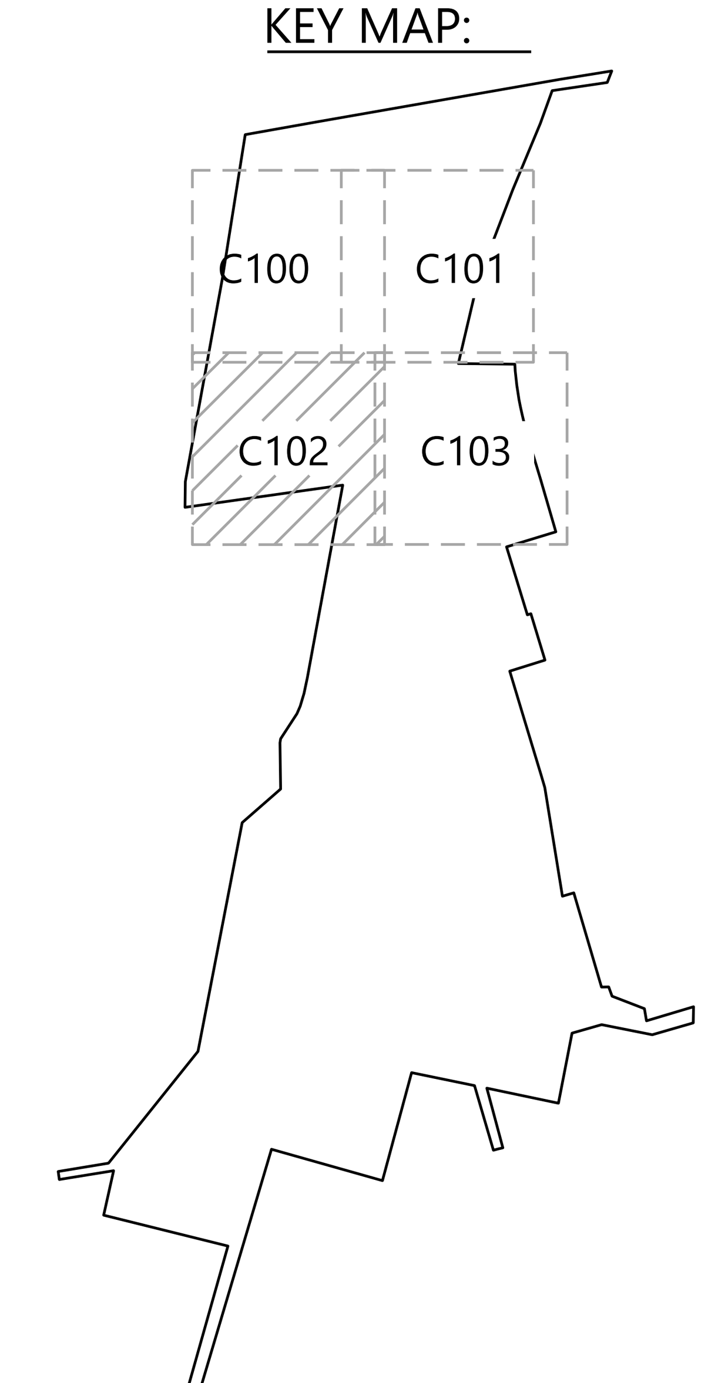
SEE SHEET C100

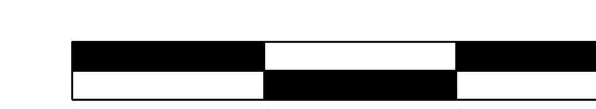
SEE SHEET C103

LEGEND

	PROPERTY LINE
	EX. RIGHT-OF-WAY LINES
	EX. LOT LINES
	EX. TREELINE
	EX. PAVED ROAD
	EX. GRAVEL ROAD
POH	EX. OVERHEAD POWER LINE
STO	EX. CULVERT
900	EX. 5' INDEX CONTOUR
	EX. 1' INTERVAL CONTOUR
	EX. FIELD DELINEATED WETLAND
	EX. FEMA FLOOD ZONE
	EX. BUILDING

KEY MAP:





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USS Somers Solar LLC

Tolland County, Town of Ellington, CT

Existing Conditions

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

SHEET: C102

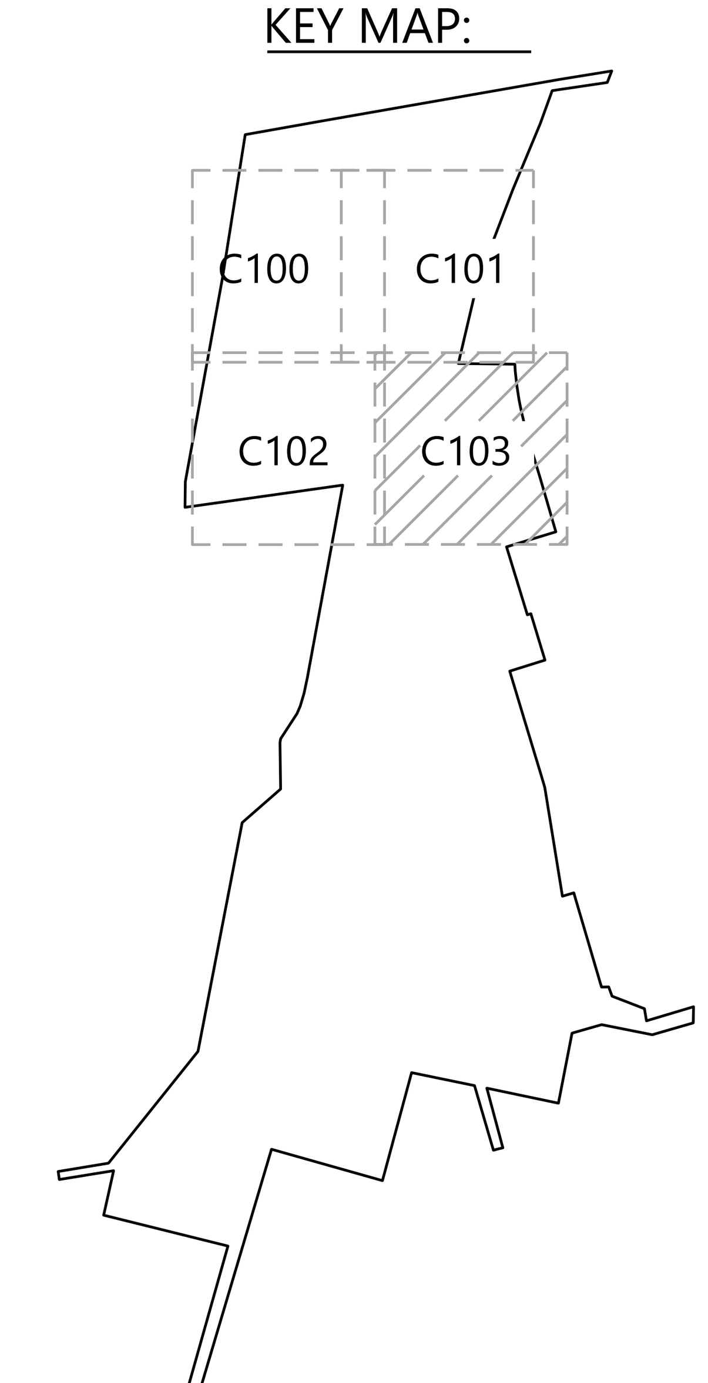
SEE SHEET C101

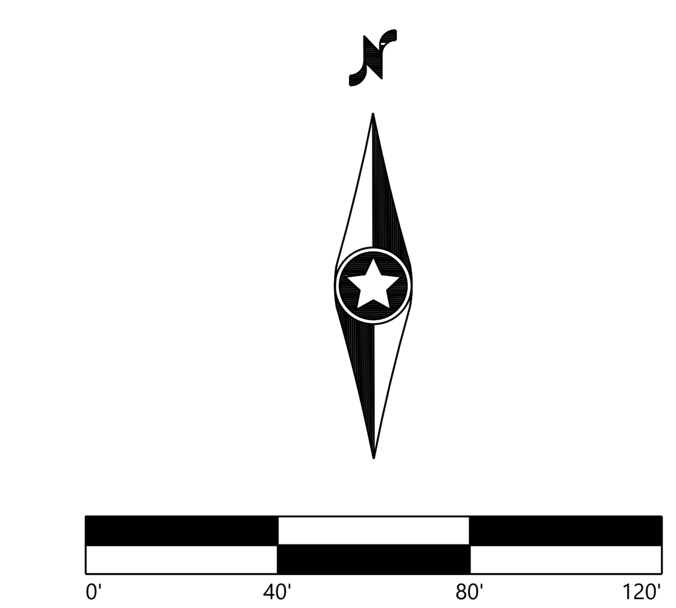
SEE SHEET C102

LEGEND

- PROPERTY LINE
- EX. RIGHT-OF-WAY LINES
- EX. LOT LINES
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER LINE (POH)
- EX. CULVERT (STO)
- EX. 5' INDEX CONTOUR (900)
- EX. 1' INTERVAL CONTOUR
- EX. FIELD DELINEATED WETLAND
- EX. FEMA FLOOD ZONE
- EX. BUILDING

KEY MAP:





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USS Somers Solar LLC

Tolland County, Town of Ellington, CT

Existing Conditions

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NOT FOR CONSTRUCTION

DATE: 07/28/2023

SHEET: C103

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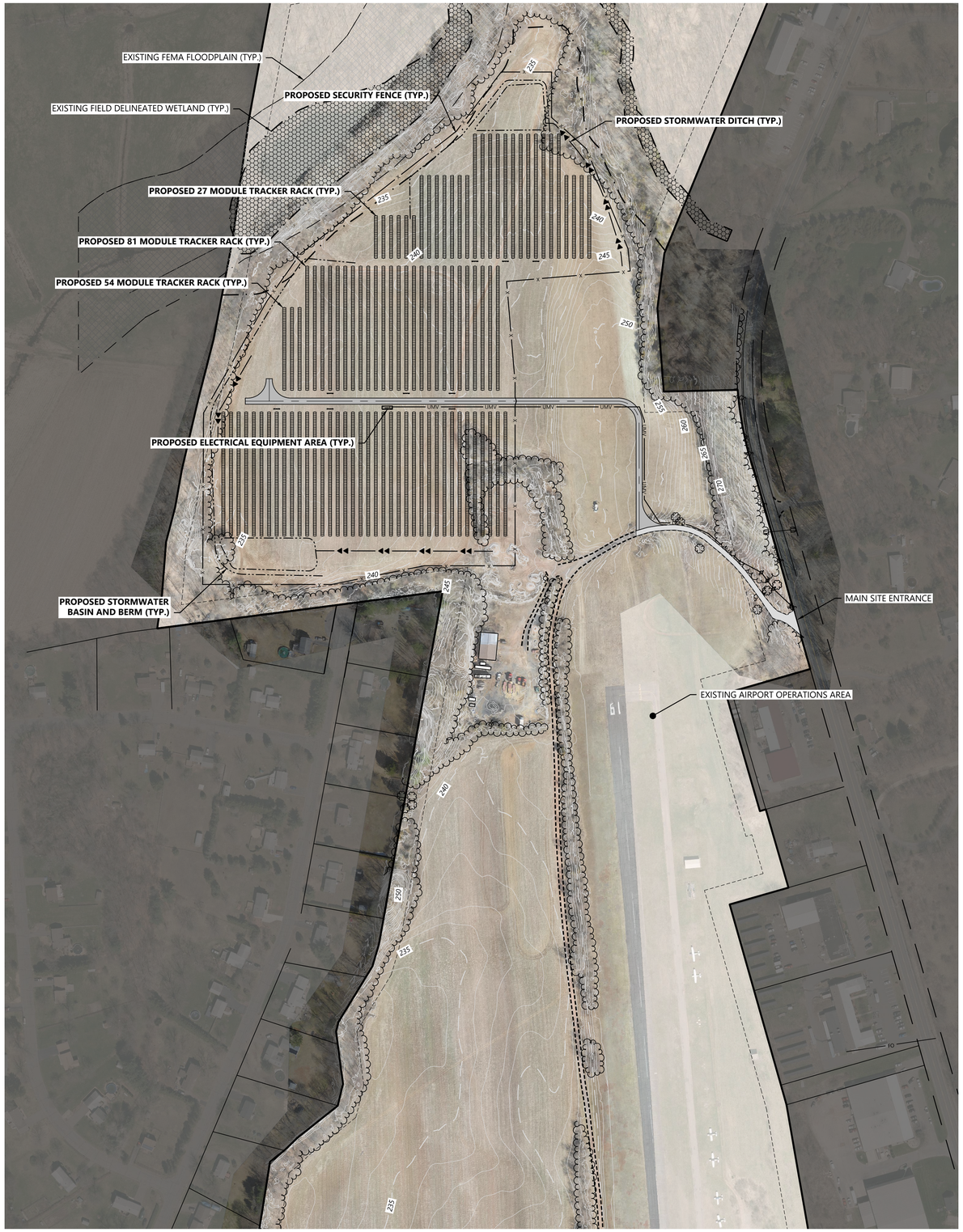

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINES
- EX. LOT LINES
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER LINE
- EX. CULVERT
- EX. 5' INDEX CONTOUR
- EX. 1' INTERVAL CONTOUR
- EX. ACCESS ROAD
- EX. WETLAND
- EX. FEMA FLOOD ZONE
- EX. BUILDING
- YARD SETBACK LINE
- **PROPOSED SINGLE AXIS TRACKER**
- **PROPOSED SWITCHBOARD AND TRANSFORMER PAD**
- **PROPOSED UTILITY POWER POLE**
- **PROPOSED UNDERGROUND COLLECTOR**
- **PROPOSED OVERHEAD POWERLINE**
- **PROPOSED ACCESS ROAD**
- **PROPOSED SECURITY FENCE**
- WETLAND SETBACK LINE
- **PROPOSED STORMWATER BASIN AND BERM**
- **PROPOSED STORMWATER DITCH**

SYSTEM SPECIFICATIONS	
SYSTEM SIZE DC	4,012.8 kW
SYSTEM SIZE AC	2,997 kW
DC/AC RATIO	1.339
MODULE RATING	570 W
TOTAL MODULE QTY	7074
TOTAL NO. 27-MODULE TRACKER RACKS	6
TOTAL NO. 54-MODULE TRACKER RACKS	14
TOTAL NO. 81-MODULE TRACKER RACKS	76
TOTAL NO. INVERTERS	18
INTER-ROW SPACING	11.2'
PITCH	18.7'
GCR	40.0%
FENCED AREA	17.5 ACRES

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0' 150' 300' 450'

USS Somers Solar LLC

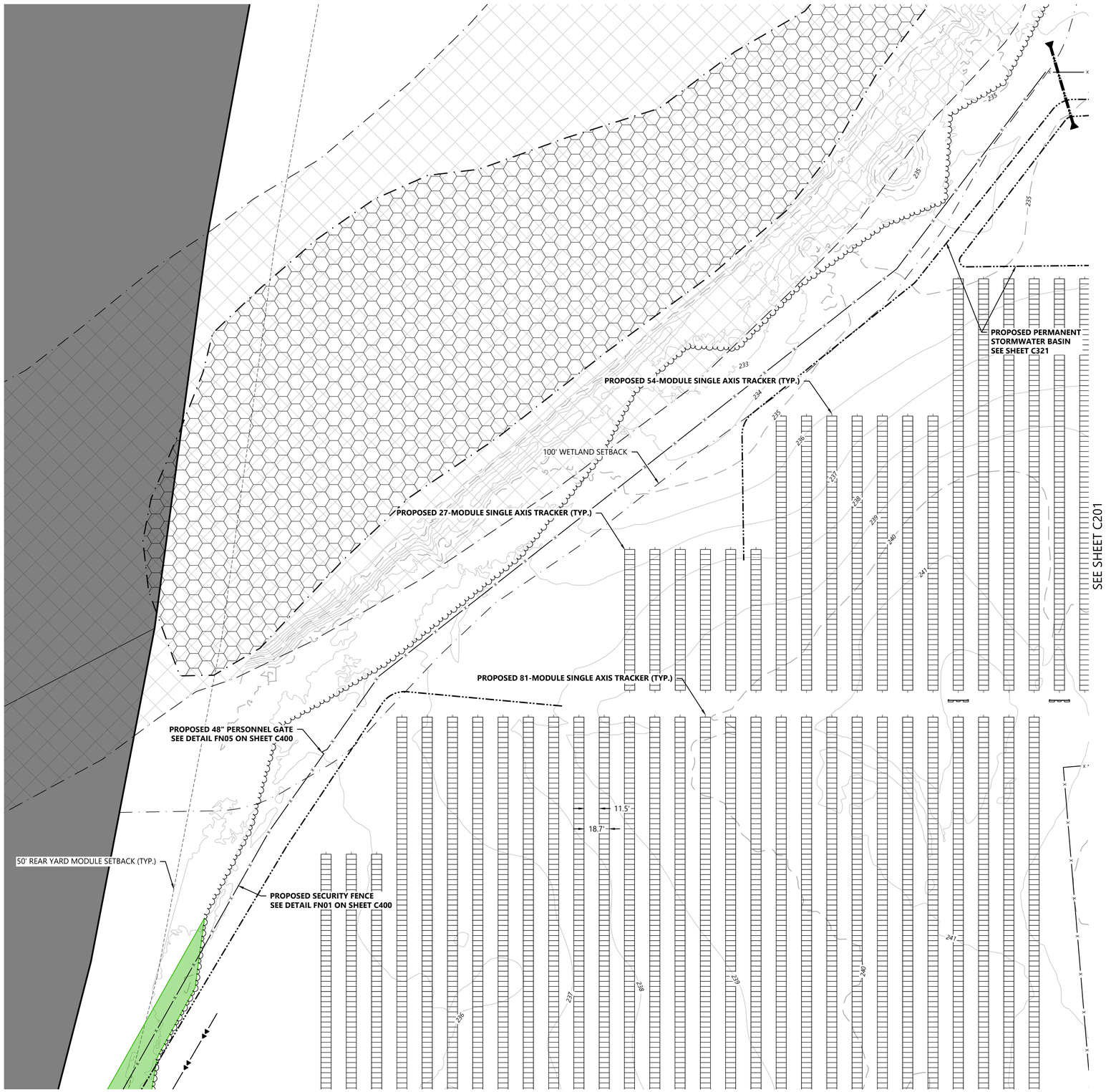
Tolland County, Town of Ellington, CT

Overall Site Plan

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

SHEET: C106



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINES
- EX. LOT LINES
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER LINE
- EX. CULVERT
- EX. 5' INDEX CONTOUR
- EX. 1' INTERVAL CONTOUR
- EX. ACCESS ROAD
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- EX. BUILDING
- YARD SETBACK LINE
- **PROPOSED SINGLE AXIS TRACKER**
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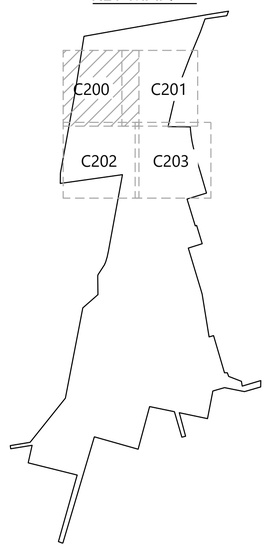
- **PROPOSED OVERHEAD POWERLINE**
- **PROPOSED ACCESS ROAD**
- **PROPOSED SECURITY FENCE**
- WETLAND SETBACK LINE
- **PROPOSED STORMWATER BASIN AND BERM**
- **PROPOSED STORMWATER DITCH**
- **PROPOSED TREE CLEARING**

STRUCTURAL SETBACKS		
	TOWN ORDINANCE SETBACK	PROVIDED
SIDE YARD	50'	437'
REAR YARD	50'	78'
FRONT YARD	100'	178'

KEY MAP:



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D	07/28/23	Issued for CSC Petition

0' 40' 80' 120'

USS Somers Solar LLC

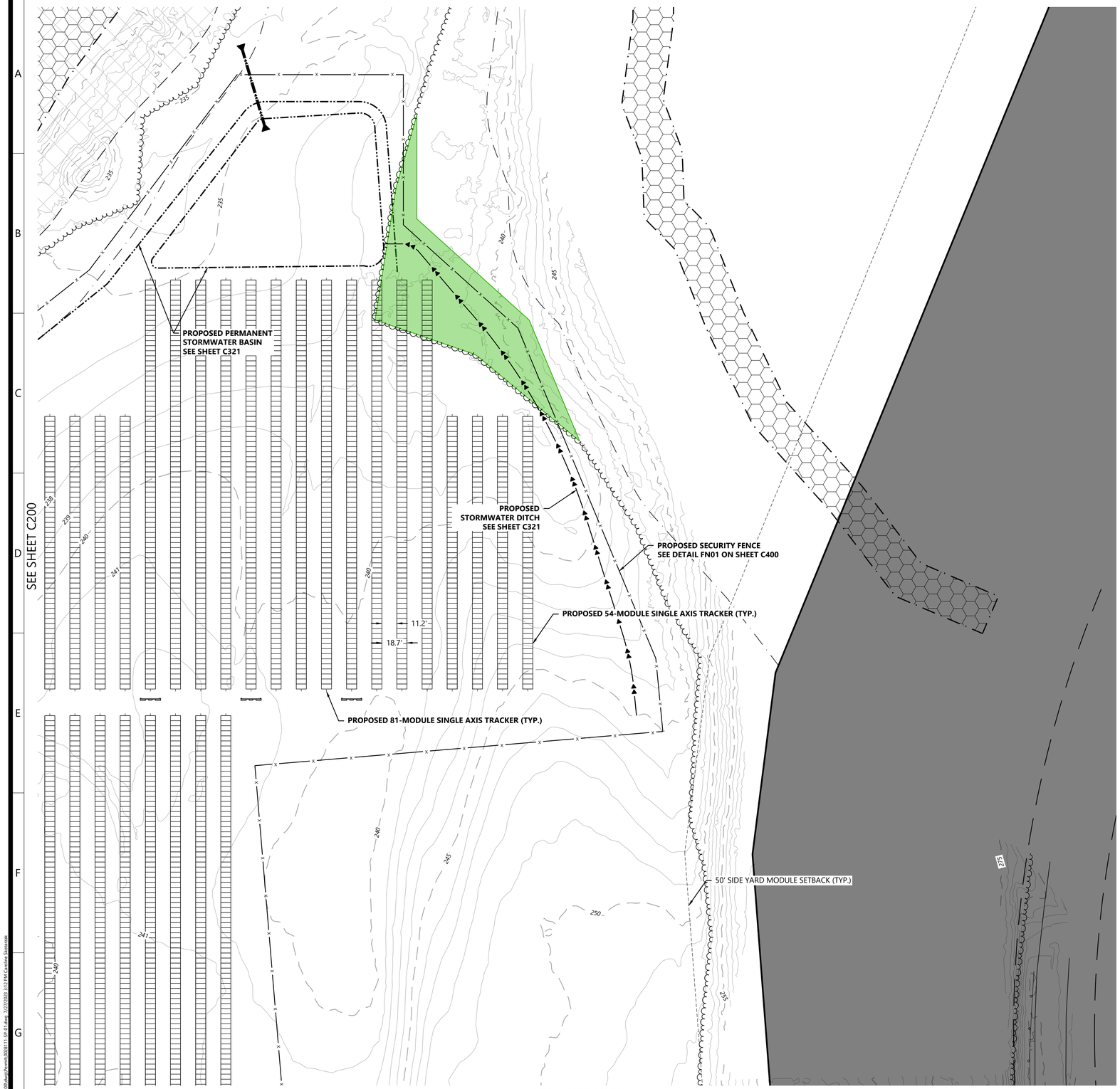
Tolland County, Town of Ellington, CT

PV Site Plan

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

SHEET: C200



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINES
- EX. LOT LINES
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER LINE
- EX. CULVERT
- EX. 5' INDEX CONTOUR
- EX. 1' INTERVAL CONTOUR
- EX. ACCESS ROAD
- EX. WETLAND
- EX. FEMA FLOOD ZONE
- EX. BUILDING
- YARD SETBACK LINE
- **PROPOSED SINGLE AXIS TRACKER**
- **PROPOSED SWITCHBOARD AND TRANSFORMER PAD**
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- **PROPOSED OVERHEAD POWERLINE**
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- **PROPOSED SECURITY FENCE**
- WETLAND SETBACK LINE
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- **PROPOSED STORMWATER DITCH**
- **PROPOSED TREE CLEARING**

STRUCTURAL SETBACKS		
	TOWN ORDINANCE SETBACK	PROVIDED
SIDE YARD	50'	437'
REAR YARD	50'	78'
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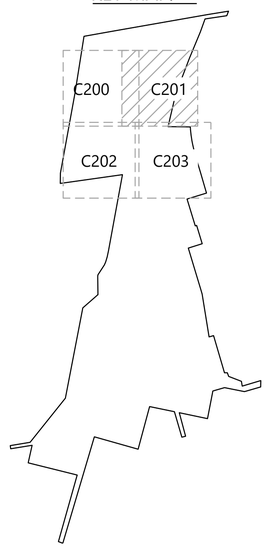

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US SOLAR

100 N 6th St. #410B
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D	07/28/23	Issued for CSC Petition

0' 40' 80' 120'

USS Somers Solar LLC

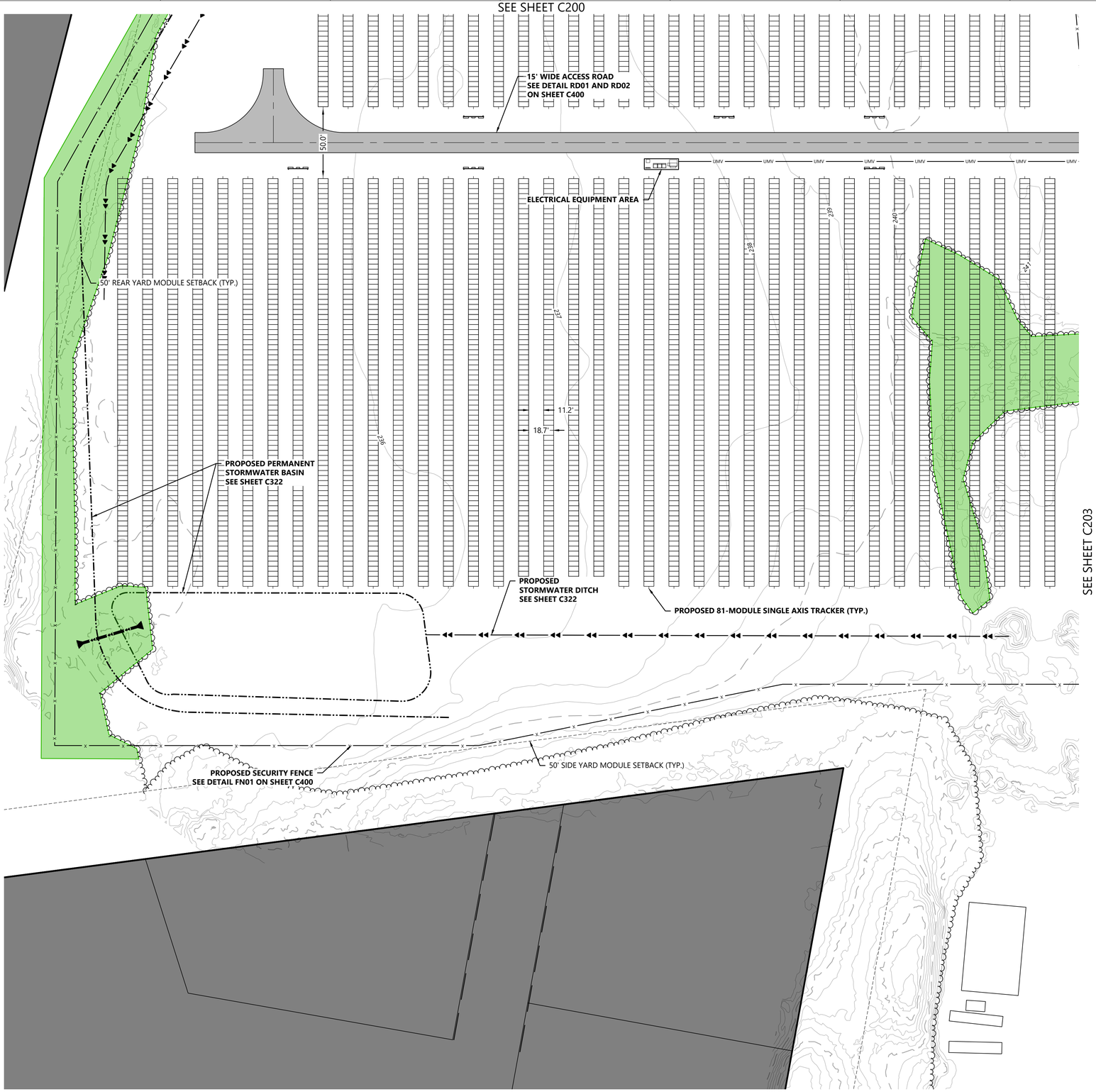
Tolland County, Town of Ellington, CT

PV Site Plan

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

SHEET: C201



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINES
- EX. LOT LINES
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER LINE
- EX. CULVERT
- EX. 5' INDEX CONTOUR
- EX. 1' INTERVAL CONTOUR
- EX. ACCESS ROAD
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- EX. BUILDING
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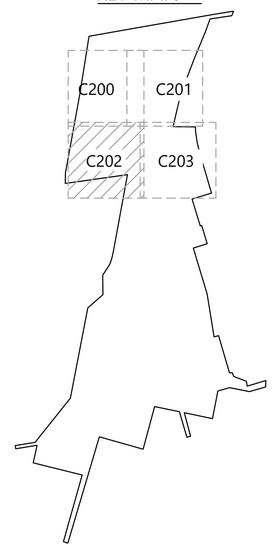
STRUCTURAL SETBACKS		
	TOWN ORDINANCE SETBACK	PROVIDED
SIDE YARD	50'	437'
REAR YARD	50'	78'
FRONT YARD	100'	178'

KEY MAP:



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Minneapolis, MN, 55403

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0' 40' 80' 120'

USS Somers Solar LLC

Tolland County, Town of Ellington, CT

PV Site Plan

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

SHEET: C202

SEE SHEET C201

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINES
- EX. LOT LINES
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER LINE
- EX. CULVERT
- EX. 5' INDEX CONTOUR
- EX. 1' INTERVAL CONTOUR
- EX. ACCESS ROAD
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- EX. BUILDING
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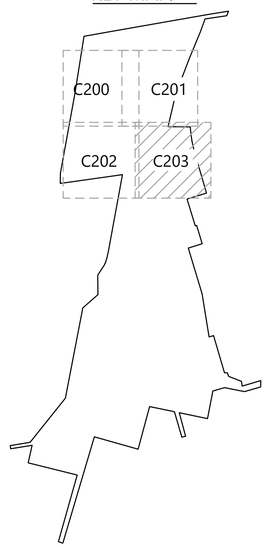
STRUCTURAL SETBACKS		
	TOWN ORDINANCE SETBACK	PROVIDED
SIDE YARD	50'	437'
REAR YARD	50'	78'
FRONT YARD	100'	178'

KEY MAP:



0' 40' 80' 120'

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USS Somers Solar LLC

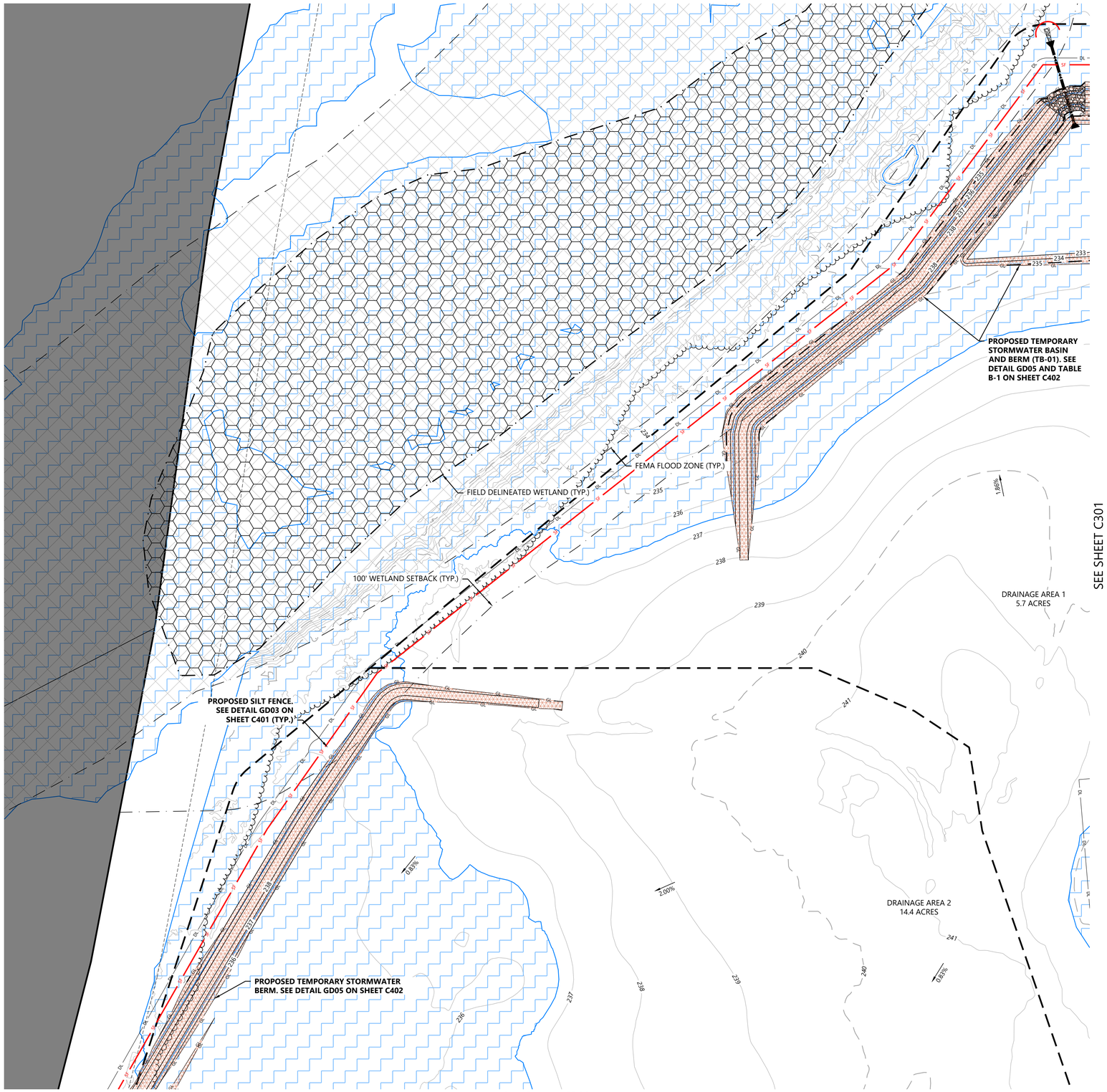
Tolland County, Town of Ellington, CT

PV Site Plan

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

SHEET: C203



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINES
- EX. LOT LINES
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER LINE
- EX. CULVERT
- EX. 5' INDEX CONTOUR
- EX. 1' INTERVAL CONTOUR
- EX. ACCESS ROAD
- EX. WETLAND
- EX. FEMA FLOOD ZONE
- EX. BUILDING
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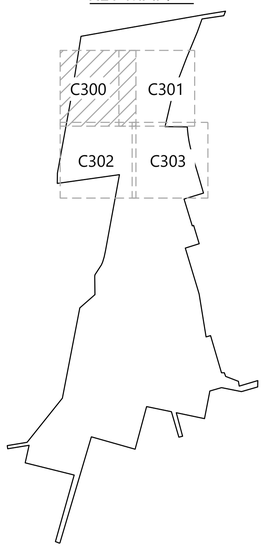
- **PROPOSED UTILITY POWER POLE**
- **PROPOSED UNDERGROUND COLLECTOR**
- **PROPOSED OVERHEAD POWERLINE**
- **PROPOSED ACCESS ROAD**
- **PROPOSED SECURITY FENCE**
- HIGH WATER AREA (>0.5' FLOODING)
- WETLAND SETBACK LINE
- **PROPOSED 5' INDEX CONTOUR**
- **PROPOSED 1' INTERVAL CONTOUR**
- **PROPOSED GRADING BOUNDARY**
- **PROPOSED DISTURBANCE LIMITS**
- EX. GROUND SLOPE
- **PROPOSED SILT FENCE**
- WETLAND SETBACK LINE
- DRAINAGE AREA BOUNDARY
- **PROPOSED EROSION CONTROL BLANKET**
- **PROPOSED RIP RAP**
- **PROPOSED CULVERT**

NOTES:

1. ALL PERIMETER SEDIMENT CONTROLS WILL NEED TO BE INSTALLED PRIOR TO GROUND DISTURBANCE
2. SEE SHEET SERIES C.4XX FOR DETAILS AND SPECIFICATIONS FOR CONSTRUCTION
3. SECURITY FENCE LOCATION TO BE STAKED PRIOR TO INSTALLATION OF SILT FENCE TO PREVENT DAMAGE TO AND REWORK OF BMP CONTROLS
4. PROJECT NOI AND NPDES PERMIT TO BE POSTED WITHIN VIEW OF PUBLIC ROW PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES

GRADING QUANTITIES		
	CUT (CY)	FILL (CY)
TEMP BASIN 01	1321	0
TEMP BERM 01	0	906
NORTH SWALE	42	0
TEMP BASIN 02	1182	0
TEMP BERM 02	5	1102
SOUTH SWALE	308	0
WEST SWALE	27	0
TOTAL	2885	2008

KEY MAP:



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0' 40' 80' 120'

USS Somers Solar LLC

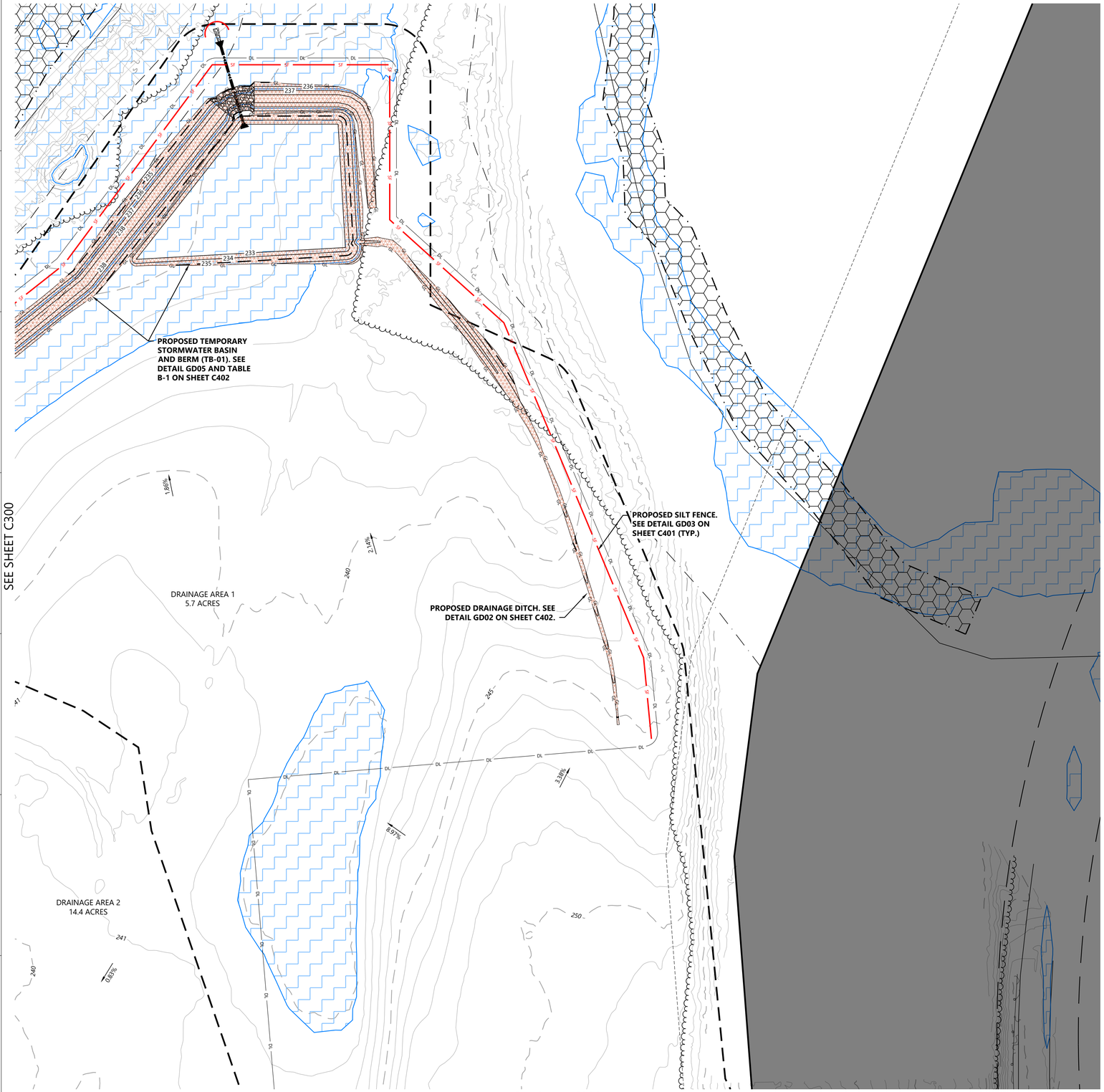
Tolland County, Town of Ellington, CT

Sedimentation & Erosion Control Plan - Phase 1

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

SHEET: C300



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINES
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- EX. TREELINE
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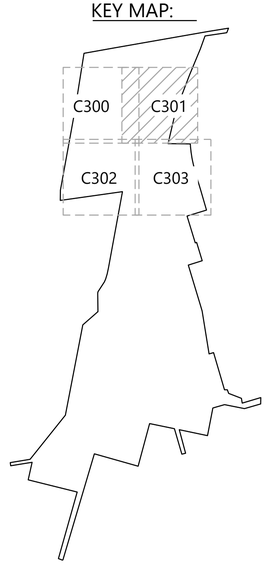
4. PROJECT NOI AND NPDES PERMIT TO BE POSTED WITHIN VIEW OF PUBLIC ROW PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES

GRADING QUANTITIES		
	CUT (CY)	FILL (CY)
TEMP BASIN 01	1321	0
TEMP BERM 01	0	906
NORTH SWALE	42	0
TEMP BASIN 02	1182	0
TEMP BERM 02	5	1102
SOUTH SWALE	308	0
WEST SWALE	27	0
TOTAL	2885	2008

KEY MAP:



Westwood

Phone (608) 821-6600 12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343
westwoodps.com

Westwood Surveying and Engineering, P.C.

PREPARED FOR:

US SOLAR

100 N 6th St. #410B
Minneapolis, MN, 55403

REVISIONS:

#	DATE	COMMENT
A	11/18/22	Issued for CSC Petition
B	03/20/23	Issued for CSC Petition
C	05/17/23	Issued for CSC Petition
D	07/28/23	Issued for CSC Petition

0' 40' 80' 120'

USS Somers Solar LLC

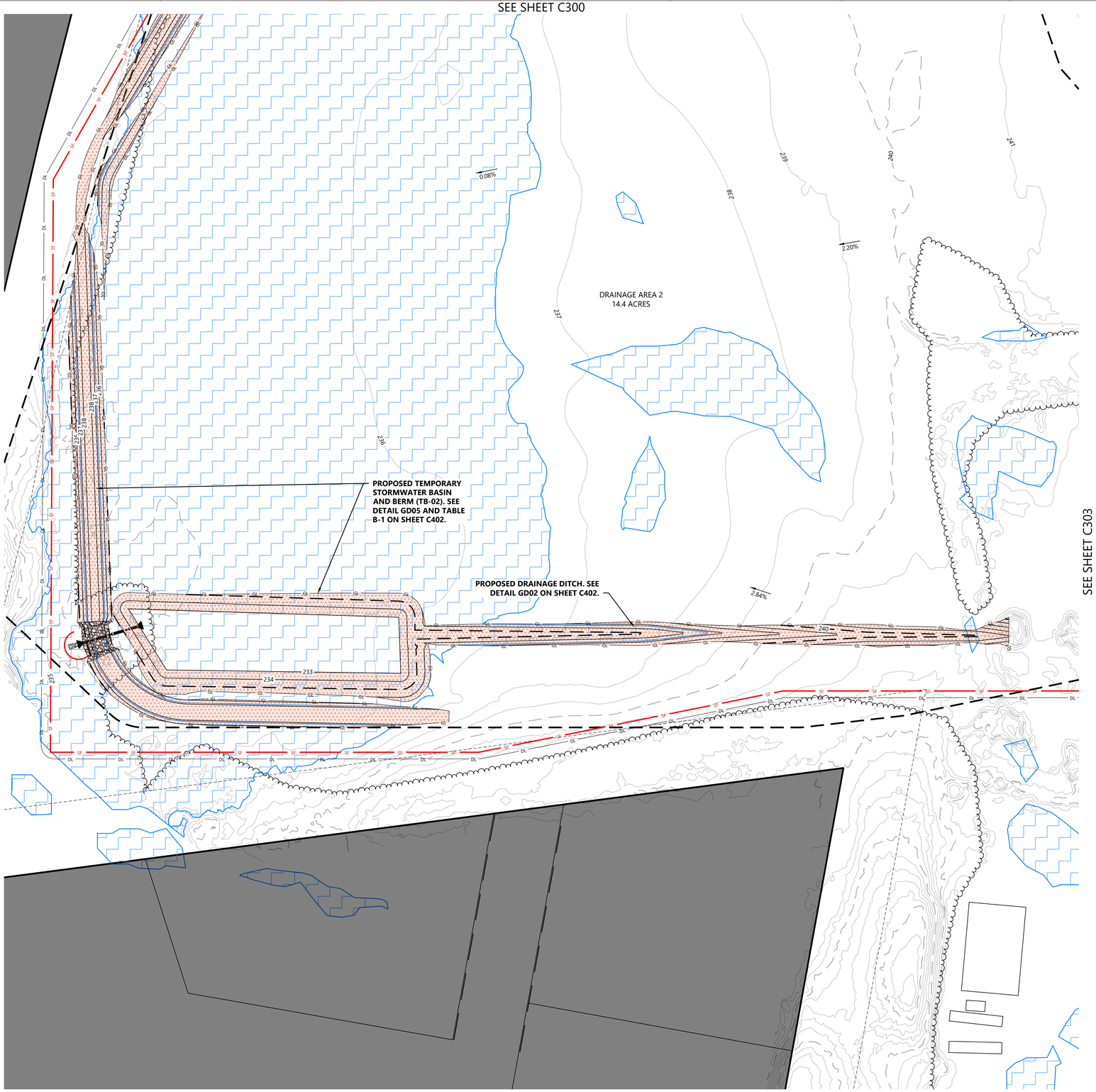
Tolland County, Town of Ellington, CT

Sedimentation & Erosion Control Plan - Phase 1

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

SHEET: C301



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINES
- EX. LOT LINES
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER LINE
- EX. CULVERT
- EX. 5' INDEX CONTOUR
- EX. 1' INTERVAL CONTOUR
- EX. ACCESS ROAD
- EX. WETLAND
- EX. FEMA FLOOD ZONE
- EX. BUILDING
- YARD SETBACK LINE
- **PROPOSED SINGLE AXIS TRACKER**
- **PROPOSED SWITCHBOARD AND TRANSFORMER PAD**
- **PROPOSED UTILITY POWER POLE**
- **PROPOSED UNDERGROUND COLLECTOR**
- **PROPOSED OVERHEAD POWERLINE**
- **PROPOSED ACCESS ROAD**
- **PROPOSED SECURITY FENCE**
- HIGH WATER AREA (>0.5' FLOODING)
- WETLAND SETBACK LINE
- **PROPOSED 5' INDEX CONTOUR**
- **PROPOSED 1' INTERVAL CONTOUR**
- **PROPOSED GRADING BOUNDARY**
- **PROPOSED DISTURBANCE LIMITS**
- EX. GROUND SLOPE
- **PROPOSED SILT FENCE**
- WETLAND SETBACK LINE
- DRAINAGE AREA BOUNDARY
- **PROPOSED EROSION CONTROL BLANKET**
- **PROPOSED RIP RAP**
- **PROPOSED CULVERT**

NOTES:

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2. SEE SHEET SERIES C.4XX FOR DETAILS AND SPECIFICATIONS FOR CONSTRUCTION
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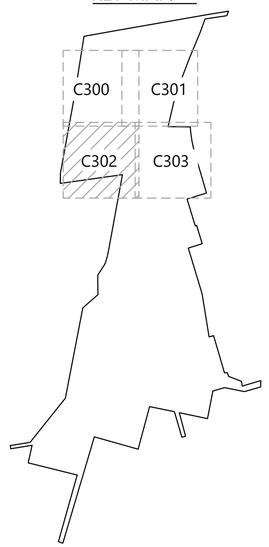
4. PROJECT NOI AND NPDES PERMIT TO BE POSTED WITHIN VIEW OF PUBLIC ROW PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES

GRADING QUANTITIES

	CUT (CY)	FILL (CY)
TEMP BASIN 01	1321	0
TEMP BERM 01	0	906
NORTH SWALE	42	0
TEMP BASIN 02	1182	0
TEMP BERM 02	5	1102
SOUTH SWALE	308	0
WEST SWALE	27	0
TOTAL	2885	2008

KEY MAP:



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100 N 6th St. #410B
Minneapolis, MN, 55403

REVISIONS:

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B	03/20/23	Issued for CSC Petition
C	05/17/23	Issued for CSC Petition
D	07/28/23	Issued for CSC Petition

0' 40' 80' 120'

USS Somers Solar LLC

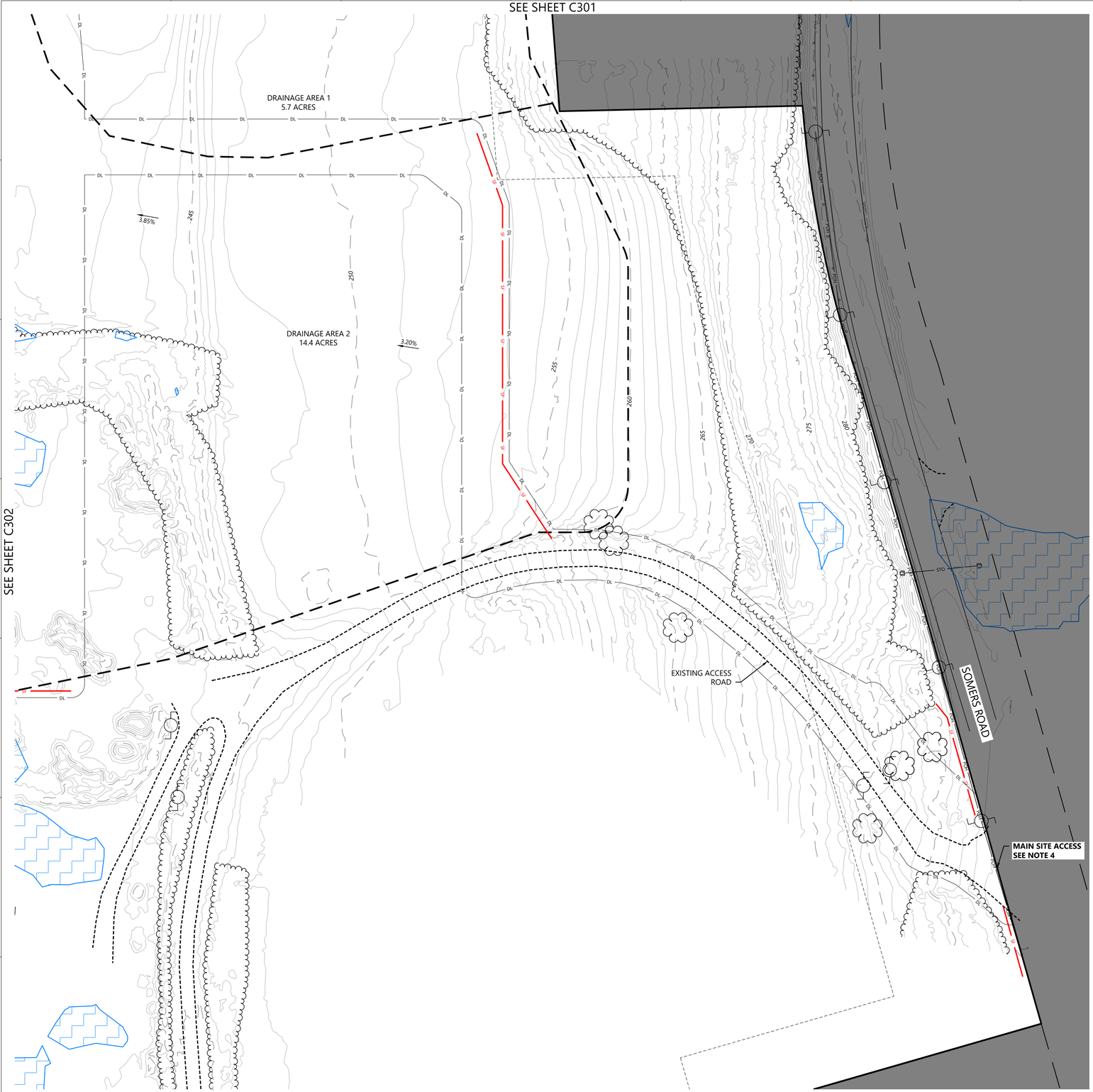
Tolland County, Town of Ellington, CT

Sedimentation & Erosion Control Plan - Phase 1

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

SHEET: C302



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINES
- EX. LOT LINES
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER LINE
- EX. CULVERT
- EX. 5' INDEX CONTOUR
- EX. 1' INTERVAL CONTOUR
- EX. ACCESS ROAD
- EX. WETLAND
- EX. FEMA FLOOD ZONE
- EX. BUILDING
- YARD SETBACK LINE
- **PROPOSED SINGLE AXIS TRACKER**
- **PROPOSED SWITCHBOARD AND TRANSFORMER PAD**
- **PROPOSED UTILITY POWER POLE**
- **PROPOSED UNDERGROUND COLLECTOR**
- **PROPOSED OVERHEAD POWERLINE**
- **PROPOSED ACCESS ROAD**
- **PROPOSED SECURITY FENCE**
- HIGH WATER AREA (>0.5' FLOODING)
- WETLAND SETBACK LINE
- **PROPOSED 5' INDEX CONTOUR**
- **PROPOSED 1' INTERVAL CONTOUR**
- **PROPOSED GRADING BOUNDARY**
- **PROPOSED DISTURBANCE LIMITS**
- EX. GROUND SLOPE
- **PROPOSED SILT FENCE**
- WETLAND SETBACK LINE
- DRAINAGE AREA BOUNDARY
- **PROPOSED EROSION CONTROL BLANKET**
- **PROPOSED RIP RAP**
- **PROPOSED CULVERT**

NOTES:

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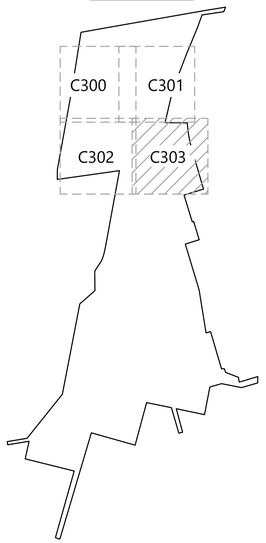
GRADING QUANTITIES		
	CUT (CY)	FILL (CY)
TEMP BASIN 01	1321	0
TEMP BERM 01	0	906
NORTH SWALE	42	0
TEMP BASIN 02	1182	0
TEMP BERM 02	5	1102
SOUTH SWALE	308	0
WEST SWALE	27	0
TOTAL	2885	2008

KEY MAP:



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0' 40' 80' 120'

USS Somers Solar LLC

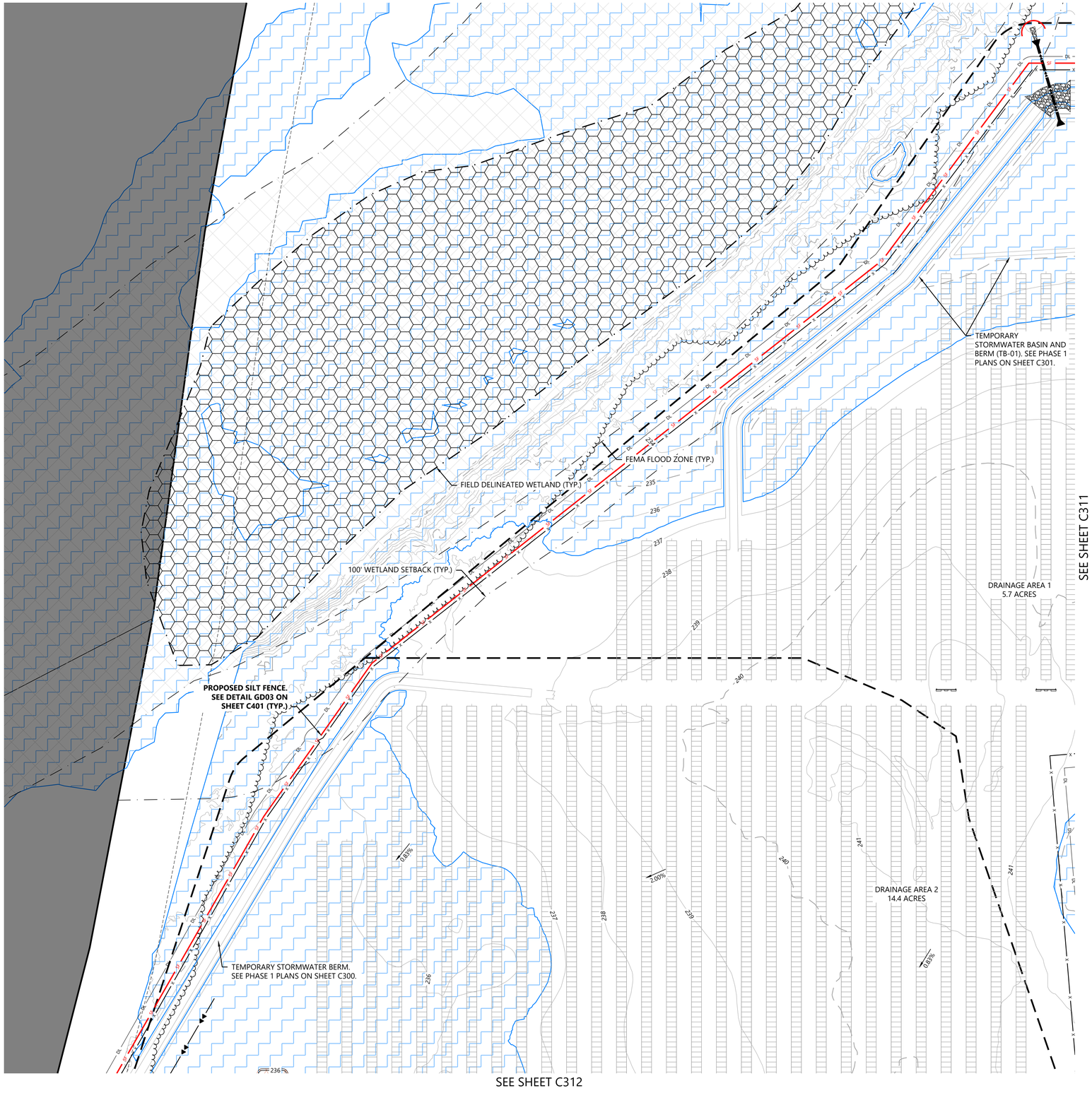
Tolland County, Town of Ellington, CT

Sedimentation & Erosion Control Plan - Phase 1

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

SHEET: C303



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINES
- EX. LOT LINES
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER LINE
- EX. CULVERT
- EX. 5' INDEX CONTOUR
- EX. 1' INTERVAL CONTOUR
- EX. ACCESS ROAD
- EX. WETLAND
- EX. FEMA FLOOD ZONE
- EX. BUILDING
- YARD SETBACK LINE
- **PROPOSED SINGLE AXIS TRACKER**
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- **PROPOSED UTILITY POWER POLE**
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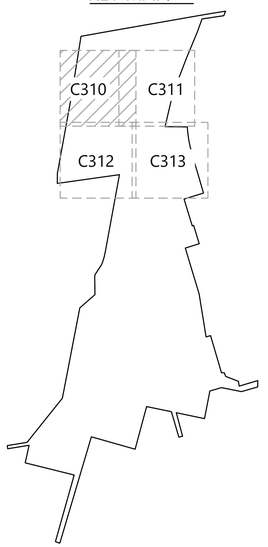
GRADING QUANTITIES		
	CUT (CY)	FILL (CY)
ACCESS ROAD	48	332
INVERTER PAD	0	7
TOTAL	48	339

KEY MAP:



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PREPARED FOR:

US SOLAR

100 N 6th St. #410B
Minneapolis, MN, 55403

REVISIONS:

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D	07/28/23	Issued for CSC Petition

0' 40' 80' 120'

USS Somers Solar LLC

Tolland County, Town of Ellington, CT

Sedimentation & Erosion Control Plan - Phase 2

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

SHEET: C310

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINES
- EX. LOT LINES
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER LINE
- EX. CULVERT
- EX. 5' INDEX CONTOUR
- EX. 1' INTERVAL CONTOUR
- EX. ACCESS ROAD
- EX. WETLAND
- EX. FEMA FLOOD ZONE
- EX. BUILDING
- YARD SETBACK LINE
- **PROPOSED SINGLE AXIS TRACKER**
- **PROPOSED SWITCHBOARD AND TRANSFORMER PAD**
- **PROPOSED UTILITY POWER POLE**
- **PROPOSED UNDERGROUND COLLECTOR**
- **PROPOSED OVERHEAD POWERLINE**
- **PROPOSED ACCESS ROAD**
- **PROPOSED SECURITY FENCE**
- **PROPOSED STORMWATER BASIN AND BERM**
- **PROPOSED STORMWATER DITCH**
- PROPOSED SILT FENCE
- HIGH WATER AREA (>0.5' FLOODING)
- WETLAND SETBACK LINE
- **PROPOSED 5' INDEX CONTOUR**
- **PROPOSED 1' INTERVAL CONTOUR**
- **PROPOSED GRADING BOUNDARY**
- **PROPOSED DISTURBANCE LIMITS**
- DRAINAGE AREA BOUNDARY
- PROPOSED CONSTRUCTION ENTRANCE
- **PROPOSED EROSION CONTROL BLANKET**
- **PROPOSED RIP RAP**
- PROPOSED CULVERT

NOTES:

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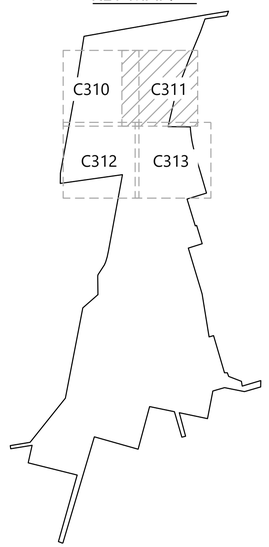
GRADING QUANTITIES		
	CUT (CY)	FILL (CY)
ACCESS ROAD	48	332
INVERTER PAD	0	7
TOTAL	48	339

KEY MAP:



Westwood

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Minnetonka, MN 55343
westwoodps.com

Westwood Surveying and Engineering, P.C.

PREPARED FOR:

US SOLAR

100 N 6th St. #410B
Minneapolis, MN, 55403

REVISIONS:

#	DATE	COMMENT
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D	07/28/23	Issued for CSC Petition

0' 40' 80' 120'

USS Somers Solar LLC

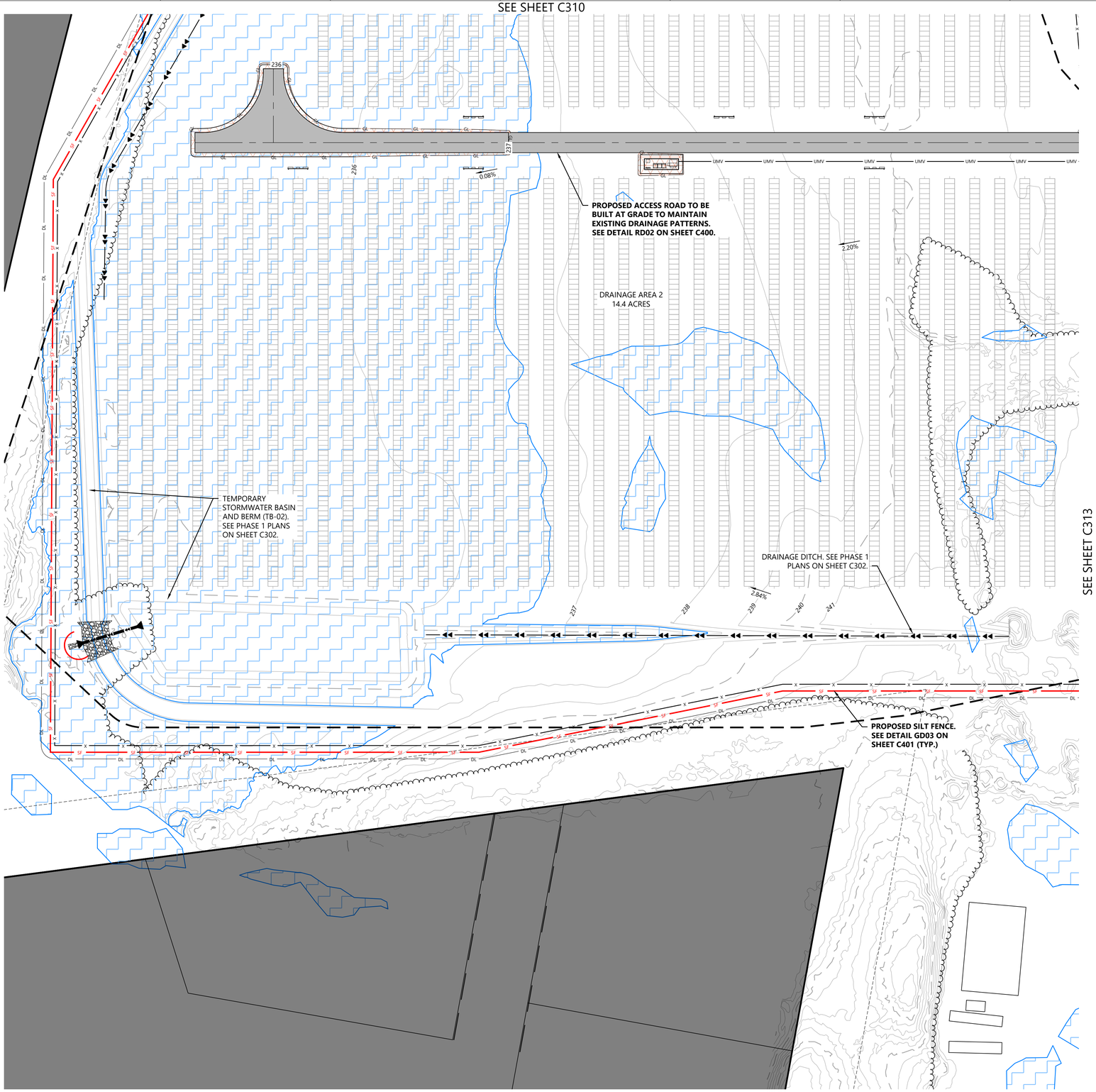
Tolland County, Town of Ellington, CT

Sedimentation & Erosion Control Plan - Phase 2

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

SHEET: C311



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINES
- EX. LOT LINES
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER LINE
- EX. CULVERT
- EX. 5' INDEX CONTOUR
- EX. 1' INTERVAL CONTOUR
- EX. ACCESS ROAD
- EX. WETLAND
- EX. FEMA FLOOD ZONE
- EX. BUILDING
- YARD SETBACK LINE
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- **PROPOSED SWITCHBOARD AND TRANSFORMER PAD**
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- **PROPOSED 1' INTERVAL CONTOUR**
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- **PROPOSED DISTURBANCE LIMITS**
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NOTES:

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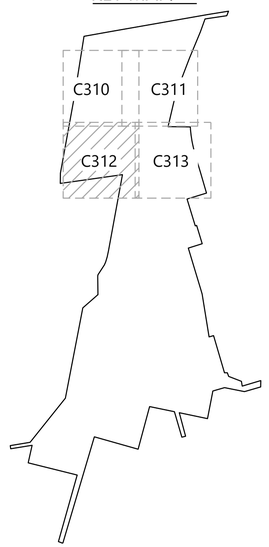
GRADING QUANTITIES		
	CUT (CY)	FILL (CY)
ACCESS ROAD	48	332
INVERTER PAD	0	7
TOTAL	48	339

KEY MAP:



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Westwood Surveying and Engineering, P.C.

PREPARED FOR:

US SOLAR

100 N 6th St. #410B
Minneapolis, MN, 55403

REVISIONS:

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C	05/17/23	Issued for CSC Petition
D	07/28/23	Issued for CSC Petition

0' 40' 80' 120'

USS Somers Solar LLC

Tolland County, Town of Ellington, CT

Sedimentation & Erosion Control Plan - Phase 2

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

SHEET: C312

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINES
- EX. LOT LINES
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER LINE
- EX. CULVERT
- EX. 5' INDEX CONTOUR
- EX. 1' INTERVAL CONTOUR
- EX. ACCESS ROAD
- EX. WETLAND
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- EX. BUILDING
- YARD SETBACK LINE
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- **PROPOSED SECURITY FENCE**
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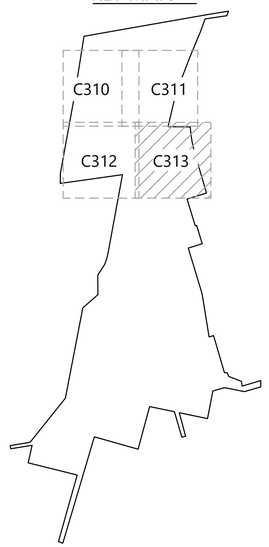
GRADING QUANTITIES		
	CUT (CY)	FILL (CY)
ACCESS ROAD	48	332
INVERTER PAD	0	7
TOTAL	48	339

KEY MAP:



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PREPARED FOR:

US SOLAR

100 N 6th St. #410B
Minneapolis, MN, 55403

REVISIONS:

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0' 40' 80' 120'

USS Somers Solar LLC

Tolland County, Town of Ellington, CT

Sedimentation & Erosion Control Plan - Phase 2

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

SHEET: C313

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINES
- EX. LOT LINES
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER LINE
- EX. CULVERT
- EX. 5' INDEX CONTOUR
- EX. 1' INTERVAL CONTOUR
- EX. ACCESS ROAD
- EX. WETLAND
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- **PROPOSED SECURITY FENCE**
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- **PROPOSED STORMWATER DITCH**
- PROPOSED SILT FENCE
- HIGH WATER AREA (>0.5' FLOODING)
- WETLAND SETBACK LINE
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- **PROPOSED GRADING BOUNDARY**
- **PROPOSED DISTURBANCE LIMITS**
- DRAINAGE AREA BOUNDARY
- PROPOSED CONSTRUCTION ENTRANCE
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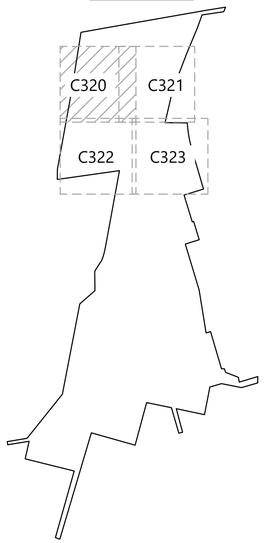
3. PROJECT NOI AND NPDES PERMIT TO BE POSTED WITHIN VIEW OF PUBLIC ROW PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES
4. TEMPORARY BASINS SHALL REMAIN IN PLACE UNTIL THE ENTIRE UPSLOPE AREA IS COMPLETELY STABILIZED. SITE DISTURBANCE CAUSED BY TEMPORARY MODIFICATION TO PERMANENT REQUIREMENTS SHALL BE IMMEDIATELY STABILIZED PER THE REQUIREMENTS OF THE PROJECT SWPCP.

GRADING QUANTITIES		
	CUT (CY)	FILL (CY)
PERM BERM 01	43	0
PERM BERM 02	16	0
TOTAL	59	0

KEY MAP:



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0' 40' 80' 120'

USS Somers Solar LLC

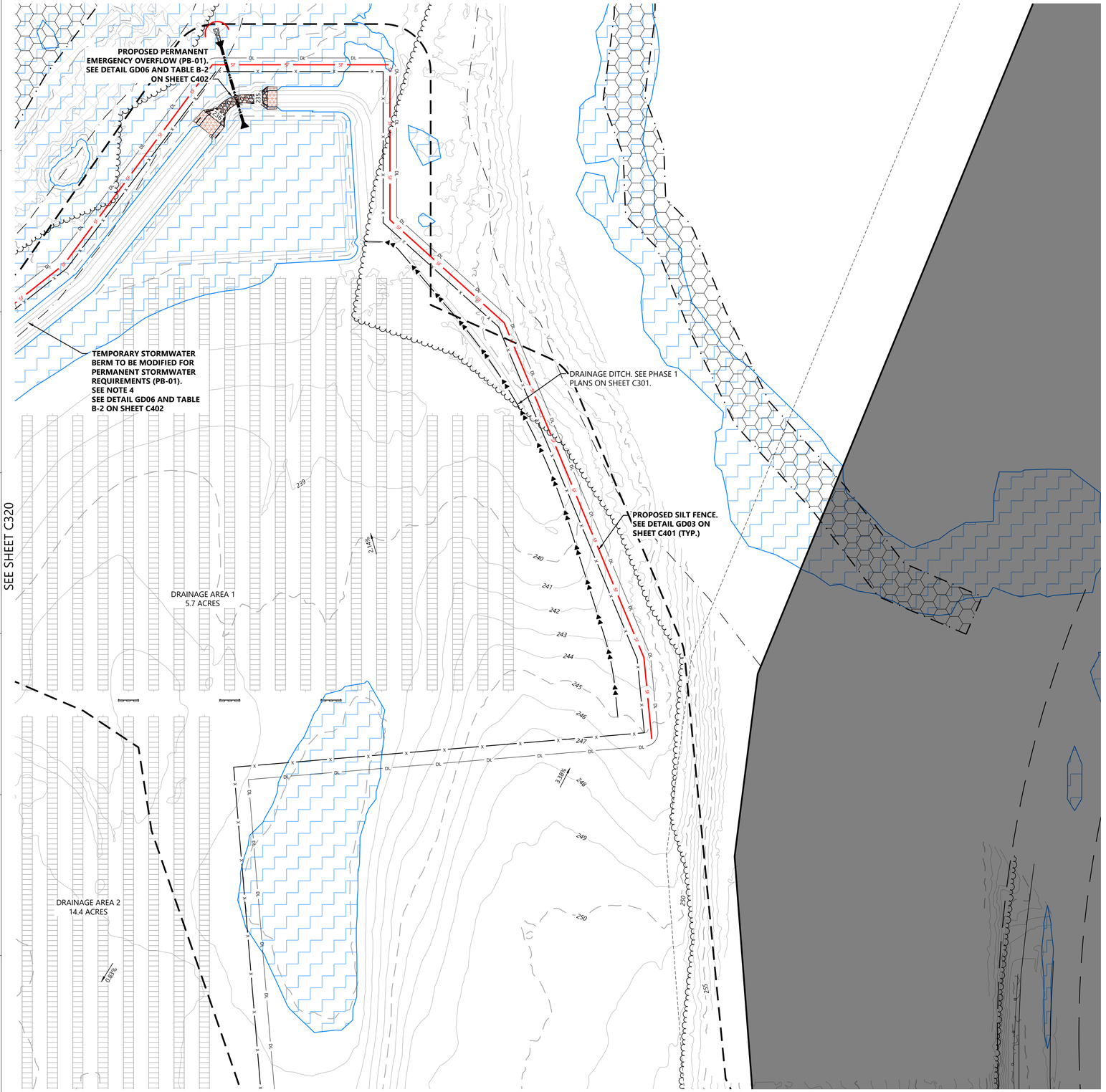
Tolland County, Town of Ellington, CT

Sedimentation & Erosion Control Plan - Phase 3

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

SHEET: C320



LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINES
- EX. LOT LINES
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER LINE
- EX. CULVERT
- EX. 5' INDEX CONTOUR
- EX. 1' INTERVAL CONTOUR
- EX. ACCESS ROAD
- EX. WETLAND
- EX. FEMA FLOOD ZONE
- EX. BUILDING
- YARD SETBACK LINE
- **PROPOSED SINGLE AXIS TRACKER**
- **PROPOSED SWITCHBOARD AND TRANSFORMER PAD**
- **PROPOSED UTILITY POWER POLE**
- **PROPOSED UNDERGROUND COLLECTOR**
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- **PROPOSED ACCESS ROAD**
- **PROPOSED SECURITY FENCE**
- **PROPOSED STORMWATER BASIN AND BERM**
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- PROPOSED SILT FENCE
- HIGH WATER AREA (>0.5' FLOODING)
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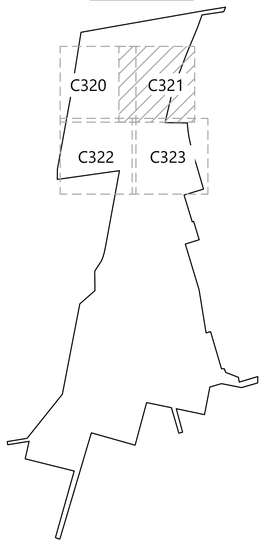
- **PROPOSED GRADING BOUNDARY**
- **PROPOSED DISTURBANCE LIMITS**
- DRAINAGE AREA BOUNDARY
- PROPOSED CONSTRUCTION ENTRANCE
- **PROPOSED EROSION CONTROL BLANKET**
- **PROPOSED RIP RAP**
- PROPOSED CULVERT

NOTES:

1. ALL PERIMETER SEDIMENT CONTROLS WILL NEED TO BE INSTALLED PRIOR TO GROUND DISTURBANCE
2. SEE SHEET SERIES C-4XX FOR DETAILS AND SPECIFICATIONS FOR CONSTRUCTION
3. PROJECT NOI AND NPDES PERMIT TO BE POSTED WITHIN VIEW OF PUBLIC ROW PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES
4. TEMPORARY BASINS SHALL REMAIN IN PLACE UNTIL THE ENTIRE UPSLOPE AREA IS COMPLETELY STABILIZED. SITE DISTURBANCE CAUSED BY TEMPORARY MODIFICATION TO PERMANENT REQUIREMENTS SHALL BE IMMEDIATELY STABILIZED PER THE REQUIREMENTS OF THE PROJECT SWPCP.

GRADING QUANTITIES		
	CUT (CY)	FILL (CY)
PERM BERM 01	43	0
PERM BERM 02	16	0
TOTAL	59	0

KEY MAP:



Westwood

Phone (608) 821-6600 12701 Whitewater Drive, Suite 300 Minnetonka, MN 55343 westwoodps.com

Westwood Surveying and Engineering, P.C.

PREPARED FOR:

US SOLAR

100 N 6th St. #410B
Minneapolis, MN, 55403

REVISIONS:

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B	03/20/23	Issued for CSC Petition
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D	07/28/23	Issued for CSC Petition

0' 40' 80' 120'

USS Somers Solar LLC

Tolland County, Town of Ellington, CT

Sedimentation & Erosion Control Plan - Phase 3

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

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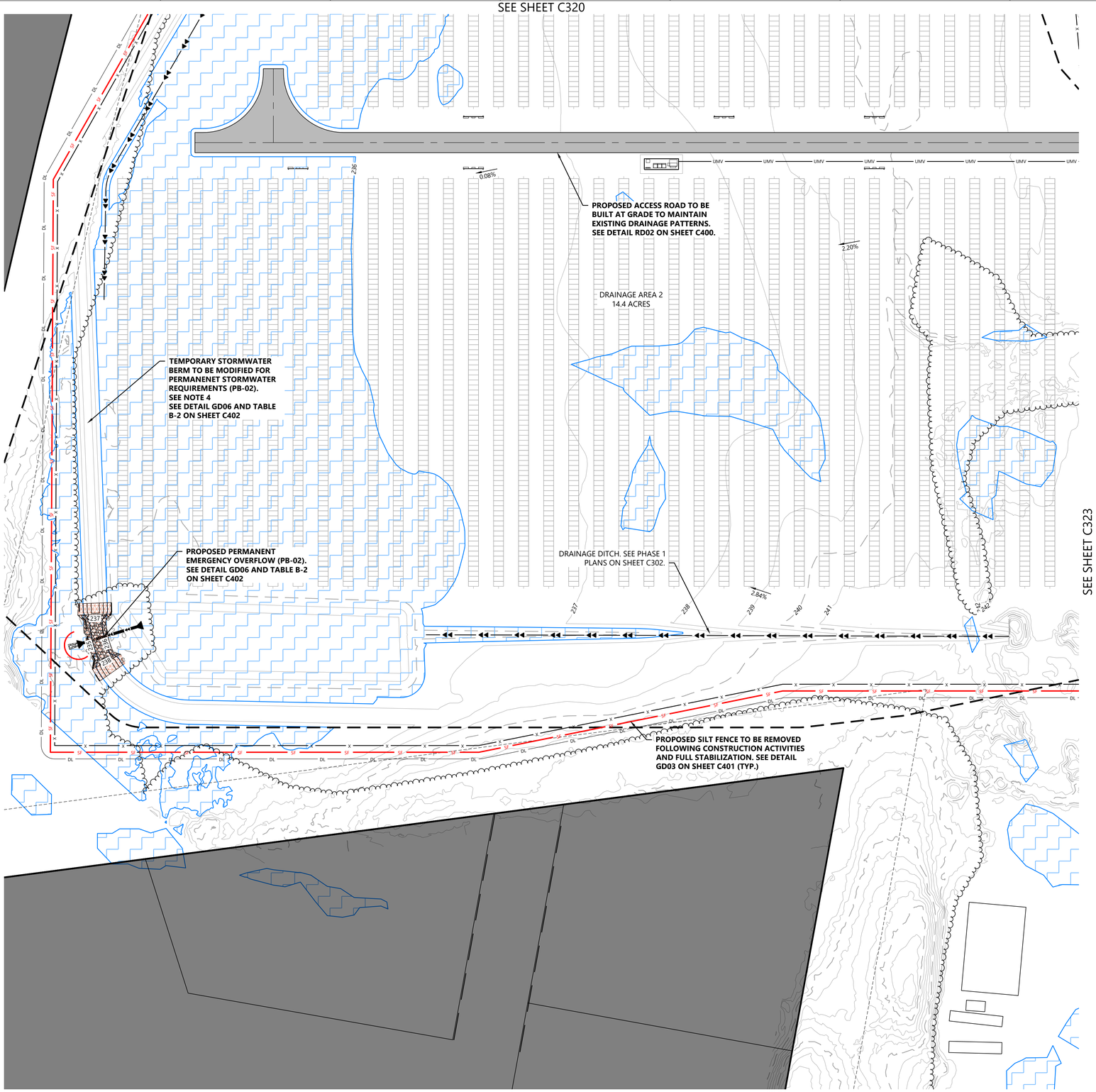

LEGEND

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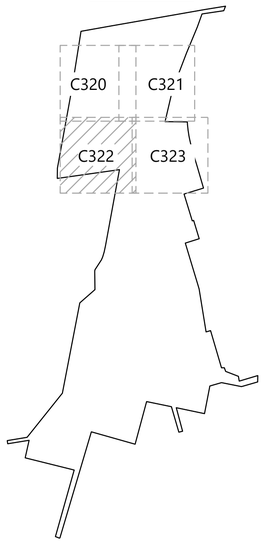

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SHEET: C322

LEGEND

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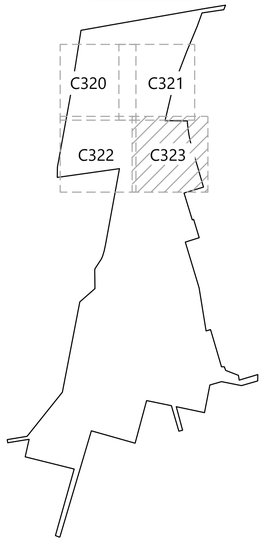

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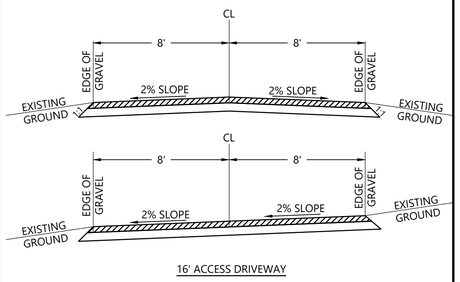
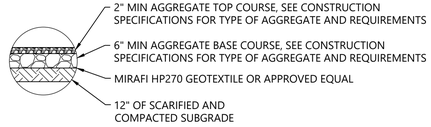


16' ACCESS DRIVEWAY

NOTES:

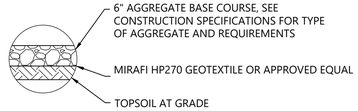
1. CONTRACTOR SHALL CONSTRUCT CROSS-SLOPE ROAD SECTION WHERE ACCESS ROADS ARE CONSTRUCTED ON A SIDE SLOPE, AND WHERE OTHERWISE NOTED ON PLANS, TO ENSURE THAT ROADS AND SHOULDERS REMAIN WELL DRAINED AT ALL TIMES.

Westwood	TYPICAL SOLAR ACCESS DRIVE	RD01



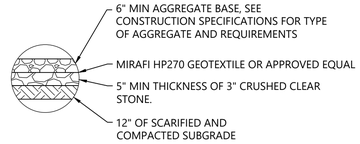
16' ACCESS DRIVE CROSS SECTION

NOTES:
DRIVE SECTION BASED ON FINAL GEOTECHNICAL REPORT. THE AGGREGATE THICKNESS MAY NEED TO BE INCREASED BASED ON ACTUAL FIELD CONDITIONS AT THE TIME OF CONSTRUCTION. CONDITIONS INCLUDE, BUT ARE NOT LIMITED TO CONSTRUCTION DURING UNUSUALLY WET PERIODS, OR IN LOW/WET AREAS.



TEMPORARY GRAVEL LAYDOWN YARD

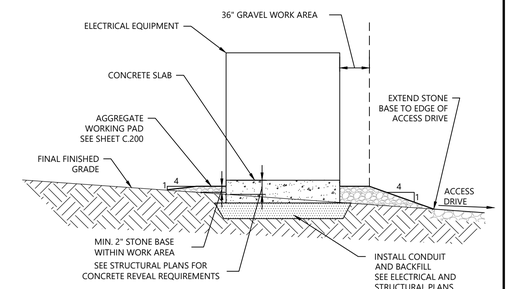
NOTE:
USE OF LAYDOWN YARD IMPROVEMENTS WILL BE DETERMINED BY SOIL TYPE AND ACTUAL FIELD CONDITIONS. DECISION TO USE PROPOSED IMPROVEMENT IS AT CONTRACTORS DISCRETION AT THE TIME OF CONSTRUCTION



ENHANCED 12'-16' ACCESS DRIVE CROSS SECTION

NOTES:
ENHANCED ACCESS DRIVE CROSS SECTION SHALL BE IMPLEMENTED WHERE THE ALTERNATE PROOF ROLL TEST CRITERIA IS APPLICABLE. IF ALTERNATE PROOF ROLL TEST DOES NOT PASS THE ENGINEER OF RECORD SHALL BE CONTACTED.

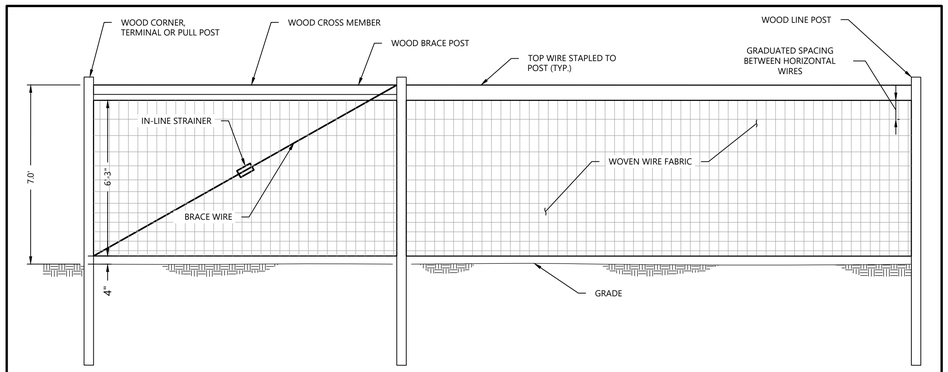
Westwood	DRIVEWAY AND LAYDOWN STRUCTURAL SECTIONS	RD02



NOTES:

1. SEE STRUCTURAL PLANS FOR FOUNDATION SUBGRADE PREPARATION AND FROST PROTECTION, IF REQUIRED.
2. SEE ELECTRICAL PLANS FOR CONDUIT INSTALLATION AND BACKFILL REQUIREMENTS.
3. SEE ELECTRICAL PLANS FOR EQUIPMENT LOCATIONS ON THE PAD.
4. FINAL TOP OF CONCRETE PAD ELEVATION SHALL BE AT LEAST 2" ABOVE THE SURROUNDING FINAL FINISHED GRADE. CONTRACTOR SHALL ENSURE FINISHED GRADE PROVIDES POSITIVE DRAINAGE AWAY FROM EQUIPMENT PAD.

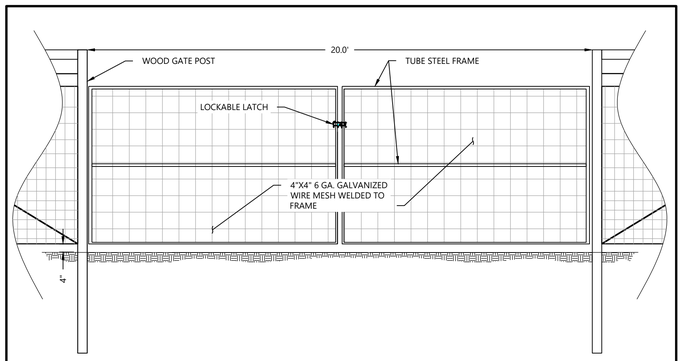
Westwood	TYPICAL ELECTRICAL EQUIPMENT ON CONCRETE SLAB - PROFILE VIEW	INV02



NOTES:

1. FENCE DESIGN TO BE PROVIDED BY SUPPLIER. SEE SUPPLIER DRAWINGS FOR ADDITIONAL DETAIL.
2. PERIMETER BMPs TO REMAIN IN PLACE DURING FENCE INSTALLATION. ANY DAMAGE TO ANY BMPs DURING FENCE INSTALLATION SHALL BE REPAIRED IMMEDIATELY

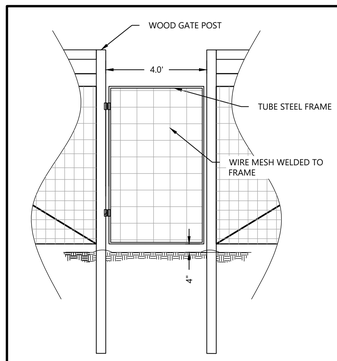
Westwood	LIVESTOCK FENCE DETAIL	FN01



NOTES:

1. SEE NOTES IN DETAIL FN01 ON THIS SHEET.

Westwood	VEHICLE GATE	FN05A



NOTES:

1. SEE NOTES IN DETAIL FN01 ON THIS SHEET.

Westwood	PERSONNEL GATE	FN05B

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Construction Details

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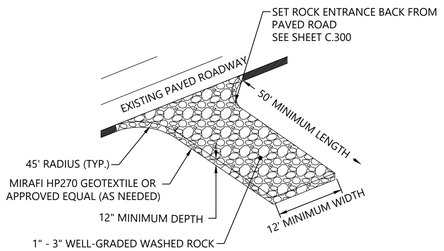
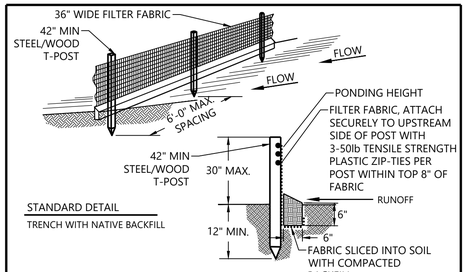


NOTES:
ROCK CONSTRUCTION ENTRANCE SHOULD CONTAIN MAXIMUM SIDE SLOPES OF 4:1. ROCK ENTRANCE SHOULD BE INSPECTED AND MAINTAINED REGULARLY. ROCK ENTRANCE LENGTH MAY NEED TO BE EXTENDED IN CLAY SOILS.

Westwood	ROCK CONSTRUCTION ENTRANCE	GD07

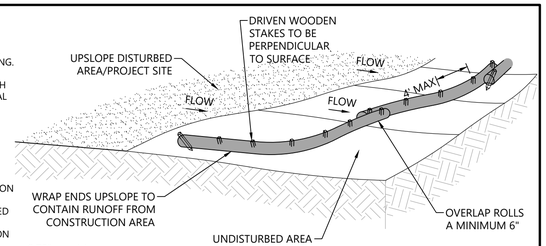


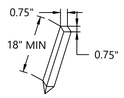
STANDARD DETAIL
TRENCH WITH NATIVE BACKFILL

NOTES:
1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN ACCUMULATED TO 1/3 THE HEIGHT OF THE FABRIC OR MORE.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
4. ALL ENDS OF THE SILT FENCE SHALL BE WRAPPED UPSLOPE SO THE ELEVATION OF THE BOTTOM OF FABRIC IS HIGHER THAN "PONDING HEIGHT".

Westwood	SILT FENCE	GD03

NOTES:
1. FIBER ROLLS SHALL BE INSTALLED PRIOR TO UPSLOPE DISTURBANCE ACTIVITIES COMMENCE.
2. FIBER ROLLS SHALL BE PREFABRICATED AND MADE FROM WEED FREE RICE STRAW, FLAX, OR A SIMILAR AGRICULTURAL MATERIAL BOUND INTO A TIGHT TUBULAR ROLL BY NETTING. USE A 6" OR 12" DIA. ROLL.
3. TRENCHES SHALL BE CREATED ALONG THE SLOPE OF THE PERIMETER. THE TRENCH DEPTH SHOULD BE 1/4 TO 1/3 OF THE THICKNESS OF THE ROLL, AND THE WIDTH SHOULD EQUAL THE ROLL DIAMETER, IN ORDER TO PROVIDE AREA TO BACKFILL THE TRENCH.
4. STAKE FIBER ROLLS INTO THE TRENCH. DRIVE STAKES AT THE END OF EACH FIBER ROLL AND SPACED 4 FEET MAXIMUM ON CENTER. USE WOOD STAKES WITH NOMINAL CLASSIFICATION OF 0.75 IN BY 0.75 IN. AND A MINIMUM LENGTH OF 24 IN.
5. ROLLS SHALL BE INSTALLED PERPENDICULAR TO WATER MOVEMENT, AND PARALLEL TO THE SLOPE CONTOUR.
6. TURN THE ENDS OF THE FIBER ROLLS UP SLOPE TO PREVENT RUNOFF FROM GOING AROUND THE ROLL. THE UPSLOPE POINT SHOULD BE A MINIMUM 6" HIGHER IN ELEVATION THAN THE LOW POINT.
7. IF MORE THAN ONE FIBER ROLL IS PLACED IN A ROW, THE ROLLS SHOULD BE OVERLAPPED A MINIMUM OF 6 INCHES, NOT ABUTTED.
8. FIBER ROLLS ENCASED WITH PLASTIC NETTING ARE USED FOR A TEMPORARY APPLICATION ONLY AND SHOULD BE REMOVED FOLLOWING STABILIZATION. FIBER ROLLS USED IN A PERMANENT APPLICATION SHALL BE ENCASED WITH A BIODEGRADABLE MATERIAL AND MAY BE LEFT IN.
9. TEMPORARY INSTALLATIONS SHOULD ONLY BE REMOVED WHEN UP GRADIENT AREAS ARE STABILIZED PER GENERAL PERMIT REQUIREMENTS, AND/OR POLLUTANT SOURCES NO LONGER PRESENT A HAZARD. BUT, THEY SHOULD ALSO BE REMOVED BEFORE VEGETATION BECOMES TOO MATURE SO THAT THE REMOVAL PROCESS DOES NOT DISTURB MORE SOIL AND VEGETATION THAN IS NECESSARY
10. FIBER ROLLS MUST BE INSPECTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS FOR THE ASSOCIATED PROJECT TYPE AND RISK LEVEL. IT IS RECOMMENDED THAT AT A MINIMUM, THE BMPS BE INSPECTED WEEKLY, PRIOR TO FORECASTED RAIN EVENTS, DAILY DURING EXTENDED RAIN EVENTS, AND AFTER THE CONCLUSION OF RAIN EVENTS.
11. REPAIR OR REPLACE SPLIT, TORN, UNRAVELING, OR SLUMPING FIBER ROLLS.
12. SEDIMENT THAT ACCUMULATES UPSLOPE OF THE BMP SHOULD BE PERIODICALLY REMOVED IN ORDER TO MAINTAIN BMP EFFECTIVENESS. SEDIMENT SHOULD BE REMOVED WHEN SEDIMENT ACCUMULATION REACHES ONE-THIRD THE DESIGNATED SEDIMENT STORAGE DEPTH



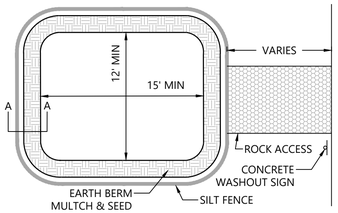


13. RILLS OR GULLIES MAY BEGIN TO FORM FOLLOWING MAJOR STORM EVENTS WHERE RUNOFF HAS OVERTOPPED THE FIBER ROLLS. THESE RILLS OR GULLIES SHOULD BE PROMPTLY REPAIRED.

* IF EXISTING SOILS DO NOT ALLOW WOOD STAKES OR REBAR STAKES TO BE INSTALLED, ROCK OR CONCRETE CINDER BLOCKS CAN BE USED TO ANCHOR FIBER ROLLS. ROCKS SHOULD BE 10"-14" IN DIAMETER. SPACING SHOULD BE SET EVERY 2'-4'.

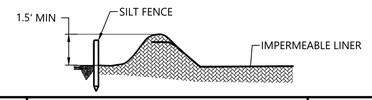
Westwood	TYPICAL FIBER ROLLS FOR PERIMETER CONTROL	NOT TO SCALE GD42

AN APPROVED ALTERNATE MAY BE USED
USE AS NEEDED

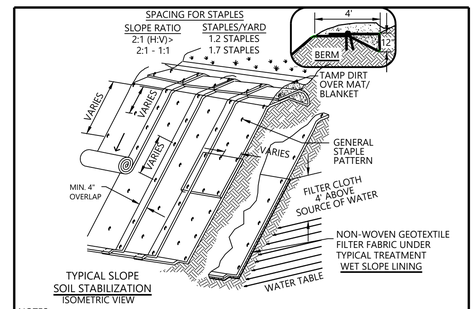


NOTE:
CONCRETE WASHOUT AREAS WILL HAVE AN IMPERMEABLE LINER TO PREVENT CONCRETE WASHOUT WATER FROM INFILTRATING/CONTACTING WITH SOIL. IMPERMEABLE LINER INCLUDES 10 MIL POLYLINER OR COMPACTED CLAY LINER. WASHOUT SYSTEMS CAN BE USED AS ALTERNATE WASHOUT AREAS.

SECTION A-A



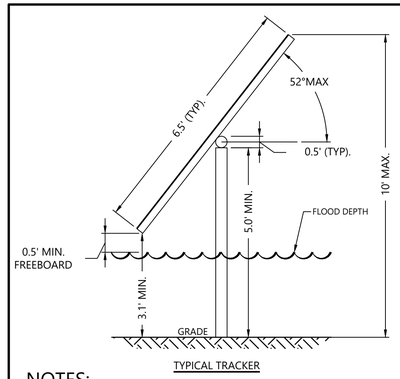
Westwood	CONCRETE WASHOUT AREA	GD08



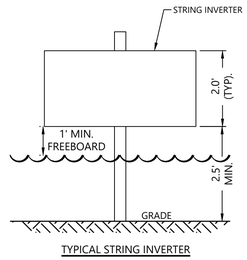
TYPICAL SLOPE
SOIL STABILIZATION
ISOMETRIC VIEW

NOTES:
1. REFER TO THE PROJECT SWPPP FOR IMPLEMENTATION REQUIREMENTS.
2. MATS/BLANKETS SHOULD BE INSTALLED VERTICALLY DOWNSLOPE.
3. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICK AND GRASS.
4. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
5. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL.
6. DO NOT STRETCH.
7. BLANKET TYPE AND WEIGHT MUST BE CHOOSEN BASED ON SITE CONDITIONS AND MANUFACTURERS RECOMMENDATIONS.
8. STAPLE LENGTHS SHALL CONFORM TO MANUFACTURERS RECOMMENDATIONS.

Westwood	TEMPORARY EROSION BLANKETS TURF REINFORCEMENT MATS FOR SLOPES	GD21



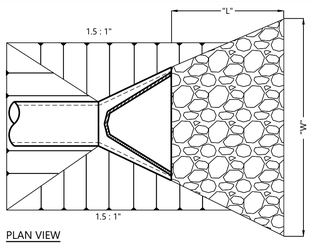
TYPICAL TRACKER



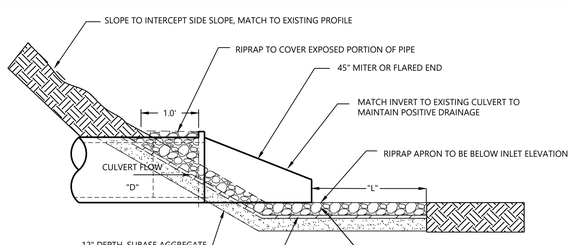
TYPICAL STRING INVERTER

NOTES:
1. ALL DIMENSION ARE APPROXIMATE. REFERENCE STRUCTURAL DRAWINGS FOR SPECIFIC HEIGHT REQUIREMENTS.
2. SEE SHEET C.300 FOR MAXIMUM FLOOD DEPTHS.

Westwood	TYPICAL FLOOD DEPTH CRITERIA	FL01



PLAN VIEW

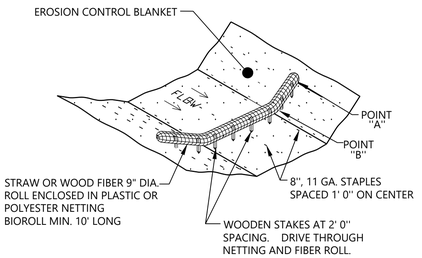


SECTION VIEW

SCHEDULE FOR STORM DRAIN				
CULVERT DIAMETER (D)	LENGTH (L)	WIDTH (W)	STONE ds_{50}	RIPRAP THICKNESS
12"	8'	12'	6"	14"
18"	10'	12'	6"	14"
24"	12'	14'	6"	14"
30"	16'	20'	12"	27"
36"	20'	23'	12"	27"

NOTES:
1. RIPRAP GRADATION AND PLACEMENT -THE RIPRAP GRADATION SHALL BE A WELL-GRADED MIX FROM ABOUT 1.5 TIMES THE D^{50} SIZE TO ABOUT 25 PERCENT OF THE D^{50} SIZE. THE RIPRAP STONES SHALL BE CAREFULLY PLACED WORKING FROM THE TOE OF THE SLOPED UPWARD. THE STONES SHOULD BE LOWERED TO THE SLOPE AND NOT BE ALLOWED TO DROP MORE THAN 12 INCHES ONTO THE GEOTEXTILE. THE FINISHED SURFACE SHALL BE A RELATIVELY SMOOTH UNIFORMLY SLOPED SURFACE.

Westwood	PIPE/CULVERT OUTLET APRON	GD04



NOTE:
1. POINT "A" MUST BE HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.
2. TYPE OF MATERIAL FOR EROSION CONTROL BLANKET IS SUBJECT TO FIELD CONDITIONS AND MANUFACTURERS RECOMMENDATION.

Westwood	TEMPORARY BIOROLL BLANKET SYSTEM (DITCH APPLICATION)	GD23

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REVISIONS:

#	DATE	COMMENT
A	11/18/22	Issued for CSC Petition
B	03/20/23	Issued for CSC Petition
C	05/17/23	Issued for CSC Petition
D	07/28/23	Issued for CSC Petition

USS Somers Solar LLC

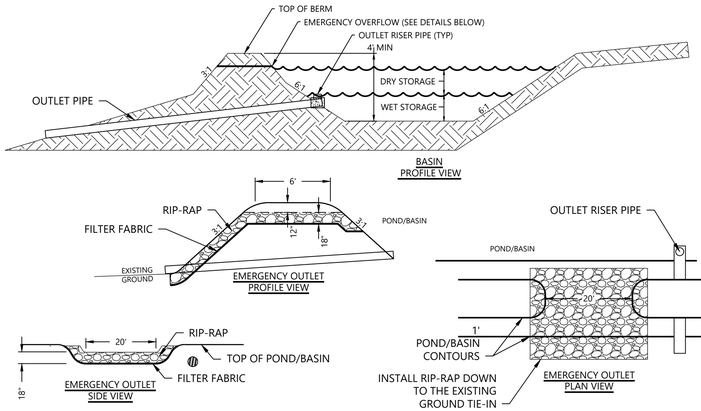
Tolland County, Town of Ellington, CT

Construction Details

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

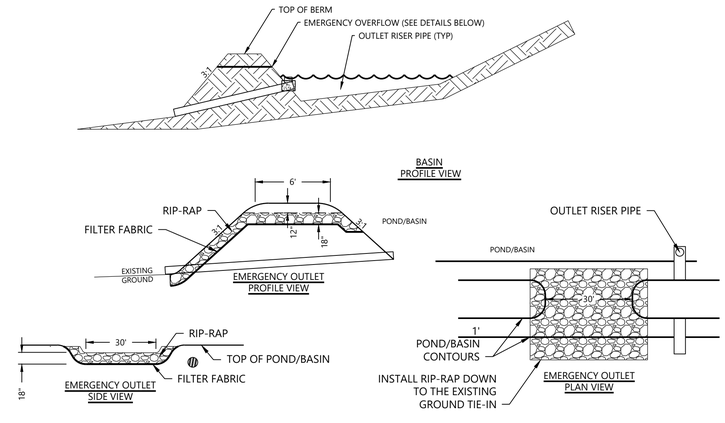
DATE: 07/28/2023

SHEET: C401



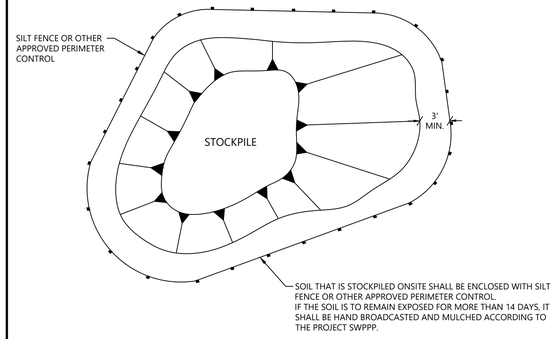
NOTES:
1. INSTALL RIP-RAP PER CTDOT SPEC M.12.02
2. RIP-RAP SHALL BE MODIFIED RIP-RAP PER CTDOT SPEC M.12.02
3. OUTLET AND RISER PIPE SHALL BE PVC 1120 SCHEDULE 40 AND CONFORM WITH ASTM D 1785 OR ASTM D 2241. PIPE JOINTS SHALL BE SOLVENT WELDED, O-RING, OR THREADED TO PROVIDE A WATERTIGHT SEAL.
4. THE RISER PIPE SHALL BE EMBEDDED 6" INTO AN 18" THICK CONCRETE BASE TO PREVENT FLOTATION. THE WIDTH OF THE CONCRETE BASE SHALL BE TWICE THE WIDTH OF THE RISER PIPE DIAMETER.
5. A TRASH RACK AND ANTI-VORTEX DEVICE SHALL BE INSTALLED ON THE OUTLET RISER PIPE.
6. ACCUMULATED SEDIMENT SHALL BE REMOVED WITH TRANSITION TO PERMANENT STORMWATER BASIN AND WITH SEDIMENTATION ABOVE HALF THE HEIGHT OF WET STORAGE AREA. TEMPORARY INPERMEABLE LINER WITH MINIMUM 10-MIL THICKNESS MAY BE INSTALLED, AS CONTRACTOR'S OPTION, TO FACILITATE SEDIMENT REMOVAL.
7. SEDIMENT BASIN BAFFLES TO BE USED TO INCREASE EFFECTIVE FLOW LENGTH AS NEEDED. SEE DETAIL GD10.
8. SEE TABLE B-1 FOR BASIN AND OUTLET SIZING.
9. IMMEDIATELY FOLLOWING CONSTRUCTION, BASIN TO BE STABILIZED PER REQUIREMENTS OF PROJECT SWPCP. SEE DETAIL GD21

Westwood	TYPICAL TEMPORARY WET SEDIMENTATION BASIN & LIVE STORAGE BERM	GD05



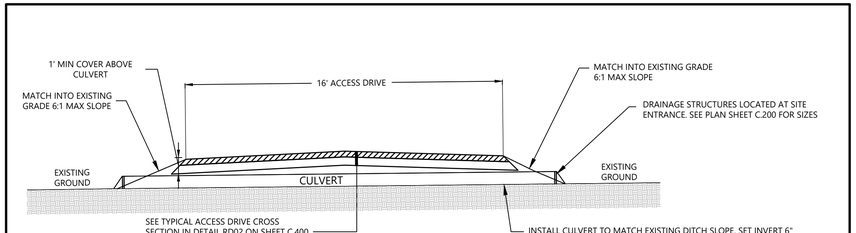
NOTES:
1. INSTALL RIP-RAP PER CTDOT SPEC M.12.02
2. RIP-RAP SHALL BE MODIFIED RIP-RAP PER CTDOT SPEC M.12.02
3. OUTLET AND RISER PIPE SHALL BE PVC 1120 SCHEDULE 40 AND CONFORM WITH ASTM D 1785 OR ASTM D 2241. PIPE JOINTS SHALL BE SOLVENT WELDED, O-RING, OR THREADED TO PROVIDE A WATERTIGHT SEAL
4. THE RISER PIPE SHALL BE EMBEDDED 6" INTO AN 18" THICK CONCRETE BASE TO PREVENT FLOTATION. THE WIDTH OF THE CONCRETE BASE SHALL BE TWICE THE WIDTH OF THE RISER PIPE DIAMETER.
5. A TRASH RACK AND ANTI-VORTEX DEVICE SHALL BE INSTALLED ON THE OUTLET RISER PIPE.
6. ACCUMULATED SEDIMENT SHALL BE REMOVED WITH TRANSITION TO PERMANENT STORMWATER BASIN AND WITH SEDIMENTATION ABOVE HALF THE HEIGHT OF WET STORAGE AREA. TEMPORARY INPERMEABLE LINER WITH MINIMUM 10-MIL THICKNESS MAY BE INSTALLED, AS CONTRACTOR'S OPTION, TO FACILITATE SEDIMENT REMOVAL.
7. SEDIMENT BASIN BAFFLES TO BE USED TO INCREASE EFFECTIVE FLOW LENGTH AS NEEDED. SEE DETAIL GD10.
8. SEE TABLE B-2 FOR BASIN AND OUTLET SIZING.
9. IMMEDIATELY FOLLOWING CONSTRUCTION, BASIN TO BE STABILIZED PER REQUIREMENTS OF PROJECT SWPCP. SEE DETAIL GD21

Westwood	TYPICAL PERMANENT DETENTION BASIN	GD06

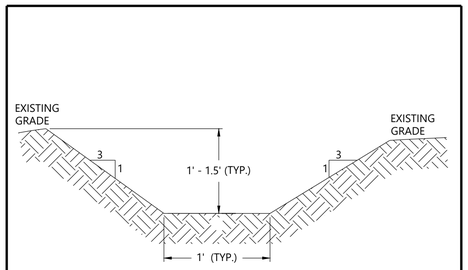


NOTES:
1. DETAIL PULLED FROM MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA BY GEORGIA SOIL AND WATER CONSERVATION COMMISSION.

Westwood	TYPICAL SOIL STOCKPILE PROTECTION (NOT TO SCALE)	01

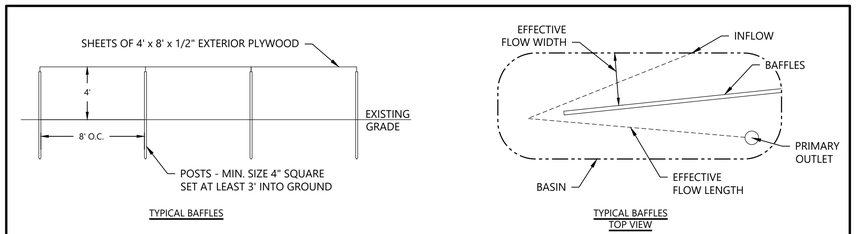


Westwood	TYPICAL CULVERT SECTION VIEW	GD01



NOTES:
1. STABILIZE CHANNEL SIDE SLOPES PER THE PROJECT SWPPP.
2. 9" FIBER ROLLS TO BE INSTALLED ALONG DRAINAGE DITCH, PARALLEL TO WATER FLOW, AT 100' SPACING. SEE DETAIL GD23
3. IMMEDIATELY FOLLOWING CONSTRUCTION, BASIN TO BE STABILIZED PER REQUIREMENTS OF PROJECT SWPCP. SEE DETAIL GD21 (EROSION CONTROL BLANKET)

Westwood	DRAINAGE DITCH	GD02



NOTES:
1. SEDIMENT BASIN BAFFLES TO BE USED SUCH THAT THE EFFECTIVE FLOW LENGTH IS AT LEAST TWICE THE EFFECTIVE FLOW WIDTH.

Westwood	TYPICAL SEDIMENT BASIN BAFFLE	GD10

TABLE B-1: TEMPORARY BASIN SIZING REQUIREMENTS

	TB-01	TB-02
REQUIRED STORAGE	0.79 af	2.76
PROVIDED STORAGE	1.68 af	6.26 af
REQUIRED BELOW GRADE STORAGE	0.11 af	0.27 af
PROVIDED BELOW GRADE STORAGE	0.55 af	0.51 af
BOTTOM ELEVATION	233'	233'
OUTLET ELEVATION	235'	235'
EMERGENCY OVERFLOW ELEVATION	236.5'	236.5'
TOP OF BERM ELEVATION	238'	238'
25-YR HWL	237.1'	237.2'
OUTLET PIPE SIZE	15"	15"
OUTLET RISER PIPE SIZE	15"	15"
OUTLET PIPE LENGTH	66 LF	53 LF

TABLE B-2: PERMANENT BASIN SIZING REQUIREMENTS

	PB-01	PB-02
REQUIRED STORAGE	0.021 af	0.099 af
PROVIDED STORAGE	0.74 af	3.71 af
BOTTOM ELEVATION	233'	233'
OUTLET ELEVATION	235'	235'
EMERGENCY OVERFLOW ELEVATION	236.5'	236.5'
TOP OF BERM ELEVATION	238'	238'
25-YR HWL	236.5'	236.5'
OUTLET PIPE SIZE	15"	15"
OUTLET RISER PIPE SIZE	15"	15"
OUTLET PIPE LENGTH	66 LF	53 LF

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USS Somers Solar LLC

Tolland County, Town of Ellington, CT

Construction Details

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

SHEET: C402

ACCESS DRIVE DESIGN PARAMETERS

1. THE DRIVE HAS BEEN DESIGNED TO ACCOMMODATE LOADS DURING CONSTRUCTION AND LIGHT DUTY TRUCKS FOR LOW VOLUME USE IN NORMAL OPERATING CONDITIONS. THE DRIVE DESIGN SPECIFIED IS NOT INTENDED FOR ALL WEATHER USE FOR HEAVY DUTY, HIGH VOLUME, CONSTRUCTION LOADS.
2. DRIVE MAINTENANCE CAN BE EXPECTED DURING CONSTRUCTION AND OVER THE LIFE OF THE PERMANENT FACILITY.
3. DRIVE SECTION AND SPECIFICATION SHOWN ON THE PLANS ARE BASED ON RECOMMENDATIONS FROM ECS MIDWEST, LLC.

PRODUCTS

1. ACCESS DRIVE AGGREGATE SHALL CONSIST OF CRUSHED GRADING "A" AND GRADING "B" AGGREGATE MEETING CTDOT SPEC M.02.06 AND THE GRADATION PROVIDED IN TABLE 1A.
2. CULVERTS: SEE PLAN FOR DRAINAGE CULVERT LOCATIONS. ACCESS DRIVE CULVERTS SHALL MEET THE MINIMUM SPECIFICATIONS SET FORTH BY THE CONNECTICUT DEPARTMENT OF TRANSPORTATION AND/OR TOLLAND COUNTY, CT. ALL MANUFACTURED OF CORRUGATED METAL PIPE OR APPROVED EQUAL.
3. GEOTEXTILE FABRIC FOR ACCESS DRIVES SHALL BE MIRAFI HP270 OR APPROVED EQUAL.
4. EXCAVATED SOILS THROUGHOUT PROJECT MAY BE USED AS STRUCTURAL FILL OR THIN SPREAD ON THE PROJECT PROPERTY. STRUCTURAL FILL SHALL BE CLEAN OF FROZEN MATERIAL, DEBRIS AND ORGANIC MATERIAL.

EXECUTION

1. SITE PREPARATION

A. THE CONTRACTOR SHALL BE REQUIRED TO CLEAR AND GRUB AREAS DESIGNATED ON THE PLANS REMOVING ALL TREES, STUMPS, BRUSH AND DEBRIS. TREES AND BRUSH LOCATED OUTSIDE OF THE PROJECT FENCE SHALL NOT BE DISTURBED EXPECT WHERE NOTED ON THE PLANS. SEE SHEET C.300 FOR LOCATIONS OF TREE REMOVAL AND WHERE STUMPS SHALL BE REMOVED OR REMAIN.
B. AREAS THAT ARE NOT TO BE CLEARED AND GRUBBED SHALL HAVE ANY EXISTING VEGETATION MOWED TO A MAXIMUM HEIGHT OF 6 INCHES.
C. THE CONTRACTOR SHALL PRESERVE OTHER EXISTING VEGETATION TO THE MAXIMUM EXTENT PRACTICABLE. ANY VEGETATION THAT IS REMOVED SHALL ONLY BE ALLOWED WITHIN THE PROJECT BOUNDARY. THE CONTRACTOR IS TO REMOVE ONLY THAT VEGETATION WHICH SHALL BE DESIGNATED BY THE OWNERS REPRESENTATIVE FOR REMOVAL, AND SHALL EXERCISE EXTREME CARE AROUND EXISTING VEGETATION TO BE SAVED. CONSTRUCTION FENCING MAY BE INSTALLED TO PROTECT AREAS THAT ARE NOT TO BE DISTURBED.
D. NO BURNING OF DEBRIS IS ALLOWED WITHOUT THE NECESSARY PERMITS FROM JURISDICTIONAL GOVERNING AUTHORITIES AND APPROVAL BY THE OWNER.

2. FILL MATERIALS AND PLACEMENT

A. ALL STRUCTURAL FILL MATERIALS SHALL BE INORGANIC SOILS FREE OF VEGETATION, DEBRIS, FROZEN SOIL, AND FRAGMENTS LARGER THAN THREE (3) INCHES IN SIZE. PEA GRAVEL OR OTHER SIMILAR NON-CEMENTITIOUS, POORLY-GRADED MATERIALS SHALL NOT BE USED AS FILL OR BACKFILL WITHOUT THE PRIOR APPROVAL OF THE GEOTECHNICAL ENGINEER.
B. CLEAN ON-SITE SOILS OR APPROVED IMPORTED MATERIAL MAY BE USED AS STRUCTURAL FILL MATERIAL FOR SITE GRADING IN ARRAY AREAS AND BELOW ACCESS ROADS. THIS MATERIAL SHALL BE PLACED IN LOOSE LIFTS NOT TO EXCEED 8".
C. ANY IMPORTED SOILS MUST HAVE EXPANSION INDEX VALUES IN THE "VERY LOW" RANGE AND MEET THE GRADATION PROVIDED IN TABLE 4.

ACCESS DRIVE CONSTRUCTION AND SITE GRADING

1. TOPSOIL MANAGEMENT

A. TOPSOIL SHALL BE STRIPPED FROM ALL DRIVEWAY AREAS A MINIMUM OF 10" OR WHERE THE ROOT ZONE EXTENDS TO A DEEPER DEPTH. TOPSOIL STRIPPING SHALL OCCUR FOR ANY AREAS WHERE FILL WILL BE PLACED.
B. STRIPPED MATERIALS CONSISTING OF VEGETATION AND ORGANIC MATERIALS SHALL BE STOCKPILED ON THE SITE. STOCKPILES WITHIN THE SITE SHALL HAVE TEMPORARY EROSION AND SEDIMENT CONTROL APPLIED IN ACCORDANCE WITH THE PROJECT SWPPP OR USED TO REVEGETATE LANDSCAPED AREAS OR EXPOSED SLOPES AFTER COMPLETION OF GRADING OPERATIONS. IF IT IS NECESSARY TO DISPOSE OF ORGANIC MATERIALS ON-SITE THEY SHALL BE PLACED IN NON-STRUCTURAL AREAS.

2. INTERNAL DRIVE EMBANKMENT

A. EMBANKMENT CONSTRUCTION SHALL CONSIST OF PLACING SUITABLE FILL MATERIAL, AFTER TOPSOIL STRIPPING, ABOVE THE EXISTING GRADE AS INDICATED ON CIVIL PLANS. GENERALLY, THE INTERNAL DRIVE EMBANKMENT SHALL HAVE COMPACTED SUPPORT SLOPES OF THREE FEET HORIZONTAL AND ONE FOOT VERTICAL.
B. THE STRUCTURAL FILL FOR EMBANKMENT CONSTRUCTION SHALL BE GENERATED ON SITE BY THE CONTRACTOR FROM THE IDENTIFIED BORROW AREA, IF APPLICABLE. THIS MATERIAL SHALL BE PLACED IN LOOSE LIFTS NOT TO EXCEED 8".
C. ALL SLOPES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE GRADING SHOWN ON THE PLANS.
D. EXPOSED SURFACES SHALL BE FREE OF MOUNDS AND DEPRESSIONS WHICH COULD PREVENT UNIFORM COMPACTION. SEE TABLE 2 FOR TESTING REQUIREMENTS AND TABLE 3 FOR COMPACTION REQUIREMENTS.

3. SITE GRADING

A. SUBSEQUENT TO THE SURFACE CLEARING, GRUB AND REMOVE TOPSOIL IN ALL GRADING AREAS ON THE PLAN, THE SUBSURFACE SOILS SHALL HAVE THE GRADES AND ELEVATIONS MODIFIED AS SHOWN ON THE PLANS. THE PROPOSED CONTOURS AND ELEVATIONS SHOWN ON THE PLANS ARE TO FINISHED GRADE. TOPSOIL SHALL BE STOCKPILED ON-SITE TO BE REPLACED ON THE TOP 6" OF FINISHED GRADES AND BASIN AREAS.
B. SUBSURFACE SOILS SHALL BE MOISTURE CONDITIONED AND COMPACTED TO THE SPECIFICATIONS OF TABLE 3.
C. CLEAN, ORGANIC FREE, ON-SITE SOILS OR APPROVED IMPORTED MATERIAL MAY BE USED AS SUBGRADE MATERIAL FOR GENERAL SITE GRADING.

3. SUBGRADE PREPARATION

A. SUBSEQUENT TO THE SURFACE CLEARING, GRUBBING, TOPSOIL REMOVAL AND EMBANKMENT CONSTRUCTION, THE EXPOSED SUBGRADE SOILS SHALL BE SCARIFIED TO A MINIMUM DEPTH OF TWELVE (12) INCHES, MOISTURE CONDITIONED AND COMPACTED TO THE SPECIFICATIONS OF TABLE 3. THE COMPACTED EXPOSED SUBGRADES SHALL BE PROOF ROLLED AND OBSERVED BY A GEOTECHNICAL ENGINEER TO DETERMINE IF SOFT SOILS EXIST. IF SOFT SOILS EXIST THEY SHALL BE SCARIFIED AND ALLOWED TO DRY, RECOMPACTED AND TESTED AGAIN, IF THEY CONTINUE TO REMAIN SOFT, FOLLOWING SCARIFICATION, DRYING AND RECOMPACTION EFFORTS ADDITIONAL AGGREGATE MAY BE ADDED FOR STABILITY.
B. CLEAN, ORGANIC FREE, ON-SITE SOILS OR APPROVED IMPORTED MATERIAL MAY BE USED AS SUBGRADE MATERIAL FOR GENERAL SITE GRADING AND DRIVEWAY AREAS.

4. AGGREGATE PLACEMENT

A. ACCESS DRIVES - SUBSEQUENT TO THE SUBGRADE PREPARATION THE DRIVE AGGREGATE BASE SHALL BE PLACED AND COMPACTED TO THE SPECIFICATIONS IDENTIFIED IN TABLE 3.
B. CLASS II RIP-RAP - AT STORMWATER BASIN, RIP-RAP QUALITY SHALL COMPLY WITH CTDOT SPECIFICATIONS 7.03 AND M.12.02, AND THE GRADATION IDENTIFIED IN TABLE 1B.

5. TOPSOIL REDISTRIBUTION AND STABILIZATION

A. FOLLOWING THE PLACEMENT OF THE AGGREGATE BASE AND APPROVAL OF THE TESTING, TOPSOIL SHALL BE DISTRIBUTED IN THE AREAS INDICATED ON SHEET C. 300.
B. FOLLOWING SITE GRADING OPERATIONS, TOPSOIL CAN BE USED TO BRING THE GROUND ELEVATIONS UP TO THE DESIGNED FINISHED GRADE ELEVATIONS. THE TOP 6" OF FINISHED GRADE IN AREAS TO BE SEEDED (INCLUDING PERMANENT STORMWATER BASINS) SHALL CONSIST OF TOPSOIL.
C. THE TOPSOIL SHALL HAVE TEMPORARY AND PERMANENT STABILIZATION MEASURES ESTABLISHED IN ACCORDANCE WITH THE PROJECT SWPPP.

TABLE 1A: CTDOT TRAFFIC BOUND GRAVEL SURFACE, CTDOT SPECS M.02.03 AND M.02.06

	GRADING A	GRADING C
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING
3 1/2"	100	-
1 1/2"	55 - 100	100
3/4"	-	45 - 80
1/4"	25 - 60	25 - 60
#10	15 - 45	15 - 45
#40	5 - 25	5 - 25
#100	0 - 10	0 - 10
#200	0 - 5	0 - 5

TABLE 1B: CTDOT MODIFIED RIPRAP, CTDOT SPEC M.12.02

STONE SIZE	PERCENT OF WEIGHT
10"	0
6" - 10"	20 - 50
4" - 6"	30 - 60
2" - 4"	30 - 40
1" - 2"	10 - 20
< 1"	0 - 10

TABLE 4: CTDOT SUBBASE, CTDOT SPEC M.02.02 AND M.02.06

	GRADING B
SIEVE SIZE	PERCENT PASSING
5"	100
3 1/2"	90 - 100
1 1/2"	55 - 90
1/4"	25 - 60
#10	15 - 45
#40	5 - 25
#100	0 - 10
#200	0 - 5

TRAFFIC CONTROL:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING TRAFFIC CONTROL DEVICES SUCH AS BARRICADES, WARNING SIGNS, DIRECTIONAL SIGNS, FLAGGERS AND LIGHTS TO CONTROL THE MOVEMENT OF TRAFFIC WHERE NECESSARY. PLACEMENT OF THESE DEVICES SHALL BE APPROVED BY THE CITY/COUNTY AND ENGINEER PRIOR TO PLACEMENT. TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST VERSION OF THE CONNECTICUT TRAFFIC CONTROL SIGNAL DESIGN MANUAL.

GENERAL NOTES:

1. CONSTRUCTION PLANS ARE BASED OFF THE NSRS 2011 CONNECTICUT STATE PLANE ZONE COORDINATE SYSTEM, US FOOT.
2. THE ALTA SURVEY AND EXISTING PLANIMETRIC DATA WAS PROVIDED BY WESTWOOD PROFESSIONAL SERVICES.
3. ALL DIMENSIONS ARE TO PROJECT BOUNDARY, EDGE OF GRAVEL, FENCE LINES AND SOLAR PANELS UNLESS OTHERWISE NOTED.
4. THE GROUND SURFACE CONTOURS (AT ONE-FOOT VERTICAL INTERVALS) AND ELEVATIONS ARE BASED ON A LIDAR DATA. CONTRACTOR (AND ITS SUBCONTRACTORS) WILL NOTIFY THE ENGINEER AND OWNER OF DISCREPANCIES FOUND BETWEEN THE LIDAR SURVEY AND THE ACTUAL FIELD CONDITIONS.
5. WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE OWNER SHALL BE NOTIFIED AND ARE NOT TO BE REMOVED WITHOUT PERMISSION FROM THE OWNER. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKERS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.
6. THE CONTRACTOR SHALL NOTIFY CALL BEFORE YOU DIG (811 ONE CALL) AT LEAST 48 HOURS BEFORE EXCAVATION ACTIVITIES COMMENCE.
7. ELECTRONIC FILES ARE AVAILABLE FROM WESTWOOD PROFESSIONAL SERVICES FOR CONSTRUCTION OPERATIONS.
8. CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER OF ANY FEATURES AND FACILITIES (INCLUDING DRAIN TILE) FOUND DURING CONSTRUCTION.

EROSION AND SEDIMENT CONTROL / STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

1. PROJECT SWPPP PREPARED BY WESTWOOD.
2. THE CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES AS PLANNED AND SPECIFIED FOLLOWING BEST MANAGEMENT PRACTICES AS OUTLINED BY THE CONNECTICUIT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION (DEEP) AND BEING IN CONFORMANCE WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL STORMWATER PERMIT. SEE THE PROJECT SITE PLANS AND ASSOCIATED STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR EROSION CONTROL AND RESTORATION LOCATIONS AND SPECIFICATIONS. UNLESS OTHERWISE NOTED OR MODIFIED IN THE SWPPP/HEREIN, ALL CONDITIONS OF THE GENERAL PERMIT SHALL APPLY.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE SWPPP'S AVAILABILITY ON SITE.
4. ALL EROSION CONTROL FEATURES SHALL BE IN-PLACE PRIOR TO ANY EXCAVATION/CONSTRUCTION AND SHALL BE MAINTAINED UNTIL VIABLE TURF OR GROUND COVER HAS BEEN ESTABLISHED.
5. ALL DRAINAGE SWALES DISTURBED DURING CONSTRUCTION ACTIVITIES AND NOT COVERED BY DRIVE SURFACING MATERIALS, SHALL BE STABILIZED IN ACCORDANCE WITH THE SWPPP PLAN.

EASTERN BOX TURTLE NOTES:

1. EXCLUSIONARY PRACTICES WILL BE REQUIRED TO PREVENT ANY TURTLE ACCESS INTO CONSTRUCTION AREAS. THESE MEASURES WILL NEED TO BE INSTALLED AT THE LIMITS OF DISTURBANCE AS SHOWN ON THE PLANS.
2. EXCLUSIONARY FENCING WILL BE AT LEAST 20 INCHES TALL AND MUST BE SECURED TO AND REMAIN IN CONTACT WITH THE GROUND AND BE REGULARLY MAINTAINED (AT LEAST BI-WEEKLY AND AFTER MAJOR WEATHER EVENTS) TO SECURE ANY GAPS OR OPENINGS AT GROUND LEVEL THAT MAY LET ANIMALS PASS THROUGH.
3. PRIOR TO CONSTRUCTION, ALL TURTLES OCCURRING WITHIN FENCING WORK AREA WILL BE RELOCATED TO SUITABLE HABITAT OUTSIDE DISTURBANCE AREA. THIS SHOULD BE PERFORMED BY A QUALIFIED PROFESSIONAL FAMILIAR WITH HABITAT REQUIREMENTS AND THE BEHAVIOR OF THE SPECIES.
4. THE CONTRACTOR MUST SEARCH THE WORK AREA EACH MORNING PRIOR TO ANY WORK BEING DONE.
5. ALL CONSTRUCTION PERSONNEL WORKING WITHIN THE TURTLE HABITAT MUST BE APPRISED OF THE SPECIES DESCRIPTION AND THE POSSIBLE PRESENCE OF A LISTED SPECIES.
6. ANY TURTLES ENCOUNTERED WITHIN THE IMMEDIATE WORK AREA SHALL BE CAREFULLY MOVED TO AN ADJACENT AREA OUTSIDE OF THE EXCLUDED AREA AND FENCING SHOULD BE INSPECTED TO IDENTIFY AND REMOVE ACCESS POINT. THESE ANIMALS ARE PROTECTED BY LAW AND NO TURTLES SHOULD BE RELOCATED FROM THE SITE.
7. IN AREAS WHERE SILT FENCE IS USED FOR EXCLUSION, IT SHALL BE REMOVED AS SOON AS THE AREA IS STABLE TO ALLOW FOR REPTILE AND AMPHIBIAN PASSAGE TO RESUME.

Westwood
Phone (608) 821-6600
12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343
westwoodps.com
Westwood Surveying and Engineering, P.C.

PREPARED FOR:

US SOLAR
100 N 6th St. #410B
Minneapolis, MN, 55403

REVISIONS:

#	DATE	COMMENT
A	11/18/22	Issued for CSC Petition
B	03/20/23	Issued for CSC Petition
C	05/17/23	Issued for CSC Petition
D	07/28/23	Issued for CSC Petition

USS Somers Solar LLC

Tolland County, Town of Ellington, CT

Construction Notes

ISSUED FOR CSC PETITION
NOT FOR CONSTRUCTION

DATE: 07/28/2023

SHEET: C403

Appendix B

CT DEEP Bureau of Natural Resources & DOA Correspondence

Habitat Assessment and Wetlands and Watercourse Assessment Reports

DEEP Bureau of Natural Resources & Department of Agriculture Correspondence

Westwood
Surveying & Engineering
ww-pc.com

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

May 5, 2022

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

cc: Joe Dietrich, PE
Senior Project Manager
Westwood Surveying and Engineering, P.C.
1240 S Broadway Street, Suite 100
Lansdale, PA 19446

RE: USS Somers Solar, LLC
Proposed 4.0MW (AC)
Somers Road, Ellington, Connecticut

Dear Ms. Bachman,

Joe Dietrich, Senior Project Manager, for Westwood Surveying and Engineering, P.C. on behalf of their client USS Somers Solar, LLC ("Petitioner") has contacted the Connecticut Department of Energy and Environmental Protection ("DEEP") Bureau of Natural Resources and informed us of the intention to file a petition for a declaratory ruling with the Connecticut Siting Council. Petitioner proposes to construct a solar project with a capacity of two or more megawatts, to be located at 360 Somers Rd Ellington, Connecticut 06029 ("Site").

Pursuant to Sec. 16-50k of the Connecticut General Statutes the DEEP Bureau of Natural Resources staff have reviewed documents submitted by the Petitioner concerning this proposed project, which includes a site map dated June 8, 2021, attached to an email dated March 4, 2022 prepared by Westwood Surveying and Engineering, P.C.

In conducting such review of the proposed project, DEEP Bureau of Natural Resources has determined that such proposed project, as represented in the above-mentioned documents **will not** materially affect the status of such Site as core forest.

Nothing in this letter relieves the Petitioner of other obligations under applicable federal, state, and local law that may be necessary as part of the proposed project design and implementation.

If you have any questions, you may contact me at 860-424-3060, or by mail at 79 Elm Street, Sixth Floor, Hartford, CT 06106-5127.

Connecticut is one of the most heavily forested states in America. Our forests clean our air and water, shelter our wildlife, sequester carbon, contribute tens of millions of dollars to our economy, and add immeasurably to the quality of our lives. Yet every day, our forests are under threat. Invasive insects

and diseases and our dense and growing human population continue to stress our forests in unprecedented ways. Thank you for helping us to conserve a healthy core forest for future generations, providing public transparency and working to make thoughtful development choices.

Sincerely,

Christopher Martin, State Forester
Bureau of Natural Resources
Department of Energy and Environmental Protection

CC: Bryan P. Hurlburt, Connecticut Department of Agriculture

Holly Lalime, Connecticut Department of Agriculture

Jenny Dickson, Director of Wildlife, Bureau of Natural Resources, DEEP

DEEP.OPPD@ct.gov

siting.council@ct.gov

Westwood
Surveying & Engineering
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1240 S Broad St, Suite 100
Lansdale, PA 19446

main (215) 855-7477

March 3, 2022
Sent via electronic mail (rick.jacobson@ct.gov)

Rick Jacobson, Chief
Bureau of Natural Resources
Connecticut Department of Energy and Environmental Protection
450 Columbus Boulevard, Suite 701
Hartford, CT 06103

RE: Solar Energy Project Considerations, USS Somers Solar LLC
Somers Road, Ellington, Tolland County, Connecticut

Dear Mr. Jacobson:

On behalf of our client, USS Somers Solar, LLC ("Petitioner"), Westwood Surveying and Engineering, P.C. (Westwood) is gathering information and requesting agency comments for the proposed Somers Solar Project (Project) in Ellington, Tolland County, Connecticut. The purpose of this letter is to inform you of the proposed Project and request comments from the Department regarding the proposed development of the Project with respect to its potential effect on core forest resources.

As you know, section 16-50k(a) of the Connecticut General Statutes requires that for a solar photovoltaic facility with a capacity of two or more megawatts to be located on prime farmland, "excluding any such facility that was selected by the Department of Energy and Environmental Protection in any solicitation issued prior to July 1, 2017, pursuant to section 16a-3f, 16a-3g or 16a-3j", the Department of Energy and Environmental Protection must represent, in writing, to the Connecticut Siting Council that such project will not materially affect the status of such land as core forest. It is our hope that once the Department has reviewed this information, it would agree that the Project will not materially affect the status of core forest on the site.

The Project will be located on a portion of the larger Ellington Airport property at 360 Somers Road, Ellington, Connecticut (Site). Figure 1, *Site Location*, depicts the location of the Site and surrounding area. Based on the current design, the overall proposed system size of the solar energy generating facility (Facility) is 4.0 MWac. The Project will occupy approximately 30.8 acres of the 127 acres and will be located in the northern and western portions of the parcel. These development areas are predominantly utilized for cultivated crop (corn) and hay field. The buildings and facilities associated with Ellington Airport are located in the eastern and central portions of the Site and will remain undisturbed by the proposed solar development. In April of 2021, Westwood's subconsultant, GZA GeoEnvironmental, Inc., conducted a wetlands delineation and habitat assessment of the project area. GZA developed the attached Figure 2, *Habitat Assessment Area Map*, that depicts the observed habitat within the study area.

As part of the environmental review of the Project, Westwood evaluated the size and extent of the contiguous interior forest habitat (core forest) present within and adjacent to the Project using DEEP's Bureau of Natural Resources screening tool "Forestland Habitat Impact Map". Based on the review of the database mapping,

core forest areas are not located on the Site or within the Project area. The closest mapped core forest is greater than 1,800 feet east of the proposed development area. The attached Figure 3, *Forestland Habitat Impact*, depicts the mapped core forest resources in proximity to the parcel property line and proposed development area.

Given the provided information, USS Somers Solar LLC requests that the Department provide a letter to the Siting Council indicating that if the Project proceeds as described, it will not materially affect core forest resources. We look forward to working with the Department on this matter. If you require further information or have questions, please contact me at your convenience.

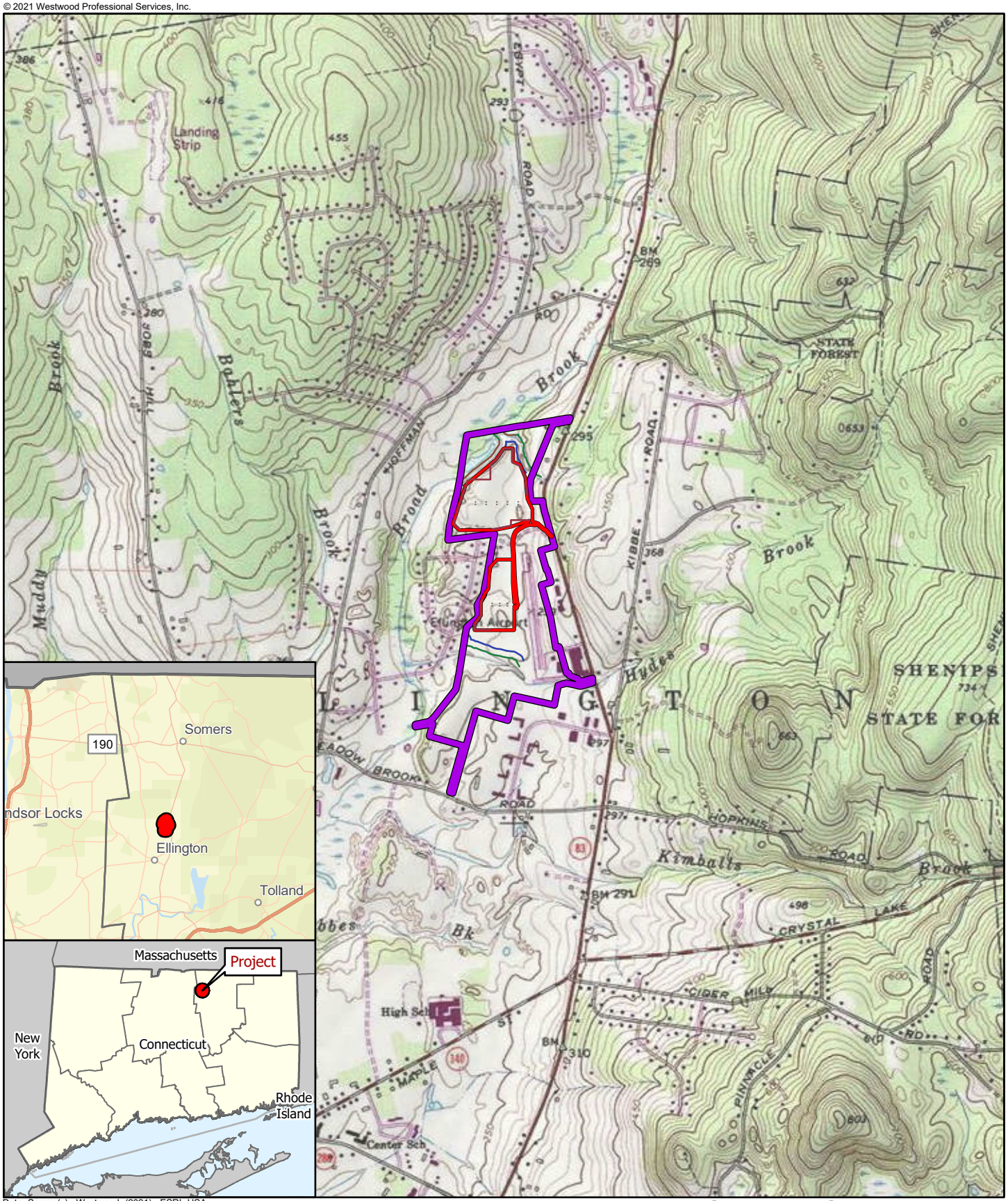
Sincerely,

Westwood Surveying and Engineering, P.C.

Joe Dietrich, PE
Senior Project Manager
Joe.dietrich@westwoodps.com
(610) 716-3853

Enclosure

Cc: Peter Schmitt, USS Somers Solar LLC, Peter.Schmitt@us-solar.com



Data Source(s): Westwood (2021); ESRI USA Topo Basemap (Accessed 2021); ESRI Streets Basemap (Accessed 2021); CT DEEP (2019).

Legend

- Development Area
- Property
- County Boundary

N

0 Feet 2,000

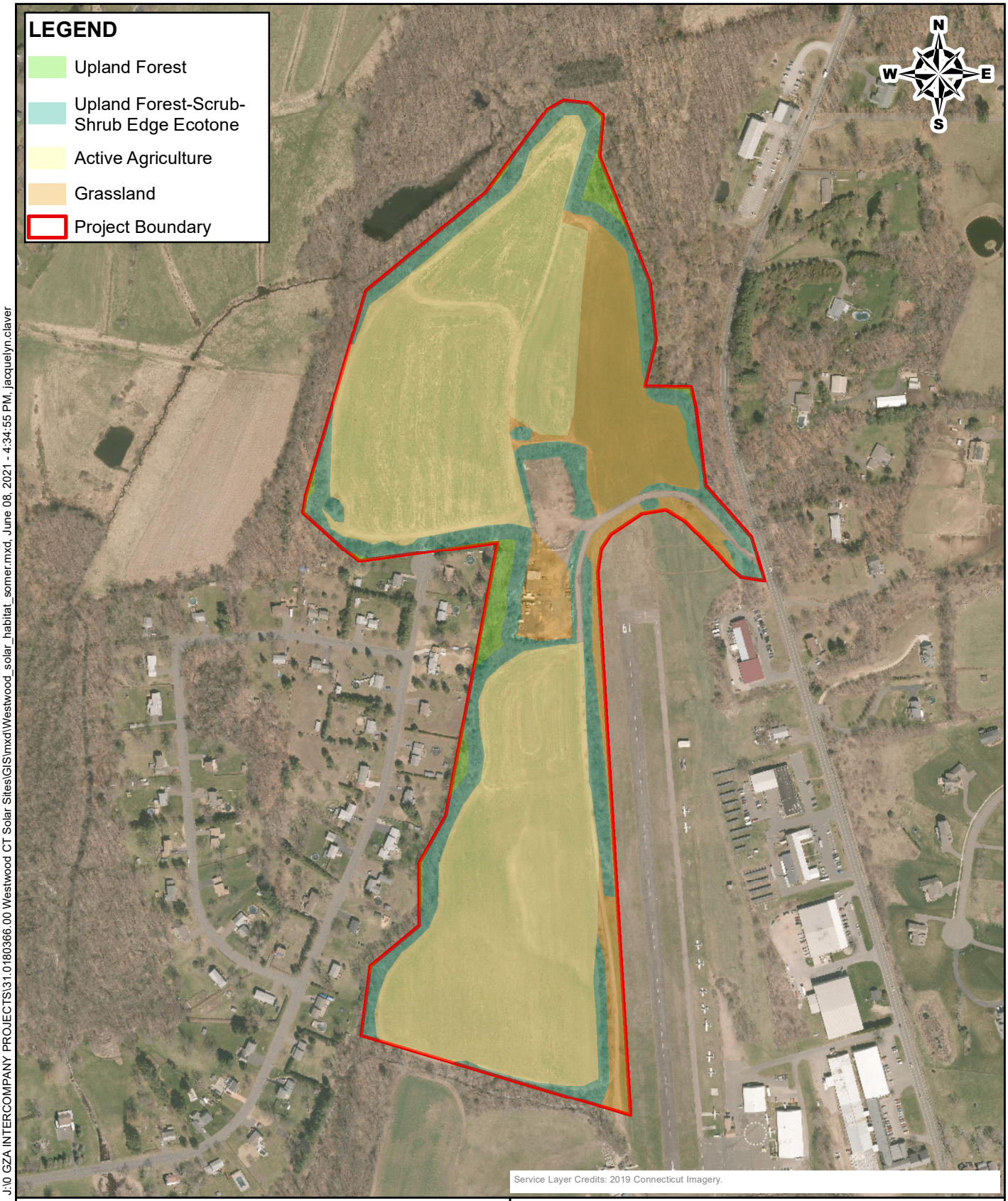
Somers Solar Project

360 Somers Rd
Ellington, Connecticut

Site Location

FIGURE 1

Westwood
Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.



0 225 450 900

SCALE IN FEET

USS SOMERS SOLAR PROJECT
SOMERS ROAD, ELLINGTON, CT

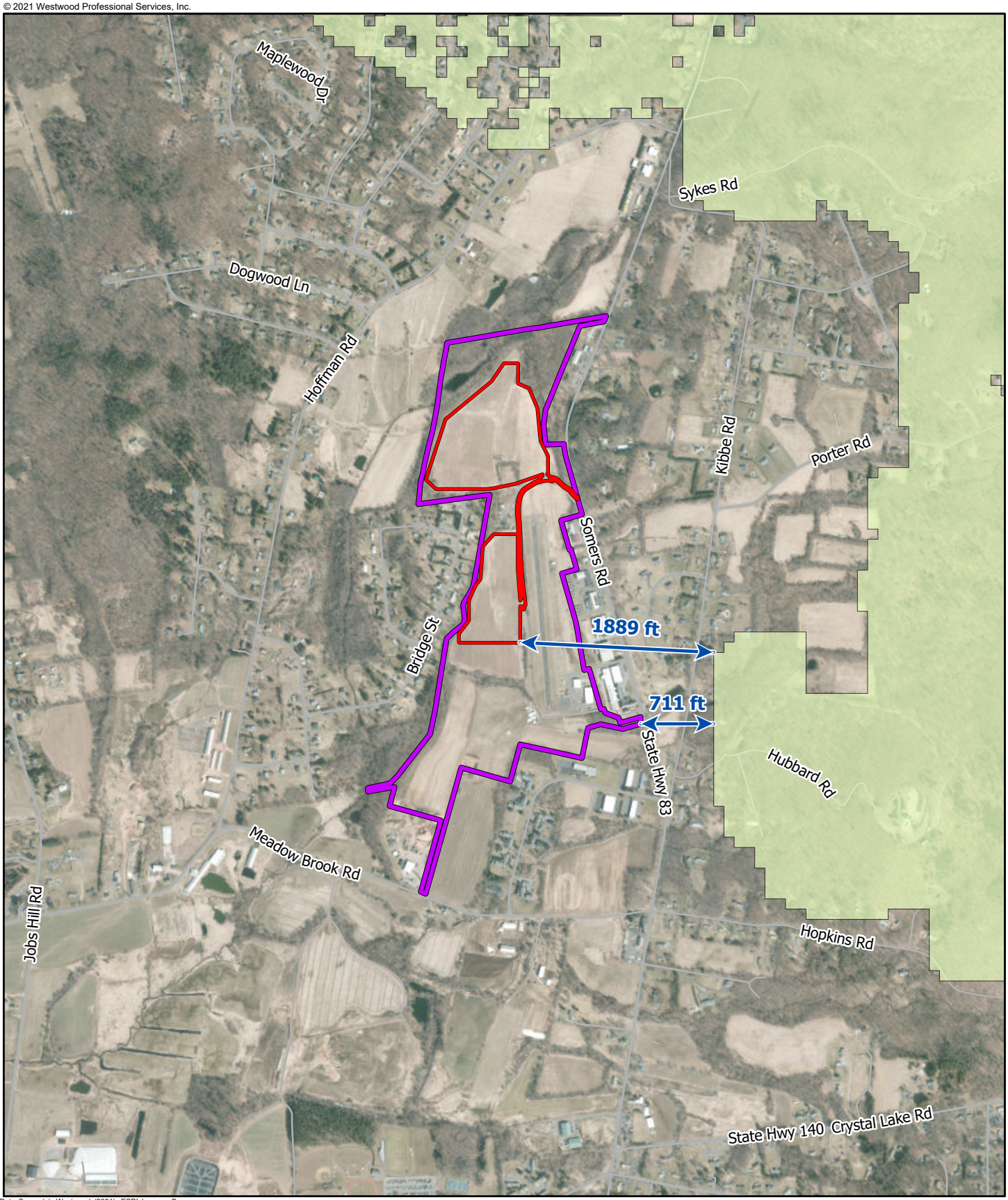
HABITAT ASSESSMENT AREA MAP

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
WESTWOOD SURVEYING AND ENGINEERING, P.C.
12701 WHITEWATER DRIVE, SUITE 300
MINNETONKA, MN 55343

PROJ MGR:	BK	REVIEWED BY:	DZG	CHECKED BY:	JB
DESIGNED BY:	JRC	DRAWN BY:	JRC	SCALE:	1 in = 450 ft
DATE:	06/08/2021	PROJECT NO:	31.0180366.00	REVISION NO:	

FIGURE
2



Data Source(s): Westwood (2021); ESRI Imagery Basemap (Accessed 2021); CT DEEP (2019); USGS (2020).

N

Feet

0 1,300

Legend

- Property Line
- Development Area
- Forestland Habitat Impact
- Road

Westwood

Toll Free (888) 937-5150 westwoodps.com

Westwood Professional Services, Inc.

Somers Solar Project

360 Somers Rd

Ellington, Connecticut

Forestland Habitat Impact

FIGURE 3

Map Document: N:\0028111.00\GIS\Analysis\210518_EMB\Somers_Exhibits_210518\Somers_Exhibits_210518.aprx 8/6/2021 7:38 AM emboisen

Westwood
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1240 S Broad St, Suite 100
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main (215) 855-7477

July 10, 2023
Sent via Electronic Mail (Holly.Lalime@ct.gov)

Holly Lalime
Farmland Preservation Program
Connecticut Department of Agriculture
450 Columbus Boulevard, Suite 701
Hartford, CT 06103

RE: Solar Energy Project Considerations, USS Somers Solar LLC, Somers Road, Ellington, Tolland County, Connecticut

Dear Ms. Lalime:

On behalf of our client, USS Somers Solar, LLC ("Petitioner", USS), Westwood Surveying and Engineering, P.C. (Westwood) is gathering information and requesting updated agency comments for the proposed Somers Solar Project (Project) in Ellington, Tolland County, Connecticut. The Department previously commented on the Project in a letter to the Connecticut Siting Council on March 6, 2023. Since that date of that letter, the Project layout has been revised and has removed all the previously proposed impacts of the Project on Prime Farmland. An existing gravel access road to be utilized by the Project traverses an area designated as Prime Farmland. This is the only portion of the Project that remains in Prime Farmland. As such, we are requesting an additional review of the Project and request comments and/or input from the Department regarding the proposed development of the Project with respect to material effect on prime, statewide, and/or locally important farmland soils on the site.

As you know, section 16-50k(a) of the Connecticut General Statutes requires that for a solar photovoltaic facility with a capacity of two or more megawatts to be located on prime farmland, "excluding any such facility that was selected by the Department of Energy and Environmental Protection in any solicitation issued prior to July 1, 2017, pursuant to section 16a-3f, 16a-3g or 16a-3j", the Department of Agriculture must represent, in writing, to the Connecticut Siting Council that such project will not materially affect the status of such land as prime farmland. We have updated the information in the following paragraphs and it is our hope that once the Department has reviewed this revised information, it would agree that the updated Project layout will not materially affect the status of prime farmland on the site.

The Project will be located on a portion of the larger Ellington Airport property at 360 Somers Road, Ellington, Connecticut (Site). Figure 1, *Site Location*, depicts the location of the Site and surrounding area and Figure 2, *Existing Conditions*, depicts the existing land cover of the Site along with a superimposed outline of the proposed development area.

Per the January 16, 2020 guidance on Solar Energy Project Considerations that has previously been posted by the Department, USS is providing additional information on the Project for the Department's review. Our answers to the Department's request for information are provided in the responses below.

1. Farm/Property Information: Provide a description of the farm property, including but not limited to the following (include appropriate maps and surveys to allow evaluation):
    a. Farm owner(s), farm name and location;

    The property is located at 360 Somers Road, Ellington, CT (Parcel ID 105-002-0000). The property's primary use is the Ellington Airport. The landowner is: JLM Associates LLC d/b/a Ellington Airport (JLM Associates). Agricultural activities on the property are leased month to month to: Seth Aborn.

    b. Total acreage, identification of prime, statewide and/or locally important farmland soils & acreage; and

    The Property consists of The Site consists of an approximately 127 acre parcel with a mixed use including an airport facility with related development open space, buildings, and impervious surfaces ("Ellington Airport"), agricultural/cultivated crops, hay fields/grassland, and deciduous and evergreen wooded (mixed forest) areas. The 127 acre parcel contains 33.52 acres mapped as Prime Farmland Soils and 29.94 acres mapped as Farmland of Statewide Importance.

    The Project will occupy approximately 19.2 acres (reduced from 30.8 acres) of the 127 acres and will be located in the northern portion of the parcel. This development area is predominantly utilized for cultivated crop (corn) and hay field. The buildings and facilities associated with Ellington Airport are located in the eastern and central portions of the Site and will remain undisturbed by the proposed solar development. The portions of the Site outside of the developed airport facility are a combination of cultivated crop, pasture/hay, mixed forest, and barren land areas. The wooded areas are predominantly located in the northern portion and along the western perimeter of the Site. The barren land centrally located within the Site consists of a gravel surfaced contractor's yard facility with metal building, storage trailers, material stockpiles, and vehicle/equipment parking. The area in the vicinity of the building and storage trailers is outside of the proposed development. The Site is privately-owned and zoned Industrial (I) under the Town of Ellington's Zoning Code. The attached Figure 2, Existing Conditions, depicts the existing land cover of the Site, including farmland soils.

    c. Current production agriculture on the farm and the approximate location of crops, farm buildings, etc. used to support the farming operation

    Currently approximately 40 to 45 acres of the northern, western and southern portions of the 127-acre parcel are utilized for agricultural production (corn and/or hay). Agricultural activities on the parcel extend onto adjacent parcels to the south and southeast. No buildings on-site are utilized for the agricultural operations.

2. Energy Project Information
    a. Describe the energy project, including but not limited to, the size of the project in megawatts (MW), the footprint being proposed as it relates to prime farmland on the property, # of panels (if known), and a description of infrastructure needed to support the project;

Based on the current design, the overall proposed system size of the solar energy generating facility (Facility) is 3.0 MWac. The project will now consist of approximately 7,074 Jinko Solar Eagle 72HM G5B photovoltaic modules (panels), 18 Ginlong Solis-185k-EHV-5G-US inverters, One (1) switchboard and transformer pad, and approximately 1,300 lf of new gravel access roads. There will be approximately 1,200 lf of underground medium voltage electrical cables connecting to one (1) service interconnection. The underground alignment will follow the proposed Project access roads and the existing gravel access road extending to Somers Rd. The proposed electrical interconnection will be located on new utility poles near the Site's existing gravel entrance from Somers Rd. and will interconnect with Eversource's electrical system in the Somers Rd. right-of-way. A ground-mounted tracker racking system will be used to secure the panel arrays. The Facility will be surrounded by a six (6)-foot tall chain-link security fence. The Facility will occupy approximately 19.2 acres within its perimeter fence line in the northern area of the Project Premises. The general array area will occupy a total of approximately 17.5 acres including the open space between racks. The remaining area within the fence lines will be utilized for storm water and drainage facilities, any necessary transition grading, and general areas needed for operations and maintenance.

Farmland Soil Classification	*Total Area within 127-acre Site Parcel (acre +/-)*	*Impacted Area within Project Limits (acre +/-)*
Prime Farmland Soils	*33.52*	*0.09 (see note 1)*
Farmland of Statewide Importance	*29.94*	*4.28 (see note 2)*
Notes: 1. Reduced from 3.76 acres and all of the 0.09 acres is an existing gravel access road already in place for the airport facility. This existing access will be utilized by the Project. 2. Reduced from 7.10 acres		

b. Describe what the energy will be used for and how it will benefit the farming operation; and

The energy will be sold to The Connecticut Light & Power Company, d/b/a Eversource Energy through a state approved power purchase agreement as part of the Shared Clean Energy Facility program. This site is unique in that the current use is row agriculture on an industrially zoned site (airport), with large portions of the project footprint falling on previously disturbed lands or barren lands.

The remaining acreage on this property may continue to be farmed and may also see increased per acre yields depending on the crop, due to the pollinator friendly habitat being installed at the project site. Soybeans have shown some, small yield increase from adjacent pollinator friendly habitat, but other pollinator dependent crops would see a larger yield increase.

Finally, the presence of year-round vegetation will increase the carbon sequestration potential of this property. The project acreage planted in pollinator friendly habitat will have significantly better carbon sequestration compared to traditional row crops.

c. Are there future plans to increase energy capacity beyond what is proposed? If so, please describe these future plans, and any impacts the increase may have on prime farmland or the overall farming operation.

There are no expansion plans currently.

3. Agricultural Resource Impacts
   a. Describe any production agriculture currently being conducted within the footprint of the solar project;

      Of the 43 acres on the parcel utilized for crops, approximately 19 acres are within the proposed project limits.

   b. Describe overall how the project will impact production agriculture currently being conducted on the farm; and

      Agriculture areas outside of the proposed Project will remain unaffected by the development. Agricultural crops, such as corn, are not compatible with solar array development and will not continue within the Project area.

   c. Provide a description of any plans by the farm owner(s) to foster production agriculture within or as a result of the development (e.g., grazing animals in and around the solar project, providing pollinator habitat).

      The Project intends to provide pollinator habitat and will work with the local community to offer apiary hosting within the project site to support production agriculture on other portions of the parcel and adjacent parcels. USS has years of experience developing and establishing pollinator friendly habitat under solar arrays and has hosted apiary operations on several, similar solar projects in Minnesota. Anecdotally, USS has found that beekeepers have seen increased honey yields on solar sites planted with pollinator friendly habitat compared to other locations.

      Given the reduction in project area and elimination of proposed impacts to Prime Farmland, USS is not proposing to implement rotational sheep grazing within the smaller 19.2 acre fenced-in panel area following the completion of construction and vegetation establishment.

4. Alternatives to Locating the Energy Project on Prime Farmland
   a. Provide a description of any alternatives considered by the farm owner(s) to developing the project on prime farmland soils (e.g., the option of selling agricultural development rights for the farm instead of developing for solar, or as a mitigation measure to reduce the size of the solar development);

JLM Associates and USS selected this site through the evaluation process of successful projects and USS's experience on site selection criteria. The Ellington Airport is zoned Industrial and grid-connected solar is an approved use in an I-zone. The Project area is generally obscured from roadways and surrounded by mature treelines. Access to the Project will utilize existing gravel roadways from the existing paved driveway access from Somers Road (State Route 83) which minimizes creation of new impervious surfaces. The proposed site also provides the closest access to the existing three phase power grid which runs along the western side of Somers Rd. The site is located to not interfere with the existing airport runway and operations. The Project layout has been modified to avoid areas allocated for future runway lengthening on the Property. The Project is located to avoid disturbance to existing on-site wetlands and minimize tree clearing.

b. Describe any alternatives examined which might enable placement of some or all of the solar panels in locations other than on prime farmland (e.g., elsewhere on the property or on farm buildings); and

Alternate locations to avoid prime farmlands were considered the siting process, however, once all the siting criteria components, including technical, aesthetic, and airport operations (existing and future), were combined, the Project area as proposed was deemed by both USS and JLM Associates as the optimal location.

c. Provide a description of any other form of mitigation considered by the farm owner(s) (e.g., farmland restoration, or a future commitment to preserve the farm).

Given the parcel's primary operation as an airport facility, a commitment to preserve land as farmland has not been considered by the landowner. One of the benefits of solar development on the parcel as opposed to the construction of industrial buildings is that the existing farmland soils will not be permanently removed from the site. Upon expiration of the power purchase agreement and solar component decommissioning, production agriculture activities can easily return to the Project area.

We welcome any comments or questions the Department may have at this time. Given the provided information, USS Somers Solar LLC requests that the Department provide an updated letter to the Siting Council indicating that if USS proceeds with the Project as described, it will not materially affect the status of prime farmland on the site.

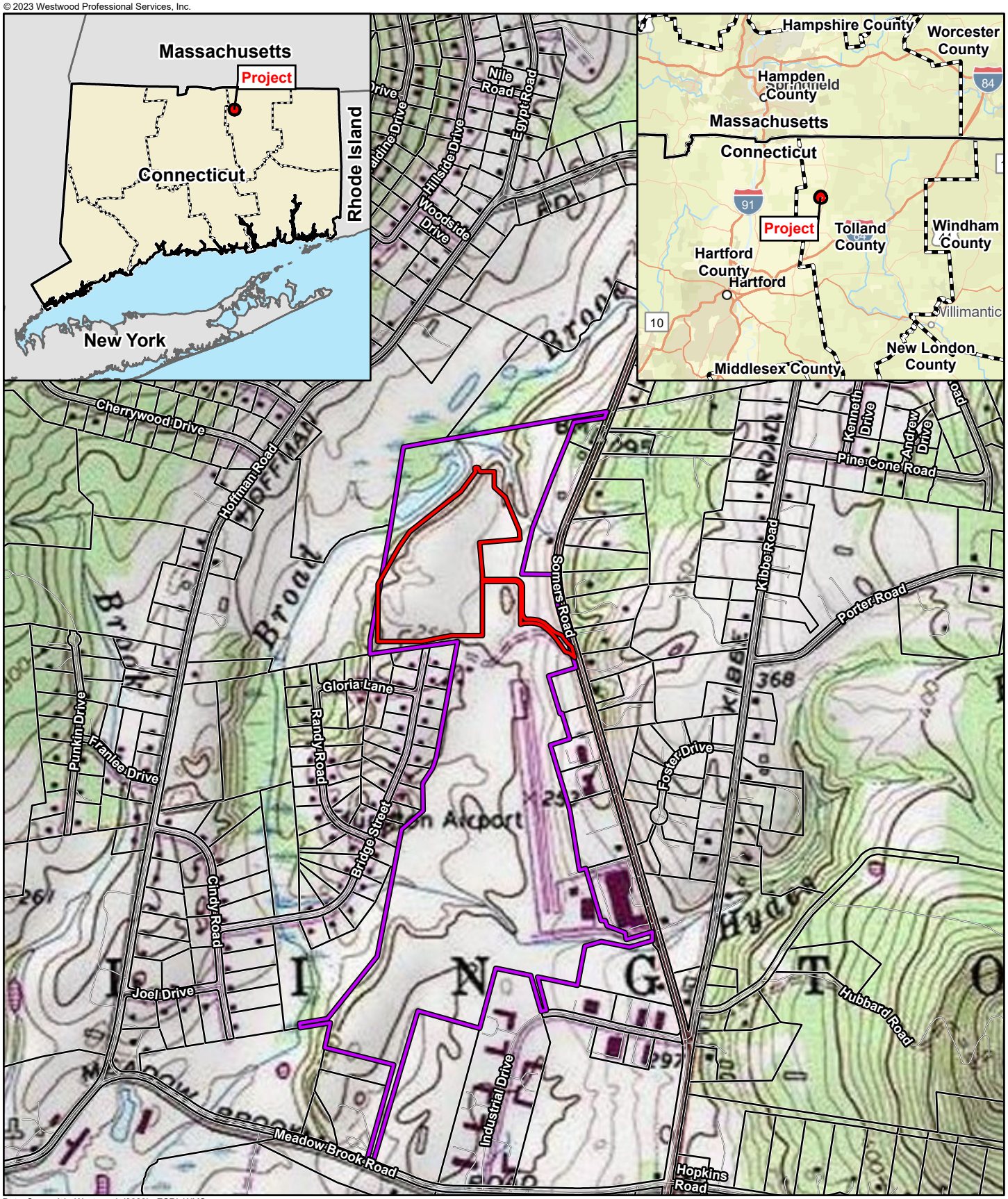
We look forward to working with the Department on this matter. If you require further information or have questions, please contact me at your convenience.

Sincerely,
Westwood Surveying and Engineering, P.C.

Joe Dietrich, PE
Senior Project Manager
Joe.dietrich@westwoodps.com / (610) 716-3853

Cc (via email):
Dan Csaplar, USS Somers Solar LLC (dan.csaplar@us-solar.com)
Lee Hoffman, Esq., Pullman & Comley, LLC (lhoffman@pullman.com)
Jaime Smith (Jaime.Smith@ct.gov)
Eileen Periverzov (Eileen.Periverzov@ct.gov)

Attachments:
Figure 1: Site Location Plan
Figure 2: Existing Conditions Overlaid with Proposed Project Limits
Previously received Department of Agriculture correspondence, dated March 6, 2023



Data Source(s): Westwood (2023); ESRI WMS U.S. Topography & World Streets Basemaps (Accessed 2023); U.S. Census Bureau (2022); CT DEEP (2022); OpenStreetMap (2022).

Feet
0 1,000

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Legend

- Project Area
- Property Boundary
- Parcel Boundary
- Local Road

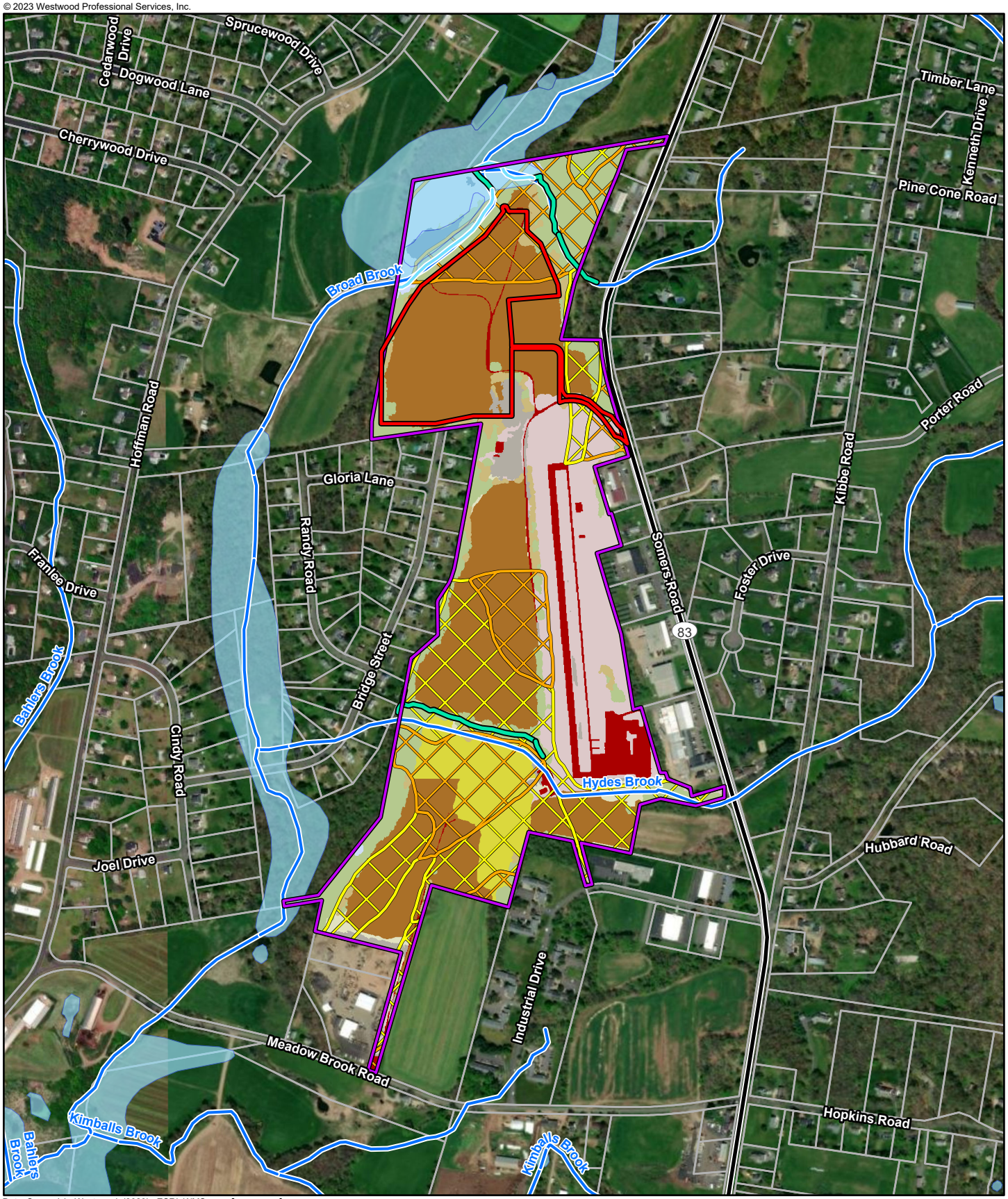
N

Somers Solar Project

Town of Ellington, Connecticut

Project Location & USGS Topography

EXHIBIT 1



Data Source(s): Westwood (2023); ESRI WMS World Imagery Basemaps (Accessed 2023); CT DEEP (2022); NRCS Web Soil Survey (Accessed 2023); C-Cap Land Cover (2020); OpenStreetMap (2022); NHD (2021).

0 800 Feet

Legend

- Project Area
- Property Boundary
- Parcel Boundary
- Major Road
- Delineated Stream
- Delineated Wetland Boundary
- NHD Flowline
- NHD Waterbody

Prime Farmland

- All areas are prime farmland
- Farmland of statewide importance

Land Classification

- Barren Land
- Cultivated Crops
- Developed, High Intensity
- Developed, Open Space
- Grassland/ Herbaceous
- Mixed Forest
- Open Water
- Palustrine Forested Wetland
- Pasture/Hay
- Scrub/Shrub

Westwood
Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Somers Solar Project

Town of Ellington, Connecticut

N

Existing Conditions

EXHIBIT 2

Map Document: \\westwoodps.local\Global Projects\0028111.00\GIS\ArcPro\R0028111_Somers_Solar_EAExhibitsUpdate\Somers_Exhibits_210518\Somers_Exhibits_210518.aprx 7/10/2023 9:43 AM LMaldonado

CONNECTICUT DEPARTMENT OF AGRICULTURE
450 Columbus Blvd, Suite 701 | Hartford, Connecticut 06103 | 860.713.2500
Office of the Commissioner
Affirmative Action/Equal Employment Opportunity Employer

March 6, 2023

Melanie A. Bachman
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: USS Somers Solar LLC – 360 Somers Road, Ellington, proposed 4-Megawatt AC solar project

Dear Executive Director Bachman:

Pursuant to 16-50k(a) of the Connecticut General Statutes, we have reviewed the above cited project with respect to agricultural impacts, specifically, to determine whether "…such project will not materially affect the status of such land as prime farmland…"

This project will be located at 360 Somers Road in Ellington, on a portion of the larger Ellington Airport Property. The entire 127-acre parcel contains approximately 32.15 acres of prime farmland soils and 29.72 acres of statewide important farmland soils. The proposed solar facility will occupy approximately 30.8 acres in the northern and western portions of the parcel. The areas are currently used to grow hay and corn for a local dairy operation.

In a letter to the Department of Agriculture (DoAg), dated March 3, 2020, and a follow up letter dated October 15, 2022, the developers (USS Somers Solar LLC) have agreed to design and manage the solar facility for the rotational grazing of sheep. USS Somers Solar has provided the Department with a site-specific grazing plan prepared by the United States Solar Corporation.

Based on preliminary information provided to DoAg (enclosed), and the successful implementation of the co-uses and continuing farming activities described above, the Department of Agriculture concludes this project will not materially affect the status of project land as prime farmland.

This determination is conditioned upon:

1. The co-uses described above operating on the project site for the life of the project.
2. The solar developer adhering to the *Requirements for Solar Grazing Properties* (enclosed).
3. That there will be no grading, cutting or filling, topsoil removal, or other actions associated with the project's installation and ultimate deconstruction after 20 to 30 years.

The Department of Agriculture will continue to monitor the proposed project and should changes or additions to the proposal raise concerns to the Department, we reserve the right to modify our position on this project, including opposing it, as detailed plans are provided by the developers.

If you have any questions, please feel free to contact Holly Lalime of my staff. Holly can be reached at Holly.Lalime@ct.gov or at (860) 969-7053.

Sincerely,

Bryan P. Hurlburt
Commissioner

Enc.

Cc: Katie Dykes, Commissioner, Department of Energy and Environmental Protection
Peter Schmitt, USS Somers Solar LLC

CONNECTICUT DEPARTMENT OF AGRICULTURE
450 Columbus Blvd, Suite 701 | Hartford, Connecticut 06103 | 860.713.2500
Office of the Commissioner
Affirmative Action/Equal Employment Opportunity Employer

Requirements for Solar Grazing Properties

Below is a list of requirements for the co-location of sheep on solar array sites. Solar developers and grazers must adhere to the requirements below to ensure that the sheep on site are provided with the appropriate management and care to promote and sustain their health.

Site Requirements

1. Proper site preparation must be completed by solar developers to create a safe and productive environment for livestock. No debris from construction should be left in the array and panels should be designed for maximum grazing efficiency.

2. Proper soil preparation must take place including preliminary soil testing, followed by repeated testing every 2-3 years and the incorporation of soil amendments as needed.

3. If herbicides or pesticides will be used on the property, the solar developer must share application areas and plans with the solar grazer and a plan for animal safety must be established.

4. Exterior fencing around the solar site must completely enclose the overall array without any holes or gaps.
    a. Eight-foot-tall chain link fencing with a curl back underground and tension wire running along the bottom should be installed.
    b. Gates with opening should be tight enough to prevent predators.

5. The solar developer shall provide the necessary fencing identified by the farmer within the solar site to create grazing paddocks. Fencing is also necessary to keep livestock out of hazardous areas including roads, catch basins, transformers, drainage ditches, and containment ponds.

6. In addition to exterior fencing, best practices for flock protection other than dogs, includes llamas or donkeys. If you are planning to utilize guardian dogs, you should be aware of the significant training required to implement such a program. Texas A&M has created an introduction to using guardian dogs that can be found here: https://sanangelo.tamu.edu/research/lgd/

7. Signs must be installed around the exterior fencing of the solar site announcing the presence of livestock and providing contact information for the solar grazer.

Livestock Health and Wellness

8. A reliable water source will be provided by the solar developer. The water source, whether surface or groundwater, shall be tested for contaminants prior to livestock being brought to the site. The solar developer is responsible for ensuring that the water

source has sufficient yield throughout the season when sheep are grazed on the property.

9. Livestock cannot have access to waterways, ponds, etc. Water shall be pumped from its source and provided to the sheep via a trough or stock tank.

10. A productive and nutritious forage needs to be established and maintained. This shall include regular mowing to keep fields from becoming overgrown. The developers shall work with a grazing expert to select a forage mix that is suitable for the climate, soil quality, and livestock. The solar developer should not expect to graze sheep on the site until the forage has had a full growing season to establish. A forage sample analysis shall be completed yearly to ensure the crop meets livestock nutritional needs.

11. Solar grazers will use proper stocking rates to ensure that a sufficient quantity and quality of forage is available for the livestock.

12. Solar grazers will be required to perform mandated health checks on their sheep which shall include:
    a. All animals should be officially identified with either an 840 tag or Scrapie tag https://eregulations.ct.gov/eRegsPortal/Browse/RCSA/Title_22Subtitle_22-278-A/
    b. Regular monitoring of body condition, foot health, and visible signs of injury or illness.
    c. Mandatory, at least annually, health check performed by a veterinarian including all vaccinations deemed necessary at the veterinarian's discretion including a yearly rabies vaccine that is labeled for use in sheep - https://eregulations.ct.gov/eRegsPortal/Browse/RCSA/Title_22Subtitle_22-359/

13. If sheep come from out of state, all imported animals need to meet all importation requirements. CTImportRequirements2021.pdf

14. If a dog or any animal other than sheep will be on site, they must be vaccinated for rabies. Dogs must be licensed. Records must be kept up to date and provided upon request. https://www.cga.ct.gov/current/pub/chap_435.htm#sec_22-338

15. Department of Agriculture staff must be allowed to visit the site with notice to check on the welfare of the livestock.

Education and Training

16. Developers need to ensure there is an adequate plan for care and management of the sheep and training for anyone working at the site to ensure that both worker and animal welfare is effectively managed.

17. The solar developer will work with the grazer to create a contingency plan for unforeseen events such as flooding, drought, or other natural disasters.

18. Training must be provided to solar employees who regularly access the site regarding how to interact with the sheep on site.

19. Solar developers are expected to hire and financially compensate solar grazers/farmers for the vegetation management services they are providing.

20. Solar grazers must have 24/7 access to the site.

21. The solar developer shall allow a representative of the Commissioner of Agriculture to conduct a site visit on an as needed basis to confirm compliance with solar grazing activity on the site.

Habitat Assessment

Westwood
Surveying & Engineering
ww-pc.com

Proactive by Design

GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION MANAGEMENT

1350 Main Street
Suite 1400
Springfield, MA 01103
T: 413.726.2100
F: 413.732.1249
www.gza.com

June 9, 2021
31.0180366.00

Joseph Dietrich PE
Westwood Surveying and Engineering, P.C.
12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343

Re: Habitat Assessment Report
USS Somers Solar Project
Ellington, CT

Dear Mr. Dietrich:

In accordance with our approved scope of work, GZA conducted a desktop habitat assessment ("Assessment") of the land on, or immediately adjacent to, the Somers Solar Project Site in Ellington, CT ("Site"). The purpose of the Assessment was to determine the potential presence or absence of regulated species under Connecticut General Statues ("CGS") Section 26-303 through 26-316 as well as United States Fish and Wildlife Service (USFWS) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.), solely based on available desktop data and in conjunction with findings from our April 2021 site visit. No formal species specific survey or habitat assessment was conducted.

INTRODUCTION

GZA conducted a review of available natural resource data on the Connecticut Department of Energy and Environmental Protection (CT DEEP) online portal, Connecticut Environmental Conditions Online (CT ECO) and USFWS Information for Planning and Consultation (IPAC) review. A Natural Diversity Data Base rare species habitat is depicted on a portion of the parcel, a request has been submitted to determine which listed specie(s) are present. Additionally, we are including a Habitat Assessment Area Map (Appendix B) in support of the readers understanding of the Site conditions. USFWS IPAC review list was also included (Appendix C).

ASSESSMENT FINDINGS

Based upon our desktop survey and site observations we offer the following findings.

Desktop Review:
GZA reviewed the natural resource data layers on the CT ECO portal. Upon review of the data layers, the December 2020 Natural Diversity Data Base Areas map for the Site indicated that the Site is within an area identified as potentially containing State and Federal Listed Species

and regulated through the CT DEEP. GZA is pending results from a Request for Natural Diversity Data Base State-listed Species Review to CT DEEP for the Site. Formal comment by NDDB is needed to verify which state listed species has been documented on site. However, based on our assessment and location of the NDDB polygon it can be surmised to indicate a grassland bird species due to its location centered around an airport where these species can be communally found. The Ellington Conservation Commission conducted a Natural Resource and Wildlife Inventory including a NDDB Species Review request for the entire town which was adopted March 2, 2021. The following bird species were listed to be documented in Ellington, CT: sharp-shinned hawk (*Accipiter striatus*), broad-winged hawk (*Buteo platypterus*), whip-poor-will (*Caprimulgus vociferus)*, Bald Eagle (*Haliaeetus leucocephalus*), savannah sparrow (*Passerculus sandwichensis*), and brown thrasher (*Toxostoma rufu*). Based on the above information and on-site habitats observed, the state listed species present is assumed to be savannah sparrow and/or brown thrasher.

GZA also conducted an IPAC review through the USFWS online portal. The IPAC review identified the federally threatened northern long-eared bat (*Myotis septentrionalis*) as a species which may occur within the boundary of the Site.

Preliminary Habitat Assessment

The Site, located off Somers Road in Ellington, CT, is made up of undeveloped forested areas and managed grasslands (i.e., hayfield) with a few structures present and adjacent to an active airport.

Active Agriculture: Several areas of active agriculture are located on Site. These fields are in active corn production with some areas fallow. The corn areas were unvegetated while the fallow fields were vegetated by mostly cool season grasses and forbs.

Grasslands: Grassland communities are around the airfield portion of the Site as this area is actively managed by the Airport to maintain low growing grassland vegetation. These natural communities are mostly a mix of warm and cool season grasses and forbs. Weed species such as red clover (*Trifolium pratense*), common and English plantain (*Plantago major* and *P. lanceolata*), and sheep sorrel (*Rumex acetosella*) are common.

Upland Forest - Scrub-Shrub Edge Ecotones: Upland forests - scrub-shrub edge ecotones are present on site, mainly along the edges of the agricultural and grassland fields. However, some small forested - scrub-shrub upland areas are located within the center of the Site. Upland species observed include red oak (*Quercus rubra*), red maple (*Acer rubrum*), cottonwood (*Populus spp.*), and Big-toothed aspen (*Populus grandidentia*) canopy tree species. The invasive plant species observed includes multiflora rose (*Rosa multiflora*) and oriental bittersweet (*Celastrus orbiculatus*), found primarily along the tree line.

Wetland Forest: A forested wetland system containing Broad Brook is present in the extreme north and western sides of the property, most of this system is located off property to the west. The predominant wetland vegetation observed include red maple (*Acer rubrum*), cottonwood (*Populus spp.*), big-toothed aspen (*Populus grandidentia*), spicebush (*Lindera benzoin*), sensitive fern (*Onoclea sensibilis*), skunk cabbage

(*Symplocarpus foetidus*), and marsh marigold (*Caltha palustris*). Hydes Brook which flows east to west is found on the southern section of Site.

Developed: Several areas on the habitat maps are shown as not habitat type. These are mostly developed areas and occur where pavement, exposed earth or buildings are present.

Avifauna:
With results pending from the Site's NDDB review, the following six bird species were noted as part of the town wide Ellington Conservation Commission NDDB Species Review: sharp-shinned hawk (*Accipiter striatus*), broad-winged hawk (*Buteo platypterus*), whip-poor-will (*Caprimulgus vociferus)*, bald eagle (*Haliaeetus leucocephalus*), savannah sparrow (*Passerculus sandwichensis*), and brown thrasher (*Toxostoma rufu*). Savannah sparrows generally prefer dense grass areas for forage and nesting and feed on insects. They require large areas of open land to provide an attractive breeding site. Common agricultural practices including tilling and mid-season hay harvest significantly decrease habitat suitability. Broad-winged hawk and sharp-shinned hawk nest in deep forests and hunt small birds and mammals along forest edges. Brown thrashers prefer scrubby fields, dense regenerating woods, and forest edges, the lack of shrub habitat provides limited habitat within the Site. Whip-poor-will spend most of their time in deep forest in open understories which is not found on the Site. Bald eagle typically nest and forage around areas adjacent to large bodies of water which is not found on the Site. The open habitats on the Site provide suitable foraging habitat for species identified in by the Ellington Conservation Commission. Additional site investigations may be required to determine the presence/absence of any listed species determined by the NDDB review for the site which is pending.

Northern Long-eared Bat (NLEB):
The northern long-eared bat populations are primarily found in forested habitats and typically roost in any tree large enough to have a cavity or that has loose bark. New England specific recommended time-of-year restrictions for tree removal in suitable NLEB habitat are from April 16th through October 31st.

SUMMARY OF FINDINGS

Based upon our observations at the Site and a review of available CT ECO GIS data, we conclude that the Site is located within a Natural Diversity Data Base Area and there is a pending NDDB Species Request with CT DEEP. Based on habitats present and location of the NDDB polygon it is most likely that the listed species is a grassland bird (savannah sparrow) or possibly brown thrasher. It cannot be ruled out that the listed species may be a plant. A formal determination cannot be made until the results of the NDDB information request are received. As part of the USFWS IPAC review the threatened Northern Long-eared Bat may occur within the project area and further surveys would be needed, but only if tree removal is proposed. An additional site investigations may be required to determine the presence/absence of any listed species determined by the NDDB review for the site.

Should you have any questions, please feel free to contact Steven Riberdy at 413-726-2111 or Daniel Nitzsche at 413-726-2108.

Sincerely,
GZA GeoEnvironmental, Inc.

Steven Riberdy, M.S., CWB®, PWS, CE, CERP, PSS
Senior Ecologist, Soil Scientist

Daniel Nitzsche, CPESC, CESSWI, SE
Senior Wetland Scientist

USE OF REPORT

1. GZA GeoEnvironmental, Inc. (GZA) has prepared this report on behalf of, and for the exclusive use of USS Somers Solar LLC, US Solar DG Development LLC, and Westwood Surveying and Engineering, P.C ("Client") for the stated purpose(s) and location(s) identified in the report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not identified in the agreement, for any use, without our prior written permission, shall be at that party's risk, and without any liability to GZA.

STANDARD OF CARE

2. GZA's findings and conclusions are based on the work conducted as part of the Scope of Services set forth in the Report and/or proposal and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the data gathered and observations made during the course of our work. Conditions other than described in this report may be found at the subject location(s).

3. GZA's services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar site. No warranty, expressed or implied, is made.

LIMITS TO OBSERVATIONS

4. Natural resource characteristics are inherently variable. Biological community composition and diversity can be affected by seasonal, annual or anthropogenic influences. In addition, soil conditions are reflective of subsurface geologic materials, the composition and distribution of which vary spatially.

5. The observations described in this report were made on the dates referenced and under the conditions stated therein. Conditions observed and reported by GZA reflect the conditions that could be reasonably observed based upon the visual observations of surface conditions and/or a limited observation of subsurface conditions at the specific time of observation. Such conditions are subject to environmental and circumstantial alteration and may not reflect conditions observable at another time.

6. The conclusions and recommendations contained in this report are based upon the data obtained from a limited number of surveys performed during the course of our work on the site, as described in the Report. There may be variations between these surveys and other past or future surveys due to inherent environmental and circumstantial variability.

RELIANCE ON INFORMATION FROM OTHERS

7. Preparation of this Report may have relied upon information made available by Federal, state and local authorities; and/or work products prepared by other professionals as specified in the report. Unless specifically stated, GZA did not attempt to independently verify the accuracy or completeness of that information.

COMPLIANCE WITH REGULATIONS AND CODES

8. GZA's services were performed to render an opinion on the presence and/or condition of natural resources as described in the Report. Standards used to identify or assess these resources as well as regulatory jurisdiction, if any, are stated in the Report. Standards for identification of jurisdictional resources and regulatory control over them may vary between

governmental agencies at Federal, state and local levels and are subject to change over time which may affect the conclusions and findings of this report.

NEW INFORMATION

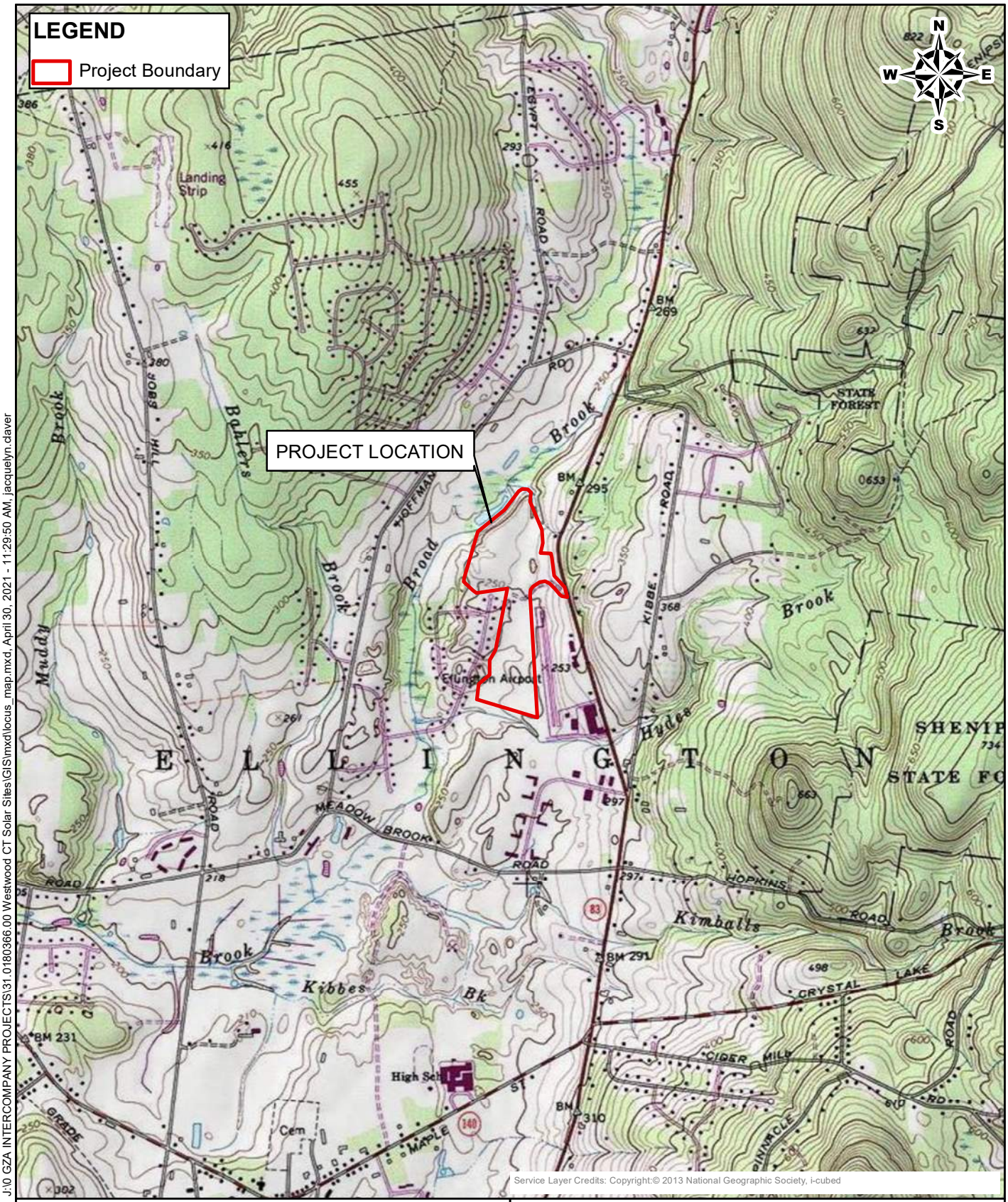
9. In the event that the Client or others authorized to use this report obtain information on environmental regulatory compliance issues at the site not contained in this report, such information shall be brought to GZA's attention forthwith. GZA will evaluate such information and, on the basis of this work, may modify the conclusions stated in this report.

ADDITIONAL SERVICES

10. GZA recommends that we be retained to provide further investigation, if necessary, which would allow GZA to (1) observe compliance with the concepts and recommendations contained herein; (2) evaluate whether the manner of implementation creates a potential new finding; and (3) evaluate whether the manner of implementation affects or changes the conditions on which our opinions were made.

APPENDIX A

Site Locus Map



0 1,000 2,000 4,000
SCALE IN FEET

USS SOMERS SOLAR PROJECT
SOMERS ROAD, ELLINGTON, CT

LOCUS MAP

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

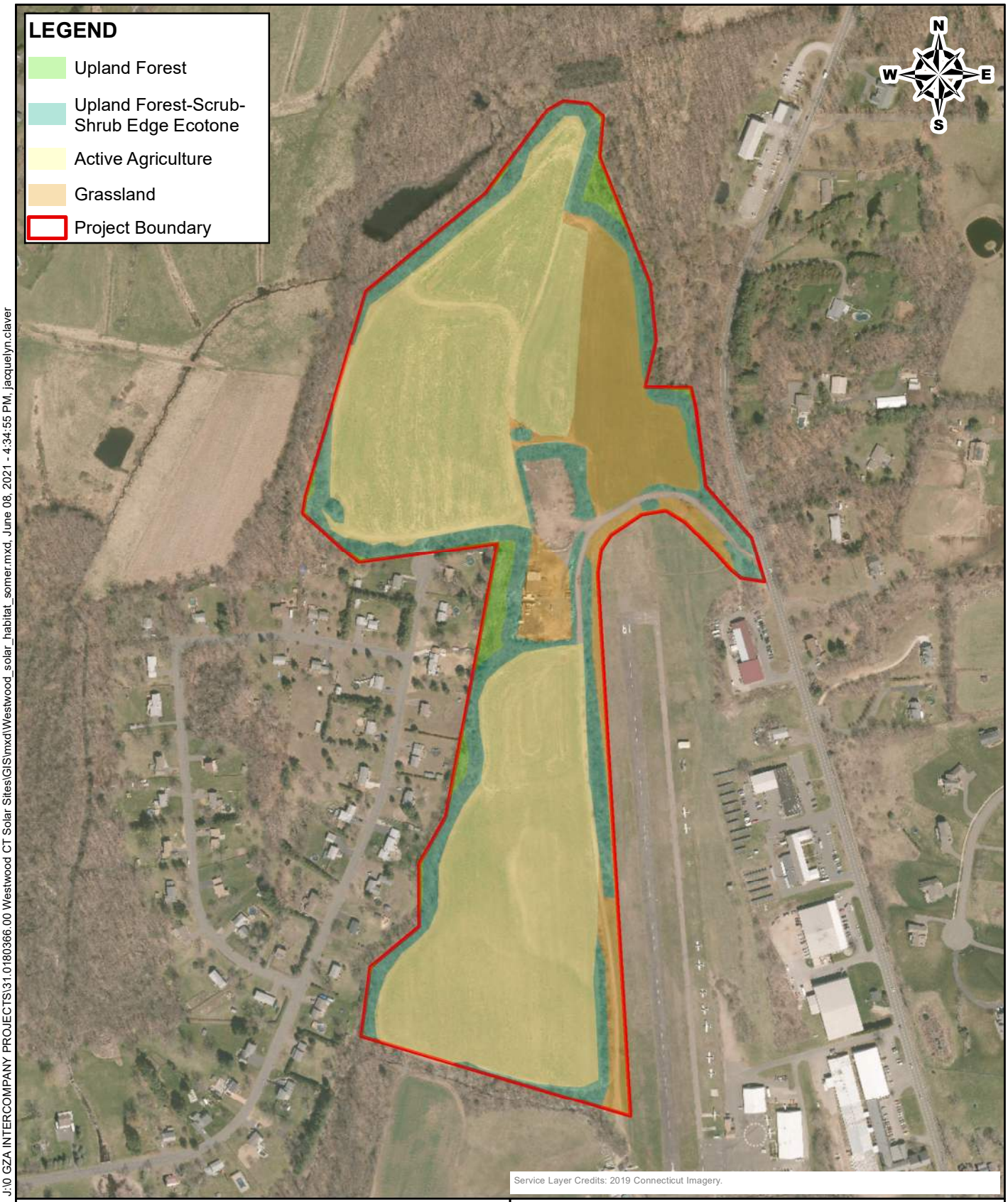
PREPARED FOR:
WESTWOOD SURVEYING AND ENGINEERING, P.C.
12701 WHITEWATER DRIVE, SUITE 300
MINNETONKA, MN 55343

PROJ MGR:	BK	REVIEWED BY:	DZG	CHECKED BY:	JB
DESIGNED BY:	JRC	DRAWN BY:	JRC	SCALE:	1 in = 2,000 ft
DATE:	06/01/2021	PROJECT NO:	31.0180366.00	REVISION NO:	

FIGURE
1

APPENDIX B

Habitat Assessment Area Map



0 225 450 900

SCALE IN FEET

USS SOMERS SOLAR PROJECT
SOMERS ROAD, ELLINGTON, CT

HABITAT ASSESSMENT AREA MAP

PREPARED BY:

GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:

WESTWOOD SURVEYING AND ENGINEERING, P.C.
12701 WHITEWATER DRIVE, SUITE 300
MINNETONKA, MN 55343

PROJ MGR:	BK	REVIEWED BY:	DZG	CHECKED BY:	JB
DESIGNED BY:	JRC	DRAWN BY:	JRC	SCALE:	1 in = 450 ft
DATE:	06/08/2021	PROJECT NO:	31.0180366.00	REVISION NO:	

FIGURE
2

APPENDIX C

IPAC Review

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: March 31, 2021
Consultation Code: 05E1NE00-2021-SLI-2123
Event Code: 05E1NE00-2021-E-06686
Project Name: Westwood Proposed Study Areas

Subject: List of threatened and endangered species that may occur in your proposed project location 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 (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

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 Act, 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 website 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.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

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 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 Act. 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(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2021-SLI-2123
Event Code: 05E1NE00-2021-E-06686
Project Name: Westwood Proposed Study Areas
Project Type: POWER GENERATION
Project Description: Proposed Solar Sites.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.6819743,-72.29098423313658,14z

Counties: Tolland County, Connecticut

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this 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.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9045

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Wetlands and Watercourses Assessment

Westwood
Surveying & Engineering
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WATER
CONSTRUCTION MANAGEMENT

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www.gza.com

June 1, 2021
31.0180366.00

Westwood Surveying and Engineering, P.C.
12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343

Re: Wetland and Watercourse Assessment Letter Report
USS Somers Solar Project
Ellington, CT

Dear Joe Dietrich,

In accordance with our approved scope of work, GZA conducted a wetlands and watercourses assessment ("Assessment") and delineation of land on, or immediately adjacent to, the USS Somers Solar Project Site in Ellington, CT ("Site"). The purpose of the Assessment was to determine the presence or absence of regulated wetlands or watercourses under Connecticut General Statues ("CGS") Section 22a-35 through 22a-45. as well as Waters of the U.S. as defined under Section 404 of the Federal Clean Water Act.

The Site had not received excessive or unusual precipitation within the 48 hours prior to our Assessment. Therefore, we considered the area to be under normal conditions for the time of year. This letter report provides an overview of our Assessment methodology and our findings.

INTRODUCTION

On Thursday March 25, 2021, a Soil Scientist from GZA conducted the Assessment of the above referenced Site. Our Assessment methodology is consistent with the definitions of wetlands and watercourses described in the Connecticut Inland Wetlands and Watercourses Act (sections 22a-36 to 22a-45). In addition, GZA reviewed the wetland areas based upon the federal criteria as outlined by the U.S. Army Corps of Engineers (ACOE) Wetland Delineation Manual (Environmental Laboratory 1987) and the 2012 Regional Supplement for the Northcentral and Northeast regions.

We also conducted a review of available natural resource data on the Connecticut Department of Energy and Environmental Protection (CT DEEP) online portal, CT ECO. We specifically reviewed the soils information and the current wetland data layer to supplement our field observations.

ASSESSMENT FINDINGS

Based upon our site observations and desktop survey, we offer the following findings.

Desktop Survey:
GZA reviewed the Hydric Soil and Inland Wetlands layers that are available on the CT ECO portal. Upon review of the CT DEEP natural resource data layers, we observed that neither Site are located within or adjacent to a FEMA floodplain. A review of the December 2020 Natural Diversity Data Base Areas map for the Site indicates a portion of the work would be within an area identified as potentially containing State and Federal Listed Species and regulated through the Department of Energy and Environmental Protection. The Site is surrounded by named watercourses on the north side by Broad Brook and to the south by Hydes Brook.

Field Survey:

The Site, located off Somers Road in Ellington, CT, is made up of undeveloped forested areas and managed pastureland (i.e., hayfield) with a few structures present and adjacent to an active airport. Upland species observed include red oak (*Quercus rubra*), red maple (*Acer rubrum*), cottonwood (*Populus spp.*), and Big-toothed aspen (*Populus grandidentia*) canopy tree species. The invasive plant species observed includes multiflora rose (*Rosa multiflora*) and Oriental bittersweet (C*elastrus orbiculatus*), found primarily along the tree line. A forested wetland system is present in the extreme north and western sides of the property, most of this system is located off property to the west. The predominant wetland vegetation observed include red maple (*Acer rubrum*), cottonwood (*Populus spp.*), Big-toothed aspen (*Populus grandidentia),* spicebush (*Lindera benzoin*), sensitive fern (*Onoclea sensibilis*), skunk cabbage (*Symplocarpus foetidus*), and marsh marigold (*Caltha palustris*).

Wetland Assessment:
The wetland assessment completed by GZA including the placement of sequentially numbered flags along the wetland and watercourse boundaries. We made observations of subsurface soils to depth of 20 inches below the ground surface. We prepared and have attached herein a Photographic Log (Appendix B) in support of the readers understanding of the Site conditions. Wetland and watercourses are shown on the attached Site Plan (Appendix D).

Wetlands and Watercourses Descriptions

B-Series Watercourse and Wetland (Flags B-1 through B-16)
The B-Series flags are located in the southern section of site and consists of Hydes Brook which flows east to west. The streambed substrate consisted largely of sand and gravel with small to large cobbles. The bank was majority unvegetated with a steep drop from the top of bank to top of water. Adjacent vegetation included red oak, red maple, cottonwood and big tooth aspen. Soils mapped for this area include Manchester gravelly sandy loam, 3 to 15 percent slopes which were consistent with our soil observations. No wetland areas were found along the edges of this watercourse.

2B-Series Watercourse (Flags 2B-1 through 2B-17)

The 2B-Series flags are located in the northern section of the site in the forest. The 2B-Series consists of unnamed watercourse that feeds into Broad Brook and the adjacent off-site wetland that flows north to south. The unmanned watercourse had no watercourse flow present at the time of the survey and the streambed was mostly dry. The streambed substrate appeared to be largely of sandy substrate. The channel was observed to be 1-3 feet wide and only marginally channelized into the floor of the adjacent upland forest. The predominant wetland vegetation observed included red maple, cottonwood, big tooth aspen, Spicebush, sensitive fern, skunk cabbage, and marsh marigold. Our assessment concluded that the wetland is predominantly a forested wetland. Soils mapped for this wetland as Ellington silt loam, 0 to 5 percent slopes which were consistent with our soil observations.

SUMMARY OF FINDINGS

Based upon our observations at the Site and a review of available CT ECO GIS data, we conclude that two named watercourses Hydes Brook and Broad Brooke, one unnamed watercourse and a wetland is present and would be jurisdictional under the IWWC and the ACOE wetland regulations. The Site is not located within a FEMA Floodplain but has a Natural Diversity Data Base Areas polygon mapped December 2020. The soils observed in the Site were consistent with the Web Soil Survey data. The wetlands and watercourse resources include a 100-foot upland review area that extends landward from the flagged boundary.

Should you have any questions, please feel free to contact Steven Riberdy at 413-726-2111 or Daniel Nitzsche at 413-726-2108.

Sincerely,
GZA GeoEnvironmental, Inc.

Steven Riberdy, M.S., CWB®, PWS, CE, CERP, PSS
Senior Ecologist, Soil Scientist

Daniel Nitzsche, CPESC, CESSWI, SE
Senior Wetland Scientist

USE OF REPORT

1. GZA GeoEnvironmental, Inc. (GZA) has prepared this report on behalf of, and for the exclusive use of USS Somers Solar LLC, US Solar DG Development LLC, and Westwood Surveying and Engineering, P.C. ("Client") for the stated purpose(s) and location(s) identified in the report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not identified in the agreement, for any use, without our prior written permission, shall be at that party's risk, and without any liability to GZA.

STANDARD OF CARE

2. GZA's findings and conclusions are based on the work conducted as part of the Scope of Services set forth in the Report and/or proposal and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the data gathered and observations made during the course of our work. Conditions other than described in this report may be found at the subject location(s).

3. GZA's services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar site. No warranty, expressed or implied, is made.

LIMITS TO OBSERVATIONS

4. Natural resource characteristics are inherently variable. Biological community composition and diversity can be affected by seasonal, annual or anthropogenic influences. In addition, soil conditions are reflective of subsurface geologic materials, the composition and distribution of which vary spatially.

5. The observations described in this report were made on the dates referenced and under the conditions stated therein. Conditions observed and reported by GZA reflect the conditions that could be reasonably observed based upon the visual observations of surface conditions and/or a limited observation of subsurface conditions at the specific time of observation. Such conditions are subject to environmental and circumstantial alteration and may not reflect conditions observable at another time.

6. The conclusions and recommendations contained in this report are based upon the data obtained from a limited number of surveys performed during the course of our work on the site, as described in the Report. There may be variations between these surveys and other past or future surveys due to inherent environmental and circumstantial variability.

RELIANCE ON INFORMATION FROM OTHERS

7. Preparation of this Report may have relied upon information made available by Federal, state and local authorities; and/or work products prepared by other professionals as specified in the report. Unless specifically stated, GZA did not attempt to independently verify the accuracy or completeness of that information.

COMPLIANCE WITH REGULATIONS AND CODES

8. GZA's services were performed to render an opinion on the presence and/or condition of natural resources as described in the Report. Standards used to identify or assess these resources as well as regulatory jurisdiction, if any, are stated in the Report. Standards for identification of jurisdictional resources and regulatory control over them may vary between governmental agencies at Federal, state and local levels and are subject to change over time which may affect the conclusions and findings of this report.

NEW INFORMATION

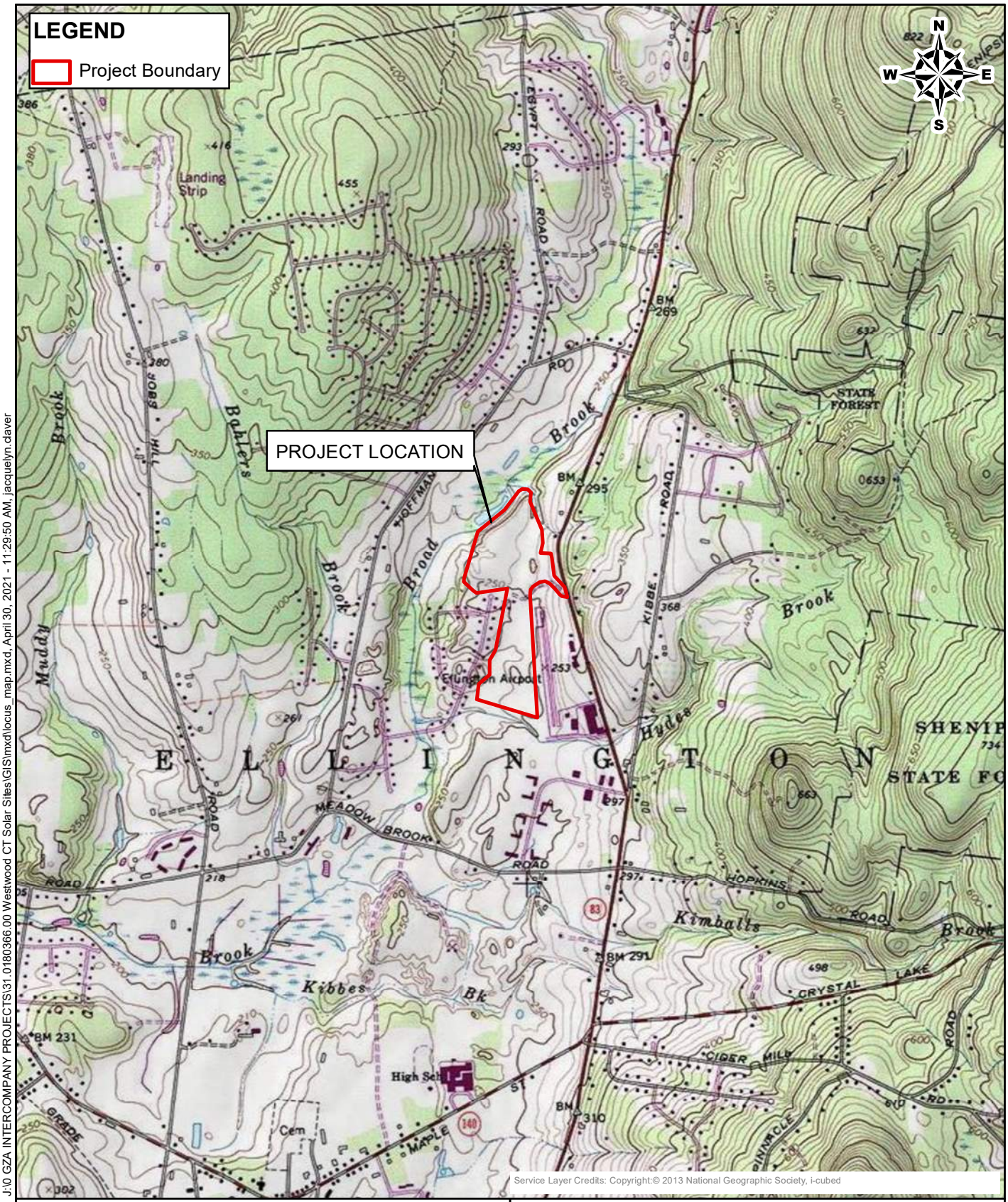
9. In the event that the Client or others authorized to use this report obtain information on environmental regulatory compliance issues at the site not contained in this report, such information shall be brought to GZA's attention forthwith. GZA will evaluate such information and, on the basis of this work, may modify the conclusions stated in this report.

ADDITIONAL SERVICES

10. GZA recommends that we be retained to provide further investigation, if necessary, which would allow GZA to (1) observe compliance with the concepts and recommendations contained herein; (2) evaluate whether the manner of implementation creates a potential new finding; and (3) evaluate whether the manner of implementation affects or changes the conditions on which our opinions were made.

APPENDIX A

Site Locus Map



0 1,000 2,000 4,000
SCALE IN FEET

USS SOMERS SOLAR PROJECT
SOMERS ROAD, ELLINGTON, CT

LOCUS MAP

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
WESTWOOD SURVEYING AND ENGINEERING, P.C.
12701 WHITEWATER DRIVE, SUITE 300
MINNETONKA, MN 55343

PROJ MGR:	BK	REVIEWED BY:	DZG	CHECKED BY:	JB
DESIGNED BY:	JRC	DRAWN BY:	JRC	SCALE:	1 in = 2,000 ft
DATE:	06/01/2021	PROJECT NO:	31.0180366.00	REVISION NO:	

FIGURE
1

APPENDIX B

Photographic Log

Photographic Log

Client Name: Westwood Surveying and Engineering, P.C.	Site Location: USS Somers Solar Project– Ellington, CT	Project No. 31.0180366.00

Photo No.	Date:
1	03/29/21

Direction Photo Taken:
South

Description:
View of stream bank in northeast corner of site.

Photo No.	Date:
2	03/29/21

Direction Photo Taken:
Northeast

Description:
View of wetland on northwestern side of site.

Photographic Log

Client Name: Westwood Surveying and Engineering, P.C.	Site Location: USS Somers Solar Project– Ellington, CT	Project No. 31.0180366.00

Photo No.	Date:
3	03/29/21

Direction Photo Taken:
West

Description:
View of Hydes Brook.

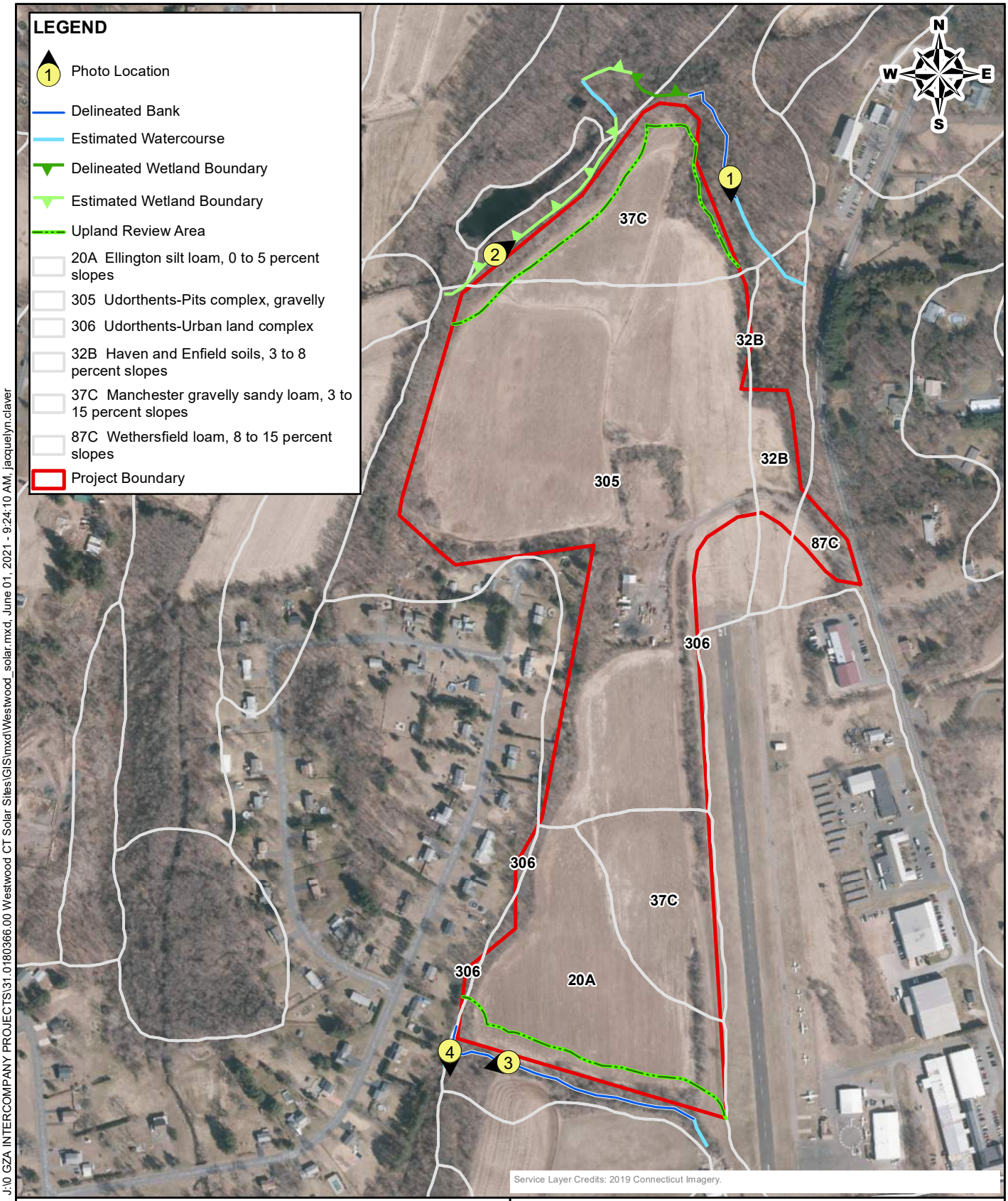
Photo No.	Date:
4	03/29/21

Direction Photo Taken:
South

Description:
View of Hydes Brook continuing south off-site.

APPENDIX C

Site Plan



0 225 450 900

SCALE IN FEET

USS SOMERS SOLAR PROJECT
SOMERS ROAD, ELLINGTON, CT

WETLAND RESOURCE MAP

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
WESTWOOD SURVEYING AND ENGINEERING, P.C.
12701 WHITEWATER DRIVE, SUITE 300
MINNETONKA, MN 55343

PROJ MGR:	PRM	REVIEWED BY:	PIC	CHECKED BY:	CR
DESIGNED BY:	JRC	DRAWN BY:	JRC	SCALE:	1 in = 450 ft
DATE:	06/01/2021	PROJECT NO:	31.0180366.00	REVISION NO:	

FIGURE
2

Savannah Sparrow Site Survey Memorandum

Westwood
Surveying & Engineering
ww-pc.com

Westwood
Surveying & Engineering
ww-pc.com

12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343

Main (952) 937-5150
Fax (952) 937-5822

westwoodps.com
(888) 937-5150

MEMORANDUM

Date: August 3, 2021

Re: Savannah Sparrow Survey Results
US Solar Somers Project, Tolland County, Connecticut

Westwood File 0028111.00

To: Peter Schmitt, Project Developer, United States Solar Corporation

From: David Kuhlmann

Dear Peter:

Project Background

United States Solar Corporation (US Solar) is proposing to develop and construct the Somers Solar Project (Project) that encompasses 33.4 acres in Tolland County, Connecticut **(**Project Area) (**Exhibit 1**). Based on coordination with the Connecticut Department of Energy and Environmental Protection (DEEP), there is potentially suitable savannah sparrow (*Passerculus sandwichensis*) habitat within the Project Area (NDDB # 202107737). The savannah sparrow is considered a Special Concern species in Connecticut. Potentially suitable savannah sparrow habitat includes grasslands, pastures, and hay fields, which encompass approximately 6.6 acres of the Project Area (**Exhibit 2**) (Multi-Resource Land Characteristics Consortium [MRLC] 2018). As such, a ground-based savannah sparrow survey was conducted within the Project Area on June 29, 2021. The objective of this survey was to identify any savannah sparrows or their habitats that may occur within the Project Area.

Methods

Prior to the field survey, transects were established 50-meters apart using geographic information system (GIS) techniques (**Exhibit 3)**. We established observation points at 50 meter intervals along each transect. A biologist walked each transect and stopped at each observation point for two minutes to monitor (i.e., visually and aurally) for savannah sparrows. The survey was conducted between one half hour before sunrise and 1000 hours. Environmental data recorded included the date, weather conditions, and wind speed. Had a savannah sparrow been observed during the field survey, the biologist would have recorded their location using a global positioning unit (GPS) capable of sub-meter accuracy, the time of observation, the individual's sex, age, and behavior.

Results and Discussion

The Westwood biologist surveyed 1.7 miles of transects, and a total of 46 observation points for savannah sparrows within the Project Area. Although no savannah sparrows were observed during the survey, the northeast portion of the Project Area contained a grassland plant

community that is potentially suitable habitat for savannah sparrows and could support nesting in future breeding seasons. As such, we recommend that a follow-up savannah sparrow presence/absence survey be conducted immediately prior to the initiation of Project construction (i.e., within 5-days in advance of ground clearing) if construction will be starting after April 1 or before August 30.

Please contact us if you have any questions.

Sincerely,

WESTWOOD SURVEYING AND ENGINEERING, P.C.

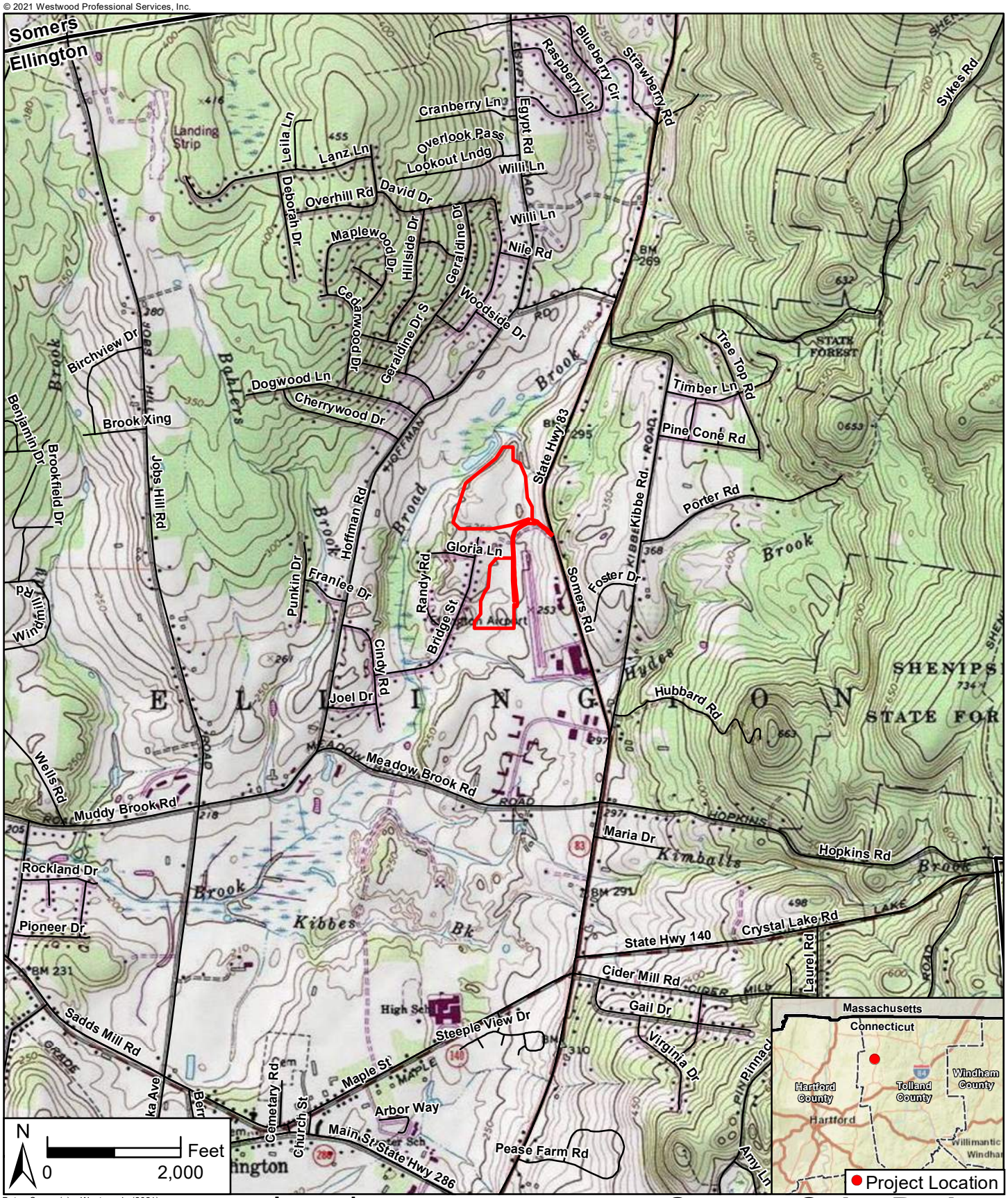
David Kuhlmann
Senior Wildlife Biologist

References

Multi-Resolution Land Characteristics Consortium. 2018. 2011 National Land Cover Database. Available at: https://data.nal.usda.gov/dataset/national-land-cover-database2011-nlcd-2011.

Exhibits

Exhibit 1 – Project Area
Exhibit 2 – National Land Cover Database Land Cover Types
Exhibit 3 – Survey Transects
Exhibit 4 – Photolog of Representative Habitat within the Project Area



Data Source(s): Westwood (2021); ESRI WMS USA Topo & World Streets Basemaps (Accessed 2020); Census Bureau (2019).

Legend

- Project Area
- Road
- City/Town/Village Boundary
- County Boundary

Somers Solar Project

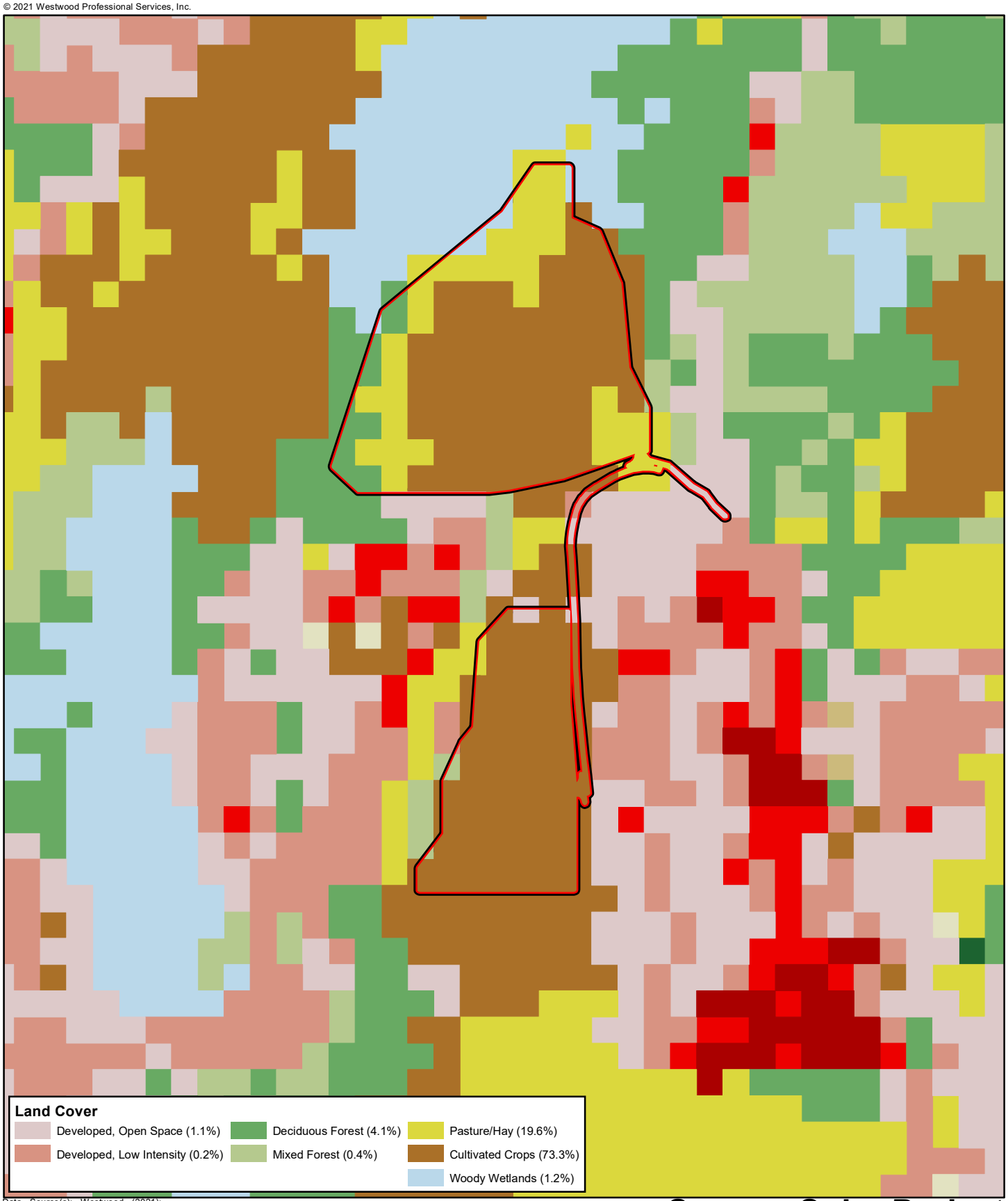
Tolland County, Connecticut

Project Location & USGS Topography

EXHIBIT 1

Westwood
Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Map Document: N:\00281111.00\GIS\TandE\Somers_SavSp_Ex1_SiteLocation_210706.mxd 7/8/2021 9:51:40 AM DMKuhlmann



Data Source(s): Westwood (2021); Census Bureau (2019); Ventyx Velocity Suite, Ventyx Energy LLC. (2019); DHS HIFLD (2018); National Transportation Atlas Database (2014); NLCD 2016 Landcover (2019); Connecticut Department of Energy and Environmental Protection (2020).

Legend

Project Area

N

0 Feet 500

Somers Solar Project

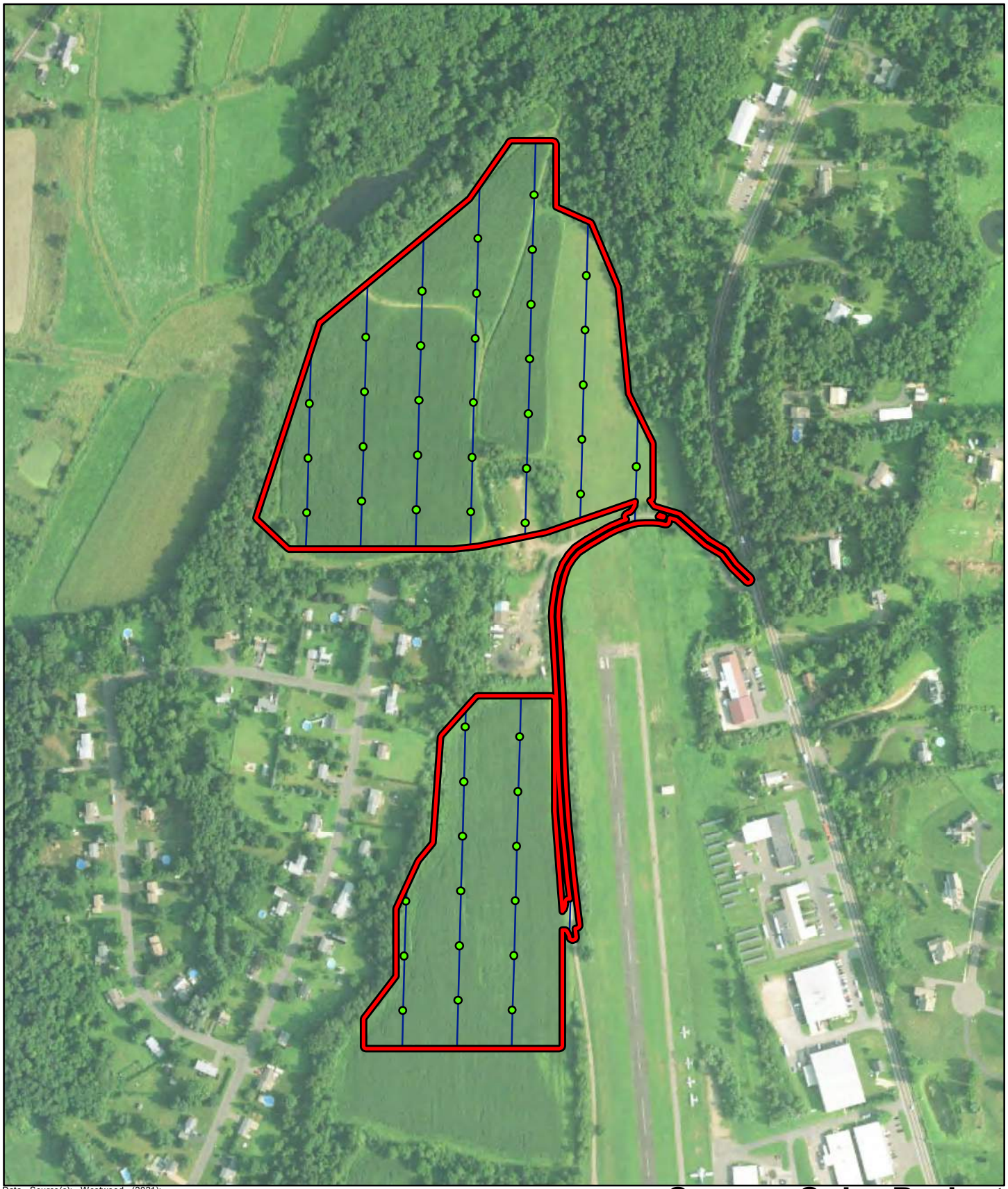
Tolland County, Connecticut

Land Cover

EXHIBIT 2

Westwood
Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Map Document: N:\0028111.00\GIS\TandE\Somers_SavSp_Ex2_LandCover_210706.mxd 7/8/2021 9:52:24 AM DMKuhlmann



Data Source(s): Westwood (2021); Census Bureau (2019).

Somers Solar Project

Tolland County, Connecticut

Survey Area

Legend

- Project Area
- Observation Point
- Survey Transects

N

0 400 Feet

EXHIBIT 3

Westwood
Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Map Document: N:\0028111.00\GIS\TandE\Somers_SavSp_Ex3_SurveyArea_210706.mxd 7/8/2021 9:52:52 AM DMKuhlmann

Westwood

Appendix C

DEEP NDDB Correspondence

NDDB Request

Westwood
Surveying & Engineering
ww-pc.com

Connecticut Department of
Energy & Environmental Protection
Bureau of Natural Resources
Wildlife Division

CPPU USE ONLY
App #:_____
Doc #:_____
Check #: No fee required
Program: Natural Diversity Database Endangered Species
Hardcopy _____ Electronic _____

Request for Natural Diversity Data Base (NDDB) State Listed Species Review

Please complete this form in accordance with the instructions (DEEP-INST-007) to ensure proper handling of your request.
There are no fees associated with NDDB Reviews.

Part I: Preliminary Screening & Request Type

Before submitting this request, you must review the most current Natural Diversity Data Base "State and Federal Listed Species and Significant Natural Communities Maps" found on the DEEP website. These maps are updated twice a year, usually in June and December.

Does your site, including all affected areas, fall in an NDDB Area according to the map instructions:

☒ Yes ☐ No **Enter the date** of the map reviewed for pre-screening: December 2020

This form is being submitted for a :

☒ *New* NDDB request ☐ *Renewal/Extension* of a NDDB Request, ***without*** *modifications and within* ***two years*** *of issued NDDB determination* (no attachments required) [*CPPU Use Only - NDDB-Listed Species Determination #* 1736]	☐ *New* **Safe Harbor Determination** (optional) must be associated with an application for a GP for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities ☐ *Renewal/Extension* of an existing Safe Harbor Determination ☐ With modifications ☐ Without modifications (no attachments required) [*CPPU Use Only - NDDB-Safe Harbor Determination #* 1736]
Enter NDDB Determination Number for Renewal/Extension:	Enter Safe Harbor Determination Number for Renewal/Extension:

Part II: Requester Information

***If the requester is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, it must be registered with the Secretary of State. If applicable, the name shall be stated **exactly** as it is registered with the Secretary of State. Please note, for those entities registered with the Secretary of State, the registered name will be the name used by DEEP. This information can be accessed at the Secretary of the State's database CONCORD.* (www.concord-sots.ct.gov/CONCORD/index.jsp)

If the requester is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).

If there are any changes or corrections to your company/facility or individual mailing or billing address or contact information, please complete and submit the Request to Change company/Individual Information to the address indicated on the form.

1. Requester*

Company Name: USS Somers Solar LLC

Contact Name: Reed Richerson

Address: 2150 Post Rd, Suite 505

City/Town: Fairfield State: CT Zip Code: 06824

Business Phone: 612-294-6840 ext.

**E-mail: reed.richerson@us-solar.com

**By providing this email address you are agreeing to receive official correspondence from the department, at this electronic address, concerning this request. Please remember to check your security settings to be sure you can receive emails from "ct.gov" addresses. Also, please notify the department if your e-mail address changes

a) Requester can best be described as:

☐ Individual ☐ Federal Agency ☐ State agency ☐ Municipality ☐ Tribal

☒ *business entity (* if a business entity complete i through iii):

i) Check type ☐ corporation ☒ limited liability company ☐ limited partnership ☐ limited liability partnership ☐ statutory trust ☐ Other:

ii) Provide Secretary of the State Business ID #: This information can be accessed at the Secretary of the State's database (CONCORD). (www.concord-sots.ct.gov/CONCORD/index.jsp)

iii) ☒ Check here if your business is **NOT** registered with the Secretary of State's office.

b) Acting as (Affiliation), pick one:

☐ Property owner ☐ Consultant ☐ Engineer ☐ Facility owner ☒ Applicant

☐ Biologist ☐ Pesticide Applicator ☐ Other representative:

2. List Primary Contact to receive Natural Diversity Data Base correspondence and inquiries, if different from requester.

Company Name: Westwood Surveying and Engineering, P.C.

Contact Person: Annabel Sammons Title: Environmental Scientist

Mailing Address: 75 Thruway Park Drive, Suite A

City/Town: Rochester State: NY Zip Code: 14610

Business Phone: 585-358-7060 ext.

**E-mail: annabel.sammons@westwoodps.

Part III: Site Information

This request can only be completed for one site. A separate request must be filed for each additional site.

1. SITE NAME AND LOCATION

Site Name or Project Name: USS Somers Solar

Town(s): Ellington

Street Address or Location Description:
360 Somers Rd, Ellington, CT 56536

Size in acres, or site dimensions: Solar project area approx. 33 acre

Latitude and longitude of the center of the site in decimal degrees (e.g., 41.23456 -71.68574):

Latitude: 41.929981 Longitude: -72.458764

Method of coordinate determination (check one):

☒ GPS ☐ Photo interpolation using CTECO map viewer ☐ Other (specify):

2a. Describe the current land use and land cover of the site.

The 127 acre Industrial zoned with a mixed use including an airport facility with related development and buildings ("Ellington Airport"), agricultural/hay fields/grassland, deciduous forest and evergreen forest. The solar development will occupy approximately 33 acres of the agricultural, field/grassland, and forest area of the parcel. All areas below are referenced to the 33 acre solar development site area and do not include the remaining uses of the parcel

b. Check all that apply and enter the size in acres or % of area in the space after each checked category.

☐ Industrial/Commercial _____	☐ Residential _____	☒ Forest 1 ac
☐ Wetland _____	☒ Field/grassland 6.5 ac	☒ Agricultural 25.5 ac
☐ Water _____	☐ Utility Right-of-way _____	
☐ Transportation Right-of-way _____	☐ Other (specify): _____	

Part IV: Project Information

1. PROJECT TYPE: Other

Choose Project Type: Other , If other describe: Solar Energy Generation

2. Is the subject activity limited to the maintenance, repair, or improvement of an existing structure within the existing footprint? ☐ Yes ☒ No If yes, explain.

Part IV: Project Information (continued)

3. Give a detailed description of the activity which is the subject of this request and describe the methods and equipment that will be used. Include a description of steps that will be taken to minimize impacts to any known listed species.

This will be the site of a solar energy generation facility, with a nameplate capacity of 4 megawatts (MWac). Of the approximately 127 +/- acres that make up the parcel, the project will be located on only approximately 33 acres. The remaining portions of the site will remain undisturbed from the planned development. The site's primary use as the Ellington Airport will remain following the completion of the proposed development. The solar development will occur primarily in areas that are currently agricultural and grassland/field. A small area of deciduous trees/shrubs (approx 1 acre) will be cleared for the development. The solar development will consist of post mounted tracker PV arrays, racking system, associated electrical equipment (transformers, inverters and cabling), gravel access roads, storm water management facilities and fencing. Following construction, the site will be restored with grass vegetation with a meadow/grass seed mix that is complementary to the solar development and in accordance CT DEEP standards.

Construction will begin with the installation of erosion and sediment control (E&S) measures in accordance with the current revision of the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control and CT DEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities. E&S controls will be maintained throughout construction. Stormwater management facilities will be constructed in accordance with the most recent revision of the 2004 Connecticut Stormwater Quality Manual. Development activities will be completed using typical site construction equipment. Site grading will be minimal as the current topography of the project is generally conducive to the solar panel layout.

Two areas of wooded wetlands and two associated watercourses were delineated north of the project area and will not be disturbed by project activities. One watercourse was delineated south of the project area and will not

4. If this is a renewal or extension of an existing Safe Harbor request *with* modifications, explain what about the project has changed.

5. Provide a contact for questions about the project details if different from Part II primary contact.

   Name:

   Phone:

   E-mail:

Part V: Request Requirements and Associated Application Types

Check *one* box from either Group 1, Group 2 *or* Group 3, indicating the appropriate category for this request.

Group 1. If you check one of these boxes, complete Parts I – VII of this form and submit the required attachments A and B.

- ☐ Preliminary screening was negative but an NDDB review is still requested
- ☐ Request regards a municipally regulated or unregulated activity (no state permit/certificate needed)
- ☐ Request regards a preliminary site assessment or project feasibility study
- ☐ Request relates to land acquisition or protection
- ☐ Request is associated with a *renewal* of an existing permit or authorization, with no modifications

Group 2. If you check one of these boxes, complete Parts I – VII of this form and submit required attachments A, B, *and* C.

- ☑ Request is associated with a *new* state or federal permit or authorization application or registration
- ☐ Request is associated with modification of an existing permit or other authorization
- ☐ Request is associated with a permit enforcement action
- ☐ Request regards site management or planning, requiring detailed species recommendations
- ☐ Request regards a state funded project, state agency activity, or CEPA request

☐ **Group 3.** If you are requesting a **Safe Harbor Determination**, complete Parts I-VII and submit required attachments A, B, and D. Safe Harbor determinations can only be requested if you are applying for a GP for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities

If you are filing this request as part of a state or federal permit application(s) enter the application information below.

Permitting Agency and Application Name(s):
Connecticut Siting Council Petition Filing - USS Somers Solar LLC

Related State DEEP Permit Number(s), if applicable: _____

State DEEP Enforcement Action Number, if applicable: _____

State DEEP Permit Analyst(s)/Engineer(s), if known: _____

Is this request related to a previously submitted NDDB request? ☐ Yes ■ No

If yes, provide the previous NDDB Determination Number(s), if known: _____

Part VI: Supporting Documents

Check each attachment submitted as verification that *all* applicable attachments have been supplied with this request form. Label each attachment as indicated in this part (e.g., Attachment A, etc.) and be sure to include the requester's name, site name and the date. **Please note that Attachments A and B are required for all new requests and Safe Harbor renewals/extensions with modifications.** Renewals/Extensions with no modifications do not need to submit any attachments. Attachments C and D are supplied at the end of this form.

■ Attachment A:	**Overview Map:** an 8 1/2" X 11" print/copy of the relevant portion of a USGS Topographic Quadrangle Map clearly indicating the exact location of the site.
■ Attachment B:	**Detailed Site Map:** fine scaled map showing site boundary and area of work details on aerial imagery with relevant landmarks labeled. (Site and work boundaries in GIS [ESRI ArcView shapefile, in NAD83, State Plane, feet] format can be substituted for detailed maps, see instruction document)
■ Attachment C:	**Supplemental Information, Group 2 requirement (attached, DEEP-APP-007C)** ■ Section i: Supplemental Site Information and supporting documents ■ Section ii: Supplemental Project Information and supporting documents
☐ Attachment D:	**Safe Harbor Report Requirements, Group 3 (attached, DEEP-APP-007D)**

Part VII: Requester Certification

The requester *and* the individual(s) responsible for actually preparing the request must sign this part. A request will be considered incomplete unless all required signatures are provided.

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of the individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief."

Reed Richerson	6/10/21
Signature of Requester (a typed name will substitute for a handwritten signature)	Date
Reed Richerson	Chief Operating Officer
Name of Requester (print or type)	Title (if applicable)
Annabel Sammons	6/10/21
Signature of Preparer (if different than above)	Date
Annabel Sammons	Environmental Scientist, Westwood
Name of Preparer (print or type)	Title (if applicable)

Note: Please submit the completed Request Form and all Supporting Documents to:

CENTRAL PERMIT PROCESSING UNIT
DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127

Or email request to: **deep.nddbrequest@ct.gov**

Attachment C: Supplemental Information, Group 2 requirement

Section i: Supplemental Site Information

1. Existing Conditions

Describe all natural and man-made features including wetlands, watercourses, fish and wildlife habitat, floodplains and any existing structures potentially affected by the subject activity. Such features should be depicted and labeled on the site plan that must be submitted. Photographs of current site conditions may be helpful to reviewers.

The solar development is proposed on agricultural and grass/hayfield to the north and west of the existing Ellington Airport facility. The airport will remain unaffected by the solar development. No existing structures will be affected by the proposed development.

☒ **Site Photographs (optional) attached**

☒ **Site Plan/sketch of existing conditions attached**

2. Biological Surveys

Has a biologist visited the site and conducted a biological survey to determine the presence of any endangered, threatened or special concern species ☐ Yes ☒ No

If yes, complete the following questions and submit any reports of biological surveys, documentation of the biologist's qualifications, and any NDDB survey forms.

Biologist(s) name: _____

Habitat and/or species targeted by survey: _____

Dates when surveys were conducted: _____

☐ **Reports of biological surveys attached**

☐ **Documentation of biologist's qualifications attached**

☐ **NDDB Survey forms for any listed species observations attached**

Section ii: Supplemental Project Information

1. Provide a schedule for all phases of the project including the year, the month and/or season that the proposed activity will be initiated and the duration of the activity.

Phasing:
1. Site design, filing of submission to Connecticut Siting Council and related project approvals, Summer 2021 through Winter 2021; 2. Construction start - Spring 2022; 3. Site Construction - Spring 2022 - Fall 2022; 4. Construction completion and energization - Fall 2022

2. Describe and quantify the proposed changes to existing conditions and describe any on-site or off-site impacts. In addition, provide an annotated site plan detailing the areas of impact and proposed changes to existing conditions.

While the agricultural use will be taken out of service while the solar farm is there, it is only temporary. After the decommissioning of the solar farm which would include the removal of all of the PV modules, racking system/mounting posts, electrical equipment, concrete equipment pads and access roads, the land would be restored so it is available for agricultural use. Most impacts will be due to the minor site grading and the installation of storm water management facilities (swales and basins). Site grading will be minimal. Clearing will be minimal as well with the removal of approximately one acre of trees/shrubs. There will be no impacts to existing structures currently constructed at the site.

☒ **Annotated Site Plan attached**

Attachment D: Safe Harbor Report Requirements

Submit a report, as Attachment D, that synthesizes and analyzes the information listed below. Those providing synthesis and analysis need appropriate qualifications and experience. A request for a safe harbor determination shall include:

1. **Habitat Description and Map(s), including GIS mapping overlays, of a scale appropriate for the site, identifying:**

    - wetlands, including wetland cover types;
    - plant community types;
    - topography;
    - soils;
    - bedrock geology;
    - floodplains, if any;
    - land use history; and
    - water quality classifications/criteria.

2. **Photographs** - The report should include photographs of the site taken from the ground and also all reasonably available aerial or satellite photographs and an analysis of such photographs.

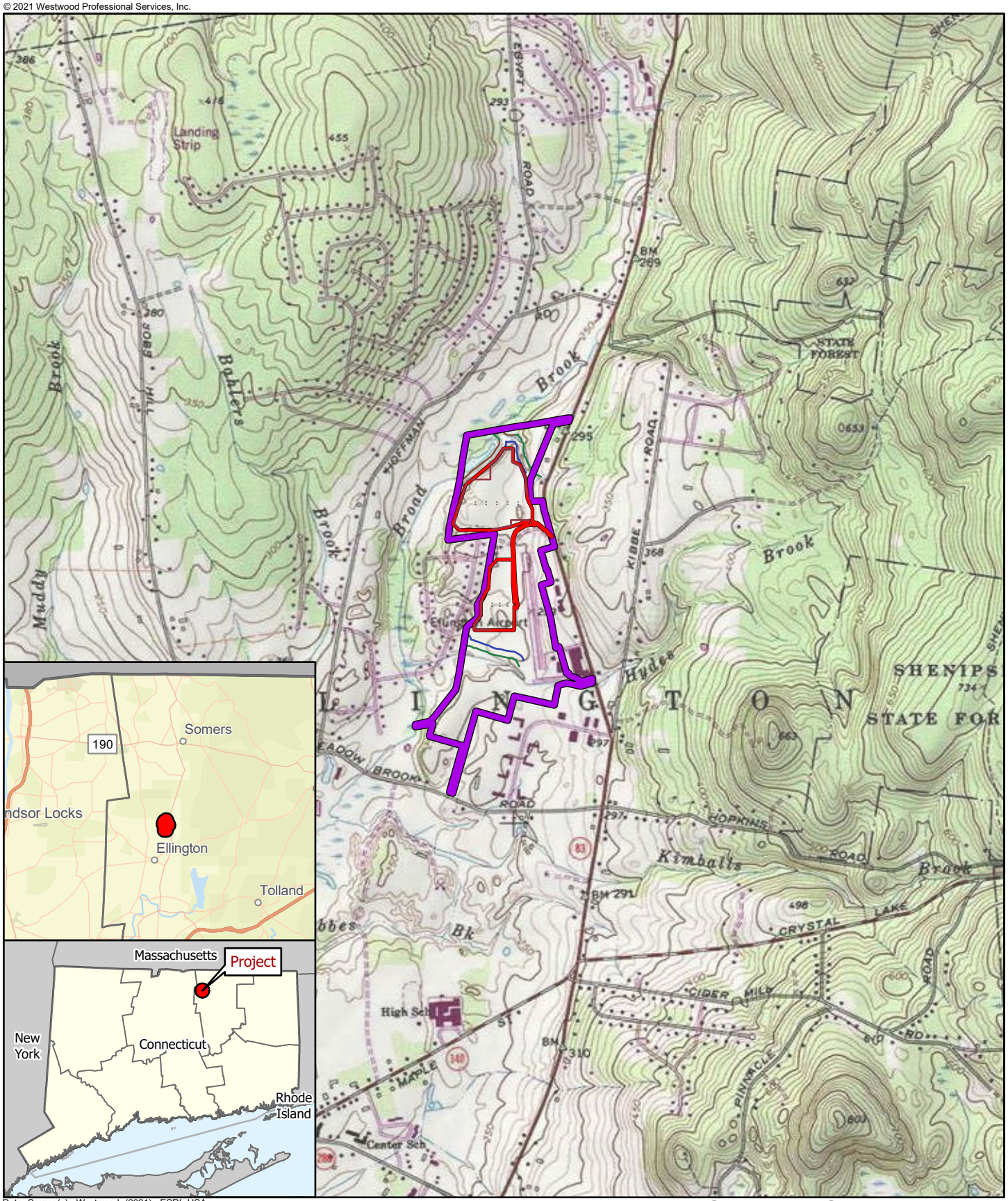
3. **Inspection** - A visual inspection(s) of the site should be conducted, preferably when the ground is visible, and described in the report. This inspection can be helpful in confirming or further evaluating the items noted above.

4. **Biological Surveys** - The report should include all biological surveys of the site where construction activity will take place that are reasonably available to a registrant. A registrant shall notify the Department's Wildlife Division of biological studies of the site where construction activity will take place that a registrant is aware of but are not reasonably available to the registrant.

5. **Based on items #1 through 4 above, the report shall include a Natural Resources Inventory of the site of the construction activity.** This inventory should also include a review of reasonably available scientific literature and any recommendations for minimizing adverse impacts from the proposed construction activity on listed species or their associated habitat.

6. **In addition, to the extent the following is available at the time a safe harbor determination is requested, a request for a safe harbor determination shall include and assess:**

    - Information on Site Disturbance Estimates/Site Alteration information
    - Vehicular Use
    - Construction Activity Phasing Schedules, if any; and
    - Alteration of Drainage Patterns



Data Source(s): Westwood (2021); ESRI USA Topo Basemap (Accessed 2021); ESRI Streets Basemap (Accessed 2021); CT DEEP (2019).

Legend

- Development Area
- Property
- County Boundary

N

0 Feet 2,000

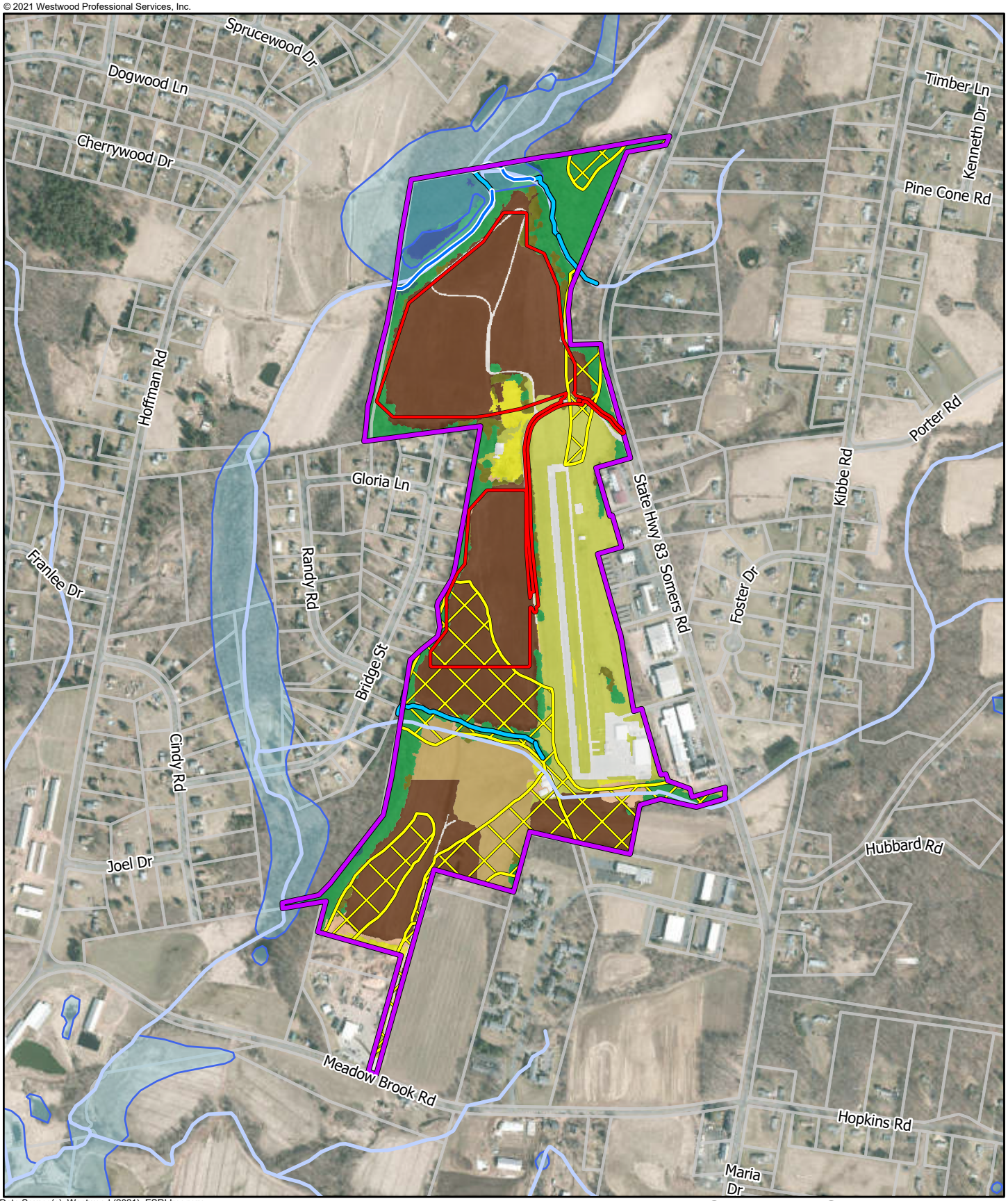
Somers Solar Project

360 Somers Rd
Ellington, Connecticut

Site Location

FIGURE 1

Westwood
Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.



Data Source(s): Westwood (2021); ESRI Imagery Basemap (Accessed 2021); CT DEEP (2019); USGS (2020); NOAA (2016); NRCS (Accessed 2021).

N

Feet

0 800

Legend

- Development Area
- Property Line
- Parcel Boundary
- All areas are prime farmland
- Delineated Stream
- Delineated Wetland Boundary
- NHD Flowline
- NHD Waterbody

Land Cover

- Impervious
- Developed, Open Space
- Cultivated Crops
- Pasture/Hay
- Grassland/Herbaceous
- Mixed Forest
- Scrub/Shrub
- Palustrine Forested Wetland
- Palustrine Emergent Wetland
- Barren Land
- Open Water

Somers Solar Project

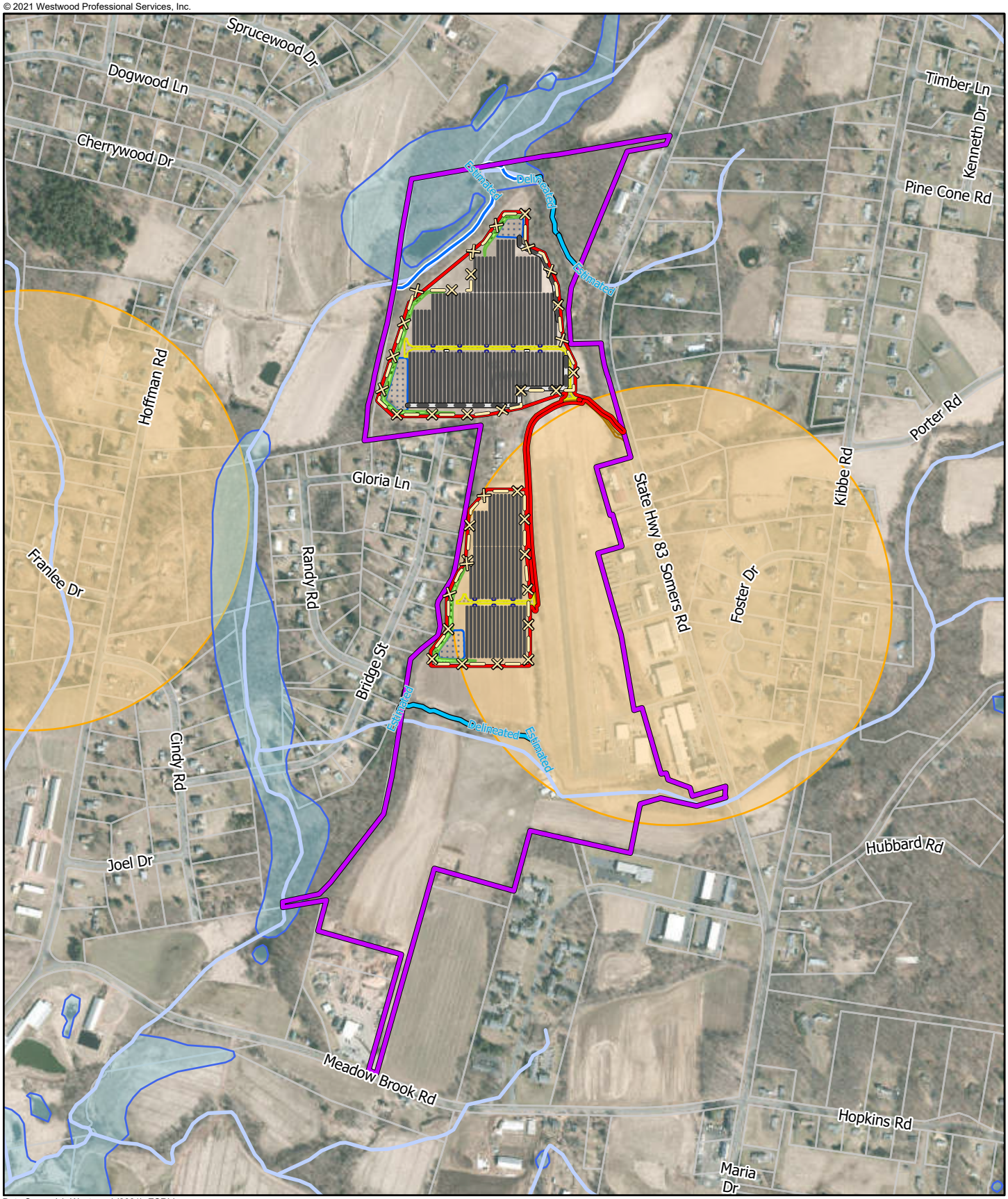
360 Somers Rd
Ellington, Connecticut

Existing Conditions

FIGURE 2

Westwood
Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Map Document: \\westwoodps.local\Global Projects\0028111.00\GIS\Analysis\210518_EMB\Somers_Exhibits_210518.aprx 5/25/2021 2:22 PM emboisen



Data Source(s): Westwood (2021); ESRI Imagery Basemap (Accessed 2021); CT DEEP (2019); USGS (2020).

N

Feet

0 800

Legend

- Development Area
- Property Line
- Parcel Boundary
- Delineated Wetland Boundary
- Delineated Stream
- NHD Flowline
- NHD Waterbody
- Natural Diversity Database Area

Project Features

- Fence
- Solar Array
- Inverter
- Equipment Pad
- Temporary Basin
- Temporary Berm
- Proposed Access Road
- Existing Access Road
- Ditch

Somers Solar Project

360 Somers Rd
Ellington, Connecticut

Proposed Conditions & Natural Diversity Database

FIGURE 5

Westwood
Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

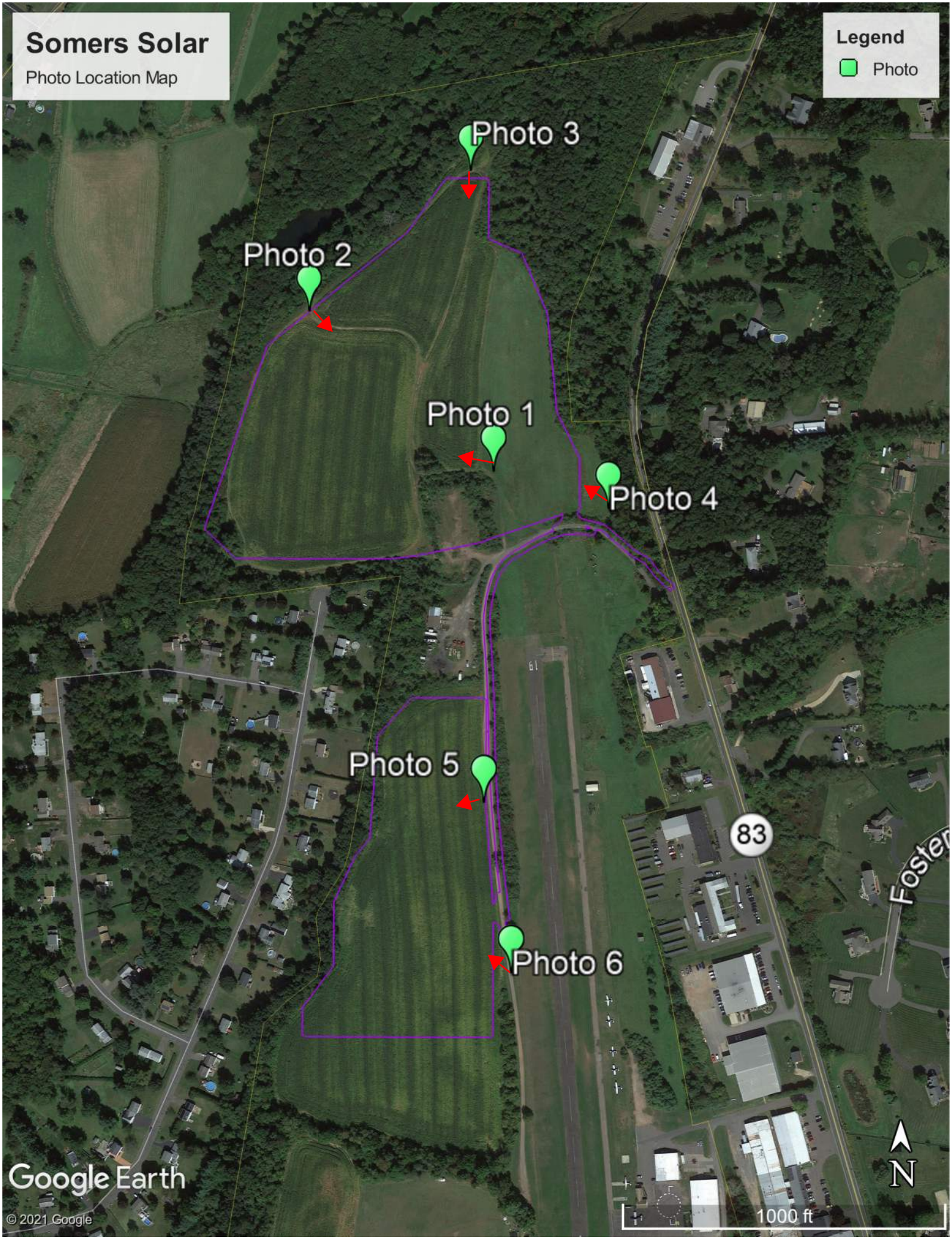

Somers Solar
Photo Location Map
Legend
Photo
Photo 1
Photo 2
Photo 3
Photo 4
Photo 5
Photo 6
83
Foster
N
1000 ft
Google Earth
© 2021 Google

Photo 1: View from center of northern development area, looking west

Photo 2: View from northwestern perimeter of the northern development area, looking southeast

Photo 3: View from northern perimeter of northern development area, looking south

Photo 4: View from southeast perimeter of the northern development area, looking northwest

Photo 5: View from eastern perimeter of southern development area, looking west

Photo 6: View from southeastern perimeter of southern development area, looking northwest

CT DEEP Bureau of Natural Resources Response

Westwood
Surveying & Engineering
ww-pc.com

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

June 25, 2021

Joe Dietrich
Westwood Surveying and Engineering, P.C.
12701 Whitwater Dr, Suite 300
Minnetonka, MN 55343
joe.dietrich@westwoodps.com

Steven Riberdy
GZA Environmental, INC
1350 Main St, Suite 1400
Springfield, MA 01103
Steven.Riberdy@gza.com

NDDB DETERMINATION NUMBER: 202107737

Project: Solar development of ground mounted PV System and gravel access, stormwater management systems - USS Somer Solar - 360 Somers Rd, Ellington, CT

Expiration: June 25, 2023

I have reviewed Natural Diversity Data Base (NDDB) maps and files regarding this project. According to our records, there are State-listed species (RCSA Sec. 26-306) documented nearby the proposed project area.

- **Eastern box turtle (*Terrapene carolina carolina*)- State Special Concern**

In Connecticut, these turtles are found in well-drained forest bottomlands and a matrix of open deciduous forests, early successional habitat, fields, gravel pits, and or powerlines. Turtles are dormant between November 1 and April 1 and hibernate in only a few inches from the surface in forested habitat.
The greatest threat to this species is habitat loss, fragmentation, and degradation due to development. This species is very sensitive to adult mortality because of late maturity (10 years old) and long life span (50-100years). Vehicular traffic, heavy equipment used for farming, and ATV use in natural areas are implicated specifically in adult mortality through collisions. Illegal collection by the pet trade and unknowing public for home pets exacerbates mortality rates and removes important individuals from the population. Predation rates are also unnaturally high because of increased predator populations (e.g. skunks, foxes, raccoons, and crows) that surround developed areas.

***Construction protection measures*:**
When working in the upland between April 1- November 1:

- Exclusionary practices will be required to prevent any turtle access into construction areas. These measures will need to be installed at the limits of disturbance as shown on the plans.
- Exclusionary fencing be at least 20 inches tall and must be secured to and remain in contact with the ground and be regularly maintained (at least bi-weekly and after major weather events) to secure any gaps or openings at ground level that may let animal pass through.

- Prior to construction, all turtles occurring within fencing work area will be relocated to suitable habitat outside disturbance area. This should be performed by a qualified professional familiar with habitat requirements and behavior of the species.
- The Contractor must search the work area each morning prior to any work being done.
- All construction personnel working within the turtle habitat must be apprised of the species description and the possible presence of a listed species.
- Any turtles encountered within the immediate work area shall be carefully moved to an adjacent area outside of the excluded area and fencing should be inspected to identify and remove access point. These animals are protected by law and no turtles should be relocated from the site.
- In areas where silt fence is used for exclusion, it shall be removed as soon as the area is stable to allow for reptile and amphibian passage to resume.

Site Management protection measures:

Mowing is major source of human induced adult turtle mortality.

- Avoid mowing or vehicular traffic during peak use by this species (May 15-Sept 15)

Site Design Recommendations*:*

If planned properly, you can increase the value of the habitat for wildlife and state listed species with your development.

- **Create a site management plan to promote native vegetation growth in the area under the solar panels.** Restoring native vegetation will attract pollinators and avoid the need for constant mowing. Reduced need for mowing will reduce the risk for wildlife.
- Provide habitat for wildlife and allow for connectivity for wildlife movement. Use wildlife-friendly fencing to allow movement through the solar development.

Property Management Recommendations:

- **Savannah sparrow (*Passerculus sandwichensis*)- State Special Concern**

This area has been identified as potential habitat for state listed Savannah Sparrow and you can take steps to manage areas of the property where development is not occurring, or plans for when panels will be decommissioned to help support this species.

In Connecticut, grasslands are among the most threatened and rare habitats. There are seven species of breeding grassland birds and that require grasslands as their primary habitat that are state listed in Connecticut. Most of Connecticut's grasslands would revert to forest without active management. Increasing development pressures on Connecticut's most important grassland habitats, exacerbates this loss of habitat through natural succession. The Savannah sparrow is most sensitive to disturbance between April 1- August 30. Traffic and construction in suitable habitat should be avoided during this timeframe. This species will benefit from protection and management of large patches of grassland of 10 acres or more.

Ground nesting birds found nesting at airfields should not pose a threat to aircraft because of their small size and low direct flight; in addition, managing for these species by leaving some areas un-mowed during the summer can help discourage large flocking birds that prefer fields of very short grass, such as gulls, crows, and Canada geese, and are more likely to damage aircraft.

- Restrict mowing during the breeding season on portions of airfield not directly adjacent to runways and taxiways.
- Maintain 50-foot mowed strips along taxiways and runways throughout the breeding season to discourage birds from nesting in these areas. Short grasses along runways can also help reduce insect populations that can cause problems to aircraft. Other mowed strips, such as along roadways, are used by birds for feeding.
- Observe and mark locations of nesting birds and avoid mowing those areas until birds have fledged. This may be achieved by grounds maintenance personnel.
- Burning grasslands at airfields can be used as a management tool to benefit nesting birds. Taxiways and access roads at airports provide ideal firebreaks.

Recommended FAA-approved mix of warm season grass species can be used in early successional areas on your property:

- Little bluestem (Schizachyrium scoparium)- "Aldous" or "Cimarron"
- Big bluestem (Andropogon gerardii)- "Niagra"
- Indiangrass (Sorghastrum nutans)- "Rumsey"
- Switchgrass (Panicum virgatum) -"Blackwell", "Shelter", or "Cave in Rock"
- Bermudagrass (Cynodon dactylon) -"Quickstand"

Seed mix ratios are variable, however for Connecticut a minimum of 60% little bluestem is preferred. Big bluestem is an acceptable alternative to little bluestem for the dominant species in the chosen mix. When one of the bluestems is the dominant species the other grass species listed may be mixed in any ratio desired. Of these species, Burmudagrass is the least favored and should be used in the lowest percentage.

This is determination is valid for two years.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Bureau of Natural Resources and cooperating units of DEEP, independent conservation groups, and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the NDDB should not be substituted for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated in the NDDB as it becomes available.

Please contact me if you have any questions (shannon.kearney@ct.gov). Thank you for consulting with the Natural Diversity Data Base and continuing to work with us to protect State-listed species.

Sincerely,

/s/ Shannon B. Kearney
Wildlife Biologist

Connecticut Department of Energy & Environmental Protection

portal.ct.gov/DEEP

5/12/2023

Annabel Sammons
USS SOMERS SOLAR LLC
100 N 6th Street
Minneapolis, MN 55403
annabel.sammons@westwoodps.com

Subject: USS Somers Solar
Filing #: 97945
NDDB - New Determination Number: 202303931

Expiration Date: 5/12/2025

Location Description: 360 Somers Rd, Ellington, CT

I have reviewed Natural Diversity Database (NDDB) maps and files regarding this project. According to our records, there are State-listed species (RCSA Sec. 26-306) that are nearby that may be affected by project activities.

- **Savannah sparrow (*Passerculus sandwichensis*) State Special Concern**

In Connecticut, grasslands are among the most threatened and rare habitats. There are seven species of breeding grassland birds and that require grasslands as their primary habitat that are state listed in Connecticut. Most of Connecticut's grasslands would revert to forest without active management. Increasing development pressures on Connecticut's most important grassland habitats, exacerbates this loss of habitat through natural succession. The Savannah sparrow is most sensitive to disturbance between April 1- August 30. Traffic and construction in suitable habitat should be avoided during this timeframe. This species will benefit from protection and management of large patches of grassland of 10 acres or more.

Land disturbance activities including digging, ground clearing, heavy machinery driving staging, or trampling that will occur more than 100 feet into or cut across in a way that fragments large parcels of grassland habitat should be done when grassland birds are not breeding. Breeding primarily takes place between April 15-August15. Conducting land disturbance activities outside of the breeding season will avoid impact to the individuals.

Site Design Recommendations:

If planned properly, you can increase the value of the habitat for wildlife and state listed species with your development.

- **Create a site management plan to promote native vegetation growth in the area under the solar panels.** Restoring native vegetation will attract pollinators and avoid the need for constant mowing. Reduced need for mowing will reduce the collision risk for turtles.
- Provide habitat for wildlife and allow for connectivity for wildlife movement. Use wildlife-friendly fencing to allow movement through the solar development.

Your submission information indicates that your project requires a state permit, license, registration, or authorization, or utilizes state funding or involves state agency action. This NDDB - New determination may be utilized to fulfill the Endangered and Threatened Species requirements for state-issued permit applications, licenses, registration submissions, and authorizations.

Please be aware of the following limitations and conditions:

Natural Diversity Database information includes all information regarding listed species available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, land owners, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as enhance existing data. Such new information is incorporated into the Database and accessed through the ezFile portal as it becomes available. New information may result in additional review, and new or modified restrictions or conditions may be necessary to remain in compliance with certain state permits.

- During your work listed species may be encountered on site. A report must be submitted by the observer to the Natural Diversity Database promptly and additional review and restrictions or conditions may be necessary to remain in compliance with certain state permits. Please fill out the appropriate survey form and follow the instructions for submittal.
- Your project involves the state permit application process or other state involvement, including state funding or state agency actions; please note that consultations with your permit analyst or the agency may result in additional requirements. In this situation, additional evaluation of the proposal by the DEEP Wildlife Division may be necessary and additional information, including but not limited to species-specific site surveys, may be required. Any additional review may result in specific restrictions or conditions relating to listed species that may be found at or in the vicinity of the site.
- If your project involves preparing an Environmental Impact Assessment, this NDDB consultation and determination should not be substituted for biological field surveys assessing on-site habitat and species presence.
- The NDDB - New determination for the USS Somers Solar as described in the submitted information and summarized at the end of this document is valid until 5/12/2025. This determination applies only to the project as described in the submission and summarized at the end of this letter. Please re-submit an updated Request for Review if the project's scope of work and/or timeframe changes, including if work has not begun by 5/12/2025.

If you have further questions, please contact me at the following:

Shannon Kearney
CT DEEP Bureau of Natural Resources
Wildlife Division
Natural Diversity Database
79 Elm Street

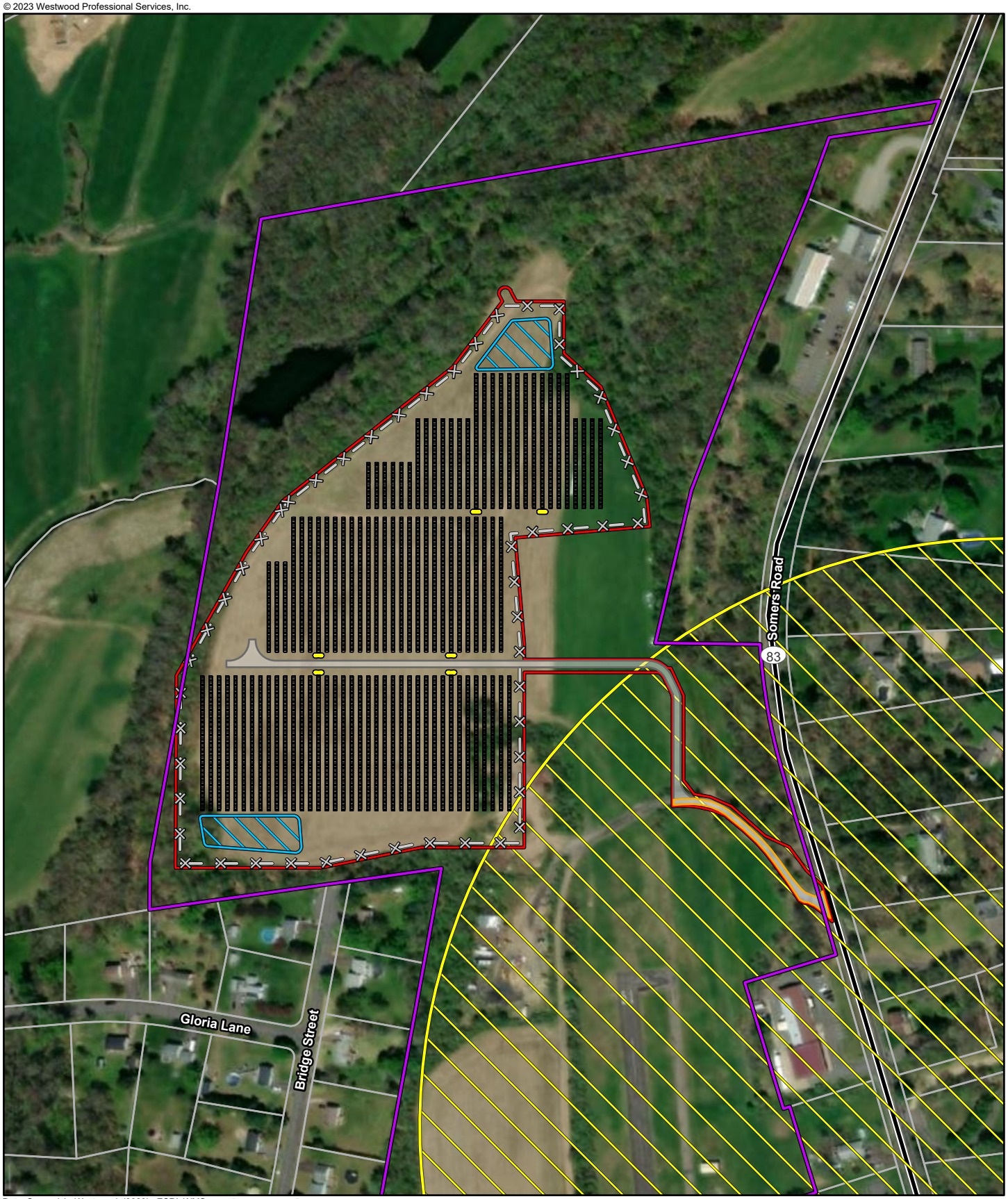
Hartford, CT 06106-5127
(860) 424-3170
Shannon.Kearney@ct.gov

Please reference the Determination Number 202303931 when you e-mail or write. Thank you for consulting the Natural Diversity Data Base.

Shannon Kearney
Wildlife Division- Natural Diversity Data Base
79 Elm Street
Hartford, CT 06106-5127
(860) 424-3170
Shannon.Kearney@ct.gov

Application Details:

Project involves federal funds or federal permit:	No
Project involves state funds, state agency action, or relates to CEPA request:	No
Project requires state permit, license, registration, or authorization:	Yes
DEEP enforcement action related to project:	
Project Type:	Energy and Utility Production Facilities and Distribution Infrastructure
Project Sub-type:	Solar Energy
Project Name:	USS Somers Solar
Project Description:	



Data Source(s): Westwood (2023); ESRI WMS World Imagery Basemaps (Accessed 2023); CT DEEP (2022); OpenStreetMap (2022).

Feet
0 300

Westwood

Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Legend

- Project Area
- Property Boundary
- Natural Diversity Database Boundary
- Parcel Boundary
- Inverter
- Array
- Alternate Access Road
- Access Road
- Water Basin
- Fence Line
- Major Road

Somers Solar Project

Town of Ellington, Connecticut

N

Proposed Conditions

EXHIBIT 3

Map Document: N:\0028111.00\GIS\ArcPro\R0028111_Somers_Solar_NDDBExhibits\R0028111_Somers_Solar_NDDBExhibits.aprx 5/1/2023 8:46 AM LMaldonado

Appendix D

IPaC Correspondence and USFWS Compliance Statement

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To:
Project Code: 2023-0083837
Project Name: Somers Solar Project

May 19, 2023

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

To Whom It May Concern:

Updated 4/12/2023 - Please review this letter each time you request an Official Species List, we will continue to update it with additional information and links to websites may change.

About Official Species Lists

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Federal and non-Federal project proponents have responsibilities under the Act to consider effects on listed species.

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 (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

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 note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested by returning to an existing project's page in IPaC.

Endangered Species Act Project Review

Please visit the "**New England Field Office Endangered Species Project Review and Consultation**" website for step-by-step instructions on how to consider effects on listed

species and prepare and submit a project review package if necessary:

https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review

NOTE Please do not use the **Consultation Package Builder** tool in IPaC except in specific situations following coordination with our office. Please follow the project review guidance on our website instead and reference your **Project Code** in all correspondence.

Northern Long-eared Bat - (**Updated 4/12/2023**) The Service published a final rule to reclassify the northern long-eared bat (NLEB) as endangered on November 30, 2022. The final rule went into effect on March 31, 2023. You may utilize the **Northern Long-eared Bat Rangewide Determination Key** available in IPaC. More information about this Determination Key and the Interim Consultation Framework are available on the northern long-eared bat species page:

https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis

For projects that previously utilized the 4(d) Determination Key, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective. If your project was not completed by March 31, 2023, and may result in incidental take of NLEB, please reach out to our office at newengland@fws.gov to see if reinitiation is necessary.

Additional Info About Section 7 of the Act
Under section 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether projects may affect threatened and endangered species and/or designated critical habitat. If a Federal agency, or its non-Federal representative, determines that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Federal agency also may need to consider proposed species and proposed critical habitat in the consultation. 50 CFR 402.14(c)(1) specifies the information required for consultation under the Act regardless of the format of the evaluation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/service/section-7-consultations

In addition to consultation requirements under Section 7(a)(2) of the ESA, please note that under sections 7(a)(1) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Please contact NEFO if you would like more information.

Candidate species that appear on the enclosed species list have no current protections under the ESA. The species' occurrence on an official species list does not convey a requirement to

consider impacts to this species as you would a proposed, threatened, or endangered species. The ESA does not provide for interagency consultations on candidate species under section 7, however, the Service recommends that all project proponents incorporate measures into projects to benefit candidate species and their habitats wherever possible.

Migratory Birds

In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see:

https://www.fws.gov/program/migratory-bird-permit

https://www.fws.gov/library/collections/bald-and-golden-eagle-management

Please feel free to contact us at **newengland@fws.gov** with your **Project Code** in the subject line if you need more information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

Attachment(s): Official Species List

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

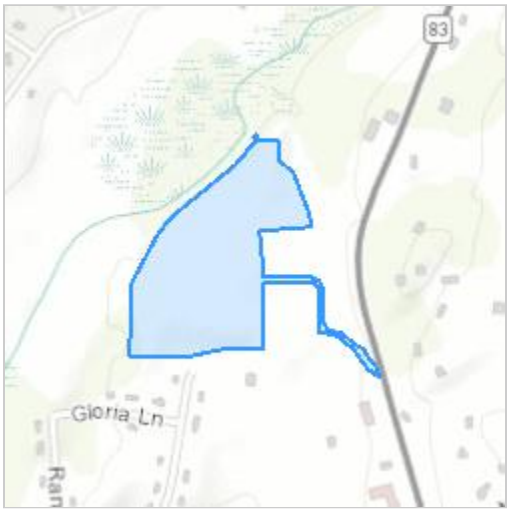
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

PROJECT SUMMARY

Project Code: 2023-0083837
Project Name: Somers Solar Project
Project Type: Power Gen - Solar
Project Description: The Project will be located on a portion of the property at 360 Somers Road, Ellington, Connecticut (Site). The Site consists of an approximately 127-acre parcel with a mixed use including an airport facility with related development open space, buildings, and impervious surfaces ("Ellington Airport"), agricultural/cultivated crops, hay fields/grassland, and deciduous and evergreen wooded (mixed forest) areas. The Project will occupy approximately 19.2 acres of predominantly cultivated crop and hay area in the northern and western portions of the parcel. The Project Area previously was to be located on 33 acres of the Parcel but has been reduced to 19.2 acres and Project Features were removed from the Southern Project Area altogether. It should be noted that multiple reports were done with the larger Project Area and show the previous Project Area on exhibits. The new Project Area is completely encompassed in the old Project Area and thus, these reports cover the new 19.2-acre Project Area.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.930233799999996,-72.459452336726,14z



Counties: Tolland County, Connecticut

ENDANGERED SPECIES ACT SPECIES

There is a total of 2 threatened, endangered, or candidate species on this 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.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency:	Private Entity
Name:	Annabel Sammons
Address:	75 Thruway Park Drive
Address Line 2:	Unit A
City:	Rochester
State:	NY
Zip:	14586
Email	annabel.sammons@westwoodps.com
Phone:	3174531416

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To:
Project code: 2023-0083837
Project Name: Somers Solar Project

May 19, 2023

Federal Action Agency (if applicable):

Subject: Record of project representative's no effect determination for 'Somers Solar Project'

Dear Annabel Sammons:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on May 19, 2023, for 'Somers Solar Project' (here forward, Project). This project has been assigned Project Code 2023-0083837 and all future correspondence should clearly reference this number. **Please carefully review this letter.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into the IPaC must accurately represent the full scope and details of the Project. Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat Rangewide Determination Key (Dkey), invalidates this letter.

Determination for the Northern Long-Eared Bat

Based upon your IPaC submission and a standing analysis, your project has reached the determination of "No Effect" on the northern long-eared bat. To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative), to a federally listed species or designated critical habitat. Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may

include consequences occurring outside the immediate area involved in the action. (See § 402.17).

Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no consultation with the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required except when the Service concurs, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13].

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination for the northern long-eared bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Candidate

You may coordinate with our Office to determine whether the Action may affect the animal species listed above and, if so, how they may be affected.

Next Steps

Based upon your IPaC submission, your project has reached the determination of “No Effect” on the northern long-eared bat. If there are no updates on listed species, no further consultation/ coordination for this project is required with respect to the northern long-eared bat. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place to ensure compliance with the Act.

If you have any questions regarding this letter or need further assistance, please contact the New England Ecological Services Field Office and reference Project Code 2023-0083837 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

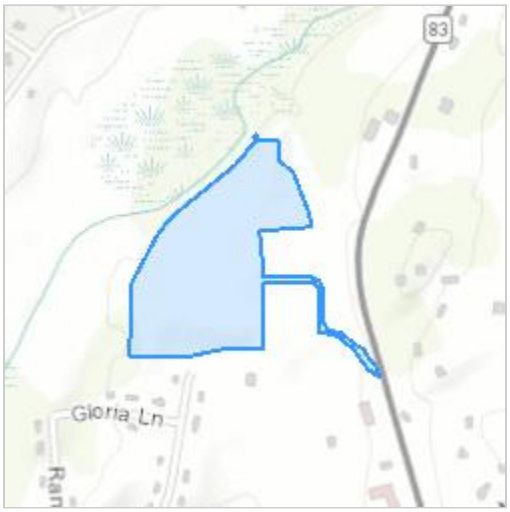
Somers Solar Project

2. Description

The following description was provided for the project 'Somers Solar Project':

> The Project will be located on a portion of the property at 360 Somers Road, Ellington, Connecticut (Site). The Site consists of an approximately 127-acre parcel with a mixed use including an airport facility with related development open space, buildings, and impervious surfaces ("Ellington Airport"), agricultural/ cultivated crops, hay fields/grassland, and deciduous and evergreen wooded (mixed forest) areas. The Project will occupy approximately 19.2 acres of predominantly cultivated crop and hay area in the northern and western portions of the parcel. The Project Area previously was to be located on 33 acres of the Parcel but has been reduced to 19.2 acres and Project Features were removed from the Southern Project Area altogether. It should be noted that multiple reports were done with the larger Project Area and show the previous Project Area on exhibits. The new Project Area is completely encompassed in the old Project Area and thus, these reports cover the new 19.2-acre Project Area.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.930233799999996,-72.459452336726,14z



DETERMINATION KEY RESULT

Based on the information you provided, you have determined that the Proposed Action will have no effect on the Endangered northern long-eared bat (Myotis septentrionalis). Therefore, no consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required for those species.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of the northern long-eared bat or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. The proposed action does not intersect an area where the northern long-eared bat is likely to occur, based on the information available to U.S. Fish and Wildlife Service as of the most recent update of this key. If you have data that indicates that northern long-eared bats are likely to be present in the action area, answer "NO" and continue through the key.

   Do you want to make a no effect determination?

   Yes

PROJECT QUESTIONNAIRE

IPAC USER CONTACT INFORMATION

Agency:	Private Entity
Name:	Annabel Sammons
Address:	75 Thruway Park Drive
Address Line 2:	Unit A
City:	Rochester
State:	NY
Zip:	14586
Email	annabel.sammons@westwoodps.com
Phone:	3174531416

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: January 12, 2022
Consultation Code: 05E1NE00-2021-SLI-3654
Event Code: 05E1NE00-2022-E-04133
Project Name: USS Somers Solar LLC

Subject: Updated list of threatened and endangered species that may occur in your proposed project location 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 (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

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 Act, 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 website 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.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

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 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 Act. 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(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

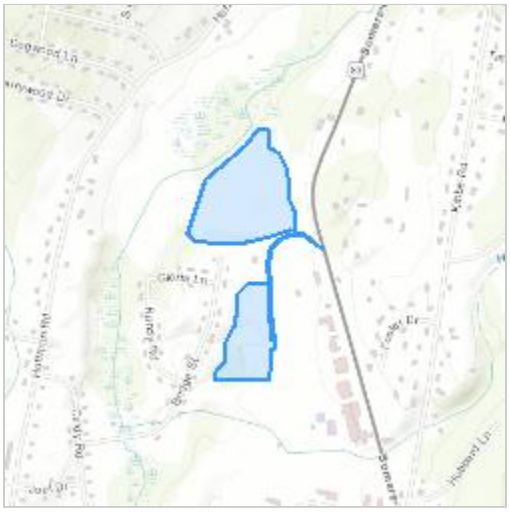
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2021-SLI-3654
Event Code: Some(05E1NE00-2022-E-04133)
Project Name: USS Somers Solar LLC
Project Type: POWER GENERATION
Project Description: This will be the site of a ground mount solar energy generation facility, with a nameplate capacity of 4 megawatts (MWac). The project will be located on only approximately 33 acres of the larger 127 acre parcel.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.9283278,-72.4578392558482,14z



Counties: Tolland County, Connecticut

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this 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.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

IPaC Record Locator: 363-103304019 June 25, 2021

Subject: Consistency letter for the 'USS Somers Solar' project indicating that any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Dear Joe Dietrich:

The U.S. Fish and Wildlife Service (Service) received on June 24, 2021 your effects determination for the 'USS Somers Solar' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. You indicated that no Federal agencies are involved in funding or authorizing this Action. This IPaC key assists users in determining whether a non-Federal action may cause "take"[1] of the northern long-eared bat that is prohibited under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the Action is not likely to result in unauthorized take of the northern long-eared bat.

Please report to our office any changes to the information about the Action that you entered into IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation.

If your Action proceeds as described and no additional information about the Action's effects on species protected under the ESA becomes available, no further coordination with the Service is required with respect to the northern long-eared bat.

---

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

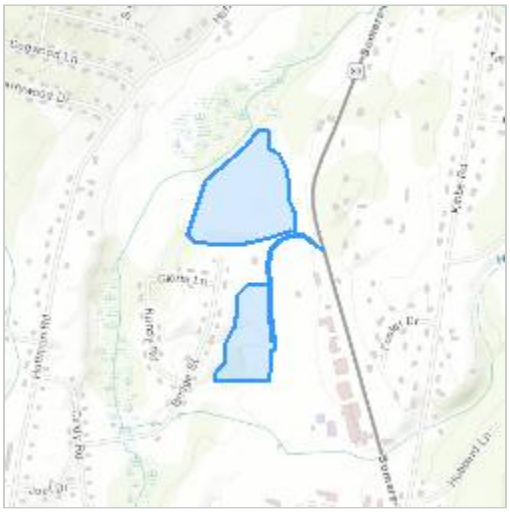
USS Somers Solar

2. Description

The following description was provided for the project 'USS Somers Solar':

> This will be the site of a ground mount solar energy generation facility, with a nameplate capacity of 4 megawatts (MWac). The project will be located on only approximately 33 acres of the larger 127 acre parcel.

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.9283278,-72.4578392558482,14z



Determination Key Result

This non-Federal Action may affect the northern long-eared bat; however, any take of this species that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o).

Determination Key Description: Northern Long-eared Bat 4(d) Rule
This key was last updated in IPaC on **May 15, 2017**. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for non-Federal actions is to assist determinations as to whether proposed actions are excepted from take prohibitions under the northern long-eared bat 4(d) rule.

If a non-Federal action may cause prohibited take of northern long-eared bats or other ESA-listed animal species, we recommend that you coordinate with the Service.

Determination Key Result

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?

   No

2. Will your activity purposefully **Take** northern long-eared bats?

   No

3. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?

   Automatically answered
   No

4. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

   Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html.

   Yes

5. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

   No

6. Will the action involve Tree Removal?

   Yes

7. Will the action only remove hazardous trees for the protection of human life or property?

   No

8. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

   No

9. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

   No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

1.25

2. If known, estimated acres of forest conversion from April 1 to October 31

1.25

3. If known, estimated acres of forest conversion from June 1 to July 31

1.25

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

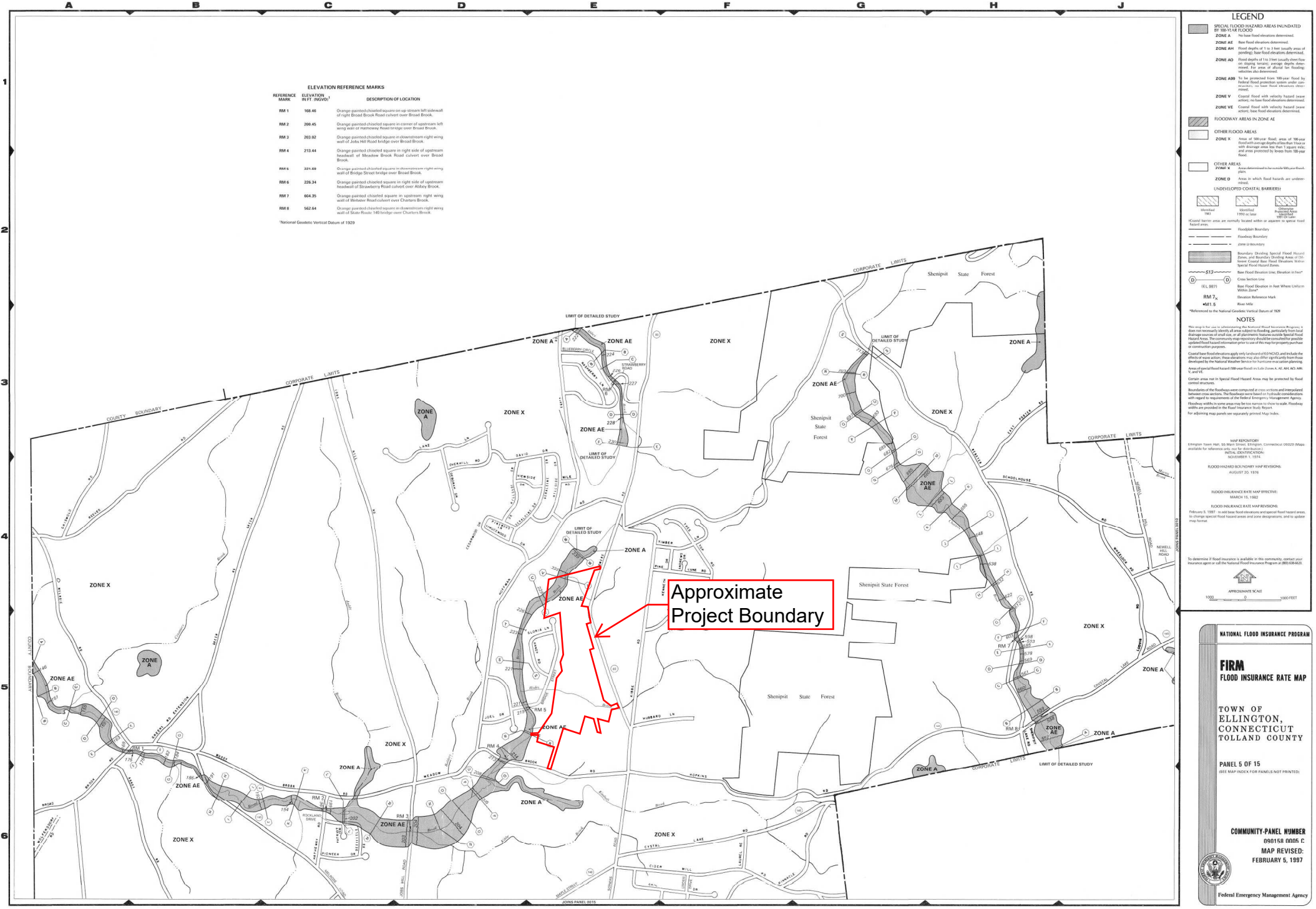
If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0

Appendix E

FEMA FIRM Panels


ELEVATION REFERENCE MARKS
REFERENCE MARK
ELEVATION IN FT. (NGVD)[1]
DESCRIPTION OF LOCATION
RM 1 168.46 Orange-painted chiseled square on up stream left sidewall of right Broad Brook Road culvert over Broad Brook.
RM 2 200.45 Orange painted chiseled square in corner of upstream left wing wall of Hameway Road bridge over Broad Brook.
RM 3 203.02 Orange-painted chiseled square in downstream right wing wall of Jobs Hill Road bridge over Broad Brook.
RM 4 213.44 Orange-painted chiseled square in right side of upstream headwall of Meadow Brook Road culvert over Broad Brook.
RM 5 321.69 Orange painted chiseled square in downstream right wing wall of Bridge Street bridge over Broad Brook.
RM 6 226.34 Orange-painted chiseled square in right side of upstream headwall of Strawberry Road culvert over Abbey Brook.
RM 7 604.35 Orange-painted chiseled square in upstream right wing wall of Webster Road culvert over Charters Brook.
RM 8 562.64 Orange painted chiseled square in downstream right wing wall of State Route 140 bridge over Charters Brook.
[1]National Geodetic Vertical Datum of 1929
LEGEND
SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD
ZONE A No base flood elevations determined.
ZONE AE Base flood elevations determined.
ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE A99 To be protected from 100-year flood by federal flood protection system under construction; no base flood elevations determined.
ZONE V Coastal flood with velocity hazard (wave action); no base flood elevations determined.
ZONE VE Coastal flood with velocity hazard (wave action); base flood elevations determined.
FLOODWAY AREAS IN ZONE AE
OTHER FLOOD AREAS
ZONE X Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.
OTHER AREAS
ZONE X Areas determined to be outside 500-year flood plain
ZONE D Areas in which flood hazards are undetermined.
UNDEVELOPED COASTAL BARRIERS
Identified 1983
Identified 1990 or later
Otherwise Protected Area (OPA) identified 1991 OR later
(Coastal barrier areas are normally located within or adjacent to special flood hazard areas.
Floodplain Boundary
Floodway Boundary
Zone D Boundary
Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.
513 Base Flood Elevation Line; Elevation in Feet*
D D Cross Section Line
(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone*
RM 7 X Elevation Reference Mark
M1.5 River Mile
*Referenced to the National Geodetic Vertical Datum of 1929
NOTES
This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for possible updated flood hazard information prior to use of this map for property purchase or construction purposes.
Coastal base flood elevations apply only landward of 0.0 NGVD, and include the effects of wave action; these elevations may also differ significantly from those developed by the National Weather Service for hurricane evacuation planning.
Areas of special flood hazard (100-year flood) include Zones A, AE, AH, AO, A99, V, and VE.
Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.
Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.
Floodway widths in some areas may be too narrow to show to scale. Floodway widths are provided in the Flood Insurance Study Report.
For adjoining map panels see separately printed Map Index.
MAP REPOSITORY
Ellington Town Hall, 55 Main Street, Ellington, Connecticut 06029 (Maps available for reference only; not for distribution.)
INITIAL IDENTIFICATION: NOVEMBER 1, 1974
FLOOD HAZARD BOUNDARY MAP REVISIONS: AUGUST 20, 1976
FLOOD INSURANCE RATE MAP EFFECTIVE: MARCH 16, 1982
FLOOD INSURANCE RATE MAP REVISIONS: February 5, 1997 to add base flood elevations and special flood hazard areas, to change special flood hazard areas and zone designations, and to update map format.
To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.
APPROXIMATE SCALE
1000 0 1000 FEET
Approximate Project Boundary
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
TOWN OF ELLINGTON, CONNECTICUT TOLLAND COUNTY
PANEL 5 OF 15
(SEE MAP INDEX FOR PANELS NOT PRINTED)
COMMUNITY-PANEL NUMBER 090158 0005 C
MAP REVISED: FEBRUARY 5, 1997
Federal Emergency Management Agency

Appendix F

SHPO Correspondence and Cultural Resources Reconnaissance Reports

CT SHPO Consultation Correspondence

Westwood
Surveying & Engineering
ww-pc.com

January 20, 2022

Ms. Tery Harris
EAC/Archaeology, Inc.
4303 N. Charles St.
Baltimore, MD 21218
(sent only via email to tharris@eacarchaeology.com)

Subject: Somers Solar Power Project Cultural Resources Survey
Somers Road
Ellington, Connecticut

Dear Ms. Harris:

The State Historic Preservation Office (SHPO) has reviewed the report titled, *Archaeological Identification Survey and Built Environment Reconnaissance for the Proposed Somers Solar Power Project* prepared by EAC/Archaeology, Inc. (EAC). The proposed ground mounted solar array facility and associated improvements will cover approximately 32 acres within a larger 136-acre parcel located to the north and west of Ellington Airport. The survey was completed at the request of this office in a letter dated July 30, 2021, pursuant to both Section 106 of the National Historic Preservation Act and the Connecticut Environmental Policy Act. The completed fieldwork and submitted report meet the standards set forth in the *Environmental Review Primer for Connecticut's Archaeological Resources*.

During the archeological identification survey, 258 shovel test pits were excavated throughout three testing areas (North Field, South Field, and Access Road). A total of 250 shovel tests were excavated systematically at 15-meter intervals along transects spaced 15 meters apart, with minor modifications based on field conditions. The eight remaining shovel tests were used to further examine some artifact locations. The shovel testing revealed a landscape impacted by extensive agricultural use and gravel mining. A total of 45 artifacts, characterized as typical historic field scatter, were recovered from 30 shovel test pits. SHPO concurs with EAC that this low-density scatter of common types of historic artifacts is not eligible for listing on the National Register of Historic Places and that no additional archaeological testing of the project area is warranted.

The Built Environment Study was completed within an Area of Potential Effect (APE) delineated through a computer-generated visibility model. Background research, combined with a field investigation, identified six structures greater than 50 years in age within the APE. SHPO concurs with EAC that the proposed project is not likely to cause visual impacts to this historic structure located at 368 Somers Road. SHPO also concurs with EAC that the five remaining structures (360 Somers Road, 381 Somers Road, 389 Somers Road, 403 Somers Road, and 406

Somers Road) represent common styles with no known associations with people or events; these structures are not eligible for listing on the National Register of Historic Places. Therefore, it is the opinion of this office that no historic properties will be affected by the proposed photovoltaic facility. SHPO requests two bound copies of the final report; one will be kept for use in the office and the other will be transferred to the Thomas J. Dodd Research Center at the University of Connecticut (Storrs) for permanent archiving and public accessibility.

We appreciate the cooperation of all interested parties in the professional management of Connecticut's archeological resources. This letter supersedes all prior communications. For additional information, please contact me at (860) 500-2329 or catherine.labadia@ct.gov.

Sincerely,

Catherine Labadia
Deputy State Historic Preservation Officer

Cultural Resources Reconnaissance Survey Report – Phase IA

Westwood
Surveying & Engineering
ww-pc.com

Cultural Resources Reconnaissance for the Proposed Somers Solar Power Project, Ellington, Tolland County, Connecticut

By

Tery Harris, M.A.

EAC/Archaeology, Inc.
4303 N. Charles St.
Baltimore, MD 21218

Prepared for
Westwood Surveying and Engineering, P.C.
12701 Whitewater Drive Suite 300
Minnetonka, MN 55343

June 14, 2021

Abstract

EAC/A completed an Assessment of Potential study for the proposed Somers Solar Project, located northeast of Ellington, Connecticut. The study utilized GIS analysis of environmental variables and historic maps and aerial photographs to classify the project Study Area into areas of high, moderate, low, and no potential for archaeological resources. This model was subsequently modified based on the results of a pedestrian surface inspection and geoarchaeological evaluation, which classified the majority of the Study Area as previously stripped and disturbed, and evaluated the landscape as having little potential for intact archaeological resources. The surface inspection carried out during the walk-over inspection was conducted at roughly 15-meter inspection intervals, and failed to identify archaeological materials anywhere except in the southern extension of the Study Area outside the final project LOD.

EAC/A also completed GIS analysis to identify structures present on the 1970 aerial photograph and track them across the late twentieth century aerial photograph sequence in order to identify standing structures within or adjacent to the project limits which are 50 years of age or older therefore potentially eligible for listing in the National Register of Historic Places. This study identified nine such resources, although only three appear to be potentially impacted by the project: one is the northern most garage in the central Study Area complex, the second is a possible residential structure within the Ellington Airport complex at 360 Somers Road, and the third is the residential structure at 381 Somers Road.

Based on these findings, EAC/A recommends limited additional Cultural Resources Management study prior to the development of the proposed Somers Solar Project. Specifically, no further archaeological study is recommended based on the degree of past soil disturbance noted in historic documentation and during the geoarchaeological evaluation. However, a formal delineation of the Area of Potential Visual Effects (APE-Visual) should be completed for the project, and a Built Environment Reconnaissance Survey completed within that APE-Visual. This survey should be prepared to collect initial documentation of the three structures already noted as greater than 50 years in age, evaluate their physical integrity, and assess the potential impact of the project to these resources. If the resources retain physical integrity, a Determination of Eligibility will likely be required for any resource to be adversely impacted by the project.

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List of Appendices

Introduction

EAC/Archaeology, Inc. was contracted by Westwood Surveying and Engineering, P.C. to complete the initial cultural resources reconnaissance and consultation initiation for the proposed Somers Solar Project, located outside Ellington, Connecticut in north central Tolland County (Figure 1). This study has been conducted as part of the initial planning and site feasibility process, and in partial compliance with the requirements of the Connecticut Siting Council petition process. The work completed for this study complies with *Environmental Review Primer for Connecticut's Archaeological Resources* (Poirier 1987) and the Project Review Process set out by the Connecticut State Historic Preservation Office (CT SHPO).

Project Description

The proposed project is situated west of Somers Road, approximately one-and-a-half miles north of Ellington. The initially defined Study Area consisted of 54 acres of the roughly 136-acre parcel containing the Ellington Airport. Once preliminary plans were developed, a proposed Limit of Disturbance (LOD) was defined which involves approximately 33 acres (Figure 2). The Study Area is bound by Broad Brook to the north, Broad Brook and the rear property lines of residences on Bridge Street to the west, Hydes Brook to the South, and the Ellington Airport runway and existing tree line along Somers Road to the east. The proposed project will involve the construction of a Solar Power facility including the installation of approximately 140 solar panel racks to be spaced 15.5 feet apart with a maximum height of 15 feet, internal access roads, supporting equipment, perimeter fencing, stormwater basins, and utility connections within the 32-acre LOD.

Study Methodology

EAC/A conducted an initial review of existing archaeological sites and archaeological surveys within the project vicinity in order to identify any previously reported archaeological sites within or adjacent to the proposed project site and provide data to assess archaeological potential on the project site. EAC/A also completed a SHPO file search for built environment resources within a 1,000-foot buffer around the Study Area. As the CT SHPO was closed to visitors during the period of this study, all file research was conducted via email communication with Ms. Catherine Labadia of the CT SHPO. The study then continued via a geoarchaeological evaluation and pedestrian inspection of the Study Area to document above ground features, previous ground disturbance, and landforms with potential archaeological significance such as rock shelters or quarry sites. This information, combined with information gained from review of environmental conditions, historical development, commonly accepted predictive models, and identification of areas of previous ground disturbance noted during the pedestrian inspection and through review of historic aerial photographs, was used to provide a classification of archaeological potential within the Study Area. Finally, EAC/A also reviewed the historic development of the project vicinity, specifically the 1970 to 2019 historic aerial photograph sequence, in order to identify potential historic resources not yet reported within and adjacent to the Study Area.

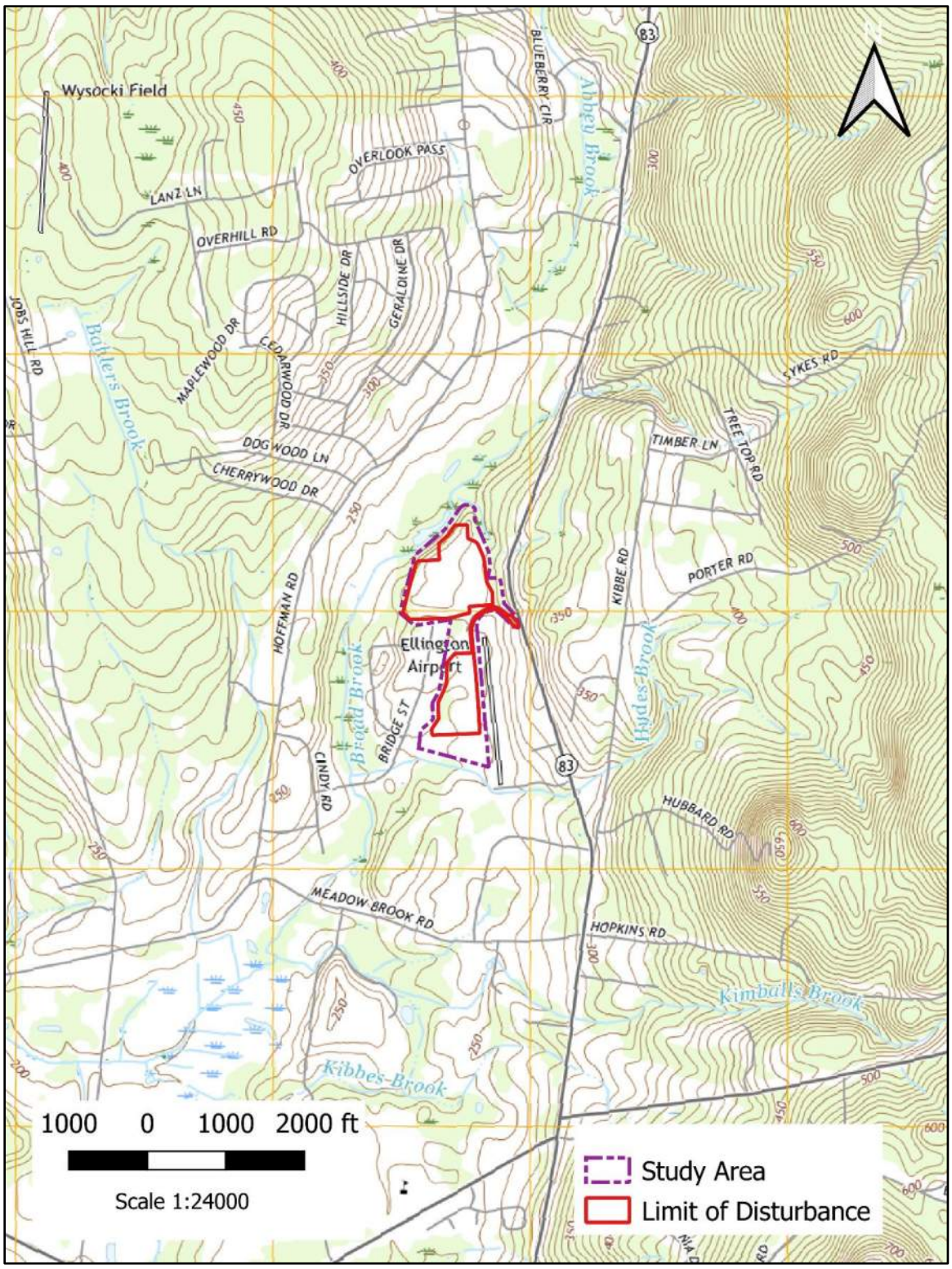

Figure 1. Project Location on the 2019 Ellington CT 7.5 Minute USGS Quadrangle

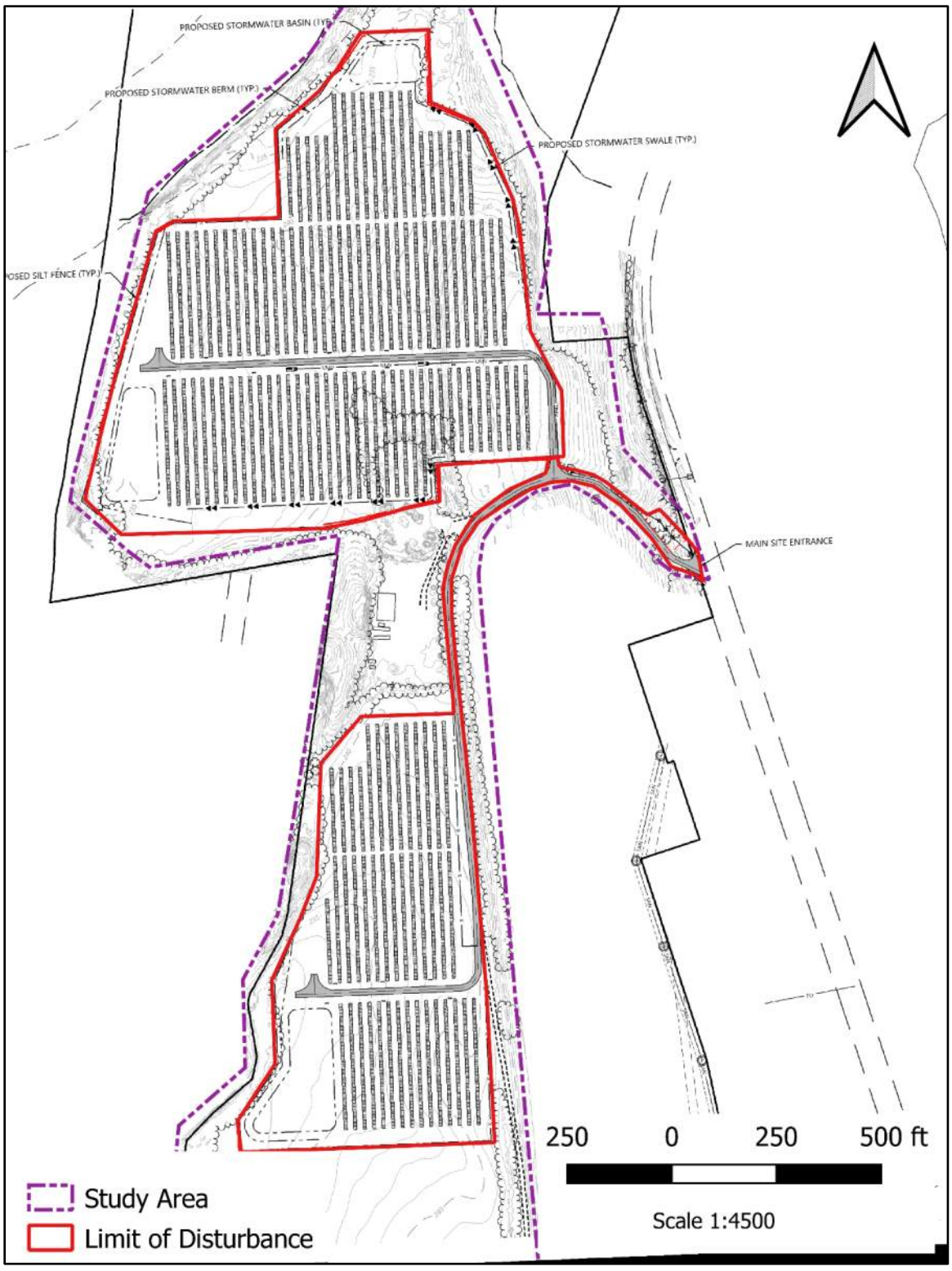

Figure 2. Proposed Project Plans

Project Personnel

Ms. Tery Harris, M.A. served as Project Lead, researcher, and author of this report. Joseph Clemens, M.S. conducted the pedestrian inspection and served as Field Director and Project Geoarchaeologist. Damien Koropeckyj M.A. assisted Mr. Clemens during the pedestrian inspection.

Project Setting

Existing Conditions

The Study Area consists primarily of agricultural fields with second growth woodland along the borders. The central portion of the Study Area includes a small area of woodland buffering an existing mid-twentieth century garage/shed complex and work area, which is within the Study Area but outside the project LOD.

Topography

The Study Area falls at the intersection of the Central Lowlands and the Eastern Highlands physiographic provinces of New England (Rogers 1985). Surface elevations vary between 240 feet above mean sea level and 260 feet above mean sea level. Overall, the Study Area represents an upland terrace at the western foot of an upland ridge, rising adjacent to the marshy valley of Broad Brook to the west. The northern portion of the Study Area represents a relatively level terrace with a sharper slope down west to Broad Brook, while the southern extension may include a relict stream bed.

Soils

There are five soil series mapped within the Study Area (Figure 3, NRCS Web Soil Survey). The most widespread of these is the Udorthents-Pits complex noted in the center of the Study Area, an area which largely corresponds to large scale earth disturbance noted in historic aerial photographs circa 1970. The second most extensive soil series within the Study Area is Manchester gravelly loam which is found both at the northern end of the Study Area and along the southeastern portion of the Study Area. Other soil series present include Ellington silt loam found in the southern Study Area, and small areas of Wethersfield loam and Enfield silt loam found along the eastern Study Area boundary. Very small areas mapped as Udorthents-Urban land complex within the Study Area are associated with the adjacent Ellington Airport runway to the east or the Bridge Street residential development to the west.

Manchester series soils consists of very deep, excessively drained soils located on outwash plains, terraces, kames, deltas, and eskers. They have developed from sandy and gravelly glaciofluvial deposits derived from sandstone and shale and/or basalt. A typical Manchester series profile includes a plowzone of dark brown gravelly sandy loam with 20 percent gravel. The underlying subsoil generally extends from the base of the plowzone to 18 to 20 inches below surface and consists of a reddish brown gravelly loamy sand with 25 percent gravel. The C Horizon can extend beyond five feet in depth and consists of reddish brown very gravelly sand conducive to sand and gravel mining.

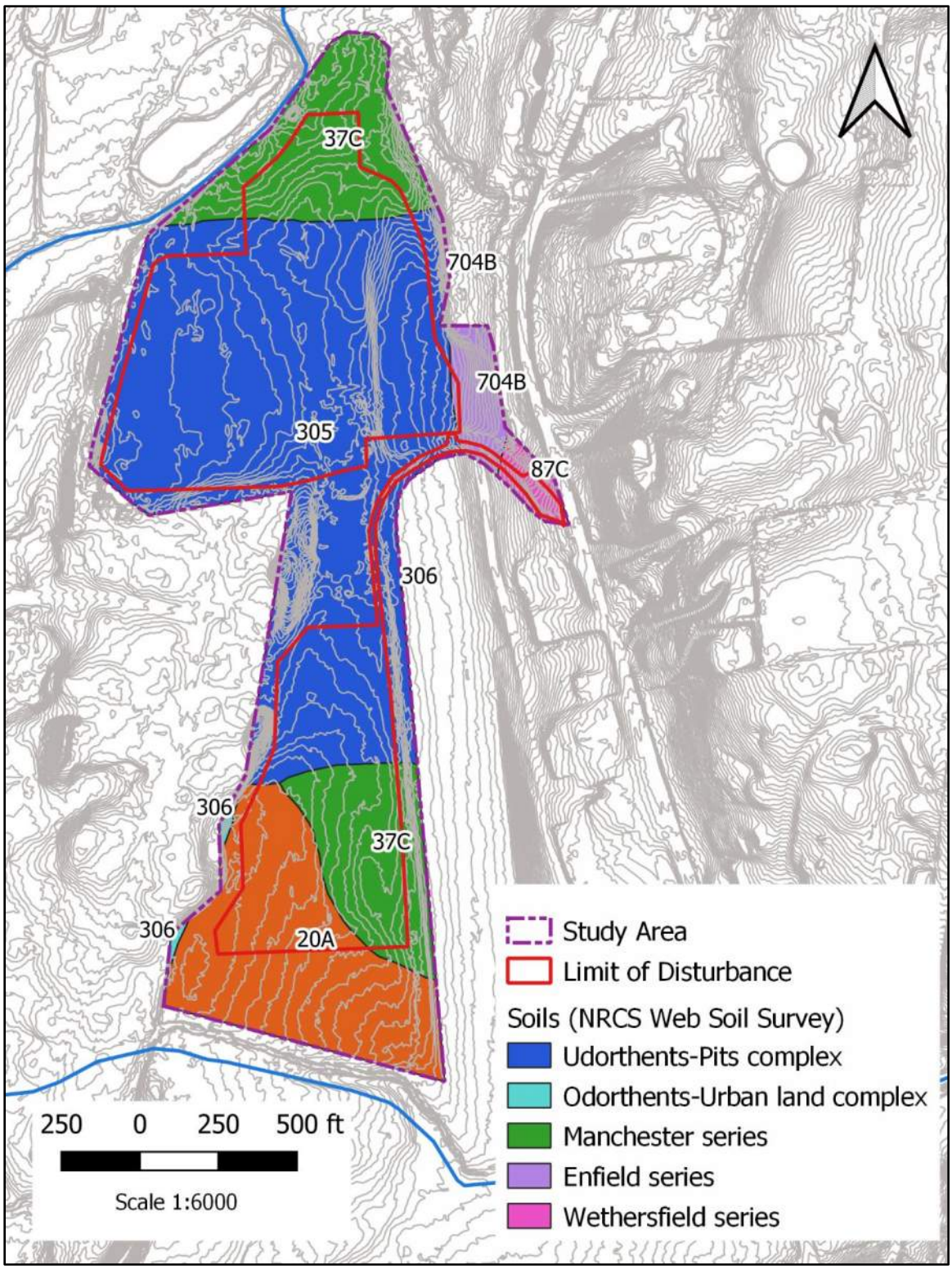

Figure 3. Soils in the Study Area.

Udorthents-Pits complex soils are described as areas that have been cut to a depth of 2 feet or more or are on areas with more than 2 feet of fill. Udorthents consist primarily of moderately coarse textured soil material and a few small areas of medium textured material. Within the Study Area, Udorthents likely represent areas of past soil removal for either fills for construction of the adjacent airport, or sand and gravel mining.

Ellington series soils consists of moderately well drained soils found on terraces and outwash plains, developed from coarse eolian deposits over sandy and gravelly glaciofluvial deposits derived from sandstone and shale and/or basalt. A typical Ellington series profile includes a dark reddish brown silt loam plowzone. Subsoil consists of a reddish brown silt loam to depths of 18 to 36 inches with a minor gravel component, and sand and gravel content increases with depth. The underlying substratum consists of dark reddish brown stratified sand and gravel with a few thin lenses of sandy loam, gravel content can reach 50 percent.

Enfield series soils consists of very deep, well drained loamy soils formed in a silty mantle overlying glacial outwash. They are found on outwash plains and terraces. A typical Enfield soil profile includes a thin dark grayish brown silt loam plowzone with a minor gravel component. Subsoil is a strong brown silt loam in the upper zone (to depths over a foot) and light olive brown silt loam in the lower subsoil to depths between two and three feet. The underlying substratum is a brown stratified very gravelly sand with a strong gravel component and some cobbles.

Wethersfield series soils consists of very deep, well drained loamy soils formed in dense glacial till on uplands. They are found on till plains, low ridges, and drumlins. A typical Wethersfield soil profile includes a thin dark brown loam plowzone over a reddish brown to dark reddish brown subsoil. Gravel content increases with depth within the subsoil. Substratum is generally encountered above two feet below surface and consists of a reddish brown gravelly loam with 20 percent gravel and cobbles.

Hydrology

The Study Area is part of the larger Connecticut River drainage. First order Broad Brook and Hydes Brook border the Study Area to the west and south respectively, and these streams flow south and west to join the Scantic River. The Scantic River joins the Connecticut River as it flows between Windsor Locks and Hartford. Broad Run has large marsh areas off the north portion of the Study Area, and also west and southwest of the Study Area where it becomes a second order stream.

Developmental Context

Prehistoric Context

The southern New England region was occupied for 12,000 years or more by small populations who lived a relatively mobile life, based on hunting and gathering wild resources. These early populations left generally small sites in locations associated with environmentally productive areas. Archaeologists divide this time span into a number of periods (typically encompassing the Paleoindian, Archaic, and earlier Woodland Period). Starting about 1,000 years ago, larger and

more sedentary populations developed, enabled at some point in this time span by the introduction of domesticated plants such as corn, beans, and squash.

Paleoindian Period (12,000 to 10,000 Before Present [B.P.])

At the end of the Pleistocene, approximately 12,000 years ago, climate shifts created first open parkland environments suitable to cervids, and later shifted into mixed conifer and hardwood forests by roughly 10,000 B.P. (Goodby et al 2014, McWeeney and Kellogg 2001). The human habitation of the region began in the Paleoindian period, around 10,500 B.C., with the Templeton Site (6-LF-21) producing carbon dates documenting occupation between 10,500 and 9.900 B.P. (Moeller 1980). The Paleoindian culture is often thought of as based on big game hunting, particularly of now extinct species, although no Paleoindian artifacts associated with extinct species have been found in eastern North America. The variation in size among fluted points of the period and the variety of tools found in the tool kits suggest that Paleoindian populations exploited a variety of fauna (Goodby et al 2014, Starna 2017). Assemblages from the Templeton Site and the Hidden Creek Site in Connecticut and the Tenant Swamp and Whipple sites in New Hampshire indicate that Paleoindian populations were utilizing both local and non-local lithic materials, and used a tool kit which included fluted bifaces, side-scrapers, end scrapers, drills, gravers, spokeshaves, and in tool production areas, channel flakes (Moller 1999). Expedient flake tools were also an integral part of the tools kit (Gooby et al 2014.)

Archaic Period (10,000 to 2,700 Before Present)

By 10,000 B.P., there was a change in tool varieties, with bifurcate, stemmed and side-notched projectile points replacing the earlier fluted varieties. The preferred lithic materials were still imported from outside the region but use of local materials increased through the period (Forrest 1999). Deer were the primary large game animal hunted, although bones of a number of other smaller animals recovered archaeologically show that a wide variety of species were successfully hunted, and faunal analysis suggests that fish represented a significant dietary resource (Nicholas 1987). The appearance of mortars and pestles suggests that vegetable foods assumed greater importance. These changes have been interpreted as a shift in subsistence strategies towards a broad-spectrum adaptation, utilizing a number of species of animals and plants. Evidence from Paleoindian and Early Archaic sites suggests that the transition from the Paleoindian way of life in the east was not a sharp break, but rather a gradual transition.

Archaic sites are found along the major river valleys, across the interior uplands representing utilization of evolving glacial basin environments, and hillslopes and small saddles near evolving interior wetlands (Lavin 2013 cited in Harfst 2019, Nicholas 1987, McWeeney and Kellogg 2001, Rainey 2005). Archaic sites become more numerous, larger, and richer in artifacts in progression through the period. They represent a series of adaptations to large climatic changes (McWeeney and Kellogg 2001), with climate in the early Archaic approaching the historic climatic conditions only to become markedly hotter and dryer between 9,000 and 6,000 years B.P. (Nicholas 1987).

Woodland Period (3,000 to 350 Before Present)

The introduction of pottery into the artifact assemblage around 3,000 B.P. marks the beginning of the Woodland period. Potters' innovations, as reflected in ceramic types, have become a significant basis for dating deposits within the Woodland period. Synthesis of Archaic research in Connecticut suggests continuity of Late Archaic point types into the Early Woodland alongside the addition of early ceramic types such as Vinette I although the later may also have been a Terminal Archaic innovation (Juli 1999). Settlement in the period became increasingly focused to sites along the major river drainages, with at least seasonal sedentary villages present by the Middle Woodland Period (Juli 1999). Several researchers have noted that the Woodland Period represents slow gradual changes which were additive in nature across time (Feder 1999, Juli 1999).

Subsistence changes in the Woodland Period are subject to less consensus. The adoption of maize horticulture is well documented by 1,000 A.D., but its importance to the overall subsistence system may have varied across environmental zones, with more maize recovered from interior and riverine sites than coastal sites (Chilton 2002). The timing of the addition of beans and squash horticulture as a major subsistence resource is likewise unclear (Juli 1999). Settlement during the Early Woodland period reflected frequent reuse of seasonal sites in the subsistence rounds, while the Middle and Late Woodland periods exhibit increasing sedentism finally resulting in permanent or semi-permanent village settlements on major floodplains, marshes, and coastal regions, which were supported by seasonal and transient resource procurement sites.

Historic Context

At the time of permanent European settlement in central Connecticut the area on the east side of the upper Connecticut River was the territory of the Podunk, with villages on the river floodplains supported by upland camps and smaller seasonal base camps (DeForest 1852: 55, 83-84; Heritage Consultants 2019). Interior areas in Tolland County may have also been home to small groups of Nipmucks associated with larger settlements in southern Massachusetts (Deforest 1852:57). Although the Podunks were apparently strong in the area up to the later seventeenth century, as a group they appear to have dispersed after King Philip's War and largely disappeared from the area by the mid-eighteenth century (DeForest 1852: 351, Heritage Consultants 2019). As was true of most Native American groups during the initial colonial period, the local indigenous groups were also decimated by European diseases, such as the smallpox epidemic in 1633 and 1634 when European settlers moved into the Central Valley (Cunningham 1995: 13, DeForest 1852: 301).

The first recorded European explorer was Adriaen Block, who moved up the Connecticut as far as the Enfield vicinity (Cunningham 1995). Settlement in the Central Valley region was heavy in the mid-seventeenth century with groups coming down from New England as well as straight from England. The initial Ellington tract was surveyed in 1720 for Daniel and John Ellsworth of Windsor, in an area described as "The Great Marsh" (Cole 1888: 704). Settlement was slow but progressed throughout the later eighteenth century (Cole 1888:705, Heritage Consultants 2021). Ellington was incorporated in 1786, and by 1814 was described as " some twenty dwelling houses, with two stores and three taverns, one blacksmith, a shoemaker,…two cider-brandy stills and a gin

still." (Cole 1888:708). By 1830 that had grown to 40 dwelling houses, and had added a high school, a girls school, and two hotels (Cole 1888: 711).

The mid-nineteenth century appears to have been a peak of development in Ellington. Certainly, the 1857 Eaton *Map of Tolland County* depicts a concentrated settlement at Ellington proper, and smaller crossroad settlements south and southwest of the Study Area. The major roads in the project vicinity are also densely settled. The area was primarily agricultural, but Heritage Consultants note that several small industrial businesses such as saw and grist mills were operating in the area in the mid-to-late nineteenth century (Heritage Consultants 2021).

The later nineteenth century and early twentieth century witnessed a shift from mixed agricultural production to tobacco production in the Ellington area (Heritage Consultants 2021). This is consistent with regional development, where dairy production and tobacco agriculture became dominant economic factors (Cunningham 1995: 105). Tobacco remained a primary economic factor in the Central Valley Region until the mid-twentieth century, with labor supplied by migrant immigrant labor (Cunningham 1995: 106-109). In the Ellington area, some of these immigrant groups included Russian and Polish Jews who were aided by the Jewish Agricultural Society in the purchase of marginal farms in the area (Cunningham 1995: 109).

By the early twentieth century, the Central Valley Region began to see developing suburbs around Hartford and Windsor. The city's wealthy inhabitants began to work in the city and come out to the country, first as leisure and later, when trolley lines were established, as residents (Cunningham 1995: 110-111). Crystal Lake, east of the project vicinity, developed into a major leisure attraction in the last decade of the nineteenth century and the opening decades of the twentieth (Cunningham 1995: 111, Heritage Consultants 2021).

Cunningham described the Great Depression and World War II as a watershed period for the Central Valley Region (Cunningham 1995: 121-126). After WWII, there were significant shifts in the national agricultural economy, and the Northeast in general lost ground to the more rapidly developing West. The Central Valley Region in particular experienced significant shifts in economic focus, losing industrial and manufacturing jobs. By 1950 Cunningham notes that more than 60% of the region's population had become clerical or service workers (Cunningham 1995: 121). In the more recent decades of the later twentieth century much of the farmland in the Central Valley Region was converted to suburban development. Cunningham notes that dairy farming especially had largely disappeared from the Central Valley Region, and many of the former tobacco fields have been sold for housing developments (Cunningham 1995: 128).

Development in the Study Area would have been affected by the processes noted above, but based on historic maps and aerial photographs, remained primarily agricultural throughout the nineteenth and twentieth centuries. The 1857 *Map of Tolland County* indicates that while there were three adjacent farmsteads, there was no residential development within the project LOD (Figure 4). As no deed research was conducted as part of this study it is not clear whether the Study Area was part of the H.H. Hyde farm to the south, or the E. Buckley farm to the north. The 1869 Baker and Tilden *Atlas of Hartford and Tolland Counties* shows little change in the project vicinity in the intervening decade, primarily the inheritance of the Hyde farm by E. F. Hyde, and

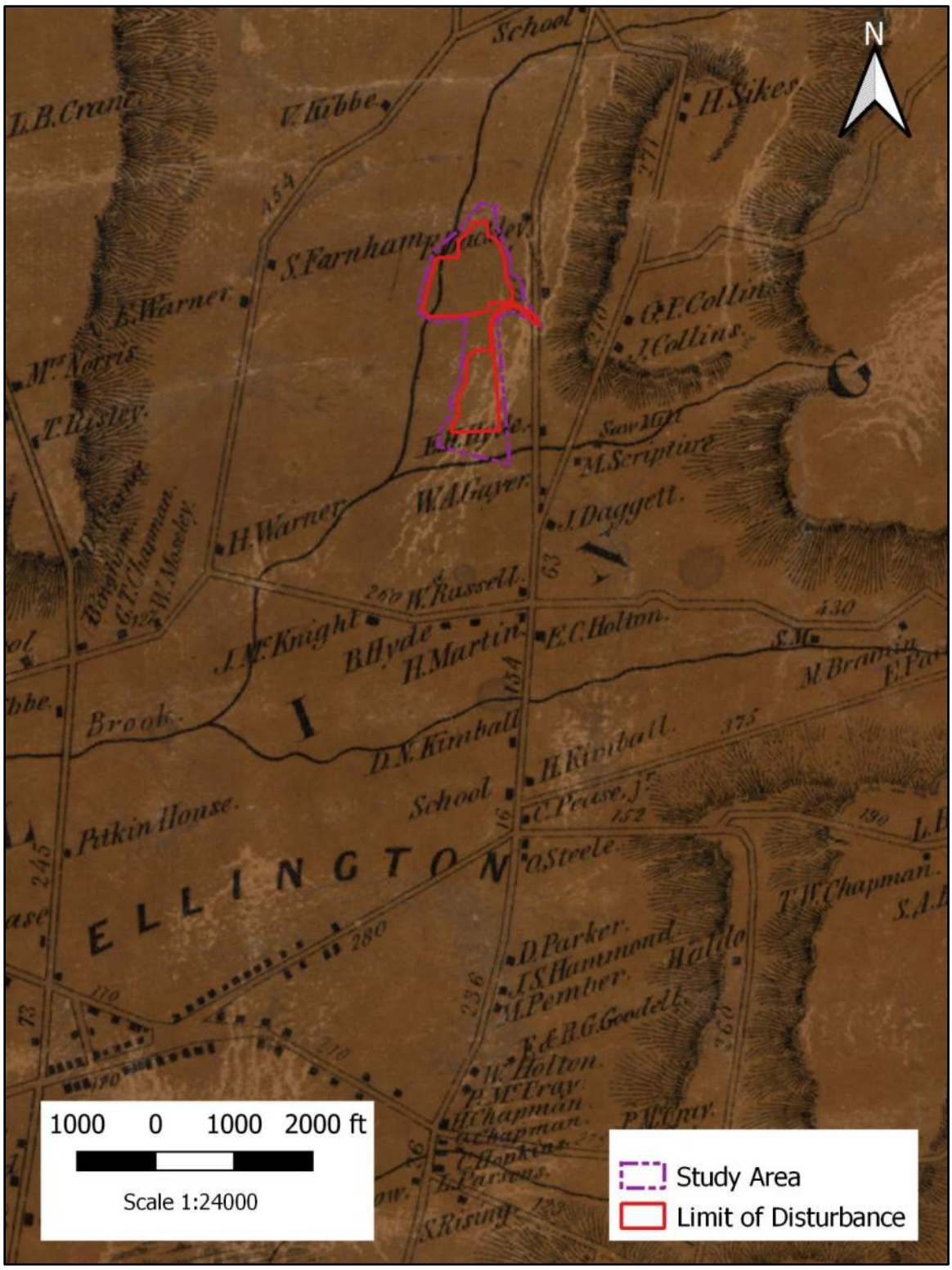

Figure 4. 1857 Eaton and Osborn Map of Tolland County.

the purchase of one of the two former Buckley residences by a D. French (Figure 5). Subsequent twentieth century sources indicate the land remained agricultural until possible sand and gravel mining took place in the 1960s and 1970s (Figure 6 to Figure 10). The only significant change in land use in the project vicinity has been the construction of the private Ellington Airport circa 1965 to 1967, which the FAA lists as opened for operations in 1968.

Previous Investigations

The Connecticut State Historic Preservation Office was closed due to pandemic restriction during the period that research was conducted for this study. EAC/A corresponded via email with Ms. Catherine Labadia, Staff Archaeologist at the State Historic Preservation Office, in lieu of a physical research visit. Ms. Labadia confirmed via correspondence dated April 1, 2021 that there are no know archaeological sites within the proposed project limits, and no reported sites within a one-mile radius of the proposed project. There are also no known above ground historic resources within the project limits or within a one-mile radius of the project limits. Ms. Labadia confirmed that there have been no previous CRM surveys within or near the project vicinity.

Reconnaissance Results

Archaeological Assessment

EAC/A completed an assessment of the archaeological potential for the proposed project limits which included a GIS based predictive model for prehistoric and historic period archaeological resources within the Study Area and a walk-over inspection of the full Study Area, conducted on March 30 and March 31, 2021.

Predictive Modelling and Results

Commonly accepted predictive models for prehistoric site location in the Northeast utilize four factors: surface slope, soil drainage and type, distance to potable water, and availability of valued resources (such as high quality lithics and special faunal or botanical resources). These factors are examined and weighed against each other to define zones of high, medium, or low potential for prehistoric resources. Additional factors such as the presence of documented contact period indigenous travel paths can also be factored in where present.

For purposes of this study, EAC/A considered zones with relatively level (less than 15% slope) surface and well drained soils within 250 meters of a potable water sources as zones of high potential for prehistoric resources. Areas of relatively level slope surface and well drained soils located between 250 and 450 meters from a potable water source were considered to have moderate potential for prehistoric resources. Areas of strong slope between 15% and 25% and within 250 meters of potable water were also classified as moderate potential. Areas of slope stronger than 25% and areas greater than 450 meters from potable water were classified as low potential for prehistoric resources.

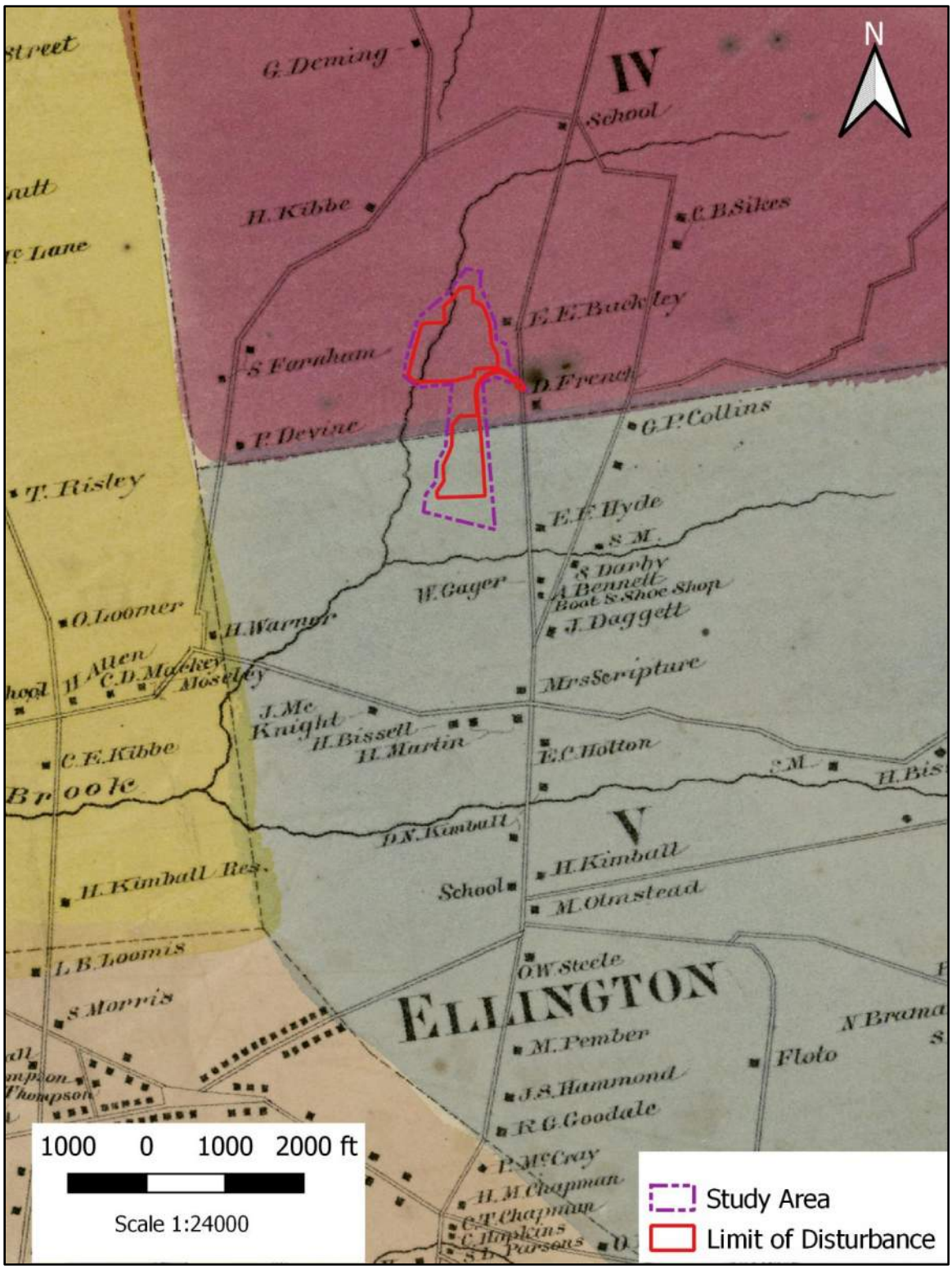

Figure 5. 1869 Baker and Tilden Atlas of Hartford and Tolland Counties

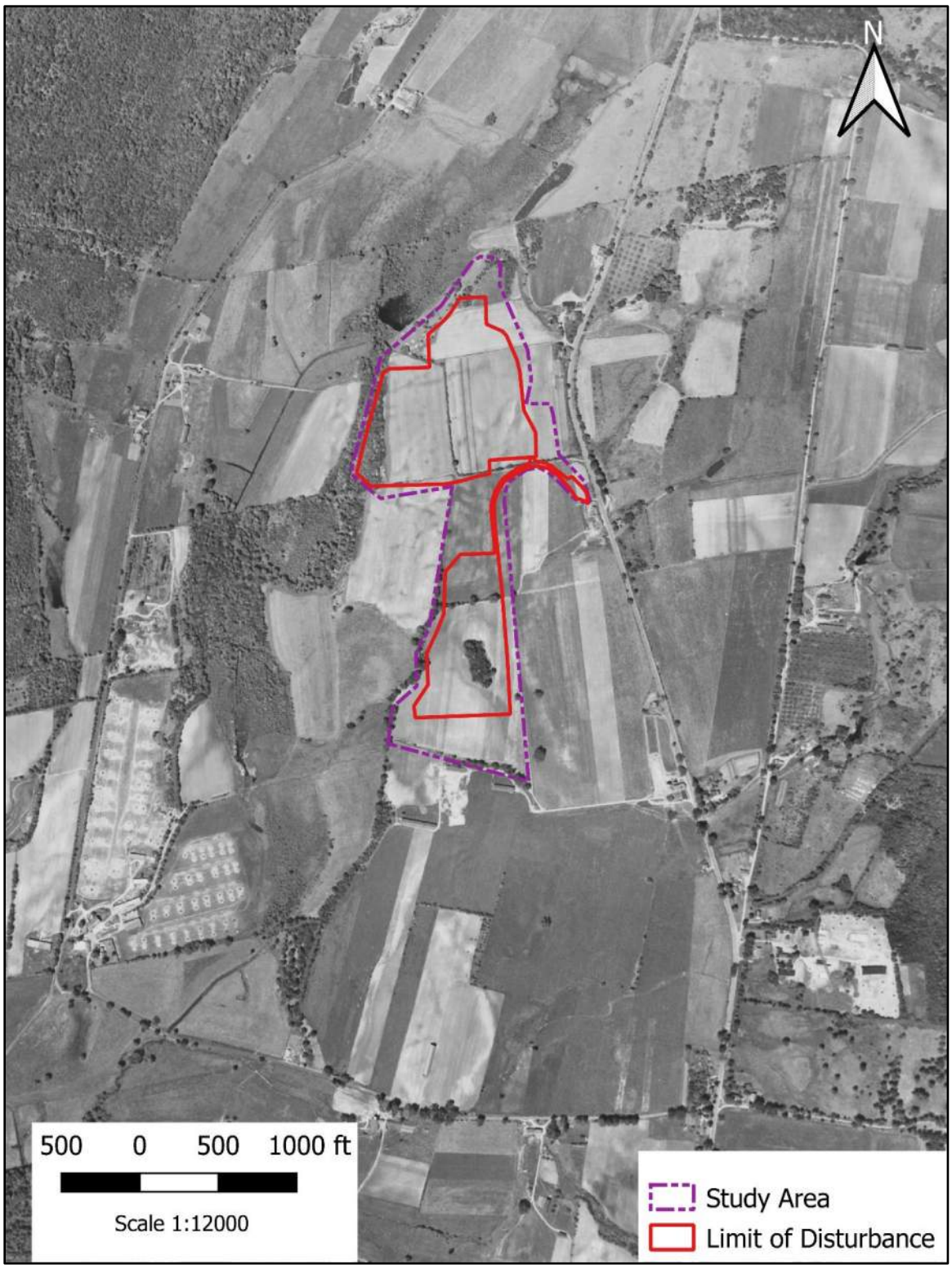

Figure 6. 1951 Aerial Photograph of the Project Vicinity

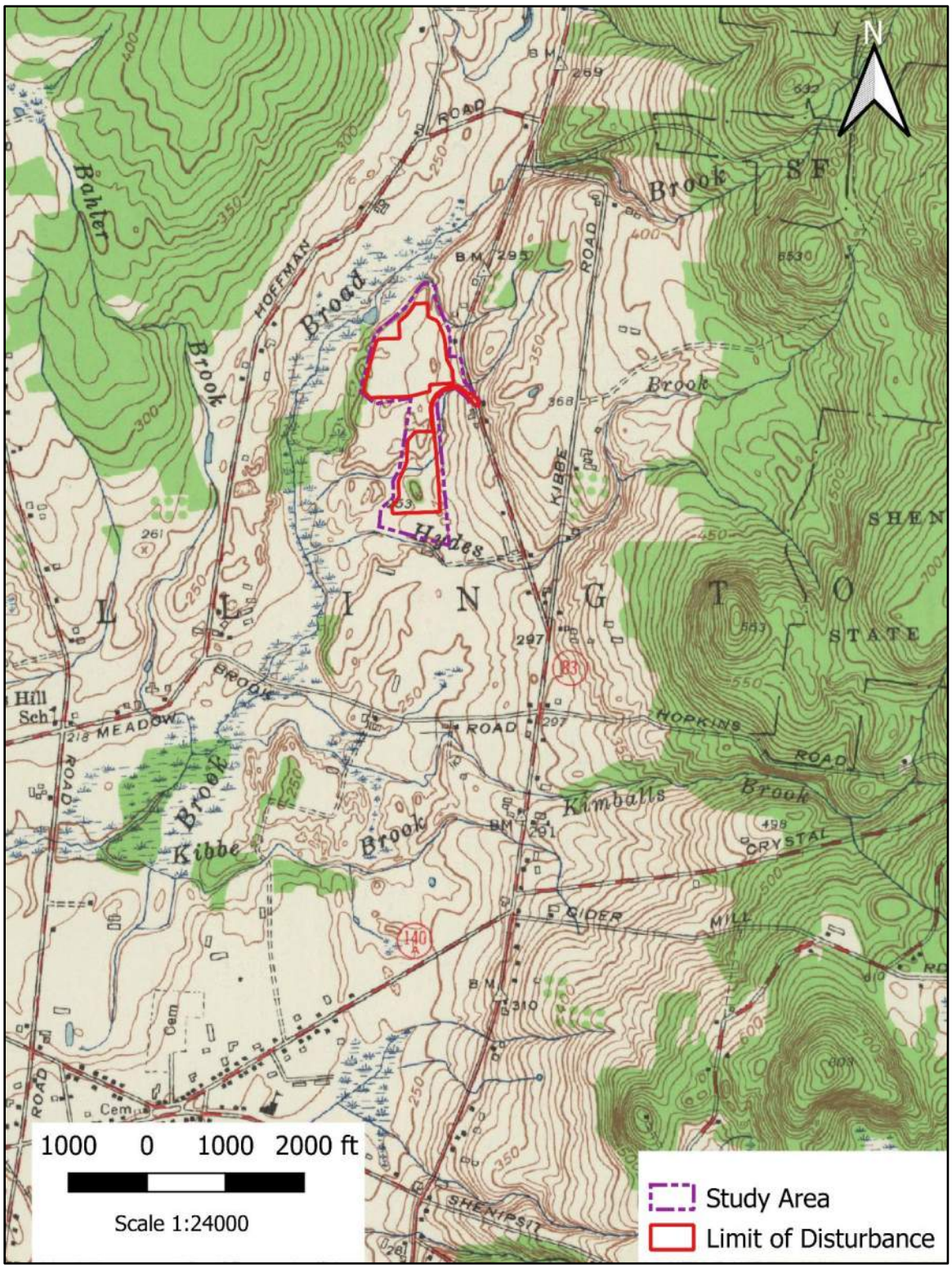

Figure 7. 1953 Ellington CT 7.5 Minute USGS Quadrangle

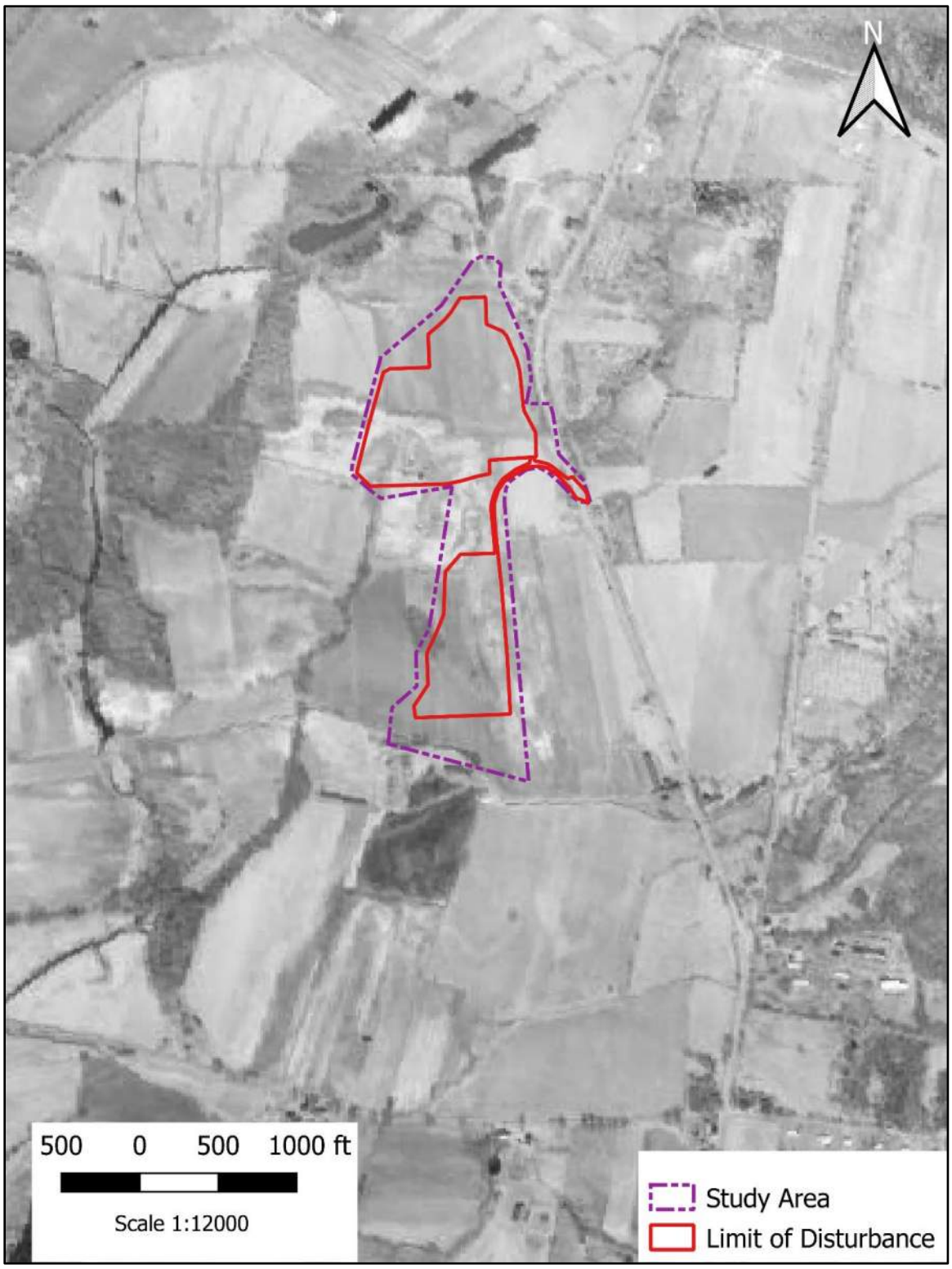

Figure 8. 1965 Aerial Photograph of the Project Vicinity

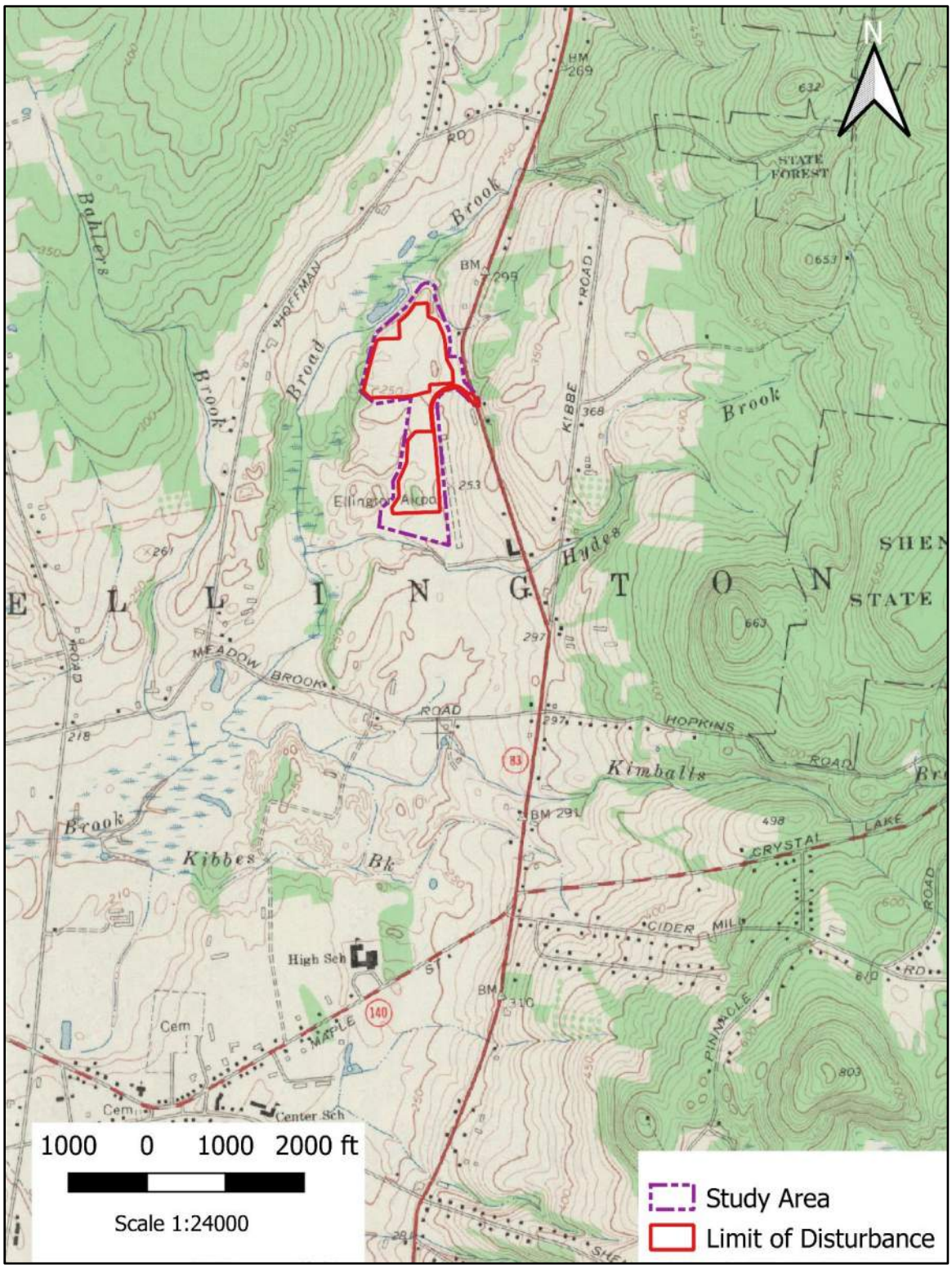

Figure 9. 1967 Ellington CT 7.5 Minute USGS Quadrangle

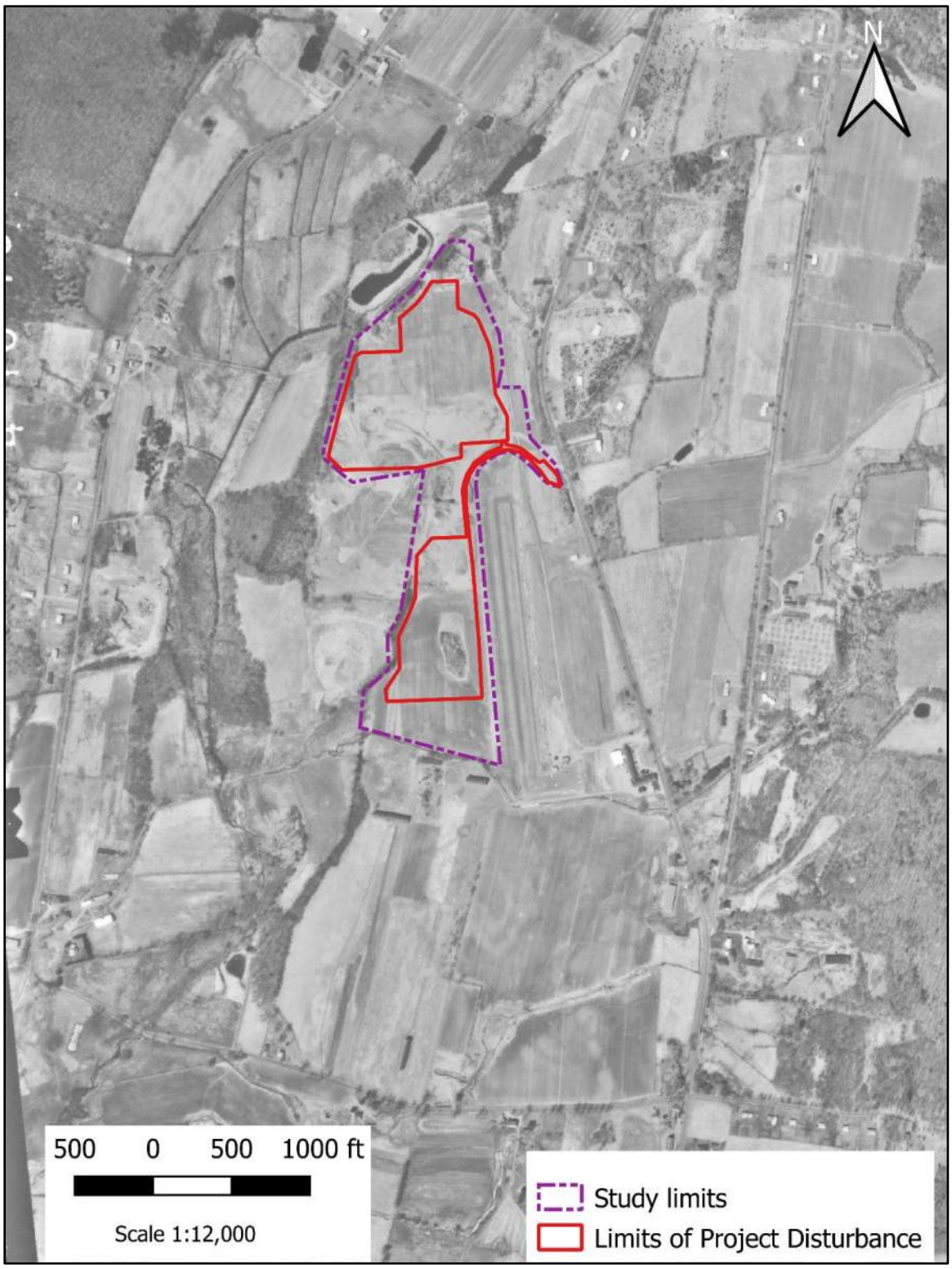

Figure 10. 1970 Aerial Photograph of the Project Vicinity

Based on the above criteria, prehistoric sites are thus expectable within all undisturbed portions of the LOD (Figure 11). All soils within the LOD consists of well-drained soils, and no areas of natural strong slope appear to present beyond the stream cuts. Therefore, the determining variables in predicting the location of prehistoric resources within the LOD appears to be distance from potable water and the extent of modern disturbance. The strongest potential for prehistoric resources is associated with slightly elevated surfaces adjacent to the marsh areas along Broad Brook, especially near the confluence of Hyde Brook. This model places the highest potential for prehistoric resources just outside the LOD to the southwest, but does indicate that the entire LOD has a moderate to high potential for prehistoric resources where not previously disturbed. If present prehistoric resources are anticipated to represent small single use resource procurement camps with lower potential for small seasonal base camps associated with the marshes along Broad Brook, and could date from the Early Archaic to the Late Woodland periods of prehistory.

Predictive models for historic periods are rarely as rigorous as those developed for prehistoric sites. In part this is because few statistical studies have been conducted linking historic site location to specific variables, and in part because historic period site locations correlate with both ecological and cultural landscape variables based on current knowledge. The placement of early roads and navigable waterways, a primary locational factor in the periods before the late eighteenth century, may be difficult to recover under current conditions if roadways have been lost, and water levels significantly raised or lowered. As historic populations often excavated wells for water supply, the criteria of well-drained soils and level or gentle slope became more important than that of distance to water. Additional important factors in historic site location include: proximity to resources of value in a market economy, proximity to transportation routes, and proximity to centers of commerce, government, or industry. Therefore, predictive models for historic period resources are generally built based on documentary resources, both primary and secondary. Historic maps are used to plot the location of older roads, and where possible, used to identify the location of historic structures and landscape features such as dams and mill ponds. The predictive model used for this study combined road and structure information from six historic map resources (Eaton and Osborn 1857, Baker and Tilden 1869, Hurd 1893, and the 1946, 1953, and 1967 Ellington CT USGS quadrangles) and mid-twentieth century aerial photographs georeferenced into a QGIS database.

Areas of high potential for historic resources were defined as a roughly 200’ radius around structure sites identified from the historic map and aerial photograph sequence (Figure 12). Based on the historic map and aerial photograph sequence, although Somers Road, Hoffman Road to the east, and Meadow Brook Road to the south were all well established as transit routes by the mid-nineteenth century, use of the Study Area was strictly agricultural with residential development closely tied to the nearby roads (Figures 4, 5, 6, 7, and Figure 13, the 1893 Hurd map does not document private dwellings). There is no evidence of development within the property until a cluster of possible structures appear within the LOD in the 1965 aerial photograph (Figure 14). These structures are missing from the 1967 USGS quadrangle, and in the 1970 aerial photograph the only structure visible in the Study Area is at the location of the extant garage/shed complex (Figure 9 and Figure 15). Based on this model, it was anticipated that there was a high potential for mid- twentieth century resources at five locations associated with former structures within or adjacent to the Study Area and low potential for undocumented historic period resources from earlier historic periods.

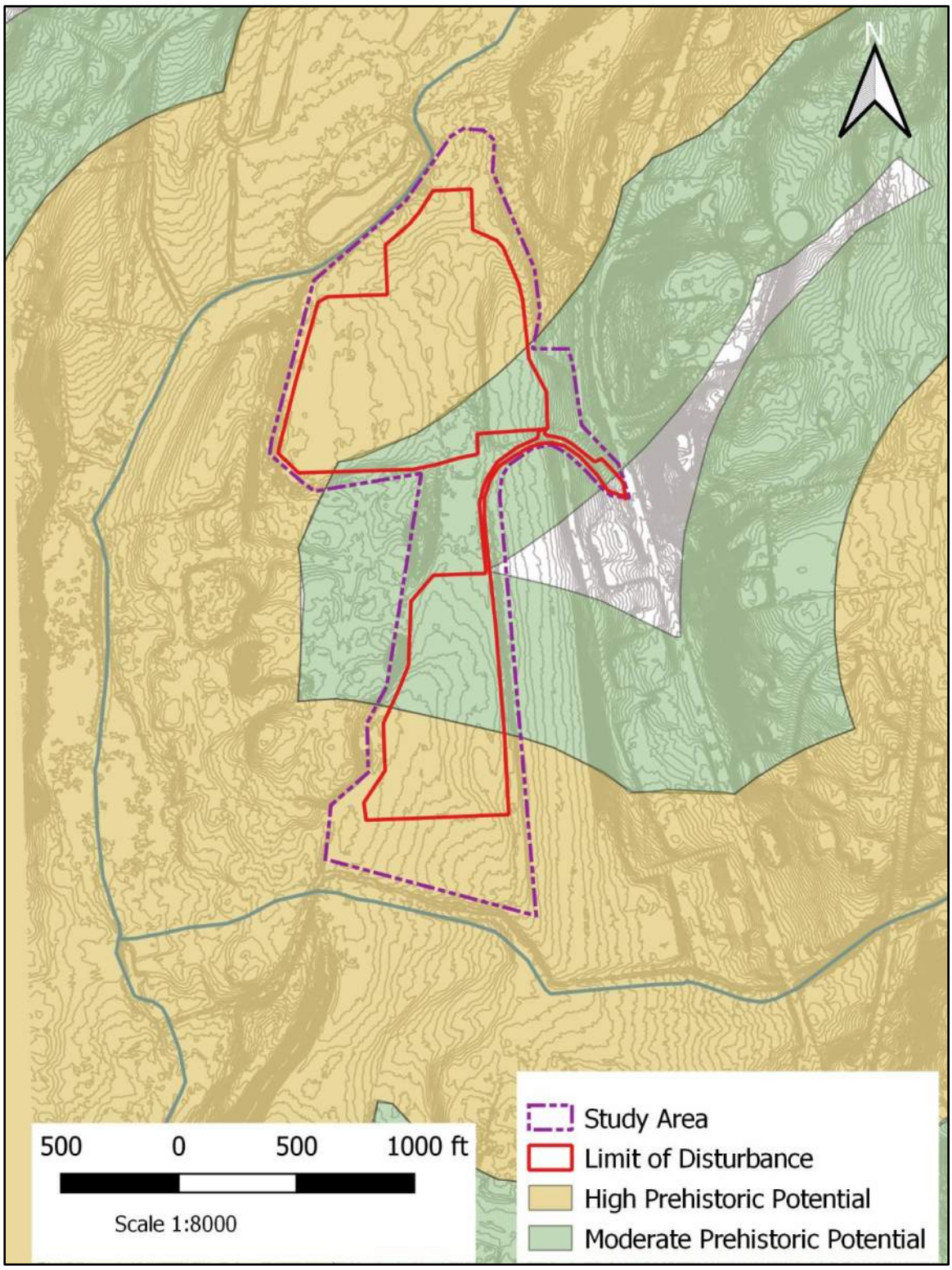

Figure 11. Classification of Archaeological Potential, Prehistoric

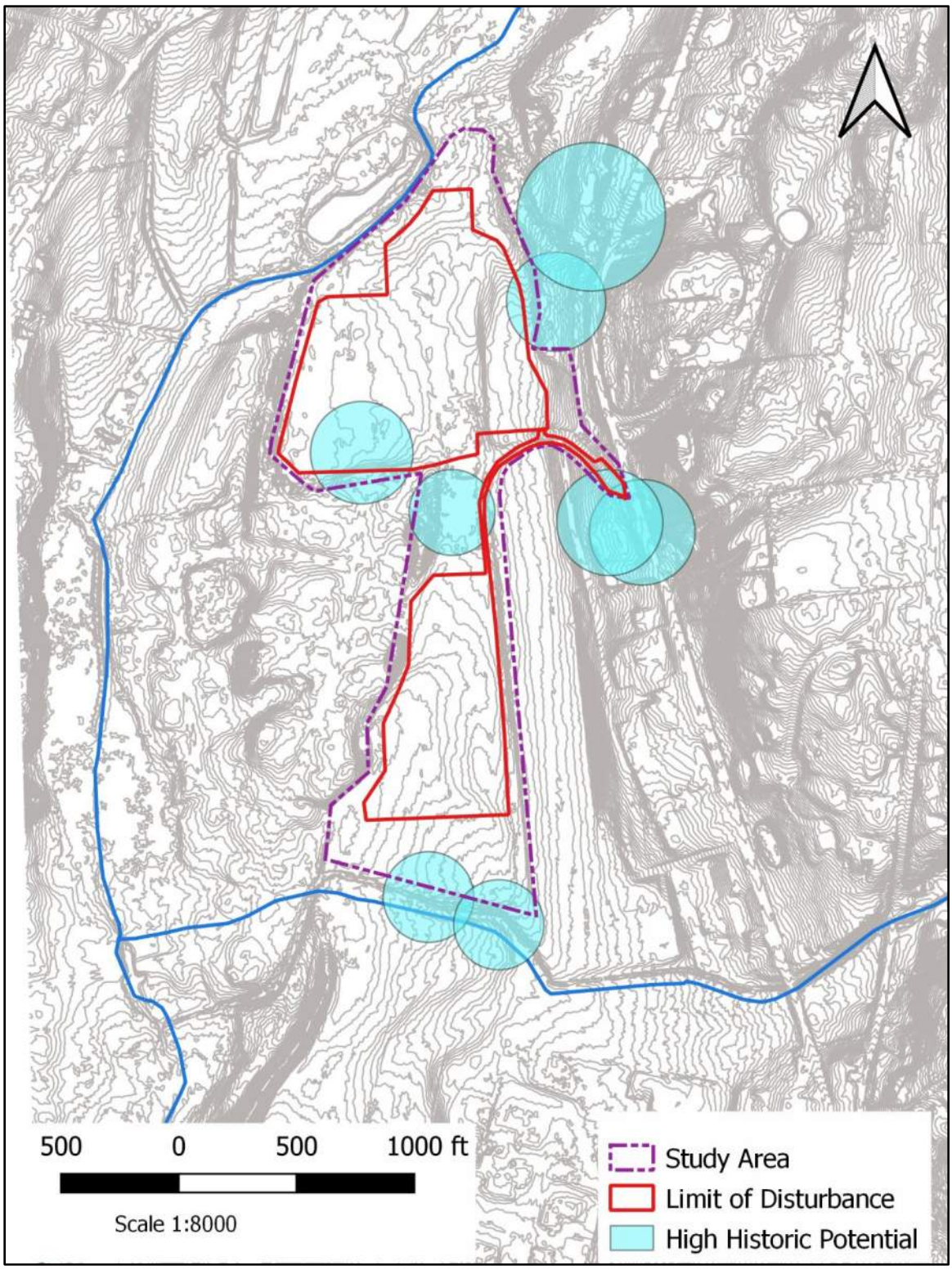

Figure 12. Classification of Archaeological Potential, Historic

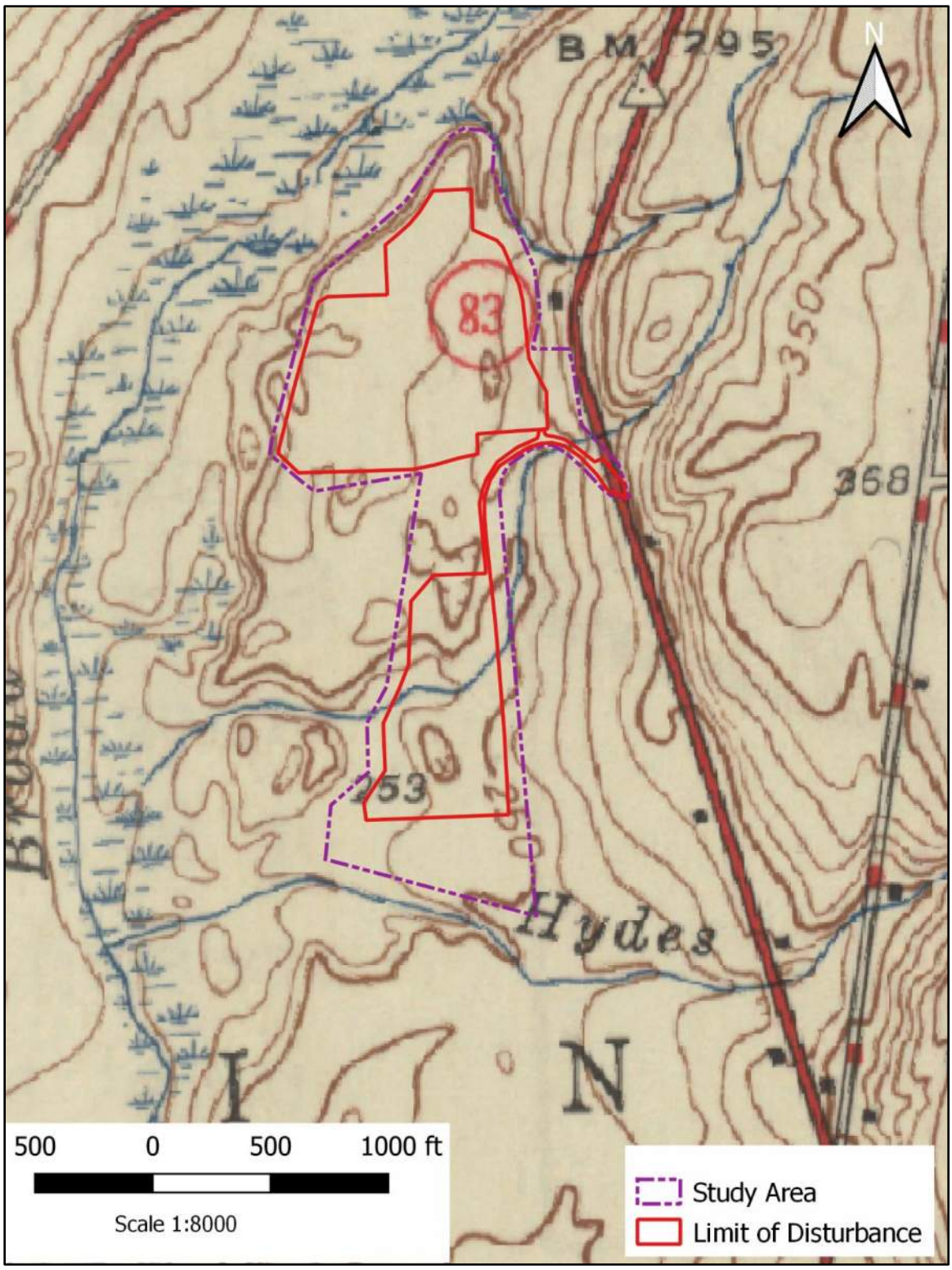

Figure 13. 1946 Ellington CT 7.5 Minute USGS Quadrangle

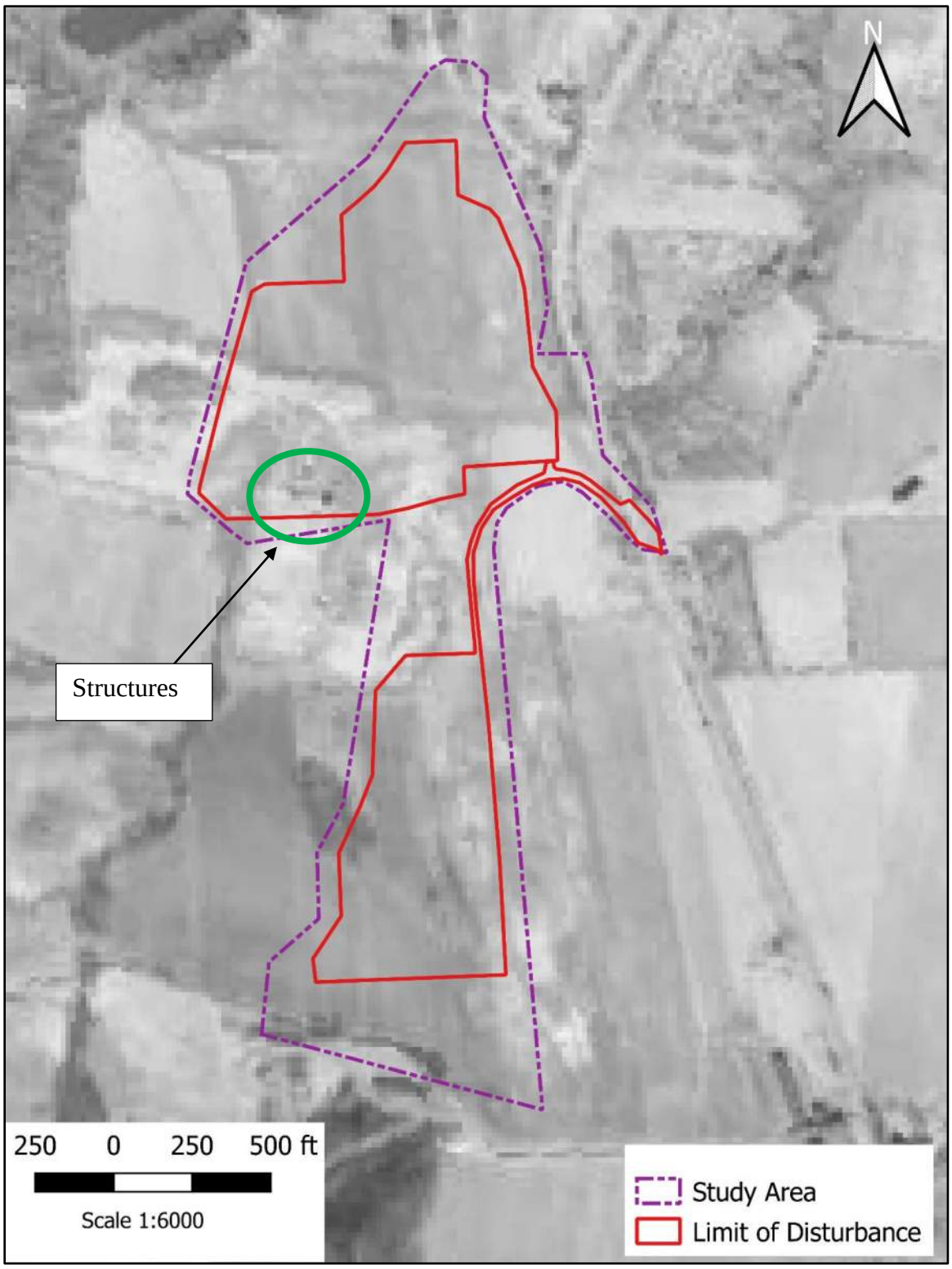

Figure 14. Detail of the 1965 Aerial Photograph of the Study Area

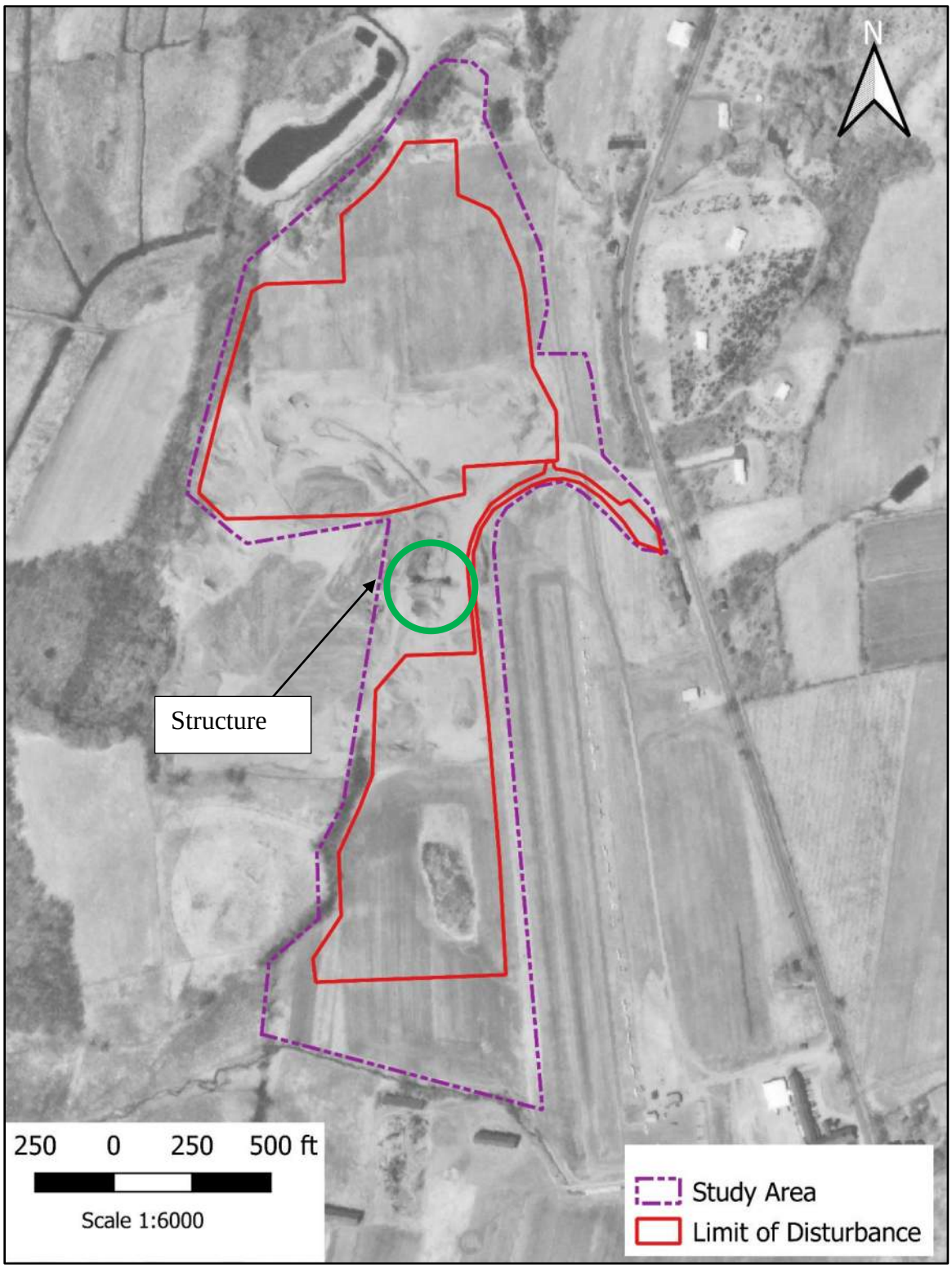

Figure 15. Detail, 1970 Aerial Photograph of the Study Area.

Areas of documented previous disturbance were classified as having no potential for intact archaeological resources from any period. Review of historic maps identified two areas of past disturbance: the 1946 Ellington CT 7.5-minute USGS quadrangle appears to document a small, graded depression just south of the current location of the garage/shed complex near the center of the LOD and a second smaller pit in the center of the northern field (Figure 13). These disturbances do not change until the 1967 quadrangle, when the southern disturbed area disappears. Examination of the 1951, 1965, and 1970 historic aerial photographs for the area identified an extensive past earth disturbance associated with the central Study Area circa 1965 and enlarged in 1970, at which time a smaller area in the extreme north of the LOD also exhibits evidence of large-scale soil disturbance (Figure 14, Figure 15, and Figure 16). The Ellington Airport first appears on the 1967 USGS quadrangle, and it is likely that the large earth disturbance noted between 1965 and 1970 is associated with construction of the adjacent airport.

Walk-Over Inspection

A pedestrian survey of the full 54-acre Study Area was conducted on March 30 and March 31, 2021. As the project LOD was not available at the time the pedestrian inspection was completed, the inspection included portions of the Study Area outside the LOD. Mr. Clemens' initial observation was that there has been heavy impact east of the internal access road due to the airport runway construction extending almost to the proposed Limit of Disturbance (LOD) (Figure 17). The agricultural field to the west and north of the road appeared to have been previously stripped and used as fill material. The slope was uneven and disturbed looking between the roadway to the east and the western LOD edge. Agricultural fields within the Study Area were clear and sprouting young winter wheat, providing moderate to good surface visibility (Figure 18, Figure 20). Push-piles and trash including concrete/tires were noted along the northwestern LOD border adjacent to a pond located outside the LOD (Figure 19). No discernable foundations or indications of former historic structures were present. Field conditions permitted pedestrian survey, so the north field was inspected at 15-meter intervals with no artifacts found except 2 small brick bats along the farm road in the west area.

Near the center of the Study Area the field team noted a garage/shop area with many piles of fill materials, concrete, and other debris, along with cars and trucks (Figure 21, Figure 22, Figure 23). The large hill behind the shop was judged likely a spoil pile or a relict pile of outwash deposit. The surrounding area appeared intensely disturbed. Based on project plans provided May 10, 2021, this complex is outside the proposed LOD for the project.

The southern agricultural field also appeared to be striped and very gravely like the north field. The current use for this field includes recreational use as well as agricultural use, and there were scattered modern broken beer bottles and plastics from cars and dirt bikes on much of the farm road. Deep erosion noted at road turns indicated very sandy soil with high gravel content consistent with field surface appraisal. Modern concrete and asphalt/tarmac pieces were seen scattered on the surface throughout the southern fields. Many brushy invasive species, predominately Russian Olive, grow all around the Study Area border. As the surface visibility was also excellent across the southern

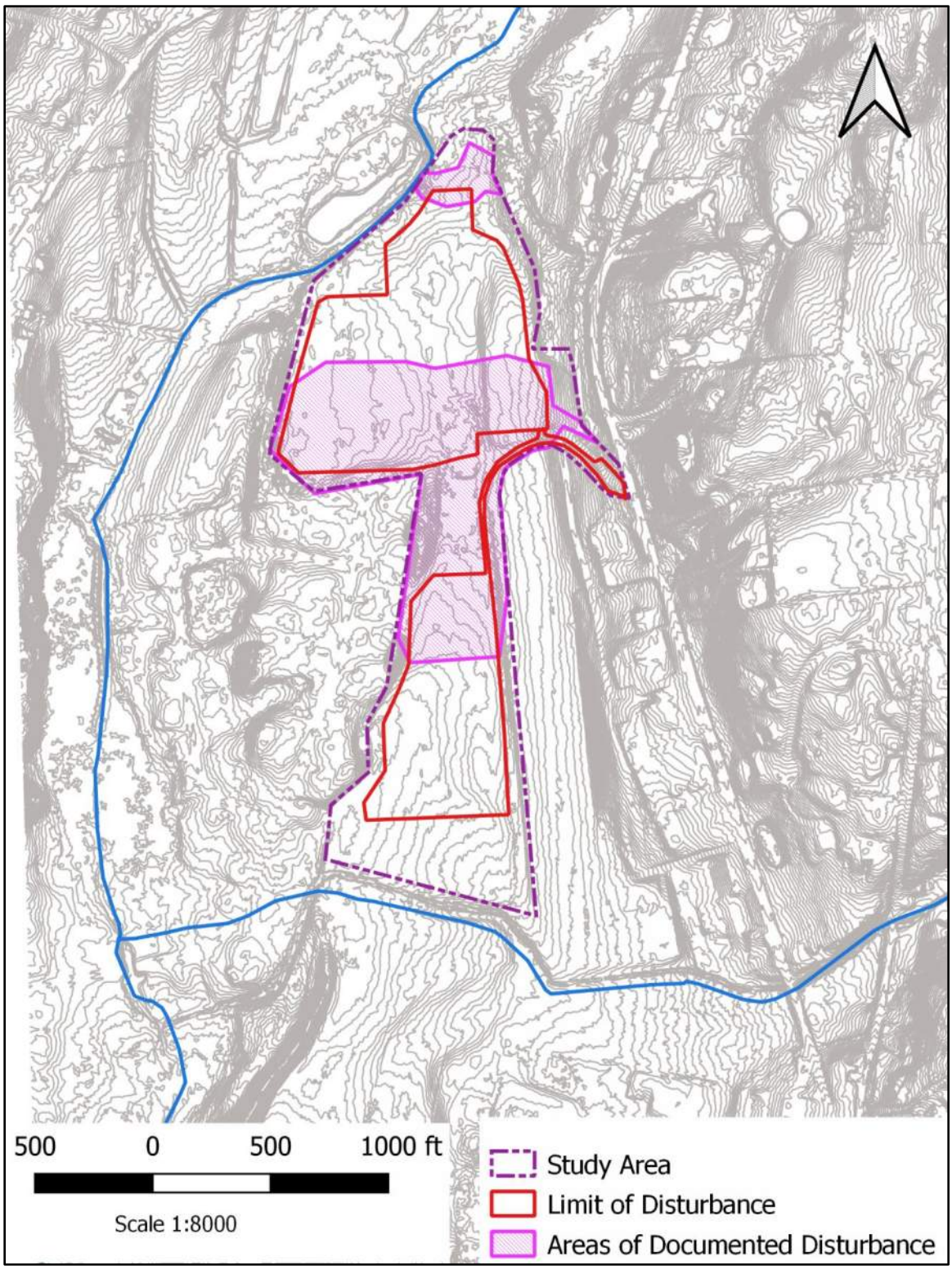

Figure 16. Areas of Documented Past Earth Disturbance.

Figure 17. View looking south from the access road at the eastern boundary of the Study Area, just north of the runway extension.

Figure 18. Close up of the ground surface typical of northern fields

Figure 19. View looking northwest out of the Study Area from the edge of north field at the Broad Brook pond.

Figure 20. Northernmost field section of Study Area, looking north from near the center.

Figure 21. View looking southeast from the northern edge of the garage/shed storage yard documenting modern piles of topsoil and other building debris.

Figure 22. View looking southwest from the northern edge of the garage/shed storage yard documenting modern piles of topsoil and other building debris.

Figure 23. View looking south into the garage/shed complex from the access road north of the complex.

fields, they were also inspected at roughly 15-meter interval in their entirety (Figure 24, Figure 25). The pedestrian survey within the LOD identified no surface finds.

As the project LOD was not available at the time the pedestrian inspection was completed, the inspection included portions of the Study Area outside the LOD. Mr. Clemens noted ground surface gravel content dropped significantly in the far south, outside the final LOD, in the area near the eastern road edge and along the stream bank. A possible 19th or early 20th century surface scatter of artifacts was noted in this area, along with one piece of possible quartz debitage (Figure 27 to Figure 31). This scatter was point plotted later by RTK system with sub meter accuracy at end of field session (Figure 32). A large iron riveted ring was noted in the stream just outside the south Study Area edge, also measured and documented (Figure 33). This ring does not appear to be in situ. The surface inspection suggests that the southmost field outside the LOD had not been recently impacted or graded, based on the low gravel content and surface finds observed there.

Based on the pedestrian inspection, EAC/A's assessment is that there is little potential for intact archaeological resources within the project LOD, due to the deep truncation of the soil to build the airport runway or to be used as topsoil elsewhere. The 1965 and 1970 aerial photographs document extensive soil disturbance in the central and far northern Study Area, and surface inspection by the staff geoarchaeologist strongly suggests that there was additional surface stripping or cutting not documented in the available aerial photograph sequence. Also noted was the raised area west of the central garage/shed complex outside the project LOD, which when inspected appeared to be relic pile of outwash deposit, but which has been heavily graded and stripped. The only area of archaeological potential identified during the pedestrian survey consisted of a small area of apparently intact soils along the southern boundary of the Study Area which included the small artifact scatter noted near the Hydes Brook, but which fell outside the project LOD.

Summary of the Assessment of Archaeological Potential

EAC/A applied commonly accepted predictive models for prehistoric and historic site location to the proposed Somers Solar Project Study Area and determined that it should be classified as moderate to high potential for prehistoric resources and included several small areas of high potential for historic resources. The predictive modelling also identified a large central area and a small area in the north which historic aerial photographs document as subject to extensive previous earth disturbance, and therefore classified as retaining no potential for intact archaeological resources. EAC/A staff subsequently conducted a pedestrian walk-over, which included surface inspection for surface materials. During the pedestrian inspection, the staff geoarchaeologist noted extensive visual evidence of past soil stripping within the project LOD. One small surface scatter of historic artifacts was identified outside the LOD within the extreme southern portion of the larger Study Area. In accordance with the findings of the pedestrian survey, EAC/A has concluded that the project LOD retains little potential for intact archaeological resources from any period. The southernmost portion of the Study Area does not exhibit significant evidence of past soil stripping or other large scale disturbance, but lies outside the proposed project LOD. If plans

Figure 24. View looking south from the small knoll in the center of the south field.

Figure 25. View looking south at the southern field surface, from just south of the garage/shed complex.

Figure 26. Surface scatter artifact, blue transferprint refined earthenware.

Figure 27. Surface scatter artifact, window glass.

Figure 28. Surface scatter artifacts, clear and brown bottle glass fragments.

Figure 29. Surface scatter artifact, lamp glass rim.

Figure 30. Surface scatter artifact, brick fragment.

Figure 31. Surface scatter artifact, possible quartz debitage.

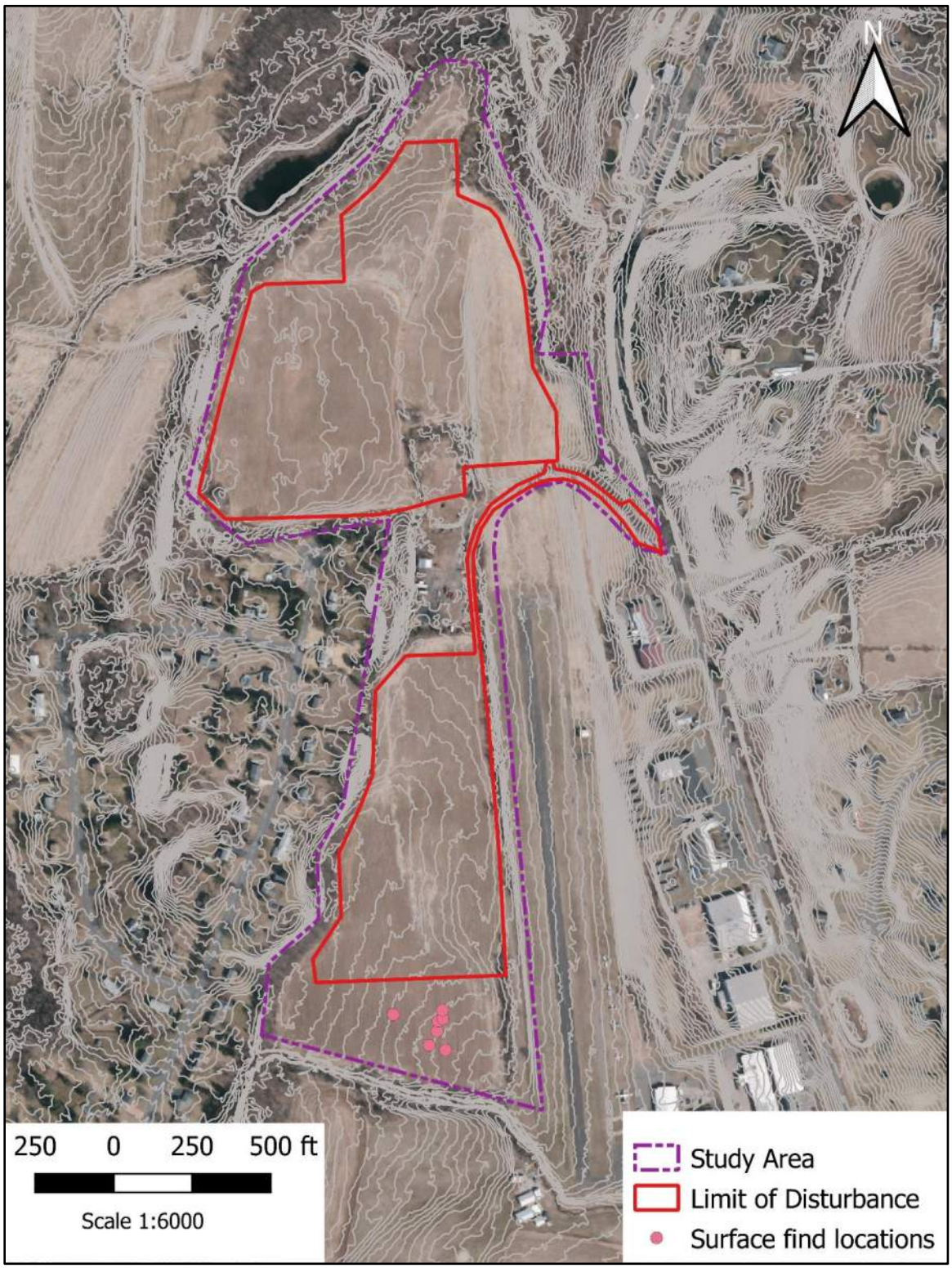

Figure 32. Location of surface finds, Study Area South of the LOD, Against the 2019 Aerial Photograph of the Project Vicinity.

Figure 33. Iron pipe segment of barrel noted in Hydes Brook streambed, southern edge of Study Area.

change it should be noted that this area includes the identified surface scatter, and is considered to retain a high potential for both prehistoric and historic period archaeological resources,

Built Environment Assessment

EAC/A also completed GIS analysis to identify any structures on or adjacent to the proposed project sites that are over 50 years old and therefore potentially eligible for listing in the National Register of Historic Places. This component of the study was conducted through simple GIS analysis of structures visible on the 1970 aerial photograph of the project vicinity in comparison to the late twentieth century historic aerial photograph sequence available for review via GoogleEarth and recent (circa 2019) aerial photographic imagery.

EAC/A identified two structures within the Study Area and 17 structures adjacent to the Study Area which appear on the 1970 aerial photograph of the project vicinity (Figure 34). Of these, ten were determined to have been demolished prior to 2019. Of the remaining nine potentially eligible historic resources, the six resources to the northeast of the Study Area will likely be fully screened by the existing tree lines both east and west of Somers Road (Figure 35). Only three structures appear to be likely to be visually impacted by the proposed project, and hence require identification and potential evaluation. One is the northern most garage in the central Study Area complex, the second is a possible residential structure within the Ellington Airport complex at 360 Somers Road, and the third is the residential structure at 381 Somers Road.

Summary and Recommendations

EAC/A completed an Assessment of Potential study for the proposed Somers Solar Project, located northeast of Ellington, Connecticut. The study utilized GIS analysis of environmental variables and historic maps and aerial photographs to classify the project Limit of Disturbance (LOD) into area of high, moderate, low, and no potential for archaeological resources. This model was subsequently modified based on the results of a pedestrian surface inspection and geoarchaeological evaluation, which classified the majority of the project LOD as previously stripped and disturbed, and evaluated the landscape as having little potential for intact archaeological resources. The surface inspection carried out during the walk-over inspection was conducted at roughly 15-meter inspection intervals and failed to identify archaeological materials anywhere except in the southern extension of the Study Area outside the final LOD.

EAC/A also completed GIS analysis to identify structures present on the 1970 aerial photograph and track them across the late twentieth century aerial photograph sequence in order to identify standing structures within or adjacent to the project limits which are 50 years of age or older and therefore potentially eligible for listing in the National Register of Historic Places. This study identified nine such structures, but only three appear to be potentially impacted by the proposed project: one is the northern most garage in the central Study Area complex, the second is a possible residential structure within the Ellington Airport complex at 360 Somers Road, and the third is the residential structure at 381 Somers Road.

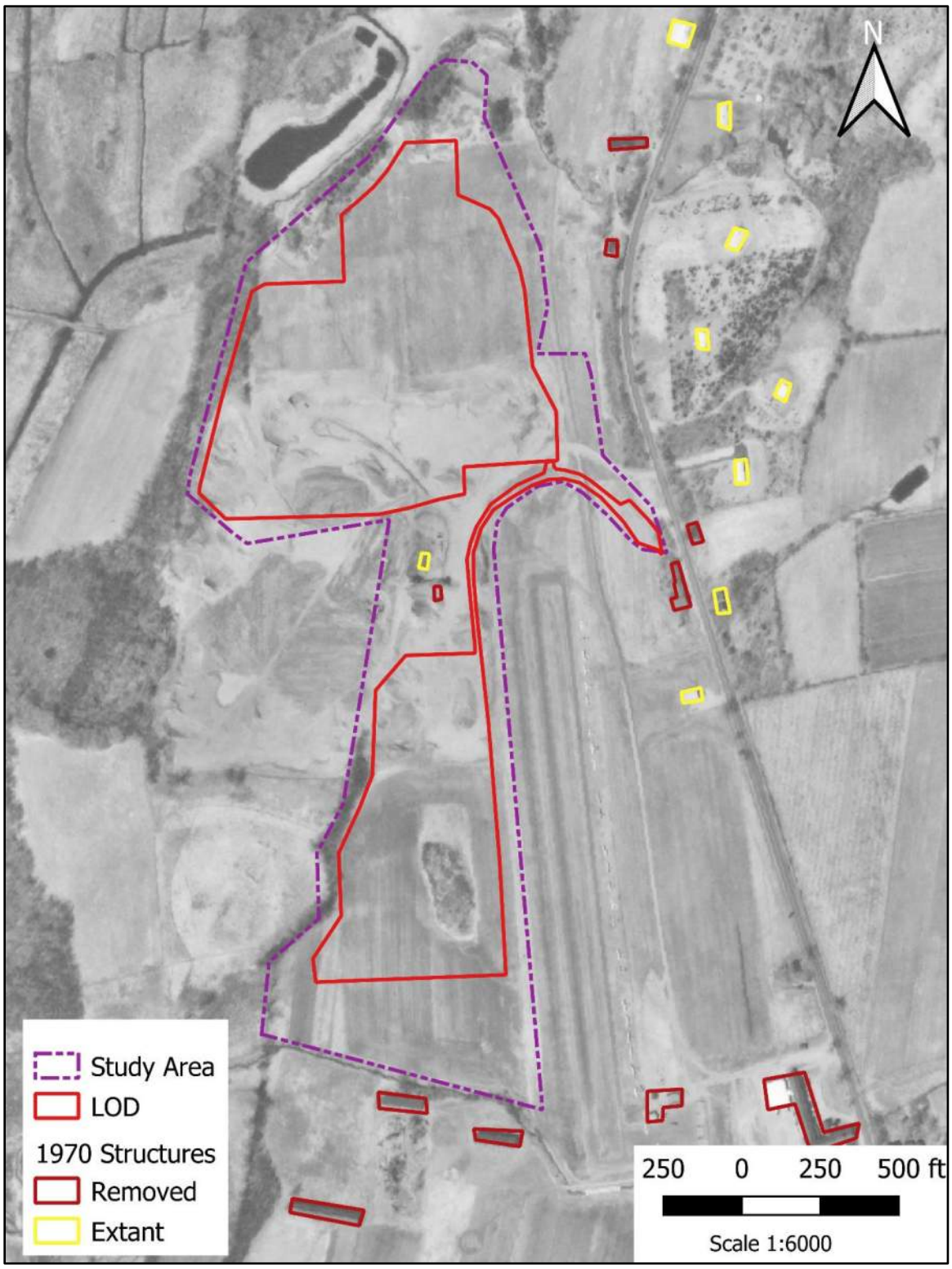

Figure 34. Structures Noted on the 1970 Aerial Photograph of the Project Vicinity.

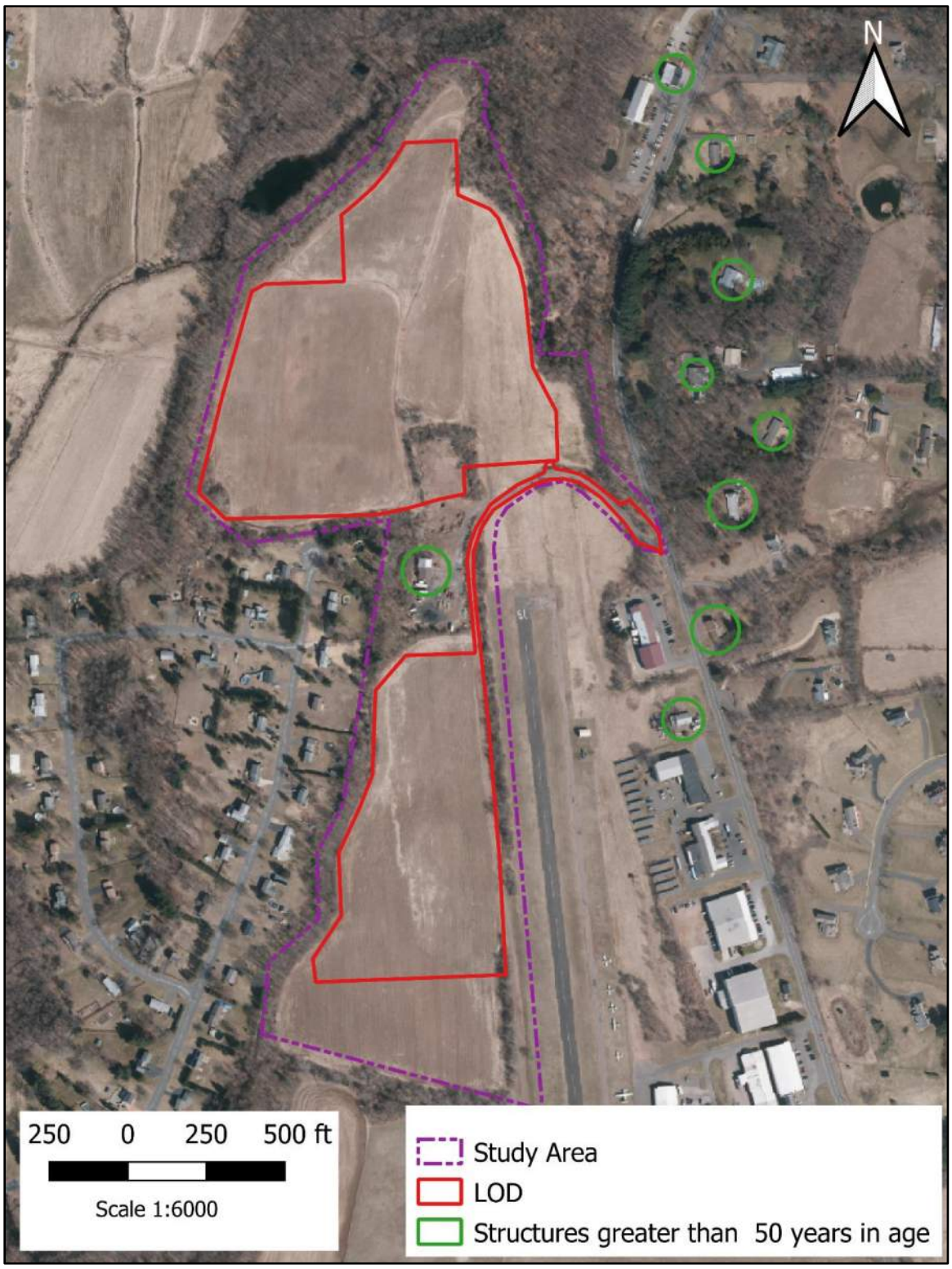

Figure 35. Extant Structures Believed to be Greater Than 50-Years in Age.

Recommendations

Based on these findings, EAC/A recommends limited additional Cultural Resources Management study prior to the development of the proposed Somers Solar Project. Specifically, no further archaeological study is recommended based on the degree of past soil disturbance noted in historic documentation and during the geoarchaeological evaluation. However, a formal delineation of the Area of Potential Visual Effects (APE-Visual) should be completed for the project, and a Built Environment Reconnaissance Survey completed within that APE-Visual. This survey should be prepared to collect initial documentation of the three structures already noted as greater than 50 years in age, evaluate their physical integrity, and assess the potential impact of the project to these resources. If the resources retain physical integrity, a Determination of Eligibility will likely be required for any resource to be adversely impacted by the project.

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United States Geological Survey
1946 Ellington, CT 7.5 Minute Quadrangle
1953 Ellington, CT 7.5 Minute Quadrangle
1967 Ellington, CT 7.5 Minute Quadrangle
2019 Ellington, CT 7.5 Minute Quadrangle

Appendix I:
Qualifications of Investigators

Tery Harris has an M.A in Anthropology from Brandeis University and a B.A. in Anthropology from the University of Maryland. She has over 30 years of experience in the field of archeology in the Mid-Atlantic and New England region. Ms. Harris serves as Project Archaeologist and Historian/Archival Researcher for projects, and is responsible for research design, archival and historical research, study implementation, oversight of field and laboratory work, and report preparation.

Joseph Clements has a M.S. in Geology, from the University of Delaware and a B.A. Anthropology from St. Mary's College of Maryland. He has five years of experience working as a geoarchaeologist, ten years of experience working as an archaeologist, and fourteen years of experience working in historic preservation. He has supervised Phase I and Phase II level projects, remote sensing surveys, archaeological monitoring, architectural recordation and restoration projects across Maryland, Virginia, Pennsylvania, Delaware, and West Virginia. He has experience with both prehistoric and historic period archaeological sites, with a special interest in industrial landscapes and prehistoric settlement patterns, and has past experience with Civil War battlefield resources and material culture. Mr. Clemens serves as Field Supervisor, Project Archaeologist, and Geoarchaeologist.

Appendix II:
SHPO Correspondence

RE: Phone Message

Labadia, Catherine Catherine.Labadia@ct.gov
3/17/2021 3:45 PM

To: Tery Harris Cc: jclemens; ecomer

Hello Tery,

Unfortunately, our office still is not open to the public and staff continues to work remote. What I have been doing for researchers is conducting the research for them or trying to identify other avenues for completing due diligence. It sounds like these are manageable projects, so let's see what I can provide you over the internet. I will add that depending on the area of the state, some information is more readily available than other locations. In those situations, I do go into the office every few weeks to get information that is not available in a digital format.

To get started, please send me a map with the APE clearly marked and, if different from the APE, a search radius. Once I have that information, I can let you know exactly what inventories or files that I can provide to you. Also, emails get quickly buried – if you do not hear from me for than a week, please send me a reminder or gentle nudge.

Thanks,

Cathy

From: Labadia, Catherine
Sent: Thursday, April 1, 2021 4:35 PM
To: Tery Harris
Subject: RE: File review EAC/Archaeology projects

Hi Tery,
This is not going to be the response that you want. No previously recorded archaeological sites or properties listed on the National Register are located within or near the APEs you outlined. For the property in Ellington, there is nothing within another mile of your boundaries and in Columbia, nothing within another 0.5 miles. The problem is the context. The lack of previously recorded sites may largely result from a lack of completed surveys in the area, particularly ones completed within the past 15-20 years. Let me look around a little more for a helpful survey report. I attached a guide of resources that can be accessed remotely and I also would recommend taking a look at http://magic.lib.uconn.edu/index.html for historic maps/aerials.
Cathy

From: Tery Harris <tharris@eacarchaeology.com>
Sent: Thursday, April 1, 2021 2:41 PM
To: Labadia, Catherine <Catherine.Labadia@ct.gov>
Subject: Re: File review EAC/Archaeology projects
Importance: High

We have reconfigured my email set up, and hopefully this email will now reach you. I have just forwarded the original sent last week, since it appears to have bounced to your junk folder as it did the previous time.

Tery Harris
Archaeologist
EAC/Archaeology, Inc. Baltimore, MD

From: Tery Harris
Sent: Monday, March 29, 2021 9:48 AM
To: Labadia, Catherine
Subject: Re: Phone Message

I apologize for the delay in getting these maps to you in response. At the end of this email is a Dropbox link to files with a markup of the appropriate 7.5 minute USGS quadrangles for the two projects. If we were doing this ourselves we would record archaeological sites and built environment resources within the APE (early concept) and within the search buffer separately, and note any surveys previously conducted.

I have already downloaded the pertinent historic context documents from your website, but if there is

a particularly well researched archaeological survey in the general area (either Tolland or Harford County) which is available as a pdf, that would be very helpful as well, since our access to CT predictive models is limited to what I still have on hand from my time in New England and therefore out of date.

https://www.dropbox.com/sh/hiu1s9u0eftz01n/AACVvoKQJMufvXrQJRGQN27va?dl=0

Tery Harris
Project Archaeologist
EAC/Archaeology, Inc. Baltimore, MD

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> Sent: Wednesday, March 17, 2021 2:06 PM
> To: Labadia, Catherine <Catherine.Labadia@ct.gov>
> Cc: jclemens <jclemens@eacarchaeology.com>; ecomer
> <ecomer@eacarchaeology.com>
> Subject: Re: Phone Message
>
> EXTERNAL EMAIL: This email originated from outside of the
> organization. Do not click any links or open any attachments unless
> you trust the sender and know the content is safe.
>
> Thank you for responding to the voice mail message.
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> We are a CRM firm in Baltimore primarily working in the MidAtlantic
> Region, however one of our existing clients has requested we screen
> two projects for them in CT. We would like to arrange for an appoint
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> conduct the walkovers of the sites, if possible we would like to

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>
> Catherine Labadia
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>
> Staff Archaeologist
>
>
> State Historic Preservation Office
>
>
> Department of Economic & Community Development
>
>
> 450 Columbus Boulevard, Suite 5
>
>
> Hartford, CT 06103

>
>
> 860-500-2329 (direct)

From: Labadia, Catherine
Sent: Monday, April 12, 2021 9:44 AM
To: Tery Harris
Subject: RE: File review EAC/Archaeology projects

Tery,
Unfortunately, there just has not been much work specific to this area. It did occur to me, however, that you could try searching the Connecticut Siting Council website (https://portal.ct.gov/CSC). They usually post surveys for dockets and petitions – there are lots of cell tower reports and a few larger utility reports that may have the context you are looking for, such as: https://portal.ct.gov/-/media/CSC/1_Dockets-medialibrary/Docket_424/424_Application/V3InterstateCSCApplicationV3pdf.pdf
You could look at the bibliography in this and other reports for commonly cited publications. I hope that helps.
Cathy

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To: Labadia, Catherine <Catherine.Labadia@ct.gov>
Subject: RE: File review EAC/Archaeology projects

I wanted to follow up on this, since I only have ten days to complete these Phase IA reports, and have found very limited material online. Have you had any luck locating a recent survey from the region which is available as a pdf and would give me an updated predictive model (or references for the same). Recommendations for recently published articles would also perhaps work as I may be able to access pdfs through the publication website. It unfortunately looks like there are no online studies available through the U of Conn Connecticut Historic Preservation Collection.

The staff member who did the pedestrian inspection is also our geomorphologist, and tells me that both sites appear to have significant past earth disturbance in some area. We found no evidence of prehistoric occupation, but I still need an adequate text summary of the prevailing predictive model for the reports.

Tery Harris
Archaeologist
EAC/Archaeology, Inc. Baltimore, MD

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Archaeological Identification Survey and Built Environment Reconnaissance - Phase IB

Westwood
Surveying & Engineering
ww-pc.com

Archaeological Identification Survey and Built Environment Reconnaissance for the Proposed Somers Solar Power Project, Ellington, Tolland County, Connecticut

By

Tery Harris, M.A.

and

Joseph Clemens, M.S.

EAC/Archaeology, Inc.
4303 N. Charles St.
Baltimore, MD 21218

Prepared for
Westwood Surveying and Engineering, P.C.
12701 Whitewater Drive Suite 300
Minnetonka, MN 55343

December 2, 2021

Abstract

EAC/A completed an Archaeological Identification Survey and Built Environment Reconnaissance Study for the proposed Somers Solar Project, located northeast of Ellington, Connecticut. The archaeological survey area consisted of the 34-acre Limit of Disturbance for the project, while the Built Environment Study utilized an Area of Potential Visual Effects (APE-Visual) defined for the project which included 182 acres.

The archaeological survey excavated 258 STPs, including 250 grid aligned tests and 8 ancillary radial test locations. It documented shallow soil profiles consistent with past stripping and soil deflation. An artifact assemblage of 45 artifacts was recovered from 30 test locations, most of which represented single artifact positives. The assemblage was primarily non-diagnostic container glass fragments and overall is consistent with field scatter. No prehistoric material was recovered. No archaeological sites were identified.

The Built Environment Study identified six structures within the APE-Visual which were greater than 50 years in age. One structure (368 Somers Road) was determined to have no clear line of sight, although modern structures in the same parcel will have unobstructed views of the proposed solar arrays. The remaining five structures (360 Somers Road, 381 Somers Road, 389 Somers Road, 403 Somers Road, and 406 Somers Road) were examined and determined to have been extensively altered through time and did not retain integrity. No resources meeting National Register criteria of eligibility were identified by the Reconnaissance Study.

Based on the findings of these studies, there are no archaeological or historic resources potentially impacted by the proposed Somers Solar Project, and no further cultural resources study is recommended.

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Introduction

EAC/Archaeology, Inc. was contracted by Westwood Surveying and Engineering, P.C. to complete an Archeological Identification Survey and Built Environment Reconnaissance Study for the proposed Somers Solar Project, located outside Ellington, Connecticut in north central Tolland County (Figure 1). EAC/A previously prepared an archaeological assessment of potential for the project which identified larger areas of previous soil disturbance within the LOD, and concluded the Study Area had minimal potential for intact archaeological resources from any period due to past disturbance. CT SHPO responded to that study by letter dated July 30, 2021, requesting archaeological identification survey be completed within those portions of the LOD not documented as previously disturbed and that an APE-Visual be defined and surveyed for historic resources. This study has been conducted in compliance with the requirements of the Connecticut Siting Council petition process. The work completed for this study complies with *Environmental Review Primer for Connecticut's Archaeological Resources* (Poirier 1987) and the Project Review Process set out by the Connecticut State Historic Preservation Office (CT SHPO).

Project Description

The proposed project is situated west of Somers Road, approximately one-and-a-half miles north of Ellington. The project Limit of Disturbance (LOD) is approximately 32 acres of the larger roughly 136-acre property (Figure 2). The general project area is defined by Broad Brook to the north, Broad Brook and the rear property lines of residences on Bridge Street to the west, Hydes Brook to the South, and the Ellington Airport runway and existing tree line along Somers Road to the east. The proposed project involved the construction of a Solar Power facility including the installation of approximately 140 solar panel racks to be spaced 15.5 feet apart with a maximum height of 15 feet, internal access roads, supporting equipment, perimeter fencing, stormwater basins, and utility connections within the 32-acre LOD.

Study Methodology

The archaeological survey consisted of subsurface testing utilizing Shovel Test Pits (STPs) placed at 15-meter intervals across three testing areas: the North Field, the South Field, and the Access Road. All excavated soils were screened, and cultural material was collected for classification. Ancillary test locations were planned at 7.5-meter intervals at cardinal directions off potential features and around the outer limits of artifact clusters. The archival research and development context for the project was carried over from the initial Assessment Study.

The Built Environment Study consisted of definition of an APE-Visual initially using computer models of line-of-sight based on obstructions and topographic relief. That initial APE-Visual was subsequently field checked from accessible points along the boundary and amended in the field as appropriate. The final APE-Visual was then compared to previous GIS analysis of the locations of structures 50-years of age or older based on historic aerial photography. Individual structures greater than 50-years in age were then field checked and photo documented from within the property where owner permission could be obtained, or from the nearest public right of way where owner permission for access could not be obtained. EAC/A's Architectural Historian evaluated each potentially eligible structure identified for physical integrity during documentation.

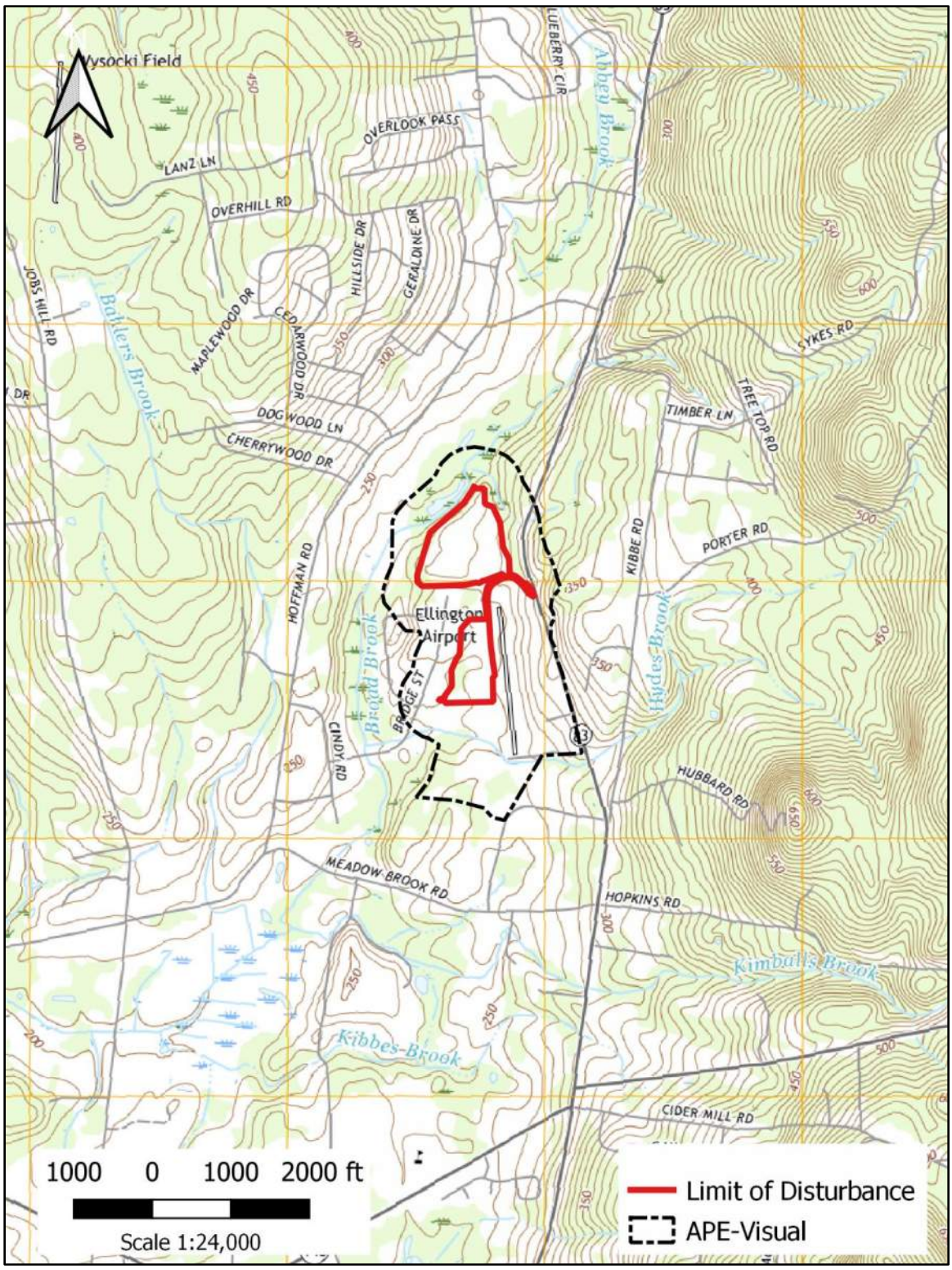

Figure 1eeProject Location on the 2019 Ellington CT 7.5 Minute USGS Quadrangle

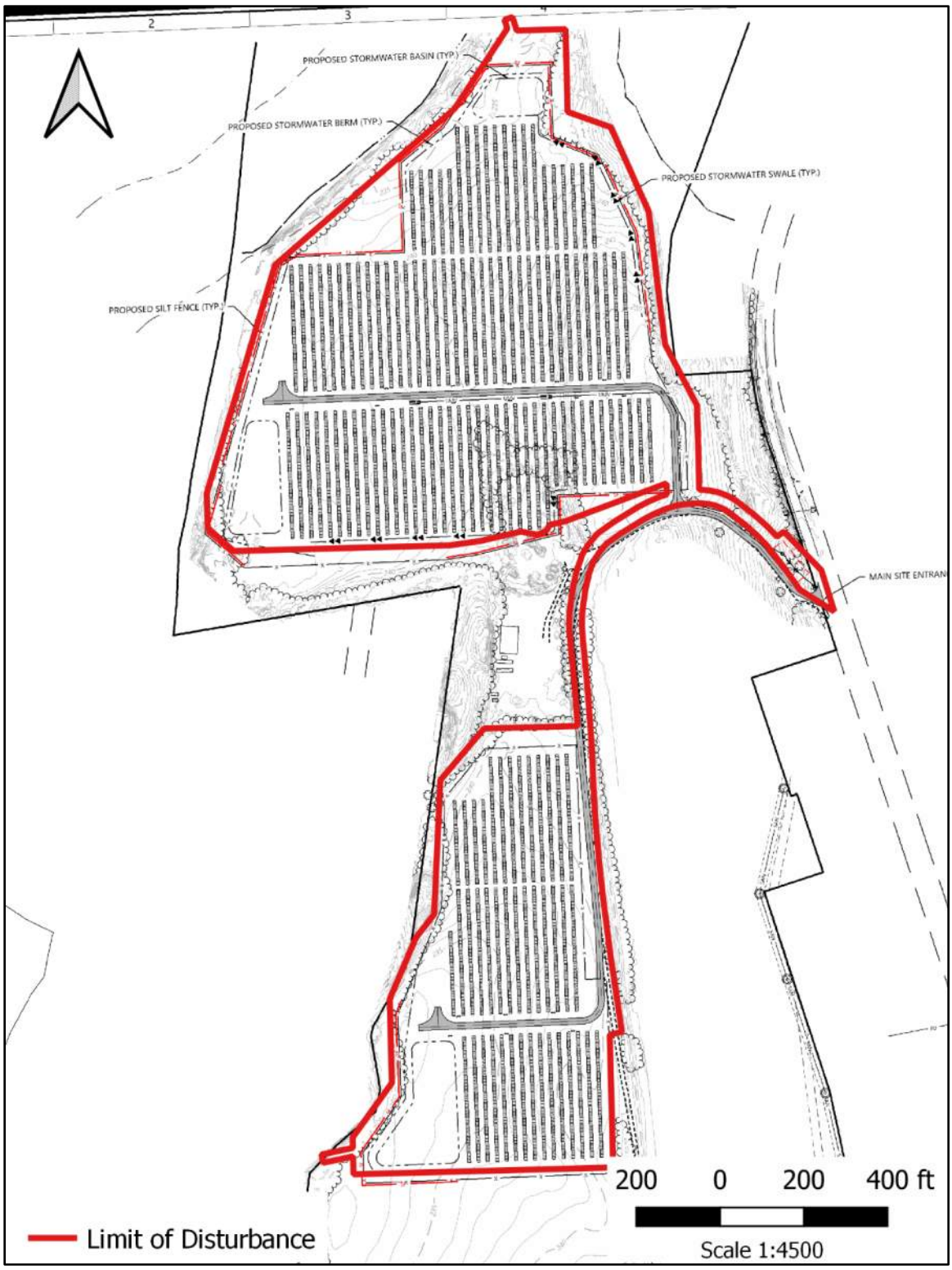

Figure 2. Proposed Project Plans

Project Personnel

Ms. Tery Harris, M.A. served as Project Lead, researcher, and author of this report. Joseph Clemens, M.S. served as Field Director and Project Geoarchaeologist. Dr. Paula S. Reed served as Project Architectural Historian.

Project Setting

Existing Conditions

The project area consists primarily of agricultural fields with second growth woodland along the borders. The central portion includes a small area of woodland buffering an existing mid-twentieth century garage/shed complex and work area, which is outside the project LOD but within the APE-Visual.

Topography

The project area falls at the intersection of the Central Lowlands and the Eastern Highlands physiographic provinces of New England (Rogers 1985). Surface elevations within the LOD vary between 230 feet above mean sea level and 255 feet above mean sea level. Overall, the project vicinity represents an upland terrace at the western foot of an upland ridge, rising adjacent to the marshy valley of Broad Brook to the west. The LOD represents a relatively level terrace and toe slope leading up to the adjacent upland ridge.

Soils

There are five soil series mapped within the LOD (Figure 3, NRCS Web Soil Survey). The most wide spread of these is the Udorthents-Pits complex noted in the center of the LOD, an area which largely corresponds to large scale earth disturbance noted in historic aerial photographs circa 1970. The second most extensive soil series within the Study Area is Manchester gravelly loam which is found both at the northern end of the LOD and along the southeastern portion of the LOD. Other soil series present include Ellington silt loam found in the southwestern LOD, and small areas of Wethersfield loam and Enfield silt loam found along the existing access road extension of the LOD.

Manchester series soils consists of very deep, excessively drained soils located on outwash plains, terraces, kames, deltas, and eskers. They have developed from sandy and gravelly glaciofluvial deposits derived from sandstone and shale and/or basalt. A typical Manchester series profile includes a plowzone of dark brown gravelly sandy loam with 20 percent gravel. The underlying subsoil generally extends from the base of the plowzone to 18 to 20 inches below surface and consists of a reddish brown gravelly loamy sand with 25 percent gravel. The C Horizon can extend beyond five feet in depth and consists of reddish brown very gravelly sand conducive to sand and gravel mining.

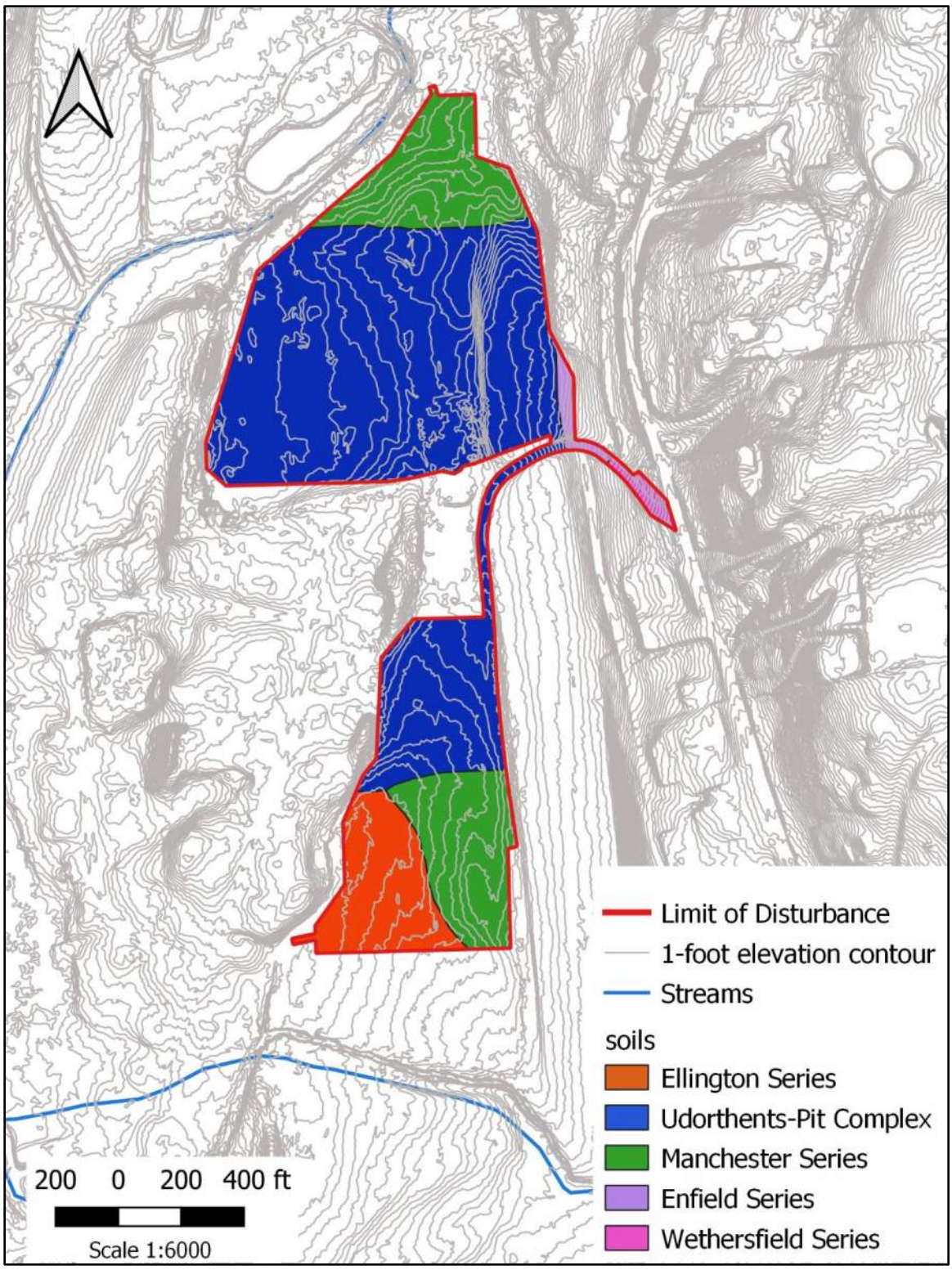

Figure 3. Soils in the Study Area.

Udorthents-Pits complex soils are described as areas that have been cut to a depth of 2 feet or more or are on areas with more than 2 feet of fill. Udorthents consist primarily of moderately coarse textured soil material and a few small areas of medium textured material. Within the Study Area, Udorthents likely represent areas of past soil removal for either fills for construction of the adjacent airport, or sand and gravel mining.

Ellington series soils consists of moderately well drained soils found on terraces and outwash plains, developed from coarse eolian deposits over sandy and gravelly glaciofluvial deposits derived from sandstone and shale and/or basalt. A typical Ellington series profile includes a dark reddish brown silt loam plowzone. Subsoil consists of a reddish brown silt loam to depths of 18 to 36 inches with a minor gravel component, and sand and gravel content increases with depth. The underlying substratum consists of dark reddish brown stratified sand and gravel with a few thin lenses of sandy loam, gravel content can reach 50 percent.

Enfield series soils consists of very deep, well drained loamy soils formed in a silty mantle overlying glacial outwash. They are found on outwash plains and terraces. A typical Enfield soil profile includes a thin dark grayish brown silt loam plowzone with a minor gravel component. Subsoil is a strong brown silt loam in the upper zone (to depths over a foot) and light olive brown silt loam in the lower subsoil to depths between two and three feet. The underlying substratum is a brown stratified very gravelly sand with a strong gravel component and some cobbles.

Wethersfield series soils consists of very deep, well drained loamy soils formed in dense glacial till on uplands. They are found on till plains, low ridges, and drumlins. A typical Wethersfield soil profile includes a thin dark brown loam plowzone over a reddish brown to dark reddish brown subsoil. Gravel content increases with depth within the subsoil. Substratum is generally encountered above two feet below surface and consists of a reddish brown gravelly loam with 20 percent gravel and cobbles.

Hydrology

The project area is part of the larger Connecticut River drainage. First order Broad Brook and Hydes Brook border the Study Area to the west and south respectively, and these streams flow south and west to join the Scantic River. The Scantic River joins the Connecticut River as it flows between Windsor Locks and Hartford. Broad Run has large marsh areas off the north portion of the LOD, and also west and southwest of the LOD where it becomes a second order stream.

Developmental Context

Prehistoric Context

The southern New England region was occupied for 12,000 years or more by small populations who lived a relatively mobile life, based on hunting and gathering wild resources. These early populations left generally small sites in locations associated with environmentally productive areas. Archaeologists divide this time span into a number of periods (typically encompassing the Paleoindian, Archaic, and earlier Woodland Period). Starting about 1,000 years ago, larger and

more sedentary populations developed, enabled at some point in this time span by the introduction of domesticated plants such as corn, beans, and squash.

Paleoindian Period (12,000 to 10,000 Before Present)

At the end of the Pleistocene, approximately 12,000 years ago, climate shifts created first open parkland environments suitable to cervids, and later shifted into mixed conifer and hardwood forests by roughly 10,000 B.P. (Goodby et al 2014, McWeeney and Kellogg 2001). The human habitation of the region began in the Paleoindian period, around 10,500 B.C., with the Templeton Site (6-LF-21) producing carbon dates documenting occupation between 10,500 and 9.900 B.P. (Moeller 1980). The Paleoindian culture is often thought of as based on big game hunting, particularly of now extinct species, although no Paleoindian artifacts associated with extinct species have been found in eastern North America. The variation in size among fluted points of the period and the variety of tools found in the tool kits suggest that Paleoindian populations exploited a variety of fauna (Goodby et al 2014, Starna 2017). Assemblages from the Templeton Site and the Hidden Creek Site in Connecticut and the Tenant Swamp and Whipple sites in New Hampshire indicate that Paleoindian populations were utilizing both local and non-local lithic materials, and used a tool kit which included fluted bifaces, side-scrapers, end scrapers, drills, gravers, spokeshaves, and in tool production areas, channel flakes (Moller 1999). Expedient flake tools were also an integral part of the tools kit (Goody et al 2014.)

Archaic Period (10,000 to 2,700 Before Present)

By 10,000 B.P., there was a change in tool varieties, with bifurcate, stemmed and side-notched projectile points replacing the earlier fluted varieties. The preferred lithic materials were still imported from outside the region but use of local materials increased through the period (Forrest 1999). Deer were the primary large game animal hunted, although bones of a number of other smaller animals recovered archaeologically show that a wide variety of species were successfully hunted, and faunal analysis suggests that fish represented a significant dietary resource (Nicholas 1987). The appearance of mortars and pestles suggests that vegetable foods assumed greater importance. These changes have been interpreted as a shift in subsistence strategies towards a broad-spectrum adaptation, utilizing a number of species of animals and plants. Evidence from Paleoindian and Early Archaic sites suggests that the transition from the Paleoindian way of life in the east was not a sharp break, but rather a gradual transition.

Archaic sites are found along the major river valleys, across the interior uplands representing utilization of evolving glacial basin environments, and hillslopes and small saddles near evolving interior wetlands (Lavin 2013 cited in Harfst 2019, Nicholas 1987, McWeeney and Kellogg 2001, Rainey 2005). Archaic sites become more numerous, larger, and richer in artifacts in progression through the period. They represent a series of adaptations to large climatic changes (McWeeney and Kellogg 2001), with climate in the early Archaic approaching the historic climatic conditions only to become markedly hotter and dryer between 9,000 and 6,000 years B.P. (Nicholas 1987).

Woodland Period (3,000 to 350 Before Present)

The introduction of pottery into the artifact assemblage around 3,000 B.P. marks the beginning of the Woodland period. Potters' innovations, as reflected in ceramic types, have become a significant basis for dating deposits within the Woodland period. Synthesis of Archaic research in Connecticut suggests continuity of Late Archaic point types into the Early Woodland alongside the addition of early ceramic types such as Vinette I although the later may also have been a Terminal Archaic innovation (Juli 1999). Settlement in the period became increasingly focused to sites along the major river drainages, with at least seasonal sedentary villages present by the Middle Woodland Period (Juli 1999). Several researchers have noted that the Woodland Period represents slow gradual changes which were additive in nature across time (Feder 1999, Juli 1999).

Subsistence changes in the Woodland Period are subject to less consensus. The adoption of maize horticulture is well documented by 1,000 A.D., but its importance to the overall subsistence system may have varied across environmental zones, with more maize recovered from interior and riverine sites than coastal sites (Chilton 2002). The timing of the addition of beans and squash horticulture as a major subsistence resource is likewise unclear (Juli 1999). Settlement during the Early Woodland period reflected frequent reuse of seasonal sites in the subsistence rounds, while the Middle and Late Woodland periods exhibit increasing sedentism finally resulting in permanent or semi-permanent village settlements on major floodplains, marshes, and coastal regions, which were supported by seasonal and transient resource procurement sites.

Historic Context

At the time of permanent European settlement in central Connecticut the area on the east side of the upper Connecticut River was the territory of the Podunk, with villages on the river floodplains supported by upland camps and smaller seasonal base camps (DeForest 1852: 55, 83-84; Heritage Consultants 2019). Interior areas in Tolland County may have also been home to small groups of Nipmucks associated with larger settlements in southern Massachusetts (Deforest 1852:57). Although the Podunks were apparently strong in the area up to the later seventeenth century, as a group they appear to have dispersed after King Philip's War and largely disappeared from the area by the mid-eighteenth century (DeForest 1852: 351, Heritage Consultants 2019). As was true of most Native American groups during the initial colonial period, the local indigenous groups were also decimated by European diseases, such as the smallpox epidemic in 1633 and 1634 when European settlers moved into the Central Valley (Cunningham 1995: 13, DeForest 1852: 301).

The first recorded European explorer was Adriaen Block, who moved up the Connecticut as far as the Enfield vicinity (Cunningham 1995). Settlement in the Central Valley region was heavy in the mid-seventeenth century with groups coming down from New England as well as straight from England. The initial Ellington tract was surveyed in 1720 for Daniel and John Ellsworth of Windsor, in an area described as "The Great Marsh" (Cole 1888: 704). Settlement was slow but progressed through out the later eighteenth century (Cole 1888:705, Heritage Consultants 2021). Ellington was incorporated in 1786, and by 1814 was described as "…some twenty dwelling houses, with two stores and three taverns, one blacksmith, a shoemaker,…two cider-brandy stills and a gin still." (Cole 1888:708). By 1830 that had grown to 40 dwelling houses, and had added a high school, a girls school, and two hotels (Cole 1888: 711).

The mid-nineteenth century appears to have been a peak of development in Ellington. Certainly, the 1857 Eaton *Map of Tolland County* depicts a concentrated settlement at Ellington proper, and smaller crossroad settlements south and southwest of the Study Area. The major roads in the project vicinity are also densely settled. The area was primarily agricultural, but Heritage Consultants note that several small industrial businesses such as saw and grist mills were operating in the area in the mid-to-late nineteenth century (Heritage Consultants 2021).

The later nineteenth century and early twentieth century witnessed a shift from mixed agricultural production to tobacco production in the Ellington area (Heritage Consultants 2021). This is consistent with regional development, where dairy production and tobacco agriculture became dominant economic factors (Cunningham 1995: 105). Tobacco remained a primary economic factor in the Central Valley Region until the mid-twentieth century, with labor supplied by migrant immigrant labor (Cunningham 1995: 106-109). In the Ellington area, some of these immigrant groups included Russian and Polish Jews who were aided by the Jewish Agricultural Society in the purchase of marginal farms in the area (Cunningham 1995: 109).

By the early twentieth century, the Central Valley Region began to see developing suburbs around Hartford and Windsor. The city's wealthy inhabitants began to work in the city and come out to the country, first as leisure and later, when trolley lines were established, as residents (Cunningham 1995: 110-111). Crystal Lake, east of the project vicinity, developed into a major leisure attraction in the last decade of the nineteenth century and the opening decades of the twentieth (Cunningham 1995: 111, Heritage Consultants 2021).

Cunningham described the Great Depression and World War II as a watershed period for the Central Valley Region (Cunningham 1995: 121-126). After WWII, there were significant shifts in the national agricultural economy, and the Northeast in general lost ground to the more rapidly developing West. The Central Valley Region in particular experienced significant shifts in economic focus, losing industrial and manufacturing jobs. By 1950 Cunningham notes that more than 60% of the region's population had become clerical or service workers (Cunningham 1995: 121). In the more recent decades of the later twentieth century much of the farmland in the Central Valley Region has been converted to suburban development. Cunningham notes that dairy farming especially had largely disappeared from the Central Valley Region, and many of the former tobacco fields have been sold for housing developments (Cunningham 1995: 128).

Development in the Study Area would have been affected by the processes noted above, but based on historic maps and aerial photographs, has remained primarily agricultural throughout the nineteenth and twentieth centuries. The 1857 *Map of Tolland County* indicates that while there were three adjacent farmsteads, there was no residential development within the project LOD (Figure 4). As no deed research was conducted as part of this study it is not clear whether the Study Area was part of the H.H. Hyde farm to the south, or the E. Buckley farm to the north. The 1869 Baker and Tilden *Atlas of Hartford and Tolland Counties* shows little change in the project vicinity in the intervening decade, primarily the inheritance of the Hyde farm by E. F. Hyde, and

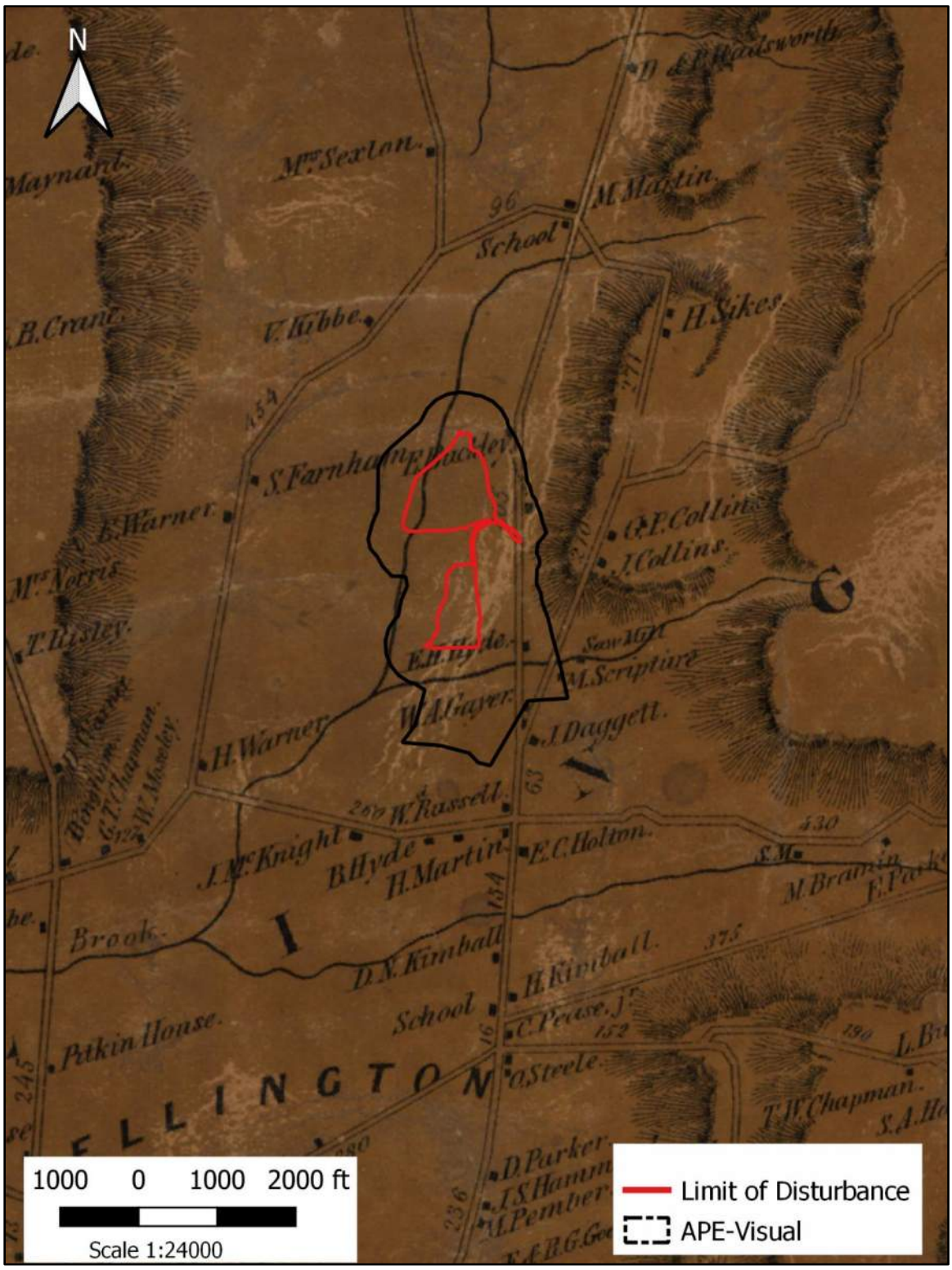

Figure 4. 1857 Eaton and Osborn Map of Tolland County.

the purchase of one of the two former Buckley residences by a D. French (Figure 5). Subsequent twentieth century sources indicate the land remained agricultural until possible sand and gravel mining took place in the 1960s and 1970s (Figure 6 to Figure 10). The only significant change in land use in the project vicinity has been the construction of the private Ellington Airport circa 1965 to 1967, which the FAA lists as opened for operations in 1968.

Previous Investigations

The Connecticut State Historic Preservation Office was closed due to pandemic restriction during the period that research was conducted for this study. EAC/A corresponded via email with Ms. Catherine Labadia, Staff Archaeologist at the State Historic Preservation Office, in lieu of a physical research visit. Ms. Labadia confirmed via correspondence dated April 1, 2021, that there are no know archaeological sites within the proposed project limits, and no reported sites within a one-mile radius of the proposed project. There are also no known above ground historic resources within the project limits or within a one-mile radius of the project limits. Ms. Labadia confirmed that there have been no previous CRM surveys within or near the project vicinity.

Field Results-Archaeological Identification Survey

Field Methods

EAC/A excavated 258 STPs as part of the Archaeological Identification Survey, with field work conducted between October 4 and October 15, 2021. Per previous consultation with the CT SHPO the central portion of the LOD documented as previously disturbed during the Archaeological Assessment Study was not subject to testing, resulting in three discontinuous testing areas, designated as the North Field, the South Field, and the Access Road area (Figure 11). All testing utilized a single 15-meter interval rectilinear grid, with ancillary testing locations placed at 7.5-meters along cardinal directions as appropriate (Figure 12 to Figure 14). One exception to the 15-meter grid placement was the southwest area of the South Field where standing water was present on the surface at the time of field work. This later area was tested at 30m interval to map the area of low archaeological potential saturated soils. In several areas planned STPs were note excavated. Three locations along the northeast boundary of the North Field were not excavated as they were found to fall within the tree line and hence outside the LOD. Three locations at the north end of the Access Road area were not excavated as they fell within a recently installed sewer right-of-way, and the two at the south end fall within marked utilities corridors. 42 planned but unexcavated test locations include a combination of locations skipped in the southwest quadrant where the testing interval was opened to 30-meters, test locations in the southwest quadrant with standing surface water, the S15 transect which either fell in the down cut internal access road, or just east of it placing it outside the LOD, and SC12 and SC13 where the excavators encountered deep wheel ruts and standing water from the combine machinery.

STPs were 50cm square pits, excavated according to natural stratigraphic breaks to depths at least 10 centimeters into sterile soils classified as glacial tills. Excavated soils were screened through one-quarter inch mesh hardware cloth to recover cultural material in the matrix. All test excavations were recorded on standardized forms, including information about soil color, texture, depth, and artifact content. The STP testing grid was established using base transects measured in via an Emlid Reach RS+ Global Navigation Satellite System (GNSS) and completed using fiber glass reel tapes to measure all grid points between the established base transects. The resulting grid was tested by spot checking select grid locations via the GNSS

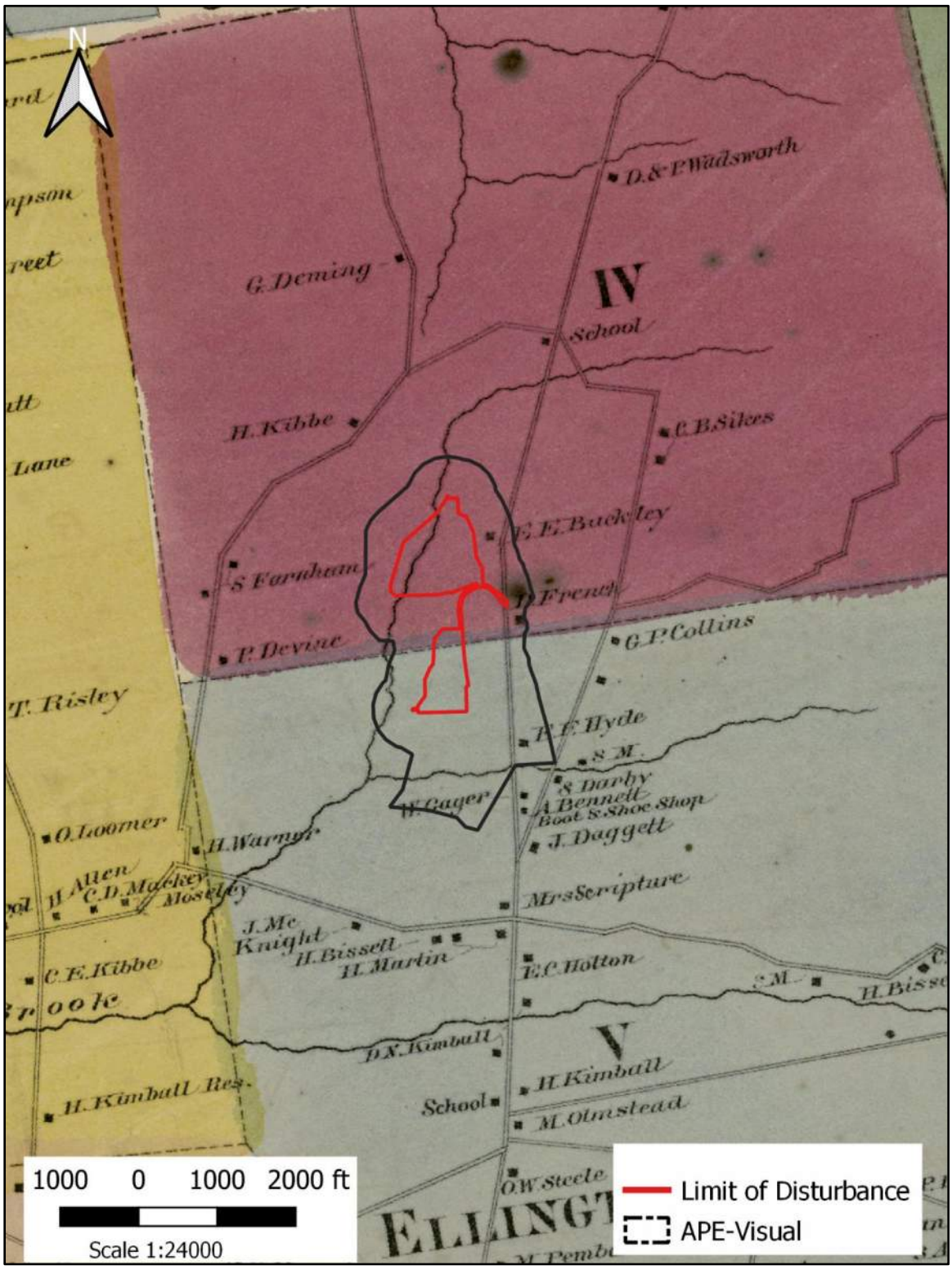

Figure 5. 1869 Baker and Tilden Atlas of Hartford and Tolland Counties.

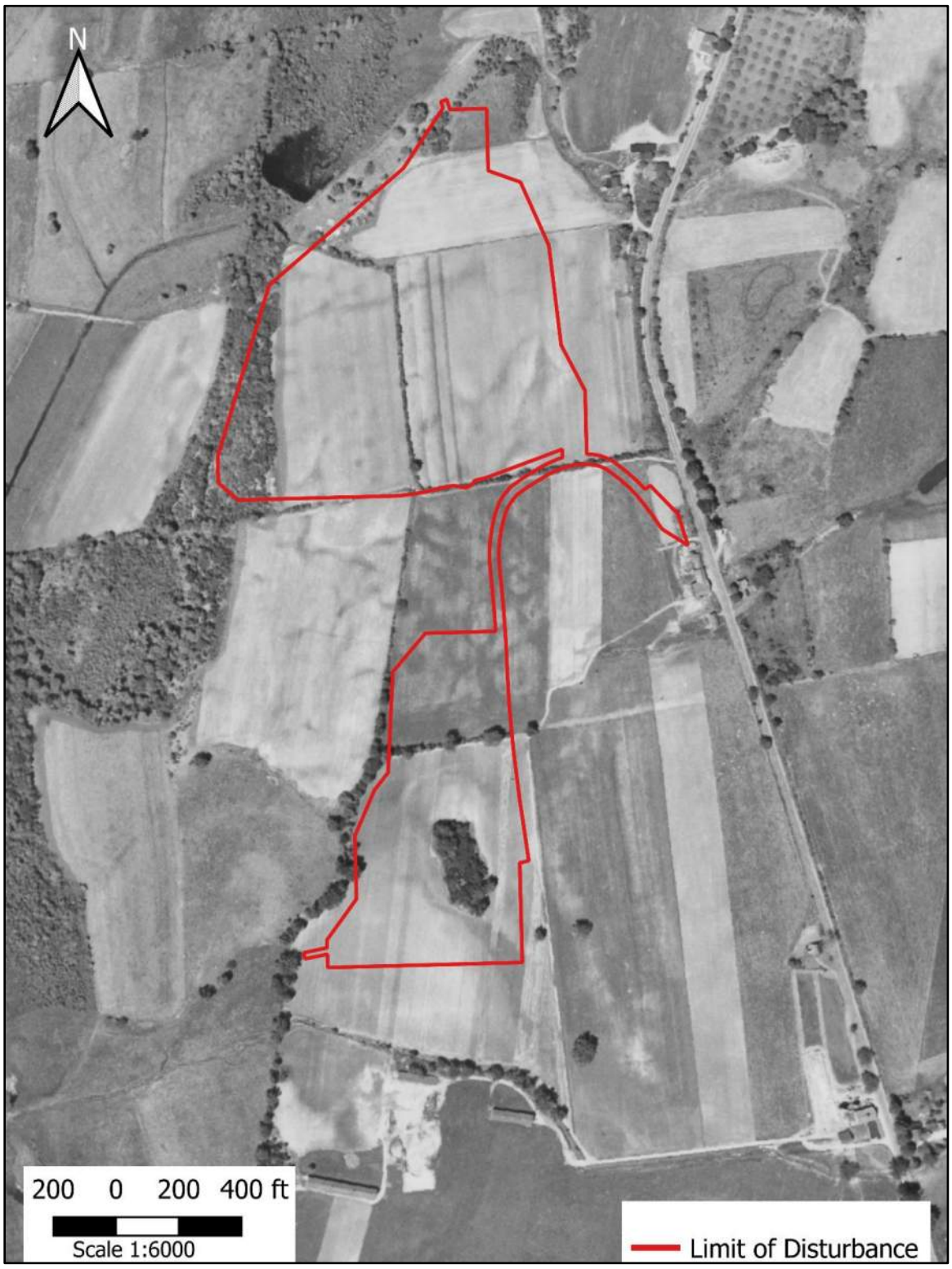

Figure 6.1951 Aerial Photograph of the Project Vicinity.

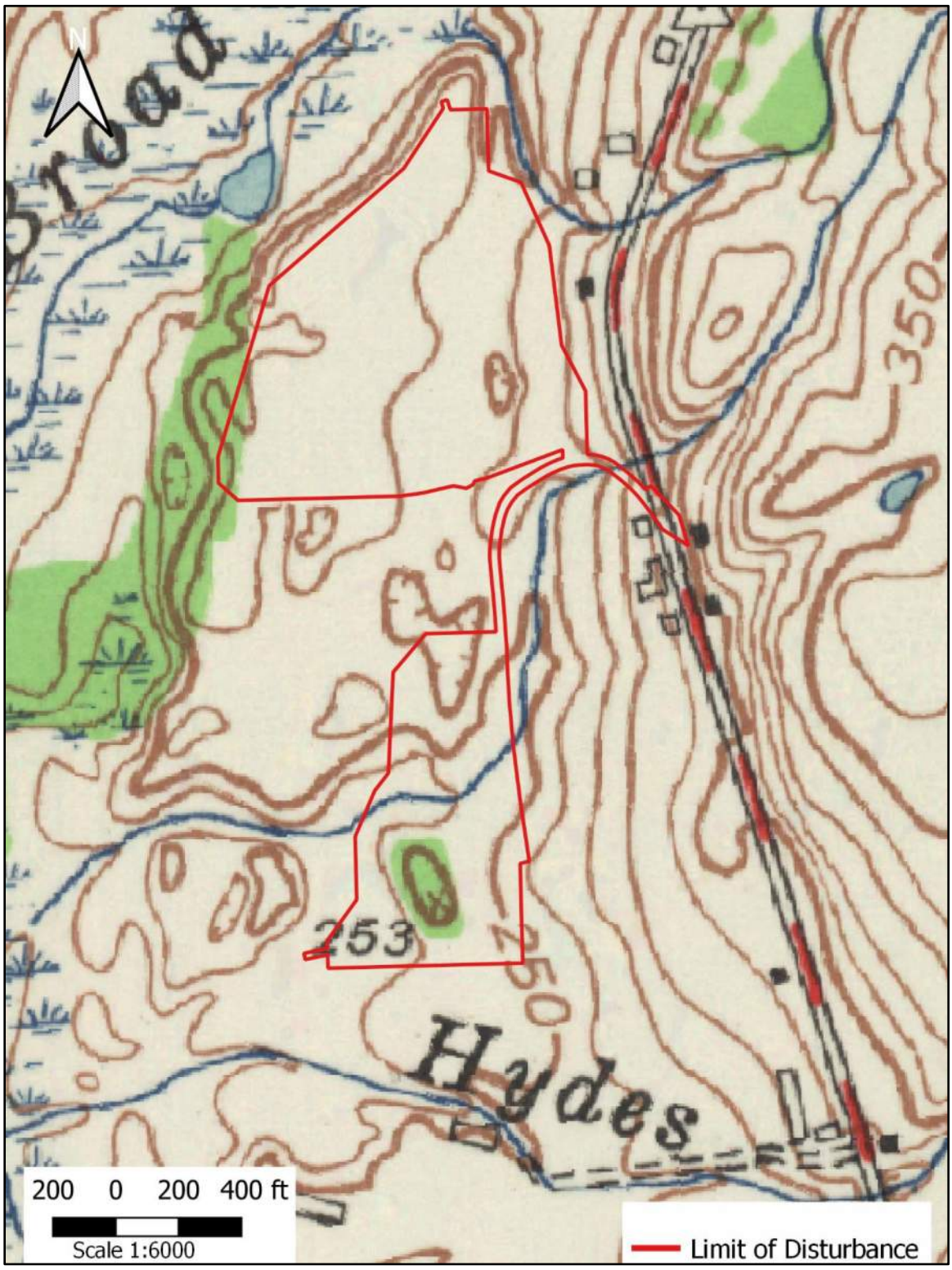

Figure 7. 1953 Ellington CT 7.5 Minute USGS Quadrangle.

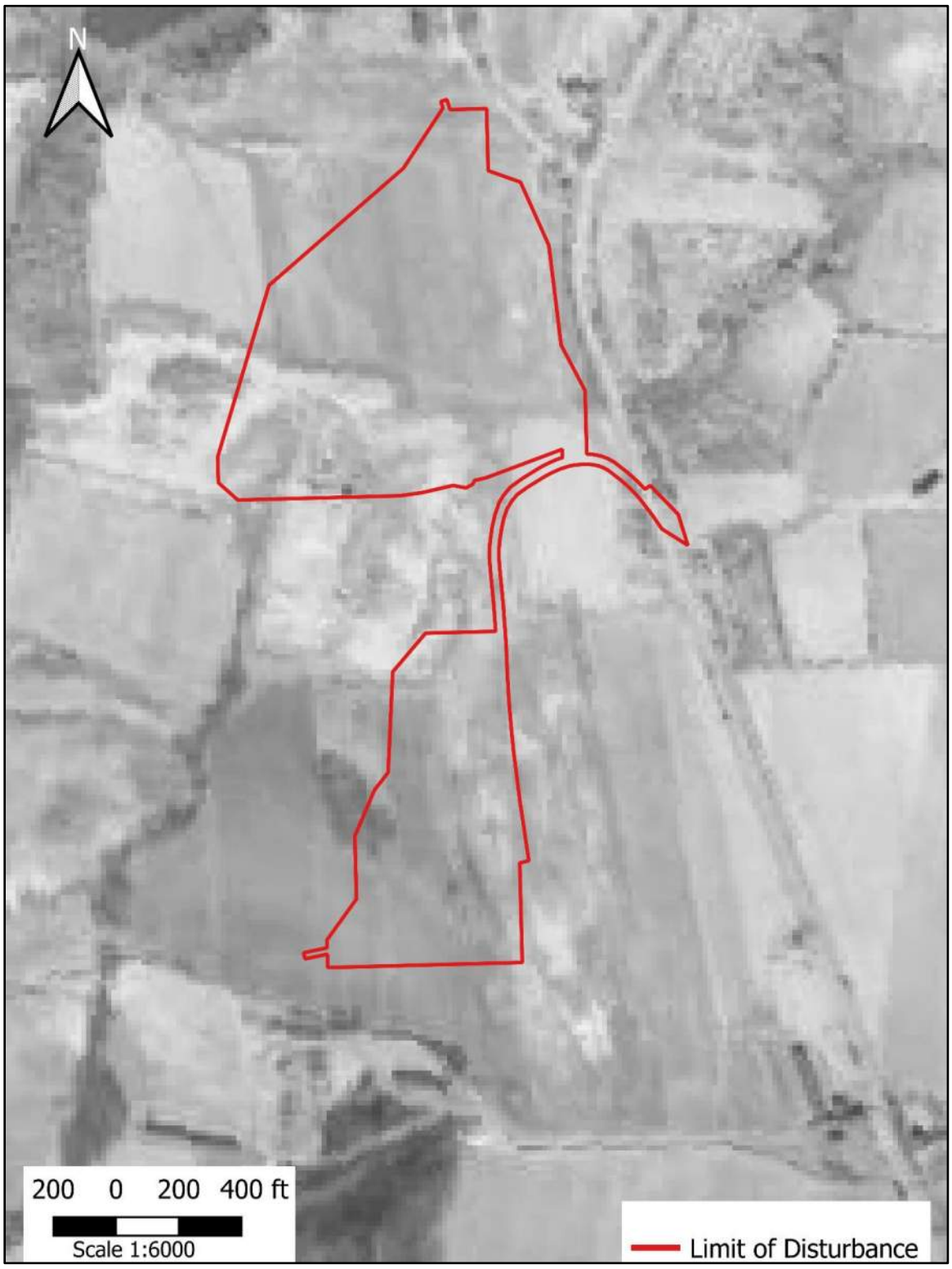

Figure 8. 1965 Aerial Photograph of the Project Vicinity.

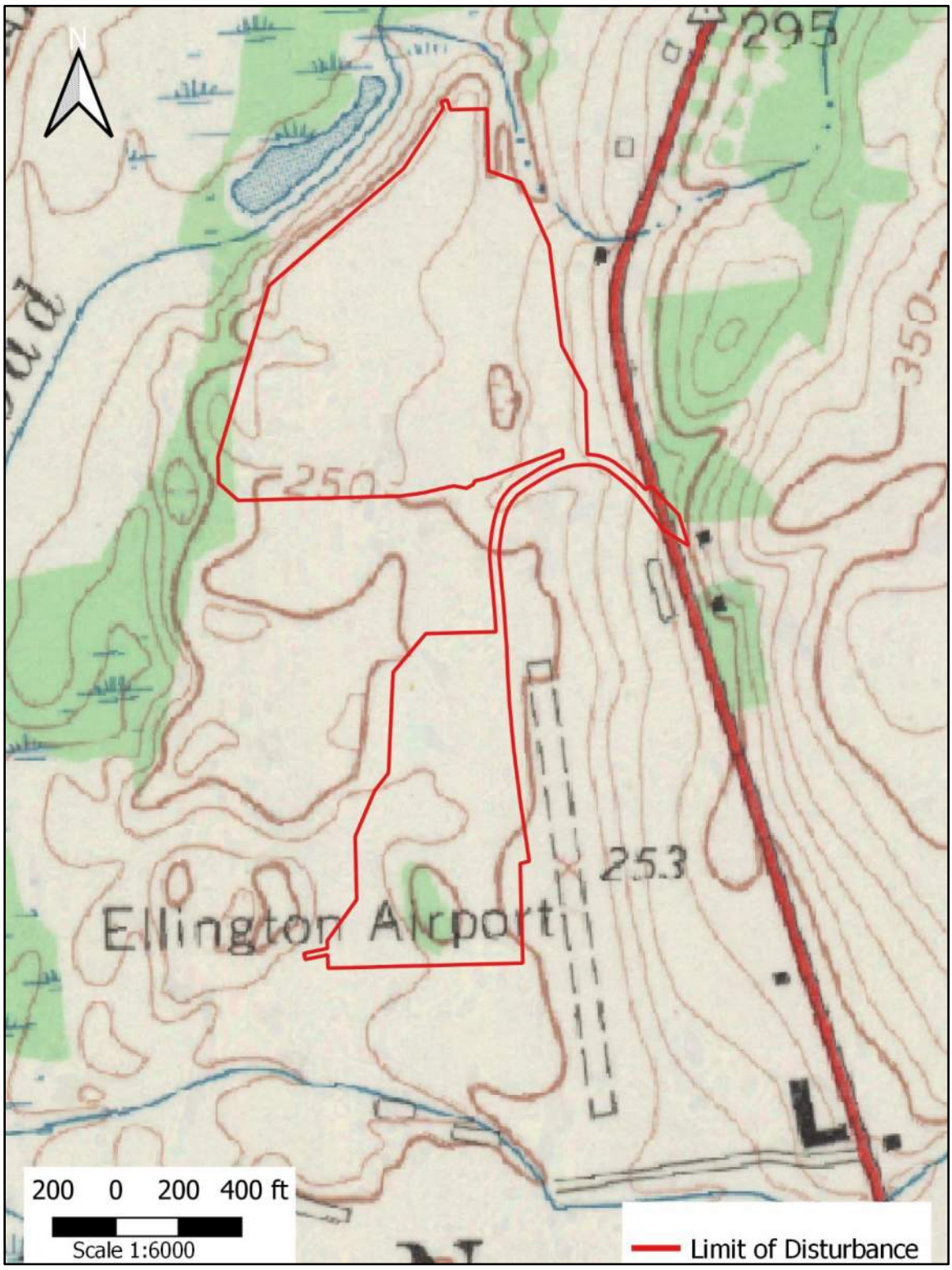

Figure 9. 1967 Ellington CT 7.5 Minute USGS Quadrangle.

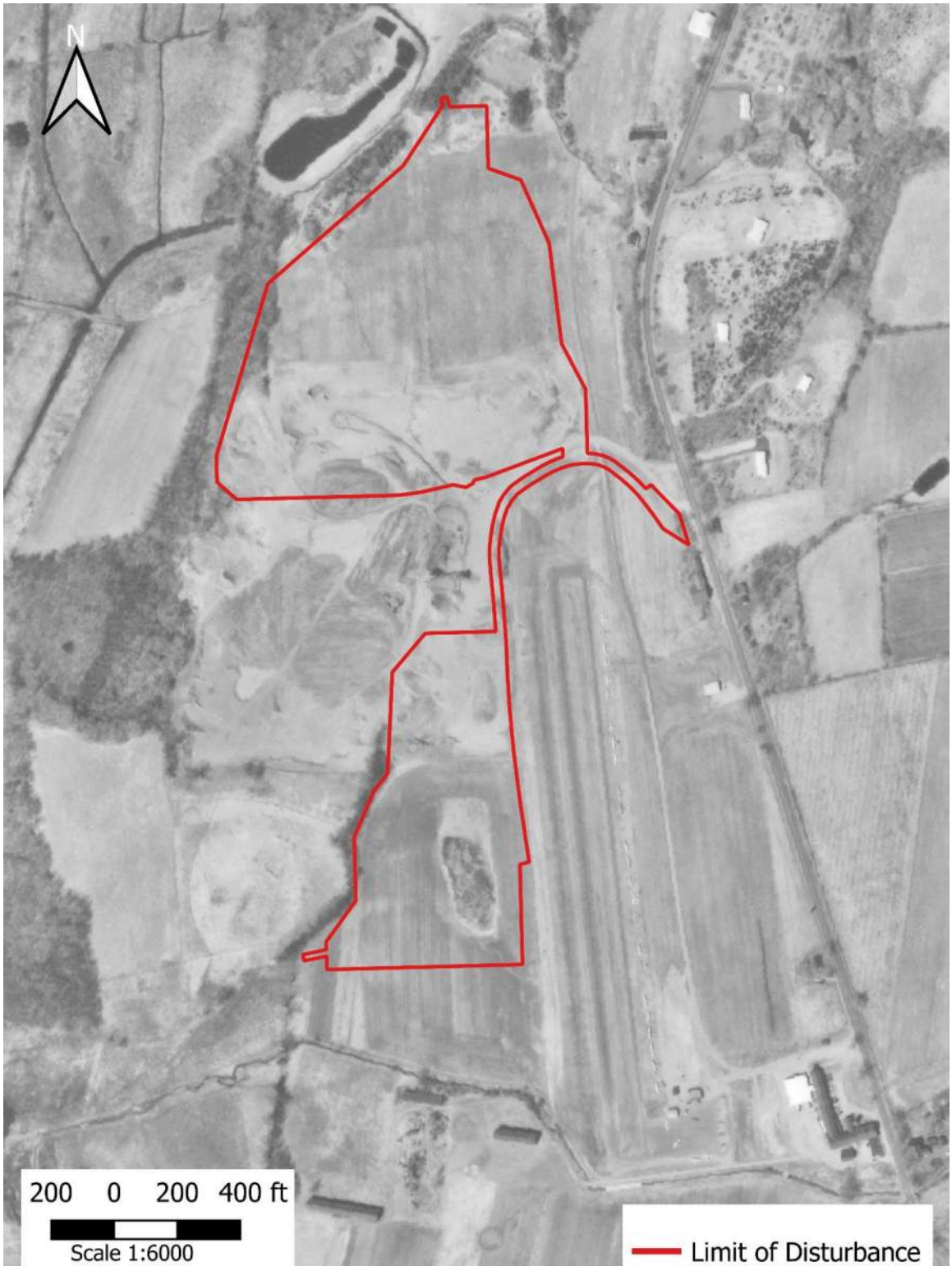

Figure 10. 1970 Aerial Photograph of the Project Vicinity.

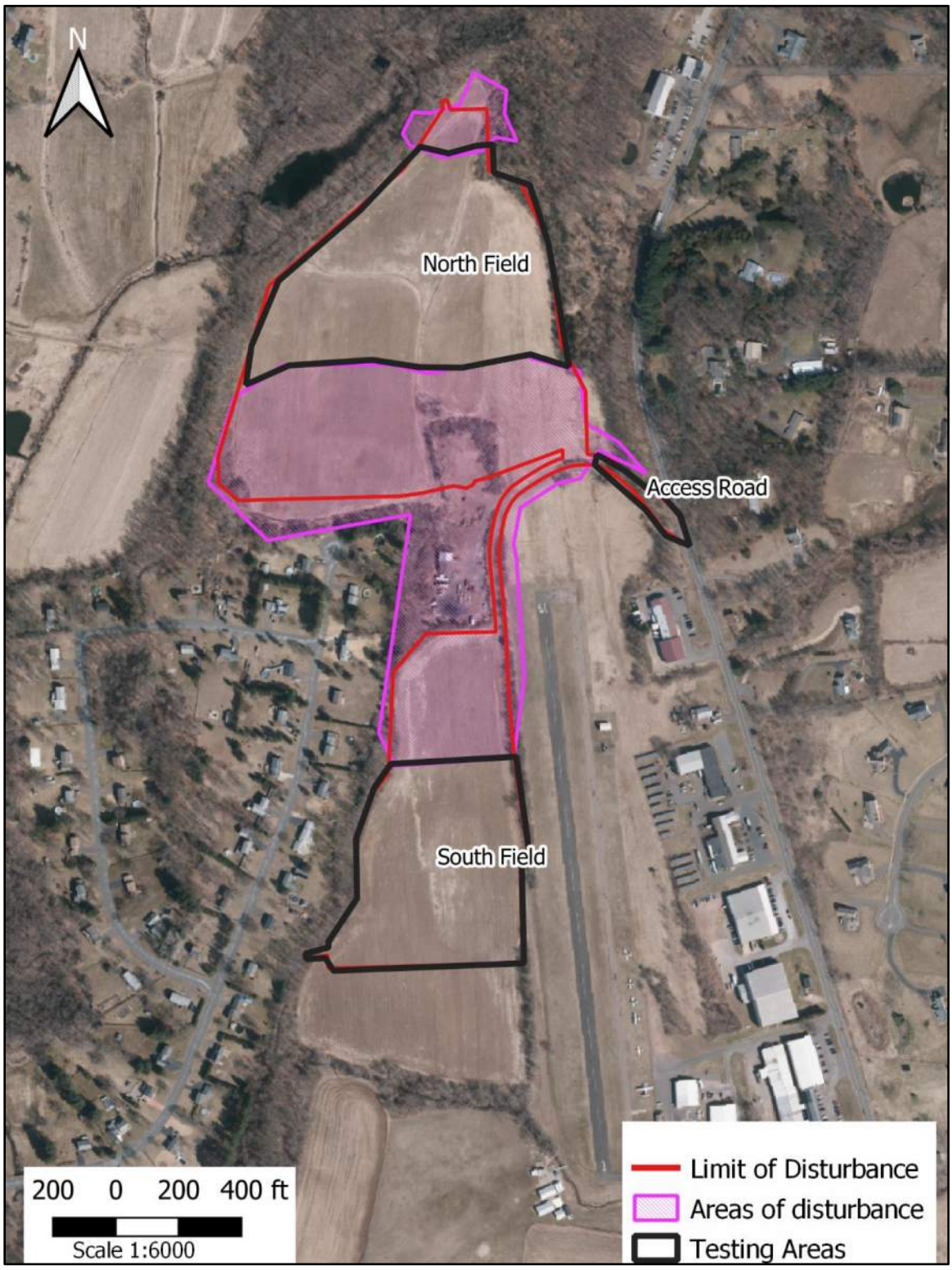

Figure 11. Phase IB Testing Areas.

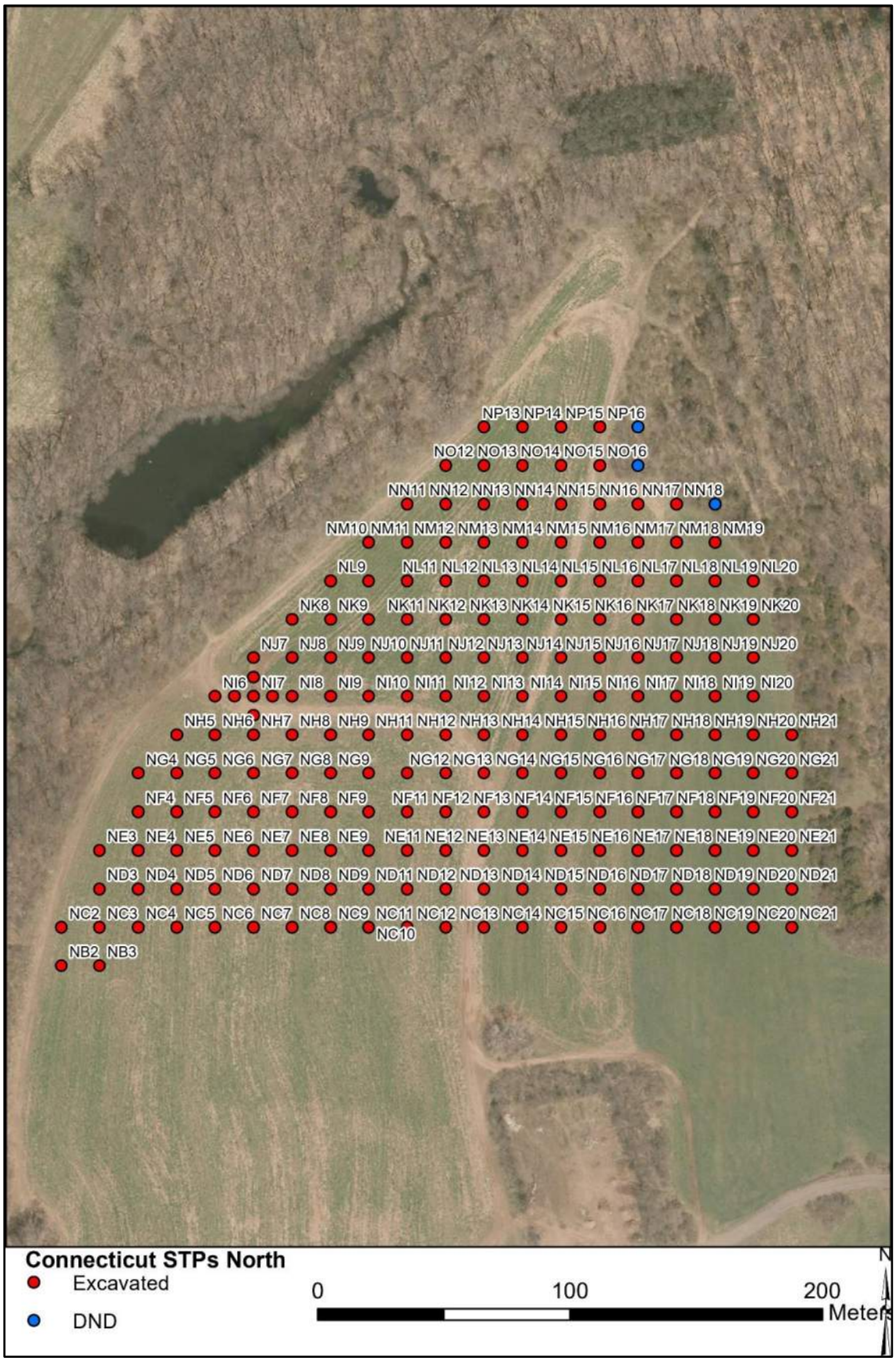

Figure 12. Phase IB Testing Locations, North Field.

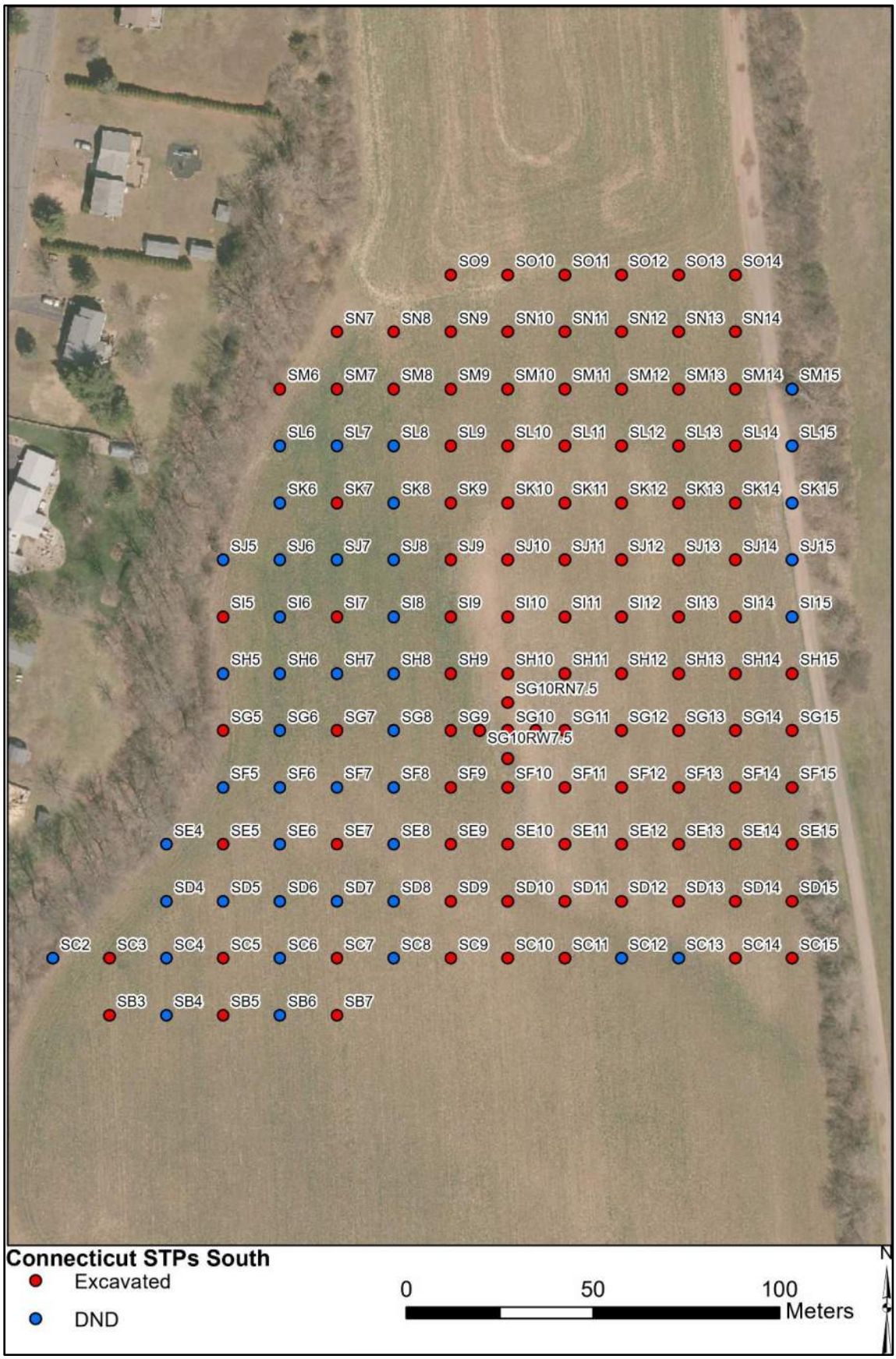

Figure 13. Phase IB Testing Locations, South Field.

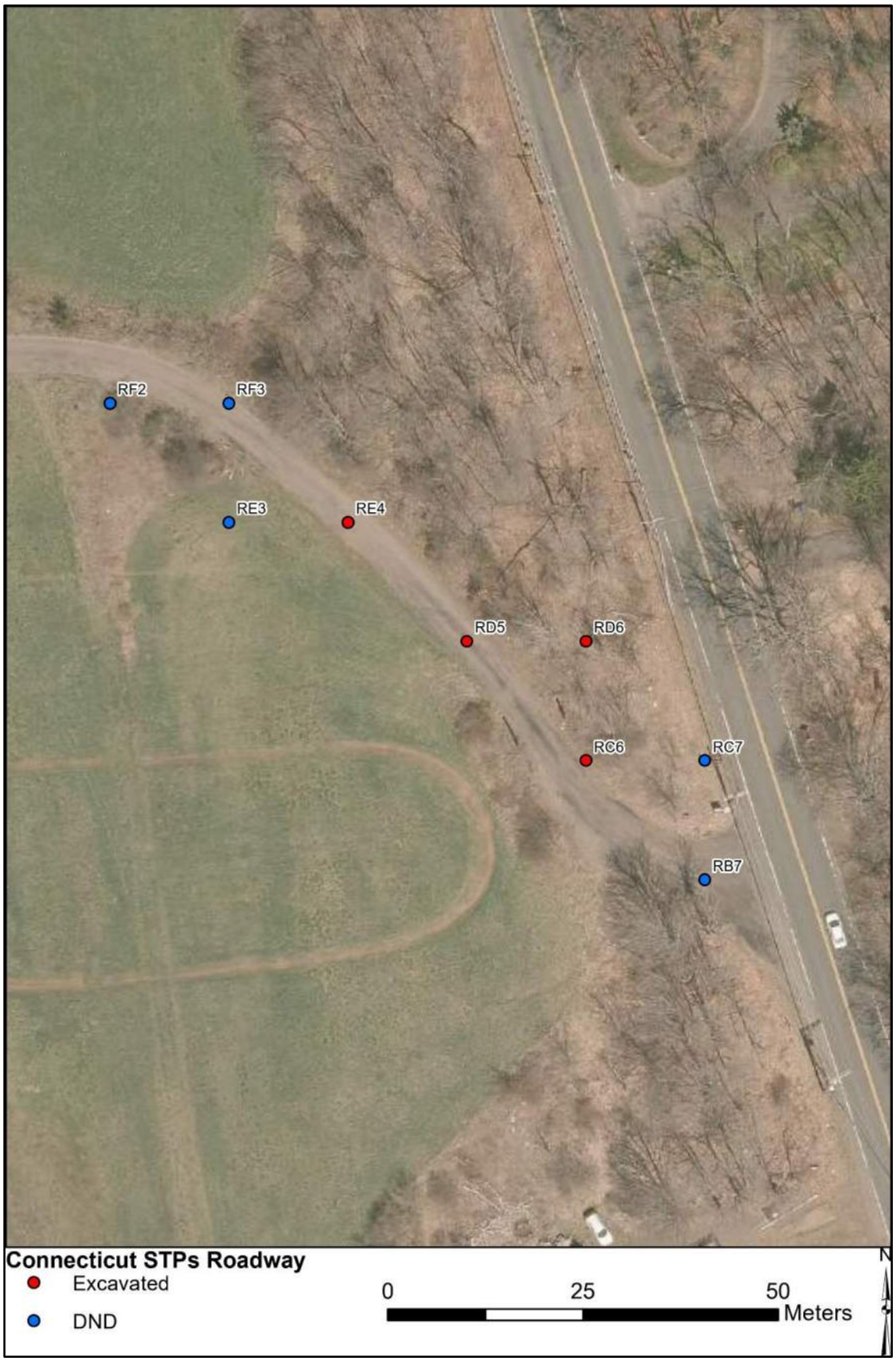

Figure 14. Phase IB Testing Locations, Access Road.

Geomorphological Analysis

Soils

The soils in the testing area shallow and have been impacted by extensive agricultural use and gravel mining operations. Shovel test pit investigation confirmed that soil deflation across most of the site has compressed the sequence, in some cases exposing the C horizon on promontories in the south and north testing areas. STP NH12 is typical of this soil profile, with thin plowzone soils above fine sandy layered C horizon glacial lacustrine deposits (Figure 15). Nearby farm tracks have also eroded to expose this C horizon parent material creating a sandy, rutted roadbed.

Figure 15. STP NH12,

Three areas of exceptions to this soil development were noted. The southwest area of the South Field had standing water on the surface and was tested at 30-meter interval. Shovel testing in this area indicates that field draining and slopewash have artificially inflated the plowzone in this area. Deep plowzone soils exist over poorly drained natural soils, in some cases the excavations began to seep and fill with water (i.e., STP SI7, SG7, Figure 16 and Figure 17). STP SI7 was typical of this soil stratigraphy, exhibiting over-thickened plowzone due to slope wash from agricultural use of upslope landform, a buried darkened A horizon, and water seeping in base of excavation. Many Fe and Mn stains were noted in the poorly drained Bw subsoil. This area was determined to be too poorly drained for prehistoric habitation and the testing grid was opened to confirm the extent of the original poorly drained soils.

Figure 16. STP SI7.

Figure 17. STP SG7.

The northern edge of the south field exhibited soils that had been disturbed, likely due to the gravel mining occurring to the north. The presence of historic period artifacts in the disturbed soil fit the pattern of introduced materials brought in during the re-grading of the area for agricultural use after gravel mining operations had ceased.

The southeast area of the North field exhibited truncation of the natural soils due to excavation sometime after the initial runway construction. The soils here were truncated to the C horizon in some cases and filled with soil to stabilize the landform (Figure 18). STP NI20 is an example of this profile type, with introduced fill-soil capping a truncated soil sequence. The 5YR4/4 gravely sand C horizon was capped with fill-soil to create a stable, level area north of the end of the runway.

Figure 18. STP NI20.

The rise appears to have been leveled at some point, possibly with the intention to act as a runway extension or to remove obstacles at the end of the runway to facilitate emergency landings or runway safety.

Geomorphological Evaluation

Gravely outwash plain and terrace formation from the Last Glacial Maximum indicates that any prehistoric presence within the LOD boundary should be present within the A horizon, and that the weakly developed Bw horizon which is a result of the gravely sand parent material and geologically brief stability of the landform, should be culturally sterile. Appendix II provides descriptions of all excavated STP profiles.

Artifact Analysis

Artifact catalogs were compiled using the SHARD (Sonoma Historic Artifact Research Database) developed by the Anthropological Studies Center at Sonoma State University and the Society for Historical Archaeology. Recovered artifacts appear to overwhelmingly represent twentieth century non-site materials, and as such the artifact collection will not been curated. A complete catalog is presented in Appendix III.

The Archaeological Identification Survey recovered a total of 45 artifacts from test excavations. All material recovered dated from the historic period, no prehistoric material was recovered during the survey. Eighty percent of this material (N=36) was recovered from the plowzone. Three artifacts were recovered from underlying subsoils, and six were associated with buried disturbed soils.

Artifact Distribution

Artifacts were recovered from 30 of the 258 STP tests, with most positive test locations yielded a single artifact (Figure 19). As most of this material was non-informative twentieth century container glass, radial test locations were not placed around these finds. Horizontal distribution of cultural materials general reflected scattered single finds near interior farm roads and at slope bases in the North Field (N=28) and cultural material in the South Field was weakly clustered in the north (N=17). Two strongly positive test locations in the South Field represent multiple fragments of the same glass vessel; five shards of a clear soda bottle at SG10 recovered from a buried pit and four shards of thick-walled clear glass bottle from the plowzone at SN8.

Artifact Assemblage

The archaeological survey recovered 45 artifacts in total. The assemblage is dominated by container glass fragments, almost of all which were non-diagnostic body shards. Where diagnostic characteristics were present, they consisted of twentieth century mold seams and screw-threaded finishes. Two vessels provided sufficient evidence to tentatively date the vessels. Five shards of recovered from SG10 appear to represent a single Royal Crown Cola bottle used for the disposal of petroleum products, and a single brown glass shard recovered from SJ12 can be dated to between 1969 and 1996 based on the embossed “AHK" trademark for the Alexander H. Kerr Company.

Other potentially diagnostic materials recovered included a twentieth century insulated copper wire fragment, a fragment of road paving, two undecorated whiteware shards (one each in the North Field and South Field), two corroded fragments of machine parts, a surveyor’s nail, five wire nails (all from the North Field), and a single fragment of stoneware sewer pipe.

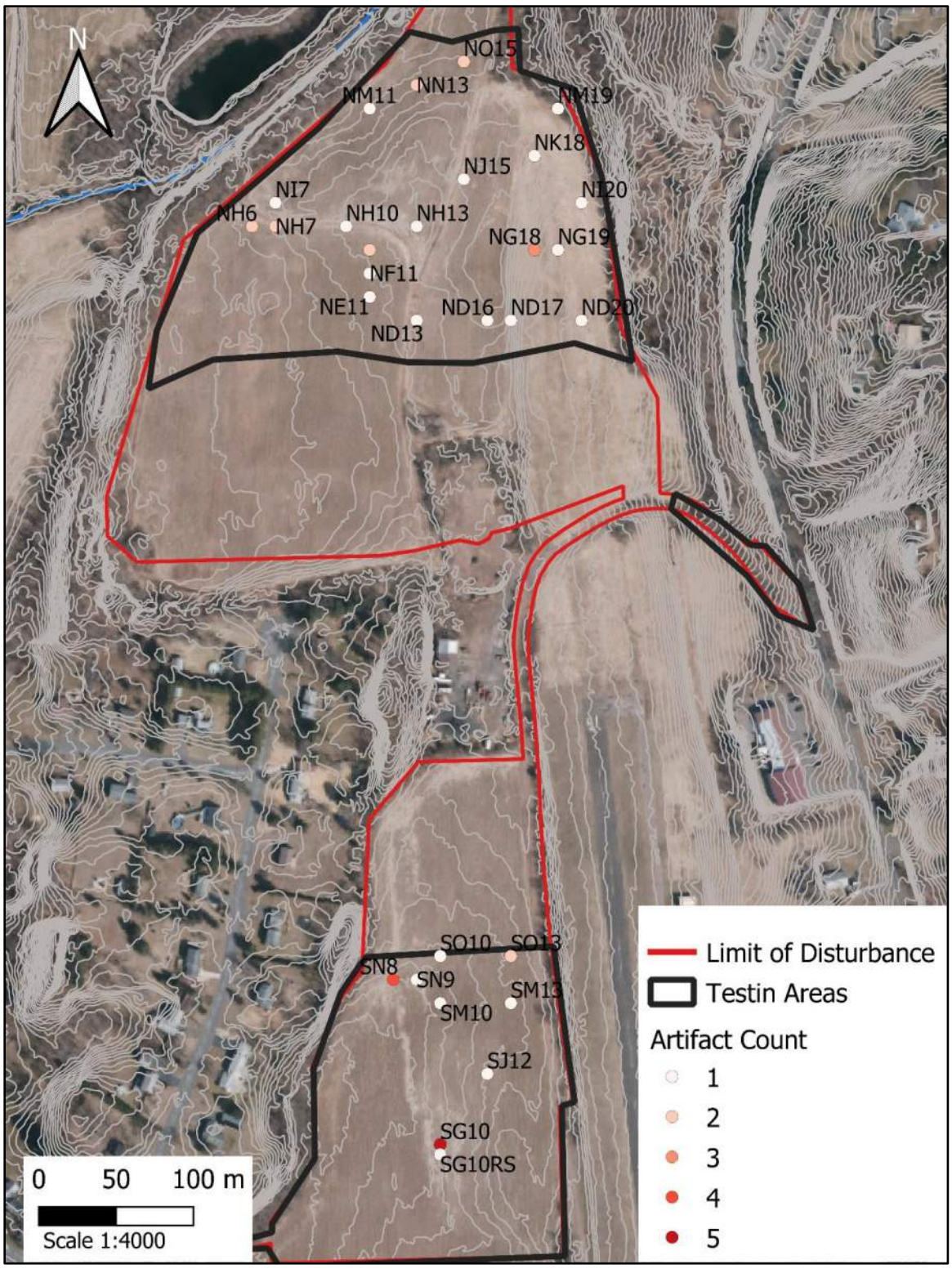

Figure 19. Horizontal Artifact Distribution.

Table 1. Phase IB Survey Assemblage by Functional Class and Material.

Class	Count	Percentage of Assemblage
Activities (total)	1	2%
Asphalt	1	2%
Domestic (total)	22	49%
Container glass	20	44%
Ceramic-Whiteware	2	4%
Indefinite (total)	12	27%
Coal	3	7%
Charcoal	2	4%
Glass	3	7%
Iron Alloy	4	9%
Structural	10	22%
Ceramic-Stoneware	1	2%
Copper Alloy	1	2%
Glass	3	7%
Iron Alloy	5	11%
Total	45	100.00%

Interpretation

The material recovered during the Phase IB Survey is primarily twentieth century. Artifacts distribution is at best weakly clustered, and artifact density is very low (below one artifact per square meter). This patterning is inconsistent with typical 20th century site patterning and density. In addition, the historic cartographic and aerial photograph sequence documents that no structures were present in either the Northern Field or Southern Field in the twentieth century. The material recovered during the Phase IB Survey is interpreted as field scatter consistent with fields farmed throughout the twentieth century with material introduced from the interior access roads and possible from occasional discard from the adjacent Garage Complex.

Field Results-Built Environment Reconnaissance

EAC/A examined lines of sight within the existing GIS database for the project to map the likely extent of visual effect for the project (APE-Visual). An initial APE-Visual was established using a 500-foot boundary around the project LOD. Factors then used to modify that APE-Visual boundary included existing development around the LOD, forest stands greater than 100 in depth, and topographic relief surrounding the LOD. With the exception of the airport parcel itself, the APE-Visual boundary was delineated to include full parcels if structures were present. EAC/A also used GIS analysis previously conducted to identify any structures on or adjacent to the proposed project sites that are over 50 years old and therefore potentially eligible for listing in the National Register of Historic Places.

EAC/A than field checked the computer modeled APE-Visual during archaeological fieldwork. EAC/A staff visited a sequence of check points along the APE-Visual boundary defined in the GIS

database, and field checked to see if the LOD fields were visible from that point. Where possible EAC/A used the visibility of the existing central garage structure to simulate the 15-foot maximum height of the proposed solar panels. Where field observation determined that the LOD would be visible the APE-Visual boundary was corrected in the field for subsequent amendment. EAC/A also cross referenced the initial GIS identification of potential historic resources against the construction date noted in the Property Record Card available through the Town of Ellington on-line tax database. This process identified one additional potential historic structure: Building 2 of 398 Somers Road. However, this structure is clearly not present on the 1950 or 1970 aerial photographs of the area, and therefore appears to represent a data entry error (Figure 20). A similar error was noted in the record for the garage complex (360 Somers Road, Building 4), which is listed as constructed in 1900, but which does not appear on the 1950 aerial photograph.

EAC/A identified six historic structures within the APE-Visual which appear on the 1970 aerial photograph of the project vicinity and the tax records (Figure 21). These include the existing garage complex surrounded by the LOD (360 Somers Road Building 4), and 368 Somers Road (Building 3), 381 Somers Road, 389 Somers Road, 403 Somers Road, and 406 Somers Road.

406 Somers Road is included in the list despite a Property Record Card construction date of 1980, as Dr. Reed felt the structure is likely circa 1950s, and it does appear to be present on the 1970 aerial photograph.

Building 3 of 368 Somers Road is included in the APE-Visual as the parcel includes multiple buildings, the western two of which will clearly have line of sight to the proposed solar arrays. Line of sight from Building 3 will actually be blocked by Building 1 and Building 2, which are both large commercial structures which lay between Building 3 and the proposed solar arrays.

Building 4 of 360 Somers Road is the Garage Complex encompassed by the project LOD (Figure 22 and Figure 23). It is a one-story frame structure, five bays long, with a gable roof. The eastern facade is the front of the structure, where the central three bays have garage roll-doors, while the northern bay appears to have been closed and now has a standard door and single casement window. The roof is asphalt shingle, and the structure has tongue and groove vertical siding. The south façade has an additional standard door centered on the wall and a vinyl casement window in the attic.

381 Somers Road is a two and-a-half story frame structure with a one-story addition (Figure 24 and Figure 25). This could be a 1920s New England Colonial Revival, based on the chimneys, but it is so altered that it is nearly unrecognizable. The gable roof has asphalt shingle. The original structure is three bays wide, with a central door and one over one vinyl sash windows. The addition is three bays wide with the door in the northern bay and two one over one vinyl sash windows. There is a two-bay detached garage to the south.

389 Somers Road is a six bay wide frame ranch with a gable roof and a one bay addition (Figure 26 to Figure 28). The southernmost bay of the main structure has a replacement vinyl bay window, with the entrance door adjacent. The remaining four bays have double one over one vinyl sash windows. The rear or eastern façade has a roof overhang over the opposing door, and similar one over one vinyl sash windows.

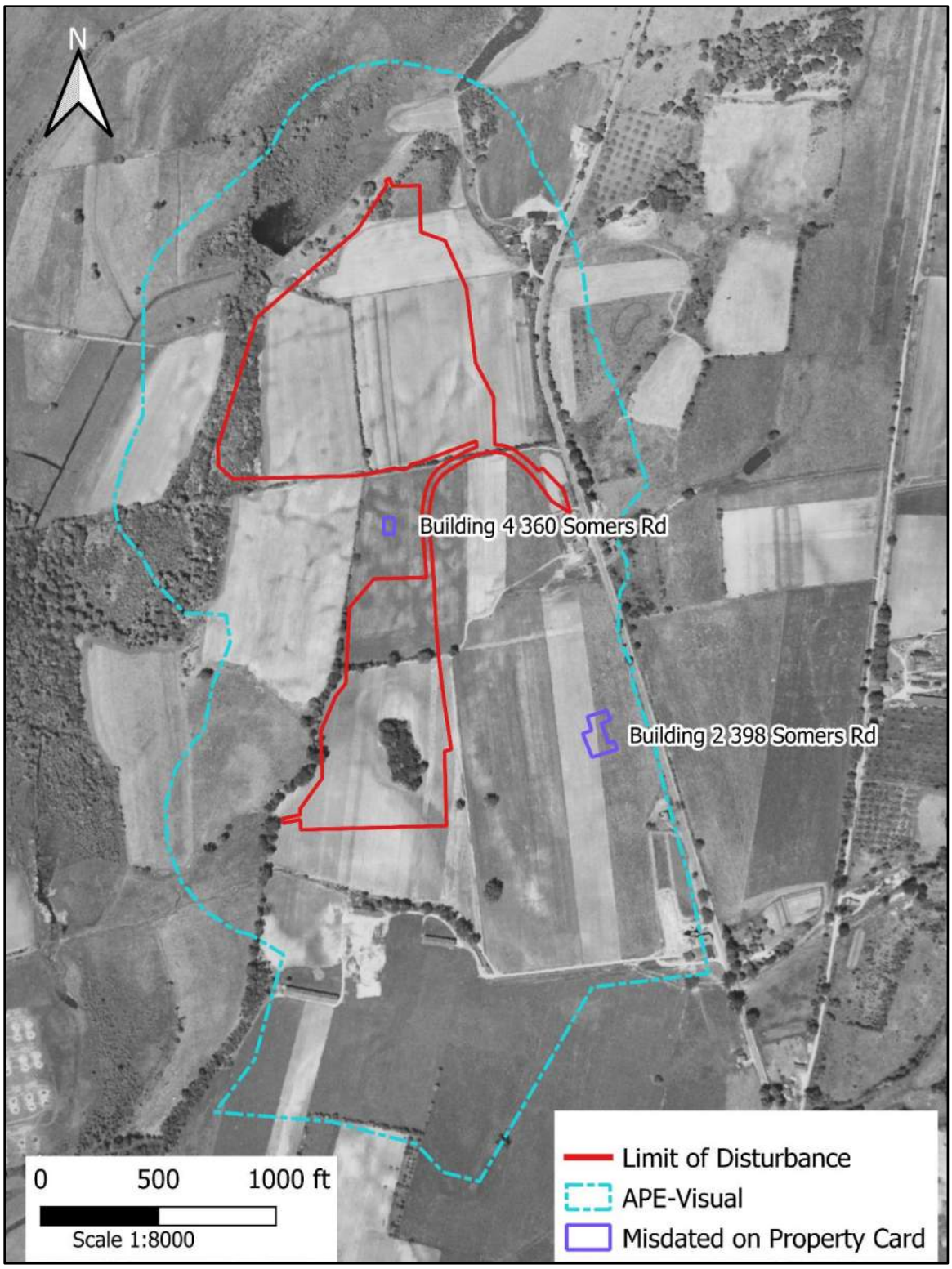

Figure 20. 1950 Aerial Photograph with Misdated Structure Placements.

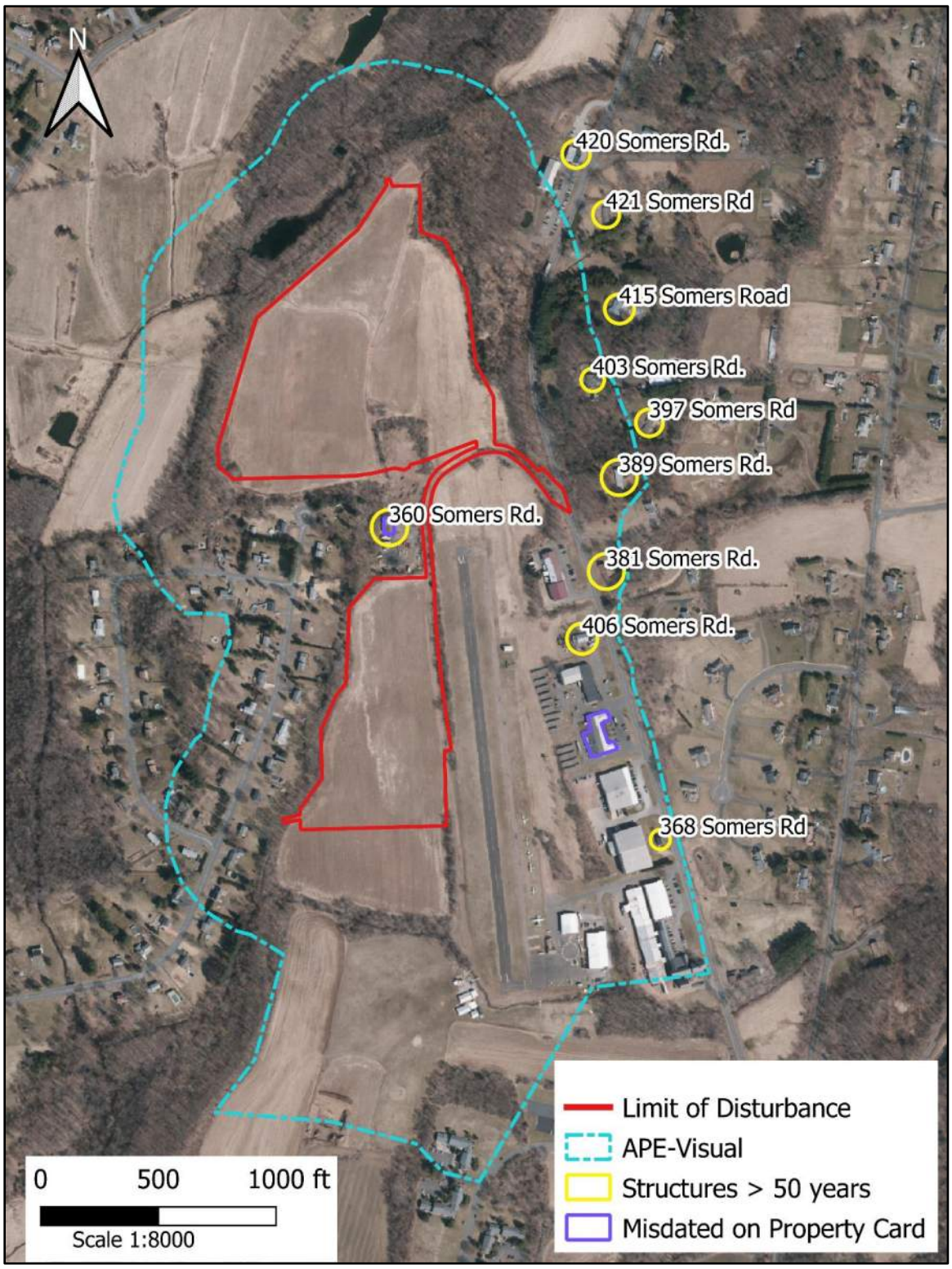

Figure 21. Structures Greater Than 50 Years in Age.

Table 2. Historic Structures Identified within the APE-Visual

Address	Construction Date	Notes.
Building 4, 360 Somers Rd.	1900 (PRC)/ Post 1950 aerial photographs	Garage complex encompassed by proposed LOD. Single story wood frame, with three garage bays and a workroom on the north end. Two of three roll-up doors have been replaced, and the current standard door is also a replacement. New roof partially installed at time of survey. Modified with various sidings and other materials. **Not potential eligible** due to modifications (lack of fabric integrity).
Building 3, 368 Somers Rd	1900	Shares parcel with two large commercial buildings which will block line of sight to the solar arrays. No further documentation.
Building 1, 381 Somers Rd	1900	Two story wood frame. Could be 1920s New England Colonial Revival, based on the chimneys, but so altered that it is nearly unrecognizable. Converted to duplex in 2013. Replaced windows, entrance, siding and roofing. Chimneys are the only dateable feature. Major loss of integrity. **Not potentially eligible** due to modifications (lack of fabric integrity).
Building 1, 389 Somers Rd	1968	Single story wooden frame. Addition in 1999. Replaced siding, windows and entrance. Loss of integrity. **Not potentially eligible** due to modifications (lack of fabric integrity).
Building 1, 403 Somers Rd	1966	Single story frame with basement garage, original detached frame barn surviving. Replaced siding, replaced windows and shutters, added stone veneer, added deck. Multiple late 20th century outbuildings. Loss of integrity. **Not potentially eligible** due to modifications (lack of fabric and setting integrity).
Building 1, 406 Somers Rd	1980 (PRC)/ Pre 1970 Aerial Photograph	Single story frame commercial structure. Three bays, two garage roll-doors. Could be 1950s. Replacement aluminum siding and rear brick flue. **Not potentially eligible** due to modifications (lack of fabric integrity).

403 Somers Road is a modified ranch, built into the slope and incorporating a two-bay garage in the basement (Figure 29 to Figure 31). It has gable roofs and vinyl casement windows. Portions of the concrete foundation have been covered with a stone veneer. The complex has multiple later twentieth and two early twenty-first century outbuildings, as well as the original 1966 one story barn on the parcel.

406 Somers Road is a one-story frame garage with gable roof (Figure 32 to Figure 34). The front, or eastern façade, of the structure has gable-roofed hood over the centered double door

Figure 22. Easy Facade, 360 Somers Rd Building 4.

Meredith Katz Photographer, October 14, 2021.

Figure 23. South and East Facades, 360 Somers Rd Building 4.

Meredith Katz Photographer, October 14, 2021.

Figure 24. West Facade, 381 Somers Rd.

Meredith Katz Photographer, October 14, 2021.

Figure 25. West Facade, Detached Garage, 381 Somers Rd.

Meredith Katz Photographer, October 14, 2021.

Figure 26. West Facade, 389 Somers Rd.

Meredith Katz Photographer, October 14, 2021

Figure 27. South and East Facades, 389 Somers Rd.

Meredith Katz Photographer, October 14, 2021.

Figure 28. North Facade, 389 Somers Rd.

Meredith Katz Photographer, October 14, 2021.

Figure 29. North and West Facades, 403 Somers Rd.

Meredith Katz Photographer, October 14, 2021.

Figure 30. North Facade, 403 Somers Rd.

Meredith Katz Photographer, October 14, 2021.

Figure 31. East Facade, 403 Somers Rd.

Meredith Katz Photographer, October 14, 2021.

entrance. The hood is supported by goose neck brackets. The structure is three bays wide, with garage roll-doors to either side of the entrance doors. There is an additional standard door on the south façade. There were no windows visible, but the southwestern corner and northern façade are overgrown and partially blocked by trailers. The unbroken west façade has a centered brick flue. The eastern gable has wooden vertical tongue and groove siding.

Summary and Recommendations

EAC/A completed an Archaeological Identification Survey and Built Environment Reconnaissance Study for the proposed Somers Solar Project, located northeast of Ellington, Connecticut. The archaeological survey area consisted of the 34-acre Limit of Disturbance for the project, while the Built Environment Study utilized an Area of Potential Visual Effects (APE-Visual) defined for the project which included 182 acres.

The archaeological survey excavated 258 STPs, including 250 grid aligned tests and 8 ancillary radial test locations. It documented shallow soil profiles consistent with past stripping and soil deflation. An artifact assemblage of 45 artifacts was recovered from 30 test locations, most of which represented single artifact positives. The assemblage was primarily non-diagnostic container glass fragments found at densities far below typical twentieth century sites, and overall is consistent with field scatter. No prehistoric material was recovered. No archaeological sites were recovered.

The Built Environment Study identified six structures within the APE-Visual which were greater than 50 years in age. One structure (368 Somers Road) was determined to have no clear line of sight, although modern structures in the same parcel will have unobstructed views of the proposed solar arrays. The remaining five structures (360 Somers Road, 381 Somers Road, 389 Somers Road, 403 Somers Road, and 406 Somers Road) were examined and determined to have been extensively altered through time and did not retain integrity. No resources meeting National Register criteria of eligibility were identified by the Reconnaissance Study.

Based on the findings of these studies, there are no archaeological or historic resources potentially impacted by the proposed Somers Solar Project, and no further cultural resources study is recommended.

Figure 32. East Facade, 406 Somers Rd.

Meredith Katz Photographer, October 14, 2021.

Figure 33. West Facade, 406 Somers Rd.

Meredith Katz Photographer, October 14, 2021.

Figure 34. South Facade, 406 Somers Rd.

Meredith Katz Photographer, October 14, 2021.

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Appendix I:
Qualifications of Investigators

Tery Harris has an M.A in Anthropology from Brandeis University and a B.A. in Anthropology from the University of Maryland. She has over 30 years of experience in the field of archeology in the Mid-Atlantic and New England region. Ms. Harris serves as Project Archaeologist and Historian/Archival Researcher for projects, and is responsible for research design, archival and historical research, study implementation, oversight of field and laboratory work, and report preparation.

Joseph Clements has a M.S. in Geology, from the University of Delaware and a B.A. Anthropology from St. Mary's College of Maryland. He has five years of experience working as a geoarchaeologist, ten years of experience working as an archaeologist, and fourteen years of experience working in historic preservation. He has supervised Phase I and Phase II level projects, remote sensing surveys, archaeological monitoring, architectural recordation and restoration projects across Maryland, Virginia, Pennsylvania, Delaware, and West Virginia. He has experience with both prehistoric and historic period archaeological sites, with a special interest in industrial landscapes and prehistoric settlement patterns, and has past experience with Civil War battlefield resources and material culture. Mr. Clemens serves as Field Supervisor, Project Archaeologist, and Geoarchaeologist.

Paula Reed has an M.A and Ph.D. in American Civilization from the George Washington University, Washington, D.C., and a B.A. in American Civilization from Wilson College. She has over 45 years of experience in the Historic Preservation studies across the United States, include Historic Structure surveys, National Register and Historic American Building Survey documentation, Landscape studies and documentation, Evaluation of Project Impact studies, Historic Structure Reports, Historic Context Development, and Historic District survey and documentation. Ms. Reed also teaches seminars on Historic Structures, Historic Preservation, American Architecture, and Maintenance of Historic Buildings. Ms. Reed serves as Senior Architectural Historian.

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Joseph Clemens, MS
Archaeologist, Geoarchaeologist

Mr. Clemens has five years of experience working as a geoarchaeologist, ten years of experience working as an archaeologist, and fourteen years of experience working in historic preservation. Mr. Clemens has worked with EAC/Archaeology since 2011. He has supervised Phase I and Phase II level projects, remote sensing surveys, archaeological monitoring, architectural recordation and restoration projects across Maryland, Virginia, Pennsylvania, Delaware, and West Virginia. He has experience with both prehistoric and historic period archaeological sites, with a special interest in industrial landscapes and prehistoric settlement patterns, has past experience with Civil War battlefield resources and material culture.

Resident of Baltimore, MD

Education
University of Delaware, MS, Geology, 2020
St. Mary's College of Maryland, BA, Anthropology, 2011

Professional Experience
13 years
2019-Present EAC/Archaeology, Inc.| Field Direct, Geomorphologist
2016- Present Geo-Sci Consultants, LLC| Geomorphologist
2013- 2019, EAC/Archaeology, Inc.| Archaeological Crew Chief
2017 Johns Hopkins University excavation, Kurd Qaburstan, Iraq| Associate Director, Surveyor and Excavator
2011-2013 EAC/Archaeology, Inc.| Archaeological Technician
2010-2011 Historic St. Mary's City| Archaeological Laboratory Technician
2008-2009 Antietam National Battlefield| Laborer STEP 1, Cultural Resources Management
2007-2008 Historic Preservation Associates, Inc.| Construction Laborer

Selected Past Projects
Archaeological/Architectural Historic Preservation Services at Washington Dulles International and Ronald Reagan Washington National Airports, Western Solar Development Cultural Resources Studies. *Loudoun and Fairfax Counties, VA*
Stickfoot Branch Geomorphological study. *Washington D.C.*
Phase II Archaeological Evaluation for Site 18AN1598, Spriggs Farm Emergency Shoreline Restoration, *Arnold, Anne Arundel County, Maryland*.
Phase I Archaeological Survey for the Bluegrass Solar Project, *Queen Anne's County, Maryland*.
Swopes Valley Run Geomorphological study. *Schuykill County, Pennsylvania.*
Geomorphological study of a variably disturbed upland landscape and a Holocene terrace of the Potomac River near the Capital Beltway crossing of the river in Montgomery County, Maryland. *Montgomery County, Maryland.*
Phase II Evaluation and Phase III Data Recovery for Point Lookout Light Station (Site 18ST61), Lighthouse Restoration, *Scotland, St. Mary's County, Maryland*
Geomorphological study of the roughly 1,000-acre Higbee Beach Wildlife Management Area, *Cape May, New Jersey*.
Phase I Survey and metal detector survey along Rt. 28, *Centerville, Virginia*.
Geomorphological study of the Aquashicola Creek Valley, *Palmerton, Carbon County, Pennsylvania*.

Geomorphological study of the Kanawha River across a roughly 10-acre tract*, Black Betsey, Putnam County, West Virginia*.
Geomorphological study of at multiple stream crossings along a 17-mile stretch of the Baltimore Washington Parkway, *Anne Arundel and Prince Georges Counties, Maryland*.
Geomorphological study of a Pleistocene slackwater terrace along the Little Kanawha River, *Henrietta Calhoun County, West Virginia*.
Geomorphological study at the Manoa Street Bridge over Cobbs Creek. *Delaware County, Pennsylvania*
Geomorphological study of the grounds of Kimball Elementary School, *Southeast Washington, D.C.*
Geomorphological study of Thompson Run. *Turtle Creek, Pennsylvania*
Phase 1 Archaeological Survey for the Checkerspot Solar Farm Project. *Anne Arundel County, Maryland*
Phase 1 Archaeological Survey of Bathian Solar Farm Project. *Anne Arundel County, Maryland.*
Phase 1 Archaeological Survey of Patuxent Solar Farm Project. *Anne Arundel County, Maryland.*
Geomorphological study of Sawmill Run at the confluence with the Susquehanna River. *York County, Pennsylvania.*
Geomorphological study of the Schuykill River adjacent to the Miller Street Bridge. *Shoemakersville, Pennsylvania.*
Geomorphological study of a 2.5 km segment of a planned sewer line along Tacony Creek. *Cheltenham Township, Philadelphia, Pennsylvania.*
Geomorphological study of a planned 6-km transmission line route adjacent to the Schuykill River. *Birdsboro, Pennsylvania.*
Archaeological Monitoring of stormwater management infrastructure, Harper's Ferry National Historical Park. *Harper's Ferry National Park, West Virginia.*
Archaeological and Geomorphological Monitoring of Utility Construction, Cheltenham Township Pennsylvania. *Cheltenham Township Pennsylvania*

Selected Papers and Publications

It Takes A Village: Utilizing a synthesis of old and new data to better understand the patterning of workers' housing of iron furnaces in western Maryland. Society for Historical Archaeology annual meeting, January 2018
Stocking Stuffers: The discovery of 100 articles of clothing from an iron-workers cottage. Mid Atlantic Archaeological Conference, March 2017
XRF analysis on metal objects from Catoctin and Cornwall Furnaces and the implications for the labor force. Society for Historical Archaeology annual meeting, January 2015

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Teresa (Tery) Harris, MA
Project Archaeologist

Tery Harris has more than 37 years experience working in all phases of archaeological investigations in the Mid-Atlantic region. Her past work includes all levels of expertise from field crew to Principal Investigator. Her responsibilities have included field and laboratory work and supervision, artifact analysis, preparation of CAD and GIS graphics, archival research, report writing, and public education and interpretation. Ms. Harris is a specialist in Historical Archaeology, with experience in both historic and prehistoric field investigations. She also has related experience in historical documentation and archival research in the Mid-Atlantic and New England regions.

Ms. Harris will serve as archival researcher for the project. She will be in charge of archival background research and may assist in the preparation of the technical report.

Resident of Silver Spring, MD

Education

University of Maryland, College Park, B.A. Anthropology, 1988
Brandeis University, M. A. Anthropology, 1992

Professional Experience

37 years
2005 - Present EAC Archaeology, Inc. | Project Archaeologist
2003—2005 ARCH2, Inc, | Principal Investigator
1996-2002 Joseph Hopkins Associates, Inc | Project Archaeologist
1995 Baltimore Center for Urban Archaeology | Project Archaeologist
1994-1995 KEMRON Environmental | Archaeologist
1988-1994 Various private companies and public organizations | Field Technician and Crew Chief

Select Project Experience

Archaeological Survey and Evaluation Investigations for the Proposed Baltimore Gas and Electric Granite Pipeline Relocation Project Phase 2| *Baltimore, MD*
Assessment of Archaeological Potential, West Point Cemetery Expansion Project, West Point Military Academy| *West Point, NY*
Assessment of Archaeological Potential and Project Impact, WSSC SR3-Western Branch Basin | *Prince George's County, MD*
Archaeological Survey, Monitoring, and Assessment of Unanticipated Finds at the Old Naval Hospital, Site 57SE037, Southeast District of Columbia | *Washington, DC*
Assessment of Archaeological Potential for the Proposed Multimodal Improvements to Columbia Pike (S.R.244) from South Joyce Street to South Jefferson Street | *Arlington County, VA*
Assessment of Archaeological Potential for Pennsylvania Avenue at Minnesota Avenue (Twinings Square)| *Washington, DC*
Archaeological Survey and Evaluation Investigations for the Proposed 11th Street Bridges Improvement Project | *Washington, DC*
Archaeological Assessment of Potential for the Proposed Pennsylvania Avenue and Potomac Avenue Intersection Improvements Project | *Washington, DC*
Archaeological Assessment for the Cooperative Development of the Arlington County North Tract Park, Including the NPS Long Bridge Park and Gravelly Point Properties| *Arlington, VA*
Combined Assessment and Archaeological Survey, 18 BC 111 Hampstead Hill Site, Johns Hopkins Hospital Campus| *Baltimore, MD* (with BCUA)

Determination of Eligibility, Maryland School for the Deaf, *Frederick, Maryland* (Historic Context)
Archaeological Survey for the Proposed Checkerspot Solar Farm Site | *Tracey's Landing, MD*
Archaeological Survey for the Proposed Bathian Solar Farm Site | *Lothian, MD*
Archaeological Survey the Proposed Monarch Solar Farm Solar Array C and the Associated Limit of Disturbance, Weston Plantation | *Upper Marlboro, VA*
Archaeological Survey for the Proposed Patuxent Solar Farm Site | *Mt Pleasant, MD*
Archaeological Survey for Crofton High School | *Crofton, MD*
Phase I Archaeological Survey of the Recovery Center of America Melwood Road Facility Parcel | *Westphalia, MD*
Assessment of Archaeological Potential within the Proposed Westside Regional Park, Frederick County, Maryland | *Frederick, MD*
Archaeological Survey to Relocate the Mount St. Mary's Site (18FR379) Prior to Improvement to US Route 15, South of Orndorff Road to North of College Lane | *Frederick County, MD*
Archaeological Survey for the Manassas Regional Airport West Corporate Development Environmental Assessment | *Prince William County, VA*
Archaeological Survey for the Proposed Improvements of the I-70/MD 144 Interchange | *Frederick County, MD*
Archeological Survey for the Proposed Phase I Improvements, Martin State Airport | *Middle River, MD*
Archaeological Survey MD 25 over Georges Run | *Baltimore County, MD*
Assessment of Archaeological Potential and Project Impact, North Branch Hiker-Biker Trail | *Montgomery County, MD*
Archaeological Survey for the Proposed Baltimore Gas and Electric Dublin Gas Line Reinforcement Project Phase 2, Churchville and Dublin Vicinities | *Harford County, MD*
Archival Research for the Multidisciplinary Study of Catoctin Furnace African American Burial Ground, *Catoctin Furnace, MD.*

EAC/A

Elizabeth Anderson Comer / Archaeology

Paula Stoner Reed, PhD
Senior Architectural Historian

Ms. Reed has been conducting built environment resource surveys, evaluations of eligibility, and preparing National Register of Historic Places nominations since 1973 when she first served as the consultant for the Washington County Historic Sites Survey for the Maryland Historical Trust and Washington County Planning Commission. Since that time Ms. Reed has served as staff at the National Register of Historic Places, taught architectural history and Historic Preservation at Wilson College, Shepherd College, the National Park Service, and the US Fish and Wildlife Service. She has served as a consultant for multiple towns, counties, and private clients as Company Principal of Preservation Associates, Inc. and later Paula S Reed and Associates, Inc. She has prepared National Register Nominations for single properties, districts, and cultural landscapes, and completed both county-wide and smaller focused built environment resource surveys, and prepared Determinations of Eligibility for resources across multiple states and regions within the United States.

Ms. Reed will serve as Architectural Historian for the project. She will be in charge of Built Environment and Cultural Landscape studies for the project, and will assist in the preparation of the technical report.

Resident of Pennsylvania

Education

Wilson College, Bachelor of Arts, American Civilization 1970
George Washington University, Master of Arts, American Civilization 1973
George Washington University, Doctor of Philosophy, American Civilization 1988

Professional Experience

52 years

2012-present Architectural Historian and Historic Preservation Specialist, EAC/A, Inc., Baltimore, MD
1996-2020 Company Principal and Historic Preservation Specialist, Paula S. Reed and Associates, Inc.
1977-1996 Architectural Historian, Preservation Consultant, Preservation Associates, Inc
1980, 1984 Architectural Historian, Historian, National Register of Historic Places, National Park Service
1973-1978 Architectural Historian (Consultant), Washington County, Maryland, Historic Sites Survey Maryland Historical Trust and the Washington County Planning Commission

Selected Past Projects

MDNR Bear Creek Fish Hatchery, Garrett County, MD, MIHP and DOE documentation. 2019.
MDNR Property at 32329 Spearin Road, Salisbury, MD, historic research and evaluation services for a Determination of Eligibility. 2019.
MDNR Property at 598 Dave Dixon Road. Friendsville, MD, historic research and evaluation services for a Determination of Eligibility. 2018.
Gladieux Corporation In-Flight Kitchen, Dulles Washington International Airport, Loudon and Fairfax Counties, VA. 2018.
First State National Historical Park, Historic Resource Study, multiple resources, New Castle, DE. 2018.
Fort Brown, Brownsville, TX; NHL documentation update. 2018.
Monocacy National Battlefield, Frederick, MD; Administrative History. 2018
MDNR Sang Run Election House, Sang Run State Park, Sang Run, MD, intensive architectural survey and DOE documentation. 2017.

Mount Rushmore National Memorial, Keystone, ND, Historic Resource Study. 2017.
Monocacy National Battlefield, Frederick, MD; NHL documentation update. 2017.
Nicodemus, Kansas; NHL documentation update. 2017.
MDNR Property at 1402 Dent Road, Churchton, MD, MIHP and DOE documentation. 2016.
MDNR Haines Property, Monument Road, Myersville, MD, MIHP and DOE documentation. 2016.
MDNR Milburn Landing at Pocomoke River State Park, Worcester County, MD, MIHP and DOE documentation. 2014.
Fort Smith National Historic Site, Fort Smith, AR; NHL documentation update. 2014.
MDNR Fair Hill NRMA, Cecil County, MD, Reconnaissance and Intensive Built Environment Study. 2014.
Hinchliffe Stadium, Paterson, NJ; NHL documentation. 2013.
Mountain Meadows Massacre District, SW Utah; NHL documentation. 2010.
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Appendix II:
STP Descriptions

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
NB2	I	0	16	7.5YR 3/3 DARK BROWN SILT LOAM	5% GRAVEL 5% COBBLES	N	
NB2	II	16	26	5YR 5/6 YELLOWISH RED COARSE SAND		N	
NB2	III	26	39	5YR 5/6 YELLOWISH RED FINE SAND		N	
NB3	I	0	13	7.5YR 3/3 DARK BROWN SAND SILT LOAM	5% GRAVEL	N	
NB3	II	13	28	7.5YR 4/6 STRONG BROWN SAND LOAM	5% GRAVEL	N	
NB3	III	28	70	10YR 7/3 VERY PALE BROWN GRAVELLY COARSE S	5% GRAVEL	N	
NC10	I	0	31	7.5YR 3/3 DARK BROWN SILT LOAM	15% GRAVEL 10% COBBLES	N	
NC10	II	31	43	5YR 5/6 YELLOWISH RED SAND		N	
NC11	I	0	39	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NC11	II	39	51	5YR 5/6 YELLOWISH RED SAND		N	
NC12	I	0	35	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NC12	II	35	41	7.5YR 5/6 STRONG BROWN GRAVELLY SAND LOAM	10% GRAVEL	N	
NC12	III	41	52	5YR 5/6 YELLOWISH RED SAND		N	
NC13	I	0	11	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NC13	II	11	22	5YR 4/4 REDDISH BROWN GRAVELLY SAND LOAM	15% GRAVEL	N	
NC13	III	22	33	5YR 5/6 YELLOWISH RED SAND	10% GRAVEL	N	
NC14	I	0	28	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NC14	II	28	38	7.5YR 5/6 STRONG BROWN SAND LOAM	15% GRAVEL	N	
NC15	I	0	30	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NC15	II	30	42	5YR 4/6 YELLOWISH RED GRAVELLY SAND	10% GRAVEL	N	
NC16	I	0	25	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NC16	II	25	38	7.5YR 5/6 STRONG BROWN GRAVELLY SAND LOAM	10% GRAVEL	N	
NC17	I	0	27	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NC17	II	27	36	5YR 4/4 REDDISH BROWN SAND LOAM	10% GRAVEL	N	
NC17	III	36	47	7.5YR 5/6 STRONG BROWN GRAVELLY SAND	10% GRAVEL	N	
NC18	I	0	16	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NC18	II	16	30	5YR 4/4 REDDISH BROWN SAND LOAM	10% GRAVEL	N	
NC18	III	30	41	5YR 4/6 YELLOWISH RED GRAVELLY SAND	10% GRAVEL	N	
NC19	I	0	22	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NC19	II	22	29	5YR 4/4 REDDISH BROWN GRAVELLY SAND	10% GRAVEL	N	
NC19	III	29	40	5YR 4/6 YELLOWISH RED GRAVELLY SAND	10% GRAVEL	N	
NC2	I	0	22	7.5YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL	N	
NC2	II	22	35	5YR 5/6 YELLOWISH RED SAND		N	
NC20	I	0	19	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NC20	II	19	28	7.5YR 4/6 STRONG BROWN SAND LOAM	10% GRAVEL	N	
NC20	III	28	40	5YR 4/6 YELLOWISH RED GRAVELLY SAND	10% GRAVEL	N	
NC21	I	0	19	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NC21	II	19	30	5YR 4/4 REDDISH BROWN GRAVELLY SAND	10% GRAVEL	N	
NC3	I	0	24	7.5YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL 5% COBBLES	N	
NC3	II	24	37	5YR 5/6 YELLOWISH RED SAND		N	STRAT II HAIRLINE LAMELLES
NC4	I	0	15	5YR 4/4 REDDISH BROWN SAND LOAM		N	
NC4	II	15	25	5YR 5/6 YELLOWISH BROWN SAND		N	

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
NC4	III	25	35	5YR 4/6 YELLOWISH RED SAND LOAM		N	
NC5	I	0	23	7.5YR 3/3 DARK BROWN SILT LOAM	15% GRAVEL 5% COBBLES	N	
NC5	II	23	37	7.5YR 5/6 STRONG BROWN SAND LOAM	15% GRAVEL	N	
NC5	III	37	47	5YR 5/6 YELLOWISH RED SAND		N	
NC6	I	0	23	5YR 4/4 REDDISH BROWN SAND LOAM		N	
NC6	II	23	35	5YR 5/6 YELLOWISH BROWN SAND		N	
NC7	I	0	20	7.5YR 3/3 DARK BROWN SILT LOAM	5% GRAVEL	N	
NC7	II	20	36	5YR 5/6 YELLOWISH RED SAND		N	STRAT II CONTAINS HAIRLINE LAMELLES
NC8	I	0	23	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 5% COBBLES	N	
NC8	II	23	28	7.5YR 5/6 STRONG BROWN SAND LOAM	10% GRAVEL	N	
NC8	III	28	38	5YR 5/6 YELLOWISH RED SAND		N	
NC9	I	0	31	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NC9	II	31	35	7.5YR 5/6 STRONG BROWN SAND LOAM	20% GRAVEL	N	
NC9	III	35	49	5YR 5/6 YELLOWISH RED SAND		N	
ND10	I	0	28	7.5YR 3/4 DARK BROWN SAND LOAM	20% ROUNDED GRAVEL LARG	N	
ND10	II	28	41	5YR 5/6 YELLOWISH RED SAND	20% ROUNDED GRAVEL	N	
ND11	I	0	33	7.5YR 3/4 DARK BROWN SAND LOAM	20% ROUNDED GRAVEL LARG	N	
ND11	II	33	45	5YR 4/6 YELLOWISH RED LOAM SAND	20% ROUNDED GRAVEL	N	
ND12	I	0	24	7.5YR 3/4 DARK BROWN SAND LOAM	20% ROUNDED GRAVEL	N	
ND12	II	24	42	50% 5YR 4/6 YELLOWISH RED SAND LOAM 50% 5Y	15% ROUNDED GRAVEL	N	
ND13	I	0	15	7.5YR 3/4 SAND LOAM	20% ROUNDED COBBLES	MODERN CLEAR BOTTLE GLASS	
ND13	II	15	37	5YR 5/4 REDDISH BROWN FINE SAND	10% ROUNDED COBBLES	N	
ND14	I	0	21	7.5YR 3/4 DARK BROWN SAND LOAM	20% ROUNDED GRAVEL	N	
ND14	II	21	32	5YR 5/6 YELLOWISH RED LOAM SAND	15% GRAVEL	N	
ND15	I	0	15	7.5YR 3/4 DARK BROWN SAND LOAM	15% ROUNDED GRAVEL	N	
ND15	II	15	37	5YR 4/6 YELLOWISH RED COARSE LOAM SAND	20% ROUNDED GRAVEL	N	
ND15	III	37	47	5YR 5/4 REDDISH BROWN FINE SAND		N	
ND16	I	0	33	7.5YR 3/4 DARK BROWN LOAM SAND	20% ROUNDED GRAVEL	WIRE. ROUND NAIL	
ND16	II	33	47	5YR 4/4 REDDISH BROWN SAND	20% ROUNDED GRAVEL	N	
ND17	I	0	13	7.5YR 3/3 DARK BROWN LOAM		N	
ND17	II	13	45	7.5YR 4/4 BROWN LOAM SAND	25% ROUNDED COBBLES	SEWER TILE. ASPHALT. NOT COLLECTED	
ND18	I	0	14	7.5YR 3/3 DARK BROWN LOAM		N	
ND18	II	14	28	5YR 4/4 REDDISH BROWN SAND	15% COBBLES	N	
ND18	III	28	50	50% 5YR 4/6 YELLOWISH RED COARSE SAND 50% 5	25% ROUNDED GRAVEL	N	
ND19	I	0	18	7.5YR 3/3 DARK BROWN LOAM	15% ROUNDED GRAVEL	N	
ND19	II	18	38	5YR 4/6 YELLOWISH RED COARSE SAND	25% ROUNDED GRAVEL	N	
ND20	I	0	10	7.5YR 3/3 DARK BROWN LOAM		COAL	

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
ND20	II	10	25	7.5YR 4/4 REDDISH BROWN LOAM SAND		N	
ND20	III	25	45	5YR 4/6 YELLOWISH RED COARSE SAND	30% ROUNDED GRAVEL	N	
ND21	I	0	19	7.5YR 3/3 DARK BROWN LOAM		N	
ND21	II	19	32	7.5YR 4/4 REDDISH BROWN FILL LOAM SAND	25% ROUNDED GRAVEL ASPH	N	
ND21	III	32	60	5YR 4/6 YELLOWISH RED COARSE SAND	35% ROUNDED COBBLE AND (	N	
ND3	I	0	23	7.5YR 3/3 DARK BROWN SAND SILT LOAM	15% GRAVEL 5% COBBLES	N	
ND3	II	23	26	5YR 4/4 REDDISH BROWN FINE SAND		N	
ND3	III	26	39	5YR 6/4 LIGHT REDDISH BROWN COARSE SAND		N	
ND4	I	0	20	7.5YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL 5% COBBLES	N	
ND4	II	20	34	5YR 5/6 YELLOWISH RED SAND LOAM		N	
ND5	I	0	14	7.5YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL 10% COBBLES	N	
ND5	II	14	23	5YR 4/4 REDDISH BROWN SAND LOAM	5% GRAVEL	N	
ND5	III	23	29	7.5YR 5/4 BROWN SAND LOAM	20% COBBLES	N	
ND6	I	0	27	7.5YR 3/3 DARK BROWN SILT LOAM	5% GRAVEL 5% COBBLES	N	
ND6	II	27	47	10YR 7/3 VERY PALE BROWN COARSE SAND	5% GRAVEL	N	
ND7	I	0	29	7.5YR 3/4 DARK BROWN SAND LOAM	20% ROUNDED GRAVEL	N	
ND7	II	29	36	50% 7.5YR 3/2 DARK BROWN COARSE SAND 7.5YR	1% ROUNDED GRAVEL SMALL	N	
ND7	III	36	41	5YR 5/4 REDDISH BROWN FINE SAND		N	
ND7	IV	41	50	5YR 6/4 LIGHT REDDISH BROWN FINE SAND		N	LAMELLE IN SANDS
ND8	I	0	26	7.5YR 3/4 DARK BROWN SAND LOAM	20% ROUNDED GRAVEL	N	
ND8	II	26	40	5YR 5/4 REDDISH BROWN FINE SAND		N	
ND9	I	0	30	7.5YR 3/4 DARK BROWN SAND LOAM	20% ROUNDED COBBLES	N	
ND9	II	30	38	7.5YR 4/4 BROWN LOAM SAND	FE STAINS 15% ROUNDED COI	N	
ND9	III	38	49	50% 5YR 4/4 REDDISH BROWN FINE SAND 50% 5YR 6/2 PINKISH GRAY FINE SANI		N	
NE10	I	0	25	7.5YR 3/3 DARK BROWN SILT LOAM	15% GRAVEL 5% COBBLES	N	
NE10	II	25	38	5YR 4/6 YELLOWISH RED SAND	10% GRAVEL	N	STRAT II CONTAINS LAMELLES
NE11	I	0	20	7.5YR 3/3 DARK BROWN SILT LOAM	15% GRAVEL 10% COBBLES	1X METAL HARDWARE	
NE11	II	20	40	7.5YR 4/6 STRONG BROWN GRAVELLY SAND LOAM	15% GRAVEL	N	
NE11	III	40	44	5YR 5/6 YELLOWISH RED SAND		N	
NE11	IV	44	54	5YR 4/6 YELLOWISH RED GRAVELLY SAND LOAM	5% GRAVEL	N	
NE12	I	0	24	7.5YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL	N	
NE12	II	24	40	5YR 5/6 YELLOWISH RED SAND		N	
NE13	I	0	16	7.5YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL	N	
NE13	II	16	30	5YR 5/6 YELLOWISH RED SAND		N	STRAT II CONTAINS LAMELLES
NE14	I	0	24	7.5YR 3/3 DARK BROWN SILT LOAM	15% GRAVEL 10% COBBLES	N	
NE14	II	24	37	5YR 5/6 YELLOWISH RED SAND	10% GRAVEL	N	
NE15	I	0	25	7.5YR 3/3 DARK BROWN SILT LOAM	15% GRAVEL 10% COBBLES	N	
NE15	II	25	37	5YR 5/6 YELLOWISH RED SAND	10% GRAVEL	N	
NE16	I	0	21	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NE16	II	21	32	7.5YR 5/6 STRONG BROWN SAND LOAM	15% GRAVEL	N	
NE16	III	32	42	5YR 5/6 YELLOWISH RED GRAVELLY SAND	15% GRAVEL	N	

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
NE17	I	0	22	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NE17	II	22	37	5YR 4/4 REDDISH BROWN GRAVELLY SAND LOAM	15% GRAVEL	N	
NE17	III	37	47	5YR 5/6 YELLOWISH RED GRAVELLY SAND	15% GRAVEL	N	
NE18	I	0	17	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NE18	II	17	26	5YR 4/4 REDDISH BROWN GRAVELLY SAND LOAM	15% GRAVEL	N	
NE18	III	26	40	5YR 5/6 YELLOWISH RED GRAVELLY SAND	15% GRAVEL	N	
NE19	I	0	18	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NE19	II	18	37	5YR 4/4 REDDISH BROWN GRAVELLY SAND LOAM	15% GRAVEL 5% COBBLES	N	
NE19	III	37	47	5YR 4/6 YELLOWISH RED GRAVELLY SAND	15% GRAVEL	N	
NE20	I	0	18	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NE20	II	18	33	5YR 4/4 REDDISH BROWN GRAVELLY SAND LOAM	15% GRAVEL 5% COBBLES	N	
NE20	III	33	50	5YR 4/6 YELLOWISH RED GRAVELLY SAND	15% GRAVEL	N	
NE21	I	0	21	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NE21	II	21	39	5YR 4/4 REDDISH BROWN GRAVELLY SAND LOAM	15% GRAVEL	N	
NE21	III	39	57	5YR 4/6 YELLOWISH RED GRAVELLY SAND	15% GRAVEL	N	
NE3	I	0	20	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 5% COBBLES	N	
NE3	II	20	35	7.5YR 4/6 STRONG BROWN GRAVELLY SAND	20% GRAVEL 10% COBBLES	N	
NE3	III	35	48	5YR 5/6 YELLOWISH RED SAND		N	
NE4	I	0	14	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NE4	II	14	21	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL	N	
NE4	III	21	39	7.5YR 4/6 STRONG BROWN GRAVELLY SAND LOAM	20% GRAVEL 20% COBBLES	N	
NE5	I	0	22	7.5YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL	N	
NE5	II	22	30	5YR 4/4 REDDISH BROWN SAND LOAM	10% GRAVEL 5% COBBLES	N	
NE5	III	30	42	5YR 5/6 YELLOWISH RED SAND		N	
NE6	I	0	17	7.5YR 3/3 DARK BROWN SAND LOAM	5% COBBLES	N	
NE6	II	17	30	7.5YR 3/4 DARK BROWN SAND LOAM		N	
NE6	III	30	45	5YR 4/4 REDDISH BROWN SAND		N	
NE7	I	0	16	7.5YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL	N	
NE7	II	16	32	7.5YR 3/4 DARK BROWN SAND LOAM	10% GRAVEL	N	
NE7	III	32	43	5YR 5/6 YELLOWISH RED SAND		N	
NE8	I	0	31	7.5YR 3/3 DARK BROWN SILT LOAM	15% GRAVEL 5% COBBLES	N	
NE8	II	31	52	5YR 5/6 YELLOWISH RED SAND		N	
NE9	I	0	30	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NE9	II	30	40	5YR 5/6 YELLOWISH RED SAND		N	
NF10	I	0	30	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NF10	II	30	39	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NF10	III	39	49	5YR 5/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NF11	I	0	28	7.5YR 3/4 DARK BROWN SILT LOAM		1X SURVEY NAIL	
NF11	II	28	35	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NF11	III	35	45	5YR 5/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NF12	I	0	29	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NF12	II	29	43	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
NF12	III	43	53	5YR 5/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NF13	I	0	17	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NF13	II	17	31	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NF13	III	31	41	5YR 5/3 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	3M E OFFSET DUE TO FARM PATH
NF14	I	0	15	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NF14	II	15	38	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NF14	III	38	48	5YR 3/3 DARK REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NF15	I	0	19	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NF15	II	19	37	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NF15	III	37	47	5YR 3/3 DARK REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NF16	I	0	21	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NF16	II	21	38	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NF16	III	38	48	5YR 3/3 DARK REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NF17	I	0	18	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NF17	II	18	29	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NF17	III	29	43	5YR 3/3 DARK REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NF18	I	0	16	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NF18	II	16	39	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NF18	III	39	49	5YR 3/3 DARK REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NF19	I	0	22	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NF19	II	22	43	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NF19	III	43	53	5YR 3/3 DARK REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NF20	I	0	21	10YR 3/3 DARK YELLOWISH BROWN SILT LOAM		N	
NF20	II	21	36	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NF20	III	36	46	5YR 4/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NF21	I	0	13	10YR 3/3 DARK YELLOWISH BROWN SILT LOAM		N	
NF21	II	13	39	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NF21	III	39	51	5YR 4/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NF4	I	0	23	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NF4	II	23	36	5YR 4/4 REDDISH BROWN COARSE SAND	20% GRAVEL 10% COBBLES	N	
NF5	I	0	22	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NF5	II	22	32	5YR 5/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NF6	I	0	41	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NF6	II	41	51	5YR 5/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NF7	I	0	30	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NF7	II	30	40	5YR 5/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NF8	I	0	31	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NF8	II	31	41	5YR 5/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	LAMELLI? IN STRAT II
NF9	I	0	30	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NF9	II	30	40	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NF9	III	40	50	5YR 5/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NG10	I	0	16	10YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL	N	

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
NG10	II	16	26	10YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL	N	
NG10	III	26	37	7.5YR 4/4 BROWN SAND		N	
NG11	I	0	15	10YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL	1X NAIL 1X FE	
NG11	II	15	32	10YR 3/3 DARK BROWN SILT LOAM	25% GRAVEL	N	
NG11	III	32	44	7.5YR 4/4 BROWN SAND		N	
NG12	I	0	24	10YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL	N	
NG12	II	24	33	7.5YR 4/4 BROWN SAND		N	
NG13	I	0	16	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL	N	
NG13	II	16	33	10YR 3/3 DARK BROWN COARSE SAND	25% GRAVEL	N	
NG13	III	33	41	7.5YR 4/4 BROWN SAND		N	
NG14	I	0	17	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL	N	
NG14	II	17	33	10YR 4/4 DARK YELLOWISH BROWN COARSE SAND	20% GRAVEL 15% COBBLES	N	
NG15	I	0	16	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL	N	
NG15	II	16	36	7.5YR 4/6 STRONG BROWN SAND	20% GRAVEL	N	
NG16	I	0	15	7.5YR 3/2 DARK BROWN SILT LOAM	20% GRAVEL	N	
NG16	II	15	32	7.5YR 4/4 BROWN SAND	25% GRAVEL	N	
NG16	III	32	45	7.5YR /43 BROWN COARSE SAND	15% GRAVEL	N	
NG17	I	0	20	7.5YR 3/2 DARK BROWN SILT LOAM	15% GRAVEL 5% COBBLES	N	
NG17	II	20	32	7.5YR 4/4 BROWN SAND	20% GRAVEL 10% COBBLES	N	
NG17	III	32	42	7.5YR /43 BROWN COARSE SAND	20% GRAVEL	N	
NG18	I	0	19	7.5YR 3/2 DARK BROWN SILT LOAM	10% GRAVEL	COAL ASPHALT	
NG18	II	19	30	7.5YR 4/4 BROWN SAND	20% GRAVEL 5% COBBLES	N	
NG18	III	30	41	7.5YR /43 BROWN COARSE SAND	10% GRAVEL	N	
NG19	I	0	19	10YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL	N	
NG19	II	19	31	10YR 4/4 DARK YELLOWISH BROWN SAND	25% GRAVEL 10% COBBLES	N	
NG19	III	31	40	7.5YR 4/6 STRONG BROWN SAND	20% GRAVEL	N	
NG19	IV	40	51	7.5YR 3/4 DARK BROWN SAND	10% GRAVEL	N	
NG20	I	0	18	7.5YR 3/2 DARK BROWN SILT LOAM	15% GRAVEL	N	
NG20	II	18	37	7.5YR 4/4 BROWN SAND	20% GRAVEL 10% COBBLES	N	
NG20	III	37	54	7.5YR 4/3 BROWN SAND	20% GRAVEL 10% COBBLES	N	
NG21	I	0	20	7.5YR 3/2 DARK BROWN SILT LOAM	20% GRAVEL	N	
NG21	II	20	41	7.5YR 4/4 BROWN SAND	25% GRAVEL 10% COBBLES	N	
NG21	III	41	52	7.5YR 4/3 BROWN SAND	25% GRAVEL 10% COBBLES	N	
NG4	I	0	22	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NG4	II	22	39	5YR 5/6 YELLOWISH RED GRAVELLY SAND	10% GRAVEL	N	
NG5	I	0	27	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 5% COBBLES	N	
NG5	II	27	38	5% 5/6 YELLOWISH RED GRAVELLY SAND	10% GRAVEL	N	
NG6	I	0	24	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL	N	
NG6	II	24	32	5YR 4/6 YELLOWISH RED SAND LOAM		N	
NG6	III	32	42	5YR 6/4 LIGHT REDDISH BROWN SAND		N	
NG7	I	0	28	7.5YR 4/3 BROWN SAND	5% GRAVEL	N	
NG7	II	28	47	7.5YR 3/4 DARK BROWN COARSE SAND	10% GRAVEL	N	

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
NG8	I	0	12	10YR 3/4 DARK YELLOWISH BROWN SAND	10% GRAVEL	N	
NG8	II	12	24	10YR 3/4 DARK YELLOWISH BROWN SAND	15% GRAVEL	N	
NG8	III	24	35	7.5YR 4/4 BROWN SAND		N	
NG9	I	0	25	10YR 3/3 DARK BROWN SILT LOAM	30% GRAVEL	N	
NG9	II	25	36	7.5YR 4/4 BROWN SAND		N	
NH10	I	0	29	7.5YR 3/4 DARK BROWN SILT LOAM		1X BOTTLE GLASS	
NH10	II	29	42	5YR 4/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NH11	I	0	23	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NH11	II	23	35	5YR 4/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NH12	I	0	21	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NH12	II	21	42	5YR 4/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NH13	I	0	21	7.5YR 3/4 DARK BROWN SILT LOAM		1X BOTTLE GLASS	
NH13	II	21	34	5YR 4/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NH14	I	0	25	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NH14	II	25	44	5YR 4/3 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NH14	III	44	54	5YR 4/4 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NH15	I	0	25	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NH15	II	25	41	5YR 4/3 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NH15	III	41	54	5YR 4/4 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NH16	I	0	23	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NH16	II	23	37	5YR 4/3 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NH16	III	37	51	5YR 4/4 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NH17	I	0	18	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NH17	II	18	30	5YR 4/6 YELLOWISH RED SAND	20% GRAVEL	N	
NH18	I	0	20	7.5YR 3/3 DARK BROWN SILT LOAM	15% GRAVEL 5% COBBLES	N	
NH18	II	20	33	5YR 5/6 YELLOWISH RED SAND		N	
NH19	I	0	16	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NH19	II	16	25	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NH19	III	25	37	5YR 4/6 YELLOWISH RED SAND	10% GRAVEL	N	
NH20	I	0	18	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NH20	II	18	25	5YR 4/4 REDDISH BROWN SAND LOAM	25% GRAVEL 10% COBBLES	N	GRAVEL IMPASSE
NH21	I	0	16	7.5YR 3/3 DARK BROWN SILT LOAM	15% GRAVEL 10% COBBLES	N	
NH21	II	16	37	5YR 4/4 REDDISH BROWN GRAVELLY SAND	20% GRAVEL 15% COBBLES	N	
NH21	III	37	47	5YR 4/6 YELLOWISH RED SAND	10% GRAVEL	N	
NH5	I	0	26	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NH5	II	26	43	5YR 4/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NH6	I	0	27	7.5YR 3/4 DARK BROWN SILT LOAM		1X COPPER WIRE 1X WINDOW GLASS	
NH6	II	27	37	5YR 4/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NH7	I	0	29	7.5YR 3/4 DARK BROWN SILT LOAM		2X BOTTLE GLASS	
NH7	II	29	45	5YR 4/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
NH8	I	0	24	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NH8	II	24	34	5YR 4/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NH9	I	0	31	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NH9	II	31	46	5YR 4/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NI10	I	0	15	7.5YR 3/2 DARK BROWN SAND LOAM	15% COBBLES 10% GRAVEL	N	
NI10	II	15	33	7.5YR 4/4 BROWN SAND	15% COBBLES 5% GRAVEL	N	
NI10	III	33	42	7.5YR 5/4 BROWN SAND		N	
NI11	I	0	14	7.5YR 3/2 DARK BROWN SAND LOAM	10% GRAVEL 10% COBBLES	N	
NI11	II	14	44	7.5YR 4/4 BROWN SAND	15% COBBLES 10% GRAVEL	N	
NI11	III	44	54	7.5YR 5/4 BROWN SAND		N	
NI12	I	0	20	7.5YR 3/2 DARK BROWN SAND LOAM	15% GRAVEL 5% COBBLES	N	
NI12	II	20	45	7.5YR 5/4 BROWN SAND		N	LENS 7.5YR 2.5/1 LOAM IN NE WALL BETWEEN STRAT I/II. LAMELLAE STRAT II
NI12	LENS			7.5YR 2.5/1 BLACK LOAM		N	
NI13	I	0	16	7.5YR 3/2 DARK BROWN SAND LOAM	15% GRAVEL 10% COBBLES	N	
NI13	II	16	41	7.5YR 4/4 BROWN COARSE SAND	20% GRAVEL	N	
NI13	III	41	45	7.5YR 5/4 BROWN COARSE SAND		N	
NI13	IV	45	52	7.5YR 4/4 BROWN FINE SAND		N	
NI14	I	0	18	7.5YR 3/2 DARK BROWN SAND LOAM	15% GRAVEL 5% COBBLES	N	
NI14	II	18	38	7.5YR 4/4 BROWN COARSE SAND	10% COBBLES 10% GRAVEL	N	
NI14	III	38	48	7.5YR 5/4 BROWN SAND		N	
NI15	I	0	22	7.5YR 3/2 DARK BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NI15	II	22	51	7.5YR 4/4 BROWN COARSE SAND	25% GRAVEL 10% COBBLES	N	
NI16	I	0	18	7.5YR 3/2 DARK BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NI16	II	18	40	7.5YR 4/4 BROWN COARSE SAND	25% GRAVEL 10% COBBLES	N	
NI16	III	40	50	7.5YR 5/4 BROWN SAND		N	
NI17	I	0	21	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 5% COBBLES	N	
NI17	II	21	30	5YR 4/4 REDDISH BROWN SAND LOAM	10% GRAVEL	N	
NI17	III	30	42	5YR 5/6 YELLOWISH RED SAND	10% GRAVEL	N	
NI18	I	0	17	7.5YR 3/3 DARK BROWN LOAM		N	
NI18	II	17	60	5YR 4/4 REDDISH BROWN LOAM SAND	20% GRAVEL 10% COBBLES	N	
NI18	III	60	73	5YR 5/4 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	PLASTIC AND MODERN BOTTLE GLASS NOT COLLECTED FROM II
NI19	I	0	20	7.5YR 3/3 DARK BROWN LOAM		N	
NI19	II	20	32	7.5YR 4/6 STRONG BROWN LOAM SAND	20% GRAVEL 10% COBBLES	N	
NI19	III	32	45	5YR 4/4 REDDISH BROWN LOAM SAND	20% GRAVEL 10% COBBLES	N	
NI20	I	0	20	7.5YR 3/3 DARK BROWN LOAM		N	
NI20	II	20	27	7.5YR 4/6 STRONG BROWN LOAM SAND	15% GRAVEL 10% COBBLES	N	
NI20	III	27	45	5YR 4/4 REDDISH BROWN LOAM SAND	15% GRAVEL 10% COBBLES	N	
NI20	IV	45	60	5YR 4/6 YELLOWISH RED COARSE SAND	20% GRAVEL 10% COBBLES	N	PHOTOS TAKE, 100-0871 - 100-0873

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
NI6	I	0	20	7.5YR 3/2 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NI6	II	20	42	7.5YR 4/3 BROWN COARSE SAND	20% GRAVEL	N	
NI7	I	0	11	7.5YR 3/2 DARK BROWN LOAM SAND	20% GRAVEL 5% COBBLES	N	
NI7	II	11	20	7.5YR 4/4 BROWN SAND LOAM	20% GRAVEL 5% COBBLES	N	
NI7	III	20	25	7.5YR 3/3 DARK BROWN SAND	10% GRAVEL	1X NAIL/WIRE	
NI7	IV	25	35	50% 7.5YR 4/4 BROWN SAND 50% 7.5YR 5/4 BROWN SAND		N	
NI7 RE7.5M	I	0	20	7.5YR 3/4 DARK BROWN SAND LOAM		N	
NI7 RE7.5M	II	20	28	5YR 4/4 REDDISH BROWN FINE SAND LOAM	20% GRAVEL 10% COBBLES	N	
NI7 RE7.5M	III	28	37	7.5YR 4/6 STRONG BROWN LOOSE SAND	20% GRAVEL 10% COBBLES	N	
NI7 RE7.5M	IV	37	58	80% 5YR 5/3 REDDISH BROWN FINE SAND 20% 5YI	10% GRAVEL 5% COBBLES	N	
NI7 RN7.5M	I	0	21	7.5YR 3/3 DARK BROWN LOAM		N	
NI7 RN7.5M	II	21	35	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NI7 RN7.5M	III	35	45	5YR 5/4 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NI7 RS7.5M	I	0	26	7.5YR 3/3 DARK BROWN LOAM		N	
NI7 RS7.5M	II	26	38	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NI7 RS7.5M	III	38	48	5YR 5/4 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NI7 RW7.5M	I	0	16	7.5YR 3/3 DARK BROWN LOAM		N	
NI7 RW7.5M	II	16	27	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NI7 RW7.5M	III	27	37	5YR 5/4 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NI8	I	0	17	7.5YR 3/2 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NI8	II	17	28	5YR 3/3 DARK REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NI8	III	28	38	50% 7.5YR 4/4 BROWN SAND 50% 7.5YR 5/4 BROWN SAND		N	
NI9	I	0	15	7.5YR 3/2 DARK BROWN SAND LOAM	20% GRAVEL	N	
NI9	II	15	31	7.5YR 4/4 BROWN SAND	10% GRAVEL	N	
NI9	III	31	47	7.5YR 5/4 BROWN SAND		N	
NJ10	I	0	24	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NJ10	II	24	33	7.5YR 4/4 BROWN SAND	15% GRAVEL	N	
NJ10	III	33	50	10YR 6/4 LIGHT YELLOWISH BROWN SAND	5% COBBLES	N	
NJ11	I	0	15	7.5YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL 5% COBBLES	N	
NJ11	II	15	32	5YR 5/4 REDDISH BROWN SAND		N	
NJ12	I	0	16	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 5% COBBLES	N	
NJ12	II	16	30	5YR 4/6 YELLOWISH RED GRAVELLY SAND	15% GRAVEL	N	
NJ13	I	0	20	7.5YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL 5% COBBLES	N	
NJ13	II	20	36	5YR 5/6 YELLOWISH RED SAND		N	
NJ14	I	0	18	7.5YR 3/3 DARK BROWN SILT LOAM	15% GRAVEL 5% COBBLES	N	
NJ14	II	18	38	5YR 4/6 YELLOWISH RED SAND	10% GRAVEL	N	
NJ15	I	0	16	7.5YR 3/2 DARK BROWN SAND LOAM	15% GRAVEL 5% COBBLES	1X BOTTLE	
NJ15	II	16	45	7.5YR 4/4 BROWN SAND	15% GRAVEL	N	
NJ16	I	0	15	7.5YR 3/2 DARK BROWN SAND LOAM	20% GRAVEL 5% COBBLES	N	
NJ16	II	15	36	7.5YR 4/4 BROWN SAND	20% GRAVEL	N	
NJ16	III	36	47	7.5YR 5/4 BROWN SAND		N	
NJ17	I	0	24	7.5YR 3/3 DARK BROWN SAND SILT LOAM	20% GRAVEL 5% COBBLES	N	

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
NJ17	II	24	36	5YR 5/6 YELLOWISH RED SAND	5% COBBLES	N	
NJ18	I	0	17	7.5YR 3/3 DARK BROWN LOAM		N	
NJ18	II	17	36	5YR 4/4 REDDISH BROWN LOAM SAND	20% GRAVEL 10% COBBLES	N	
NJ18	III	36	53	5YR 5/4 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NJ19	I	0	17	7.5YR 3/3 DARK BROWN LOAM		N	
NJ19	II	17	36	5YR 4/4 REDDISH BROWN LOAM SAND	20% GRAVEL 10% COBBLES	N	
NJ19	III	36	50	5YR 4/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NJ20	I	0	13	7.5YR 3/3 DARK BROWN LOAM		N	
NJ20	II	13	34	5YR 4/4 REDDISH BROWN LOAM SAND	20% GRAVEL 10% COBBLES	N	
NJ20	III	34	50	5YR 4/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NJ7	I	0	15	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 5% COBBLES	N	
NJ7	II	15	32	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL 20% COBBLES	N	
NJ8	I	0	17	7.5YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL 10% COBBLES	N	
NJ8	II	17	35	5YR 5/4 REDDISH BROWN SAND	10% GRAVEL 20% COBBLES	N	
NJ9	I	0	31	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NJ9	II	31	45	10YR 6/4 LIGHT YELLOWISH BROWN SAND		N	
NK10	I	0	24	7.5YR 3/4 DARK BROWN SAND LOAM	20% ROUNDED GRAVEL	N	
NK10	II	24	35	5YR 4/4 REDDISH BROWN COARSE SAND	20% ROUNDED GRAVEL	N	
NK11	I	0	21	7.5YR 3/4 DARK BROWN SAND LOAM	20% ROUNDED GRAVEL	N	
NK11	II	21	35	5YR 4/4 REDDISH BROWN COARSE SAND	25% ROUNDED GRAVEL	N	
NK12	I	0	18	7.5YR 2.5/1 BROWN SILT LOAM		N	
NK12	II	18	31	5YR 4/4 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NK12	III	31	43	7.5YR 4/6 STRONG BROWN SAND		N	BANDAID IN STRAT II, ORGANIC LAYER, NOT COLLECTED
NK13	I	0	21	7.5YR 3/3 DARK BROWN SILT LOAM		N	
NK13	II	21	29	7.5YR 4/6 STRONG BROWN SAND		N	
NK13	III	29	41	2.5Y 3/1 VERY DARK GRAY LOAM		N	
NK13	IV	41	51	5YR 4/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	STRAT III HIGH ORGANIC CONTENT
NK14	I	0	32	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NK14	II	32	42	5YR 4/6 YELLOWISH RED SAND	20% GRAVEL 10% COBBLES	N	
NK15	I	0	18	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NK15	II	18	27	5YR 4/3 REDDISH BROWN SAND LOAM		N	
NK15	III	27	41	10YR 3/3 DARK BROWN SILT LOAM		N	
NK15	IV	41	51	5YR 4/4 REDDISH BROWN SAND		N	
NK16	I	0	24	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NK16	II	24	39	5YR 4/3 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NK16	III	39	49	5YR 4/4 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NK17	I	0	25	7.5YR 3/4 DARK BROWN SILT LOAM		N	
NK17	II	25	38	5YR 4/3 REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NK17	III	38	48	5YR 4/4 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NK18	I	0	19	7.5YR 3/4 DARK BROWN SILT LOAM	25% GRAVEL	N	
NK18	II	19	39	5YR 4/6 YELLOWISH RED SAND		N	

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
NK19	I	0	13	7.5YR 3/3 DARK BROWN SILT LOAM	15% GRAVEL 10% COBBLES	N	
NK19	II	13	33	5YR 4/4 REDDISH BROWN SAND LOAM	15% GRAVEL 5% COBBLES	N	
NK19	III	33	46	5YR 4/6 YELLOWISH RED GRAVELLY SAND	5% GRAVEL	N	
NK20	I	0	13	7.5YR 3/3 DARK BROWN SILT LOAM	15% GRAVEL 5% COBBLES	N	
NK20	II	13	35	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL 5% COBBLES	N	
NK20	III	35	45	5YR 4/6 YELLOWISH RED GRAVELLY SAND	20% GRAVEL	N	
NK8	I	0	15	7.5YR 3/4 DARK BROWN SAND LOAM	20% ROUNDED GRAVEL	N	
NK8	II	15	28	5YR 5/4 REDDISH BROWN FINE LOAM SAND	15% ROUNDED GRAVEL	N	
NK8	III	28	38	5YR 4/4 REDDISH BROWN COARSE SAND	15% ROUNDED GRAVEL	N	
NK9	I	0	28	7.5YR 3/4 DARK BROWN SAND LOAM	20% ROUNDED GRAVEL	N	
NK9	II	28	40	5YR 4/4 REDDISH BROWN COARSE SAND	20% ROUNDED GRAVEL	N	
NL10	I	0	26	7.5YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL 5% COBBLES	N	
NL10	II	26	37	5YR 5/6 YELLOWISH RED SAND	5% GRAVEL 5% COBBLES	N	
NL11	I	0	27	7.5YR 3/3 DARK BROWN SILT LOAM	15% GRAVEL 10% COBBLES	N	
NL11	II	27	46	5YR 4/6 YELLOWISH RED SAND	10% GRAVEL	N	
NL12	I	0	27	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NL12	II	27	44	5YR 4/6 YELLOWISH RED GRAVELLY SAND	10% GRAVEL	N	
NL13	I	0	14	7.5YR 3/3 DARK BROWN GRAVELLY SILT LOAM	20% GRAVEL 5% COBBLES	N	
NL13	II	14	30	5YR 5/6 YELLOWISH RED SAND	10% GRAVEL	N	
NL14	I	0	21	7.5YR 3/3 DARK BROWN SILT LOAM	15% GRAVEL 5% COBBLES	N	
NL14	II	21	34	5YR 4/6 YELLOWISH RED SAND	10% GRAVEL	N	
NL14	III	34	49	5YR 5/6 YELLOWISH RED SAND		N	
NL15	I	0	27	7.5YR 3/3 DARK BROWN SILT LOAM	15% GRAVEL 10% COBBLES	N	
NL15	II	27	43	5YR 5/6 YELLOWISH RED SAND	5% GRAVEL	N	
NL16	I	0	20	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NL16	II	20	39	5YR 4/6 YELLOWISH RED GRAVELLY SAND	10% GRAVEL 10% COBBLES	N	
NL17	I	0	20	7.5YR 3/3 DARK BROWN SILT LOAM	15% GRAVEL 10% COBBLES	N	
NL17	II	20	47	5YR 6/4 LIGHT REDDISH BROWN SAND		N	
NL18	I	0	13	7.5YR 3/4 DARK BROWN LOAM		N	
NL18	II	13	27	7.5YR 4/4 BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NL18	III	27	44	7.5YR 5/4 BROWN COARSE SAND	20% GRAVEL 10% COBBLES	N	
NL19	I	0	21	7.5YR 3/4 DARK BROWN LOAM		N	
NL19	II	21	31	7.5YR 5/6 STRONG BROWN LOAM	20% GRAVEL 10% COBBLES	N	
NL19	III	31	40	7.5YR 4/4 BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NL19	IV	40	50	7.5YR 5/4 BROWN COARSE SAND	20% GRAVEL 10% COBBLES	N	
NL20	I	0	15	7.5YR 3/3 DARK BROWN LOAM		N	
NL20	II	15	33	7.5YR 4/4 BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NL20	III	33	50	5YR 4/4 REDDISH BROWN COARSE SAND	20% GRAVEL 10% COBBLES	N	
NL9	I	0	22	7.5YR 3/3 DARK BROWN SILT LOAM	5% GRAVEL 5% COBBLES	N	
NL9	II	22	38	5YR 5/6 YELLOWISH RED SAND		N	
NM10	I	0	21	7.5YR 3/4 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NM10	II	21	40	5YR 5/4 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
NM11	I	0	21	7.5YR 3/4 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NM11	II	21	32	5YR 5/4 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NM12	I	0	26	7.5YR 3/4 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NM12	II	26	36	5YR 5/4 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NM13	I	0	26	7.5YR 3/4 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NM13	II	26	41	5YR 5/4 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NM14	I	0	30	7.5YR 3/4 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NM14	II	30	40	5YR 5/4 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NM15	I	0	18	7.5YR 3/4 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NM15	II	18	29	5YR 3/4 DARK REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NM15	III	29	39	5YR 5/4 REDDISH BROWN SAND		N	
NM16	I	0	21	7.5YR 3/4 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NM16	II	21	35	5YR 3/4 DARK REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NM16	III	35	45	5YR 5/4 REDDISH BROWN SAND		N	
NM17	I	0	25	7.5YR 3/4 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NM17	II	25	39	5YR 3/4 DARK REDDISH BROWN SAND LOAM	20% GRAVEL 10% COBBLES	N	
NM17	III	39	49	5YR 5/4 REDDISH BROWN SAND		N	
NM18	I	0	21	7.5YR 3/4 DARK BROWN SILT LOAM	10% GRAVEL 5% COBBLES	N	
NM18	II	21	34	5YR 4/4 REDDISH BROWN SAND LOAM	10% GRAVEL	N	
NM19	I	0	9	7.5YR 3/3 DARK BROWN SILT LOAM	15% GRAVEL 5% COBBLES	N	
NM19	II	9	39	5YR 4/4 REDDISH BROWN SAND LOAM	15% GRAVEL 5% COBBLES	N	
NM19	III	39	50	5YR 5/6 YELLOWISH RED SAND		N	PLASTIC WRAPPER AND LAUNDRY BOTTLE IN WALL OF STRAT II
NN11	I	0	21	7.5YR 3/4 DARK BROWN SAND LOAM	20% ROUNDED COBBLES LAR(	N	
NN11	II	21	35	5YR 5/4 REDDISH BROWN SAND	15% ROUNDED COBBLES	N	
NN12	I	0	23	7.5YR 3/4 DARK BROWN SAND LOAM	20% ROUNDED COBBLES	N	
NN12	II	23	36	5YR 5/4 REDDISH BROWN SAND	20% ROUNDED COBBLES	N	
NN13	I	0	24	7.5YR 3/4 DARK BROWN SAND LOAM	20% ROUNDED COBBLES	N	
NN13	II	24	38	5YR 4/4 REDDISH BROWN COARSE SAND	25% ROUNDED COBBLES	N	
NN14	I	0	23	7.5YR 3/4 DARK BROWN SAND LOAM	20% ROUNDED COBBLES	N	
NN14	II	23	40	5YR 4/6 YELLOWISH RED COARSE SAND LOAM	5% ROUNDED GRAVEL SMALL	N	
NN15	I	0	24	7.5YR 3/4 DARK BROWN SAND LOAM	20% ROUNDED COBBLES	N	
NN15	II	24	40	5YR 4/6 YELLOWISH RED COARSE SAND LOAM	10% ROUNDED GRAVEL SMAL	N	
NN16	I	0	19	7.5YR 3/4 DARK BROWN SAND LOAM	20% ROUNDED COBBLES	N	
NN16	II	19	33	5YR 4/6 YELLOWISH RED COARSE SAND LOAM	15% ROUNDED COBBLES	N	
NN17	I	0	16	7.5YR 3/4 DARK BROWN SAND LOAM	20% ROUNDED COBBLES	N	
NN17	II	16	26	7.5YR 4/4 BROWN COMPACT SAND LOAM	20% ROUNDED COBBLES	N	
NN17	III	26	40	5YR 4/6 YELLOWISH RED COARSE SAND	10% ROUNDED GRAVEL SMAL	N	
NN18	I	0	12	7.5YR 3/3 DARK BROWN LOAM		N	
NN18	II	12	32	7.5YR 4/4 BROWN LOAM SAND	20% GRAVEL 10% COBBLES	N	
NN18	III	32	45	5YR 5/4 REDDISH BROWN COARSE SAND	20% GRAVEL 10% COBBLES	N	3M S OFFSET DUE TO LANDSCAPE
NO12	I	0	31	7.5YR 3/4 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
NO12	II	31	41	5YR 5/4 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NO13	I	0	45	7.5YR 3/4 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NO13	II	45	50	5YR 5/4 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NO14	I	0	22	7.5YR 3/4 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NO14	II	22	37	5YR 5/4 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NO15	I	0	36	7.5YR 3/4 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
NO15	II	36	46	5YR 5/4 REDDISH BROWN SAND	20% GRAVEL 10% COBBLES	N	
NO16	I	0	20	7.5YR 3/4 DARK BROWN SILT LOAM	30% GRAVEL 20% COBBLES	N	
NO16	II	20	25	5YR 5/4 REDDISH BROWN SAND	30% GRAVEL 20% COBBLES	N	DISTURBED. STP IS JUST OUTSIDE OF FIELD.
NP13	I	0	24	7.5YR 3/4 DARK BROWN SAND LOAM	20% ROUNDED COBBLES	N	
NP13	II	24	50	5YR 4/4 REDDISH BROWN COARSE SAND LOAM	20% ROUNDED COBBLES	N	
NP14	I	0	20	7.5YR 3/4 DARK BROWN SAND LOAM	25% ROUNDED COBBLES	N	
NP14	II	20	34	5YR 4/4 REDDISH BROWN LOAM SAND	20% ROUNDED COBBLES/GRA	N	
NP15	I	0	14	7.5YR 3/4 DARK BROWN LOAM	10% ROUNDED COBBLES	N	
NP15	II	14	23	7.5YR 4/6 YELLOWISH RED SAND LOAM	15% ROUNDED COBBLES	N	
NP15	III	23	35	5YR 5/4 REDDISH BROWN SAND	5% ROUNDED GRAVEL	N	
NP16				DND		N	DND GRAVEL FARM ROAD. SOIL TRUNCATED. 5YR 5/4 4/6 SANDS EXPOSED AT SURFACE
RC6	I	0	4	7.5YR 3/3 DARK BROWN LOAM	80% GRAVEL/ASPHALT	N	OFFSET 4M N DUE TO ROAD. GRAVEL/ASPHALT IMPASSE AT 4CMBGS
RD5	I	0	5	7.5YR 3/3 DARK BROWN LOAM		N	
RD5	II	5	27	5YR 5/4 REDDISH BROWN SAND LOAM	40% GRAVEL 10% COBBLES	N	HEAVYILY DISTURBED. STP 1M N OF ROAD
RD6	I	0	9	7.5YR 3/3 DARK BROWN LOAM		N	
RD6	II	9	33	7.5YR 4/4 BROWN SAND LOAM	10% GRAVEL 5% COBBLES	N	
RD6	III	33	43	5YR 5/4 REDDISH BROWN SAND LOAM	10% GRAVEL 5% COBBLES	N	
RE4	I	0	20	7.5YR 3/4 DARK BROWN LOAM	80% GRAVEL	N	3M SW OFFSET DUE TO ROAD. GRAVEL IMPASSE AT 20CMBGS
SB3	I	0	32	7.5YR 3/3 DARK BROWN SILT LOAM	1% MN 1% FE	N	
SB3	II	32	42	7.5YR 5/6 STRONG BROWN GRAVELLY SAND	3% FE AND FE STAINING	N	
SB5	I	0	34	7.5YR 3/3 DARK BROWN SILT LOAM	2% FE 1% MN	N	
SB5	II	34	46	7.5YR 5/4 BROWN SAND LOAM	1% MN 5% FE AND FE STAINI	N	SOIL DAMP, POORLY DRAINED
SB7	I	0	23	7.5YR 3/3 DARK BROWN SILT LOAM	1% FE 1% MN	N	
SB7	II	23	39	7.5YR 5/4 BROWN SAND LOAM	3% FE AND FE STAINING 3% M	N	SOIL DAMP, POORLY DRAINED
SC10	I	0	10	7.5YR 3/2 DARK BROWN SILT LOAM		N	
SC10	II	10	24	7.5YR 3/3 DARK BROWN SILT LOAM	2% FE	N	
SC10	III	24	37	7.5YR 4/6 STRONG BROWN SAND LOAM	5% FE AND FE STAINING	N	DAMP SOIL, POORLY DRAINED
SC11	I	0	14	7.5YR 3/2 DARK BROWN SILT LOAM		N	
SC11	II	14	31	7.5YR 3/3 DARK BROWN SILT LOAM	2% FE	N	

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
SC11	III	31	41	7.5YR 4/6 STRONG BROWN SAND LOAM	5% FE AND FE STAINING	N	DAMP SOIL, POORLY DRAINED
SC14	I	0	22	7.5YR 3/3 DARK BROWN GRAVELLY SILT LOAM	20% GRAVEL	N	
SC14	II	22	36	7.5YR 5/6 STRONG BROWN GRAVELLY SAND	25% GRAVEL 15% COBBLES	N	
SC15	I	0	24	7.5YR 3/3 DARK BROWN SAND LOAM	10-15% ROUNDED GRAVEL	N	
SC15	II	24	38	5YR 4/6 YELLOWISH RED LOAM		N	
SC3	I	0	42	7.5YR 3/3 DARK BROWN SILT LOAM	2% MN 1% FE	N	
SC3	II	42	54	7.5YR 5/4 BROWN SAND LOAM	2% MN 3% FE	N	SOIL DAMP, POORLY DRAINED
SC5	I	0	30	7.5YR 3/3 DARK BROWN SILT LOAM	1% MN 1% FE	N	
SC5	II	30	40	7.5YR 5/4 BROWN LOAM SAND	1% MN 5% FE AND FE STAINI	N	SOIL DAMP, POORLY DRAINED
SC7	I	0	27	7.5YR 3/3 DARK BROWN SILT LOAM	1% FE 1% MN	N	
SC7	II	27	44	7.5YR 5/4 BROWN SAND LOAM	5% FE 5% MN	N	
SC9	I	0	29	7.5YR 3/3 DARK BROWN SILT LOAM	2% FE	N	
SC9	II	29	45	7.5YR 5/4 BROWN SAND LOAM	5% FE AND FE STAINING	N	SOIL DAMP, POORLY DRAINED
SD10	I	0	10	7.5YR 3/2 DARK BROWN SILT LOAM		N	
SD10	II	10	32	7.5YR 3/3 DARK BROWN SILT LOAM	5% GRAVEL 2% FE	N	
SD10	III	32	42	7.5YR 4/6 STRONG BROWN SAND LOAM	10% GRAVEL 5% FE AND FE ST	N	DAMP SOIL, POORLY DRAINED
SD11	I	0	31	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
SD11	II	31	41	7.5YR 5/6 STRONG BROWN GRAVELLY SAND	5% GRAVEL	N	
SD12	I	0	24	7.5YR 3/3 DARK BROWN LOAM SAND	25% ROUNDED GRAVEL	N	
SD12	II	24	36	5YR 4/6 YELLOWISH RED SAND	25% ROUNDED GRAVEL SMAL	N	
SD13	I	0	15	7.5YR 3/4 DARK BROWN SAND LOAM	25% GRAVEL	N	
SD13	II	15	26	5YR 4/4 REDDISH BROWN SAND LOAM	20% GRAVEL	N	
SD13	III	26	36	5YR 4/6 YELLOWISH RED FINE SAND LOAM	15% GRAVEL	N	
SD14	I	0	31	7.5YR 3/3 DARK BROWN GRAVELLY SILT LOAM	20% GRAVEL	N	
SD14	II	31	41	7.5YR 5/6 STRONG BROWN SAND LOAM	20% GRAVEL	N	
SD15	I	0	24	7.5YR 3/3 DARK BROWN SAND LOAM	10-15% ROUNDED GRAVEL	N	
SD15	II	24	36	5YR 4/6 YELLOWISH RED LOAM		N	
SD9	I	0	42	7.5YR 3/3 DARK BROWN SILT LOAM	5% GRAVEL	N	
SD9	II	42	53	7.5YR 4/2 BROWN SAND LOAM	5% MN	N	SOIL DAMP, POORLY DRAINED
SE10	I	0	10	7.5YR 3/2 DARK BROWN SILT LOAM		N	
SE10	II	10	29	7.5YR 3/3 DARK BROWN SILT LOAM	2% FE	N	
SE10	III	29	44	7.5YR 4/6 STRONG BROWN SAND LOAM	5% FE AND FE STAINING	N	DAMP SOIL, POORLY DRAINED
SE11	I	0	28	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 5% COBBLES	N	
SE11	II	28	44	5YR 6/4 LIGHT REDDISH BROWN GRAVELLY SAND	10% COBBLES	N	
SE12	I	0	33	7.5YR 3/3 DARK BROWN LOAM SAND	30% ROUNDED GRAVEL	N	
SE12	II	33	43	5YR 6/4 LIGHT REDDISH BROWN GRAVELLY SAND	30% GRAVEL/FINE GRAVEL	N	FLAT CLEAR WINDOW GLASS ON SURFACE 1M S OF STP
SE13	I	0	20	7.5YR 3/3 DARK BROWN SAND LOAM	20-25% RGO	N	
SE13	II	20	35	5YR 4/6 YELLOWISH RED SAND LOAM	15% GRAVEL SMALL	N	
SE14	I	0	26	7.5YR 3/3 DARK BROWN GRAVELLY SILT LOAM	20% GRAVEL	N	
SE14	II	26	38	7.5YR 5/6 STRONG BROWN SAND LOAM	25% COBBLES	N	
SE15	I	0	26	7.5YR 3/3 DARK BROWN SAND LOAM	10-15% ROUNDED GRAVEL	N	

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
SE15	II	26	37	5YR 4/6 YELLOWISH RED LOAM		N	
SE5	I	0	21	7.5YR 3/4 DARK BROWN SILT LOAM		N	
SE5	II	21	41	7.5YR 3/2 DARK BROWN SILT LOAM	2% MN 1% FE	N	
SE5	III	41	53	7.5YR 5/4 BROWN SAND LOAM	2% MN 3% FE	N	SOIL DAMP, POORLY DRAINED
SE7	I	0	19	7.5YR 3/3 DARK BROWN SILT LOAM		N	
SE7	II	19	45	7.5YR 3/4 DARK BROWN SAND LOAM	3% FE	N	
SE7	III	45	57	7.5YR 5/4 BROWN SAND	5% FE AND FE STAINING	N	SOIL DAMP, POORLY DRAINED
SE9	I	0	38	7.5YR 3/3 DARK BROWN SILT LOAM	2% FE	N	
SE9	II	38	50	7.5YR 5/4 BROWN SAND LOAM	5% FE AND FE STAINING	N	
SF10	I	0	31	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
SF10	II	31	42	7.5YR 4/6 STRONG BROWN SAND LOAM	5% COBBLES	N	
SF11	I	0	35	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL 5% COBBLES	N	
SF11	II	35	49	5YR 4/6 YELLOWISH RED LOAM SAND		N	LAMELLE IN STRAT II
SF12	I	0	26	7.5YR 3/3 DARK BROWN LOAM SAND	30% ROUNDED GRAVEL	N	
SF12	II	26	40	5YR 6/4 LIGHT REDDISH BROWN GRAVELLY SAND	30% GRAVEL/FINE GRAVEL	N	
SF13	I	0	21	7.5YR 3/3 DARK BROWN SAND LOAM	20-25% RGO	N	
SF13	II	21	35	5YR 5/6 YELLOWISH RED SAND LOAM	15% GRAVEL SMALL	N	
SF14	I	0	22	7.5YR 3/3 DARK BROWN GRAVELLY SILT LOAM	20% GRAVEL	N	
SF14	II	22	35	5YR 4/6 YELLOWISH RED GRAVELLY SAND	25% GRAVEL 15% COBBLES	N	
SF15	I	0	35	7.5YR 3/3 DARK BROWN SAND LOAM	20% ROUNDED GRAVEL	N	
SF15	II	35	45	5YR 4/6 YELLOWISH RED SAND LOAM	10% ROUNDED GRAVEL SMAL	N	
SF9	I	0	29	7.5YR 3/3 DARK BROWN SILT LOAM	2% FE	N	
SF9	II	29	40	7.5YR 5/4 BROWN SAND LOAM	5% FE AND FE STAINING	N	
SG10	I	0	20	7.5YR 3/3 DARK BROWN SILT LOAM		N	
SG10	II	20	39	7.5YR 3/2 DARK BROWN SILT LOAM	20% GRAVEL 10% COBBLES	N	
SG10	III	39	57	7.5YR 2.5/2 VERY DARK BROWN SILT LOAM		5X RC COLA BOTTLE GLASS	
SG10	IV	57	68	7.5YR 4/6 STRONG BROWN SAND LOAM		N	SCENT OF PETROLEUM IN STRAT II/III
SG10 RE7.5M	I	0	17	7.5YR 3/4 DARK BROWN LOAM SAND	25% ROUNDED GRAVEL	N	
SG10 RE7.5M	II	17	35	5YR 4/6 YELLOWISH RED LOAM SAND	20% ROUNDED GRAVEL	N	
SG10 RN7.5M	I	0	24	7.5YR 3/3 DARK BROWN SAND LOAM	15% ROUNDED GRAVEL	N	
SG10 RN7.5M	II	24	28	7.5YR 3/2 DARK BROWN SAND LOAM	10% ROUNDED GRAVEL	N	
SG10 RN7.5M	III	28	47	5YR 4/6 YELLOWISH RED FINE SAND LOAM	10% ROUNDED GRAVEL SMAL	N	
SG10 RS7.5M	I	0	37	7.5YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL 25% COBBLES	1X BROWN BOTTLE GLASS	STONE IMPASSE STONE LARGER THAN STP. BOTTLE GLASS FOUND 5CMBGS
SG10 RW7.5M	I	0	33	7.5YR 3/3 DARK BROWN SILT LOAM	25% COBBLES	N	
SG10 RW7.5M	II	33	48	7.5YR 5/6 STRONG BROWN SAND LOAM	3% FE STAINING	N	
SG11	I	0	26	7.5YR 3/3 DARK BROWN GRAVELLY SILT LOAM	20% GRAVEL 10% COBBLES	N	
SG11	II	26	44	5YR 6/4 LIGHT REDDISH BROWN GRAVELLY SAND	5% GRAVEL	N	
SG12	I	0	34	7.5YR 3/3 DARK BROWN SAND LOAM	25% ROUNDED GRAVEL	N	

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
SG12	II	34	50	5YR 6/4 LIGHT REDDISH BROWN GRAVELLY SAND	25% ROUNDED GRAVEL	N	
SG13	I	0	27	7.5YR 3/3 DARK BROWN SAND LOAM	20% RGO	N	
SG13	II	27	45	5YR 4/6 YELLOWISH RED FINE SAND LOAM	5% PEA GRAVEL	N	HARTFORD SERIES
SG14	I	0	30	7.5YR 3/3 DARK BROWN GRAVELLY SILT LOAM	20% GRAVEL	N	
SG14	II	30	41	5YR 4/4 REDDISH BROWN GRAVELLY SAND LOAM	25% GRAVEL	N	
SG14	III	41	76	5YR 4/6 YELLOWISH RED GRAVELLY SAND	25% GRAVEL 15% COBBLES	N	MANCHESTER SERIES
SG15	I	0	38	7.5YR 3/3 DARK BROWN SAND LOAM	15% ROUNDED GRAVEL	N	
SG15	II	38	50	7.5YR 5/6 STRONG BROWN SAND LOAM		N	
SG5	I	0	53	7.5YR 3/4 DARK BROWN SILT LOAM		N	
SG5	II	53	55	7.5YR 3/2 DARK BROWN SILT LOAM	2% MN	N	
SG5	III	55	65	50% 5YR 4/1 DARK GRAY SILT C LAY LOAM 5YR 6/2	5% MN	N	WETLAND SOILS
SG7	I	0	30	7.5YR 3/3 DARK BROWN LOAM		N	
SG7	II	30	40	7.5YR 3/2 DARK BROWN LOAM	FE/MN STAINING	N	
SG7	III	40	56	50% 5YR 4/2 DARK REDDISH GRAY HEAVY LOAM 5	FE/MN STAINING	N	HEAVY MN STAINING AT II/III INTERFACE. 2 STAGE PZ. SURFACE IS TOO LOW, WET, YOUNG TO HAVE PH HABITATION. RECOMMEND 30M INTERVAL TESTING IN LOW WESTERN AREA
SG9	I	0	12	7.5YR 3/3 DARK BROWN SILT LOAM		N	
SG9	II	12	30	7.5YR 3/3 DARK BROWN SILT LOAM	2% FE	N	
SG9	III	30	42	7.5YR 5/4 BROWN SAND LOAM	5% FE AND FE STAINING	N	SOIL DAMP, POORLY DRAINED
SH10	I	0	21	7.5YR 3/4 DARK BROWN LOAM SAND	10% GRAVEL 5% COBBLES	N	
SH10	II	21	33	5YR 4/6 YELLOWISH RED GRAVELLY SAND LOAM		N	
SH11	I	0	30	7.5YR 3/3 DARK BROWN GRAVELLY SILT LOAM	20% GRAVEL 10% COBBLES	N	
SH11	II	30	42	5YR 4/6 YELLOWISH RED GRAVELLY SAND	5% GRAVEL	N	
SH12	I	0	31	7.5YR 3/3 DARK BROWN LOAM SAND	25% ROUNDED GRAVEL	N	
SH12	II	31	52	5YR 6/4 LIGHT REDDISH BROWN FINE SAND		N	
SH13	I	0	28	7.5YR 3/3 DARK BROWN SAND LOAM	20% RGO	N	
SH13	II	28	42	5YR 4/6 YELLOWISH RED FINE SAND LOAM	5% PEA GRAVEL	N	HARTFORD SERIES
SH14	I	0	27	7.5YR 3/3 DARK BROWN GRAVELLY SILT LOAM	20% GRAVEL	N	
SH14	II	27	35	5YR 4/4 REDDISH BROWN GRAVELLY SAND LOAM	25% GRAVEL	N	
SH14	III	35	45	5YR 4/6 YELLOWISH RED GRAVELLY SAND	25% GRAVEL 15% COBBLES	N	
SH15	I	0	41	7.5YR 3/3 DARK BROWN SAND LOAM	15% ROUNDED GRAVEL	N	
SH15	II	41	51	7.5YR 5/6 STRONG BROWN SAND LOAM		N	
SH7				DND			
SH9	I	0	17	7.5YR 3/3 DARK BROWN SILT LOAM		N	
SH9	II	17	44	7.5YR 3/3 DARK BROWN SILT LOAM	2% FE	N	
SH9	III	44	54	7.5YR 5/4 BROWN SAND LOAM	5% FE AND FE STAINING	N	SOIL DAMP, POORLY DRAINED
SI10	I	0	25	7.5YR 3/3 DARK BROWN GRAVELLY SILT LOAM	20% GRAVEL 10% COBBLES	N	
SI10	II	25	43	5YR 4/6 YELLOWISH RED GRAVELLY SAND LOAM	5% GRAVEL	N	
SI11	I	0	36	7.5YR 3/3 DARK BROWN GRAVELLY SILT LOAM	20% GRAVEL 15% COBBLES	N	

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
SI11	II	36	46	5YR 4/6 YELLOWISH RED GRAVELLY SAND	5% GRAVEL	N	
SI12	I	0	27	7.5YR 3/3 DARK BROWN LOAM SAND	25% ROUNDED GRAVEL	N	
SI12	II	27	45	5YR 4/6 YELLOWISH RED SAND LOAM	15% GRAVEL	N	
SI13	I	0	20	7.5YR 3/3 DARK BROWN SAND LOAM	20% RGO	N	
SI13	II	20	28	80% 7.5YR 3/3 DARK BROWN SAND LOAM 20% 5Y	15% GRAVEL	N	
SI13	III	28	43	5YR 4/6 YELLOWISH RED FINE SAND LOAM	5% PEA GRAVEL	N	
SI14	I	0	26	7.5YR 3/3 DARK BROWN GRAVELLY SILT LOAM	20% GRAVEL	N	
SI14	II	26	35	5YR 4/4 REDDISH BROWN GRAVELLY SAND LOAM	25% GRAVEL	N	COBBLE IMPASSE
SI5	I	0	35	7.5YR 3/4 DARK BROWN LOAM		N	
SI5	II	35	44	7.5YR 3/2 DARK BROWN SILT LOAM	FE/MN STAINING	N	
SI5	III	44	60	50% 5YR 4/1 DARK GRAY SILT CLAY LOAM 50% 5YF	HEAVY FE/MN STAINING	N	WET SOIL, SAME COLORS AS SI7
SI7	I	0	39	7.5YR 3/4 DARK BROWN LOAM		N	
SI7	II	39	48	7.5YR 3/2 DARK BROWN SILT LOAM	HEAVY FE/MN STAINING	N	
SI7	III	48	65	50% 5YR 4/1 DARK GRAY SILT CLAY LOAM 50% 5YF	HEAVY FE/MN STAINING	N	RECOMMEND 30M INTERVAL TESTING IN LOW WESTERN AREA. CLEARLY A WETLAND, POORLY DRAINED, OVER THICKENED BY AGRICULTURAL RUNOFF. HEAVY MN/FE STAINING AT II/III
SI9	I	0	19	7.5YR 3/3 DARK BROWN SILT LOAM	15% GRAVEL	N	
SI9	II	19	40	7.5YR 3/3 DARK BROWN SILT LOAM	1% FE	N	
SI9	III	40	51	7.5YR 5/3 BROWN SAND LOAM	3% FE	N	SOIL DAMP, POORLY DRAINED
SJ10	I	0	31	7.5YR 3/3 DARK BROWN GRAVELLY SILT LOAM	20% GRAVEL 10% COBBLES	N	
SJ10	II	31	46	7.5YR 5/6 STRONG BROWN GRAVELLY SAND LOAM	5% GRAVEL	N	
SJ11	I	0	29	7.5YR 3/3 DARK BROWN GRAVELLY SILT LOAM	20% GRAVEL 10% COBBLES	N	
SJ11	II	29	32	7.5YR 5/6 STRONG BROWN GRAVELLY SAND	5% GRAVEL	N	
SJ11	III	32	42	5YR 5/4 REDDISH BROWN GRAVELLY SAND	5% GRAVEL	N	
SJ12	I	0	28	7.5YR 3/3 DARK BROWN SAND LOAM	20% ROUNDED GRAVEL	1X BROWN BOTTLE GLASS MODERN EMBOSSED	
SJ12	II	28	33	5YR 3/2 DARK REDDISH BROWN LOAM SAND	15% ROUNDED GRAVEL	N	
SJ12	III	33	43	5YR 4/6 YELLOWISH RED LOAM SAND	10% GRAVEL	N	RECOMMEND NO RADIALS, FIELD TRASH
SJ13	I	0	19	7.5YR 3/3 DARK BROWN SAND LOAM	20% RGO	N	
SJ13	II	19	29	80% 7.5YR 3/3 DARK BROWN SAND LOAM 20% 5Y	15-20% GRAVEL	N	
SJ13	III	29	40	5YR 4/6 YELLOWISH RED FINE SAND LOAM	10% GRAVEL	N	SOME CHARCOAL STAINS PRESENT IN II, HIGHER GRAVEL CONTENT DUE TO SLOPE POSITION
SJ14	I	0	30	7.5YR 3/3 DARK BROWN GRAVELLY SILT LOAM	20% GRAVEL	N	
SJ14	II	30	40	7.5YR 4/6 STRONG BROWN GRAVELLY SILT LOAM	25% GRAVEL	N	
SJ9	I	0	16	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL	N	

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
SJ9	II	16	47	7.5YR 3/3 DARK BROWN SILT LOAM		N	
SJ9	III	47	59	7.5YR 5/6 STRONG BROWN SAND LOAM		N	
SK10	I	0	28	7.5YR 3/3 DARK BROWN GRAVELLY SILT LOAM	20% GRAVEL 10% COBBLES	N	
SK10	II	28	38	7.5YR 5/6 STRONG BROWN GRAVELLY SAND LOAM	5% GRAVEL	N	
SK11	I	0	34	7.5YR 3/3 DARK BROWN GRAVELLY SILT LOAM	20% GRAVEL 5% COBBLES	N	
SK11	II	34	44	5YR 5/4 REDDISH BROWN GRAVELLY SAND	5% GRAVEL	N	
SK12	I	0	28	7.5YR 3/3 DARK BROWN SAND LOAM	20% ROUNDED GRAVEL	N	
SK12	II	28	40	5YR 4/4 REDDISH BROWN LOAM SAND	10% ROUNDED GRAVEL	N	
SK13	I	0	24	7.5YR 3/3 DARK BROWN SAND LOAM	20% RGO	N	
SK13	II	24	40	5YR 4/6 YELLOWISH RED SAND LOAM	10% RGO SMALL	N	
SK14	I	0	30	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL	N	
SK14	II	30	41	7.5YR 5/6 STRONG BROWN SAND LOAM	25% GRAVEL	N	
SK7	I	0	31	7.5YR 3/4 DARK BROWN LOAM	1 LARGE COBBLE AT SURFACE	N	
SK7	II	31	39	7.5YR 3/2 DARK BROWN LOAM	FE/MN STAINING	N	
SK7	III	39	54	40% 5YR 4/6 YELLOWISH RED SILT CLAY LOAM 30%	HEAVY FE/MN STAINING	N	STILL POORLY DRAINED. THOUGH MORE FAVORABLY THAN THE SOUTHERN POINTS ON THE K7 LINE.
SK9	I	0	30	7.5YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL	N	
SK9	II	30	46	7.5YR 5/6 STRONG BROWN SAND LOAM		N	
SL10	I	0	29	7.5YR 3/3 DARK BROWN GRAVELLY SILT LOAM	20% GRAVEL 10% COBBLES	N	
SL10	II	29	42	7.5YR 5/6 STRONG BROWN SAND LOAM	5% GRAVEL	N	
SL11	I	0	25	7.5YR 3/3 DARK BROWN GRAVELLY SILT LOAM	20% GRAVEL 10% COBBLES	N	
SL11	II	25	36	7.5YR 5/6 STRONG BROWN GRAVELLY SAND	5% GRAVEL	N	
SL12	I	0	30	7.5YR 3/3 DARK BROWN SAND LOAM	15% GRAVEL	N	
SL12	II	30	42	7.5YR 5/6 STRONG BROWN SAND LOAM	5% GRAVEL SMALL MN STAIN	N	
SL13	I	0	20	7.5YR 3/3 DARK BROWN SAND LOAM	15% RGO	N	
SL13	II	20	38	7.5YR 3/4 DARK BROWN SAND LOAM	10% RGO	N	
SL13	III	38	50	7.5YR 5/6 STRONG BROWN HYDRIC LOAM	5% RGO SMALL	N	III VERY MICACEOUS
SL14	I	0	40	7.5YR 3/3 DARK BROWN SILT LOAM	5% GRAVEL	N	
SL14	II	40	50	7.5YR 5/6 STRONG BROWN SAND LOAM	10% GRAVEL	N	
SL7				DND		N	
SL9	I	0	21	7.5YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL	N	
SL9	II	21	32	10YR 5/4 YELLOWISH BROWN SAND LOAM	10% GRAVEL	N	
SM10	I	0	30	7.5YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL	1X BOTTLE GLASS	
SM10	II	30	42	7.5YR 5/6 STRONG BROWN SAND LOAM		N	
SM11	I	0	25	7.5YR 3/3 DARK BROWN SILT LOAM		N	
SM11	II	25	35	7.5YR 5/6 STRONG BROWN SAND	15% COBBLES	N	
SM12	I	0	26	7.5YR 3/3 DARK BROWN SAND LOAM	10% GRAVEL	N	
SM12	II	26	39	7.5YR 3/2 DARK BROWN SAND LOAM	5% GRAVEL SMALL	N	
SM12	III	39	55	7.5YR 5/6 STRONG BROWN LOAM		N	
SM13	I	0	23	7.5YR 3/3 DARK BROWN SAND LOAM	15% GRAVEL	N	

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
SM13	II	23	42	7.5YR 4/4 BROWN SAND LOAM	10% GRAVEL	N	
SM13	III	42	54	7.5YR 5/6 STRONG BROWN HYDRIC LOAM	5% GRAVEL SMALL	N	HARTFORD SERIES. LOW FIELD DRAINAGE AREA. I/II THICKNESS INCREASED BY FIELD RUNOFF
SM14	I	0	10	7.5YR 3/2 DARK BROWN SILT LOAM		N	
SM14	II	10	44	7.5YR 3/3 DARK BROWN SILT LOAM	5% GRAVEL	N	
SM14	III	44	54	7.5YR 5/6 STRONG BROWN SAND LOAM	10% GRAVEL	N	
SM6	I	0	27	7.5YR 3/3 DARK BROWN SILT LOAM	5% GRAVEL	N	
SM6	II	27	40	7.5YR 5/6 STRONG BROWN SAND LOAM	5% GRAVEL 10% COBBLES	N	
SM7	I	0	30	7.5YR 3/4 DARK BROWN LOAM	5% ROUNDED GRAVEL	N	
SM7	II	30	45	5YR 5/6 YELLOWISH RED HEAVY LOAM	5% ROUNDED GRAVEL	N	BACK TO MORE TYPICAL, BETTER DRAINED, BW CAMBIC SUBSOIL. WL DELINIATION. SOMEWHERE JUST NORTH OF SL7, CHANGE IN LANDSCAPE. SLOPE GREATLY IMPACTED BY HISTORICAL POLOWING AND EROSIONAL FIELD DEPOSITS
SM8	I	0	27	7.5YR 3/3 DARK BROWN LOAM	20% ROUNDED GRAVEL	N	
SM8	II	27	40	5YR 4/6 YELLOWISH RED FINE SAND LOAM	15% ROUNDED GRAVEL	N	LARGER COBBLES AT BASE OF I
SM9	I	0	23	7.5YR 3/3 DARK BROWN SILT LOAM	5% GRAVEL	N	
SM9	II	23	33	7.5YR 5/6 STRONG BROWN SAND LOAM		N	
SN10	I	0	21	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL	N	
SN10	II	21	32	7.5YR 5/6 STRONG BROWN SAND LOAM	40% COBBLES	N	
SN11	I	0	29	7.5YR 3/3 DARK BROWN SILT LOAM		N	
SN11	II	29	39	7.5YR 4/6 STRONG BROWN SAND LOAM	10% GRAVEL	N	
SN12	I	0	27	7.5YR 3/3 DARK BROWN SAND LOAM	10% GRAVEL	N	
SN12	II	27	33	7.5YR 3/2 DARK BROWN SAND LOAM	5% GRAVEL SMALL	N	
SN12	III	33	45	7.5YR 5/6 STRONG BROWN HYDRIC LOAM	SEVERAL LARGE ROCKS AT INT	N	
SN13	I	0	32	7.5YR 3/3 DARK BROWN SAND LOAM	10% RGO	FE TRACTOR	
SN13	II	32	43	5YR 4/4 REDDISH BROWN SAND LOAM	5% GRAVEL SMALL	N	
SN13	III	43	60	7.5YR 3/4 DARK BROWN LOAM	5% GRAVEL LARGE 15CM COB	N	
SN13	IV	60	73	7.5YR 5/6 STRONG BROWN HYDRIC LOAM		N	LOW DRAINAGE AREA
SN14	I	0	13	7.5YR 3/2 DARK BROWN SILT LOAM		N	
SN14	II	13	50	7.5YR 3/3 DARK BROWN SILT LOAM	5% GRAVEL	N	
SN14	III	50	60	7.5YR 5/6 STRONG BROWN SAND LOAM	10% GRAVEL	N	
SN7	I	0	30	7.5YR 3/4 DARK BROWN LOAM		N	
SN7	II	30	49	7.5YR 3/3 DARK BROWN LOAM		N	
SN7	III	49	60	5YR 5/6 YELLOWISH RED HEAVY LOAM	MN DEPOSIT AT INTERFACE	N	
SN8	I	0	32	7.5YR 3/3 DARK BROWN SILT LOAM	5% GRAVEL	4X BOTTLE GLASS	
SN8	II	32	45	7.5YR 5/6 STRONG BROWN SAND LOAM	5% GRAVEL 5% COBBLES	N	BOTTLE GLASS FOUND 8CMBGS
SN9	I	0	24	7.5YR 3/3 DARK BROWN SILT LOAM	10% GRAVEL	1X GLASS	

Unit Number	Stratum	Opening	Closing	Soil Description	Inclusions	Finds	Comments
SN9	II	24	35	7.5YR 5/6 STRONG BROWN GRAVELLY SAND LOAM	30% GRAVEL	N	
SO10	I	0	30	7.5YR 3/3 DARK BROWN SILT LOAM	20% GRAVEL	1X NONDIAGNOSTIC WHITEWARE	
SO10	II	30	40	7.5YR 5/6 STRONG BROWN SAND LOAM		N	
SO11	I	0	30	7.5YR 3/3 DARK BROWN SILT LOAM	5% GRAVEL	N	
SO11	II	30	40	10YR 5/4 YELLOWISH BROWN SAND LOAM	10% GRAVEL	N	
SO12	I	0	26	7.5YR 3/4 DARK BROWN SAND LOAM	15% GRAVEL	N	
SO12	II	26	42	5YR 4/4 REDDISH BROWN SAND	20% GRAVEL	N	
SO13	I	0	25	7.5YR 3/3 DARK BROWN SAND LOAM	10% GRAVEL	1X CLEAR BOTTLE GLASS, 1X BROWN	
SO13	II	25	36	5YR 4/4 REDDISH BROWN SAND LOAM	10% GRAVEL	N	
SO13	III	36	52	5YR 4/6 YELLOWISH RED FINE SAND LOAM	5% GRAVEL SMALL	N	SIMILAR BROKEN BOTTLE GLASS BASE NEARBY ON SURFACE, MODERN, NOT COLLECTED. RECOMMENDED NO RADIALS
SO14	I	0	23	7.5YR 3/2 DARK BROWN SILT LOAM		N	
SO14	II	23	55	7.5YR 3/3 DARK BROWN SILT LOAM	5% GRAVEL	N	
SO14	III	55	65	7.5YR 5/6 STRONG BROWN SAND LOAM	10% GRAVEL	N	
SO9	I	0	18	7.5YR 3/4 DARK BROWN SILT LOAM	20% GRAVEL	N	
SO9	II	18	46	7.5YR 3/2 DARK BROWN SILT LOAM	1% CHARCOAL FLECKING	N	
SO9	III	46	60	7.5YR 5/6 STRONG BROWN SAND LOAM		N	STRAT I POSSIBILE FILL DISTURBANCE FROM THE NORTH

Appendix III:
Artifact Catalog

ARTIFACT CATALOG

Catalog No	Provenience	Material	Description	Fabric Color	Decoration	Decor. Colo	Frg	Min.	Comments	Disc./Samp.
1.1	**STP SM 13 SI**	Iron alloy	Machine part				1	1		
2.1	**STP SO 13 SI**	Glass	Bottle	Brown			1	1		
2.2	**STP SO 13 SI**	Glass	Bottle	Clear			1	1		
3.1	**STP SJ 12 SI**	Glass	Bottle	Brown	Embossed		1	1	Embossed "AHK". Alexander H. Kerr company.	
4.1	**STP SG 10 SIII**	Glass	Soda pop bottle	Clear	Etched		5	1	Possible RC Cola bottle.	
5.1	**STP SO 10 SI**	Whiteware	Hollowware	White			1	1		
6.1	**STP SM 10 SI**	Glass	Indefinite container	Clear			1	1	Thin. Bubbles in fabric.	
7.1	**STP SN 9 SI**	Glass	Indefinite container	Clear			1	1		
8.1	**STP SN 8 SI**	Glass	Bottle	Clear			4	1	Thick	
9.1	**STP SG 10 RS7.5 SI**	Glass	Bottle	Brown			1	1		
10.1	**STP ND 16 SI**	Iron alloy	Wire nail				1	1		
11.1	**STP ND 17 SII**	Stoneware	Sewer pipe	Brown	Salt glazed	Clear	1	1	Very thick.	
12.1	**STP ND 20 SI**	Anthracite	Coal	Black			1	1		
13.1	**STP ND 13 SI**	Glass	Bottle	Clear			1	1		
14.1	**STP NE 11 SI**	Iron alloy	Machine part				1	1		
15.1	**STP NF 11 SI**	Iron alloy	Wire nail				1	1	Survey nail	
16.1	**STP NG 11 SI**	Iron alloy	Wire nail				1	1		
16.2	**STP NG 11 SI**	Iron alloy	Indefinite metal item				1	1	Thin, Flat. Folded one end, opposite end rounded with circle punched through.	
17.1	**STP NG 18 SI**	Asphalt concrete	Pavement	Black			1	1		
17.2	**STP NG 18 SI**	Charcoal	Charcoal	Black			2	1		
18.1	**STP NG 19 SI**	Anthracite	Coal	Black			1	1		
19.1	**STP NH 6 SI**	Glass	Flat glass	Clear			1	1		
19.2	**STP NH 6 SI**	Copper alloy	Wire				1	1	Black insulation over copper wiring.	
20.1	**STP NI 7 SIII**	Iron alloy	Wire nail				1	1		
21.1	**STP NH 7 SI**	Glass	Bottle	Clear			1	1	Mold seam.	
21.2	**STP NH 7 SI**	Glass	Bottle	Clear			1	1		
22.1	**STP NH 10 SI**	Glass	Bottle	Brown			1	1		
23.1	**STP NH 13 SI**	Glass	Bottle	Brown			1	1		
24.1	**STP NJ 15 SI**	Glass	Bottle	Brown			1	1	Threaded finish.	
25.1	**STP NM 11 SI**	Whiteware	Hollowware	White			1	1		
26.1	**STP NN 13 SI**	Glass	Flat glass	Clear			1	1		
26.2	**STP NN 13 SI**	Iron alloy	Wire				1	1		

Catalog No	Provenience	Material	Description	Fabric Color	Decoration	Decoration	Frg	Min.	Comments	Disc./Samp.
27.2	**STP NO 15 SI**	Iron alloy	Wire nail				1	1		
28.1	**STP NK 18 SI**	Glass	Indefinite container	Clear	Etched	White	1	1	4 parallel lines etched/painted.	
29.1	**STP NM 19 SII**	Glass	Bottle	Green			1	1	Mold seam.	
30.1	**STP NI 20 SII**	Anthracite	Coal	Black			1	1		

Appendix IV:
Property Records Cards

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2020.

Information on the Property Records for the Municipality of Ellington was last updated on 12/1/2021.

Parcel Information

Location:	360 SOMERS RD	Property Use:	Industrial	Primary Use:	Warehouse
Unique ID:	00312000	Map Block Lot:	105 002 0000	Acres:	125.00
490 Acres:	90.00	Zone:	I	Volume / Page:	0525/0316
Developers Map / Lot:	ESMT MAP	Census:	5351		

Value Information

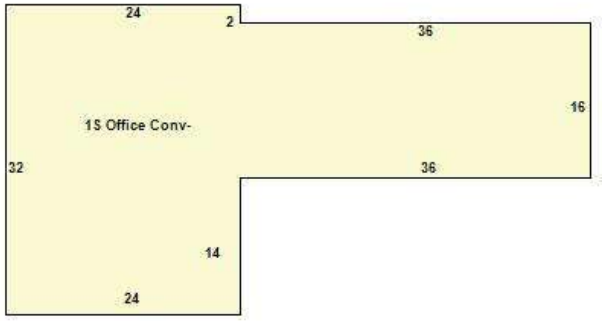
	Appraised Value	Assessed Value
Land	777,480	306,730
Buildings	1,024,900	717,430
Detached Outbuildings	197,620	138,330
Total	2,000,000	1,162,490

Owner's Information

Owner's Data

JLM ASSOCIATES LLC
DBA ELLINGTON AIRPORT
PO BOX 13
SOUTHWICK MA 01077

Building 1

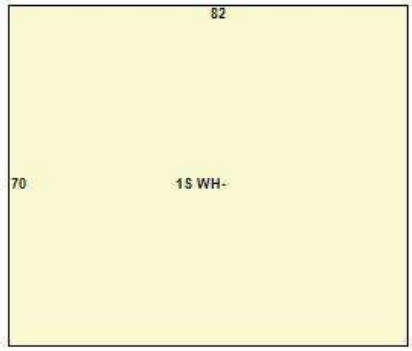


Category:	Office	Use:	Office Conv	GLA:	1,344
Stories:	1.00	Construction:	Wood Frame	Year Built:	1980
Heating:	Forced Hot Air	Fuel:	Natural Gas	Cooling Percent:	0
Siding:	Vinyl Siding	Roof Material:	Asphalt	Beds/Units:	0

Special Features

Attached Components

Building 2

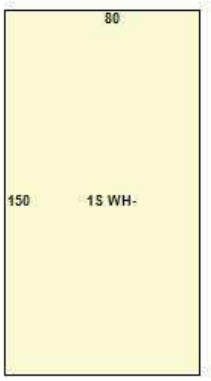


Category:	Industrial	Use:	Warehouse	GLA:	5,740
Stories:	1.00	Construction:	Wood Frame	Year Built:	1980
Heating:	Forced Hot Air	Fuel:	Electric	Cooling Percent:	0
Siding:	Pre-Finish Metal	Roof Material:		Beds/Units:	0

Special Features

Attached Components

Building 3



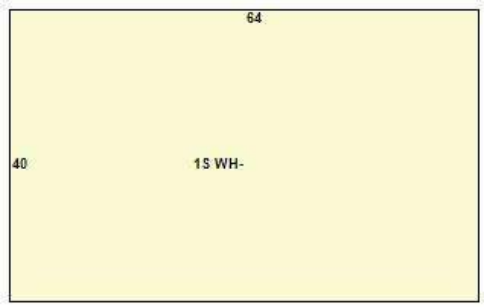
Category:	Industrial	Use:	Warehouse	GLA:	12,000
Stories:	1.00	Construction:	Steel	Year Built:	1980
Heating:	Hot Air No Duct	Fuel:	Natural Gas	Cooling Percent:	0
Siding:	Pre-Finish Metal	Roof Material:		Beds/Units:	0

Special Features

Mezzanine Office Retail	7000
Unfinished Mezzanine	820

Attached Components

Building 4



Category:	Industrial	Use:	Warehouse	GLA:	2,560
Stories:	1.00	Construction:	Wood Frame	Year Built:	1900
Heating:	Forced Hot Air	Fuel:	Natural Gas	Cooling Percent:	0

Siding:	Pre-Fab Wood	Roof Material:	Asphalt	Beds/Units:	0

Special Features

Attached Components

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Carport	1980	0.00	0.00	1,040
Carport	1980	0.00	0.00	1,500
Carport	1980	0.00	0.00	760
Carport	1980	0.00	0.00	1,500
Wood Deck Detached	1980	0.00	0.00	510
4 Ft Chain Fence	1980	0.00	0.00	2,500
Detached Garage	1980	0.00	0.00	648
Concrete Patio	1980	0.00	0.00	168
Concrete Patio	1980	0.00	0.00	528
Paving	1980	0.00	0.00	120,000
Frame Shed	1980	0.00	0.00	504
Frame Shed	1980	0.00	0.00	96
Frame Shed	1980	0.00	0.00	504
Frame Shed	1980	0.00	0.00	420
Metal Shed	1980	0.00	0.00	160
with Electric	1980	0.00	0.00	128
with Electric	1980	0.00	0.00	192

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Sale Price
JLM ASSOCIATES LLC	0525	0316	06/29/2021	Other	$9,000
JLM ASSOCIATES LLC	0338	0013	07/19/2004	Name Change	$0
JLM ASSOCIATES	0141	0172	07/16/1986		$0

Building Permits

Permit Number	Permit Type	Date Opened	Reason
BLD20-00887	Outbuilding/Yard Item	08/19/2020	30X40 HANGER MOVED FROM DIFFERENT LOCATION; NO UTILITIES
2016-0118	CO Issued	09/01/2016	CO 26X40 SHED ;2 30X50 CARPORTS
41262	HVAC	09/30/2015	2 80K BTU PROP HEATERS TO HEAT 2 TENTS
2016-0116	CO Issued	09/02/2015	CO ELEC SRV UPDATE
2016-0117	CO Issued	09/01/2015	14X30 PREFAB SHED COMPLETE
41081	Electrical	08/10/2015	BRING SRV UP TO CODE
39372	New	09/01/2014	TWO 30X50 METAL CAR PORTS (REPLACEMENTS)
39344	Shed	07/11/2014	14'X30' SHED
OP2013-275	CO Issued	05/09/2013	CU for FUEL TANK REMOVAL.
38050	Miscellaneous	02/27/2013	PER CU - remove 10,000 gal fuel tank.
OP-2012-71	CO Issued	09/26/2011	CU for 6000 AG FUEL TANK.
36558	Electrical	07/25/2011	PER CU - RUN ELECTRIC LINE TO 6K GAL FUEL TANK FOR AVIATION GASOLINE.
35588	Plumbing	02/07/2011	PER CU - 6000 GAL FUEL TANK - AVIATION GASOLINE.
33323	Miscellaneous	08/12/2008	18' x 35' x 12' HANGER - ENCLOSED ON 3 SIDES
30444	Miscellaneous	07/26/2006	7 TEMP SHADE TENTS
20045	Tank	05/01/2000	Above Ground Fuel Tank
20046	Electrical	05/01/2000	Electric for Fuel Tank
20044	Tank	04/16/2000	Above Ground Fuel Tank - C.U. #2466
19544	Tank	10/28/1999	Remove Underground Gas Tank
14934	Tank	01/17/1996	TANK REMOVAL

Permit Number	Permit Type	Date Opened	Reason
14521	Miscellaneous	08/17/1995	TENT FOR AUCTION

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Information on the Property Records for the Municipality of Ellington was last updated on 12/1/2021.

Parcel Information

Location:	368 SOMERS RD	Property Use:	Industrial	Primary Use:	Light Industrial
Unique ID:	00312200	Map Block Lot:	105 004 0000	Acres:	4.30
490 Acres:	0.00	Zone:	I	Volume / Page:	0477/0604
Developers Map / Lot:		Census:	5351		

Value Information

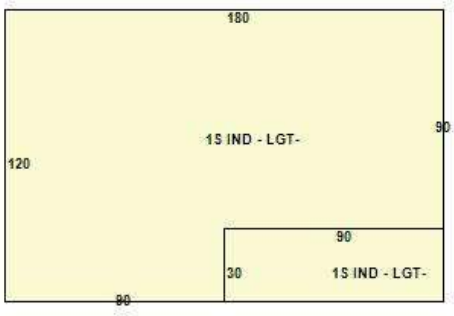
	Appraised Value	Assessed Value
Land	480,309	336,220
Buildings	1,476,814	1,033,770
Detached Outbuildings	20,000	14,000
Total	1,977,123	1,383,990

Owner's Information

Owner's Data

THREE SEVENTY FOUR (374) SOMERS RD CO LL
356 SOMERS RD
ELLINGTON CT 06029

Building 1



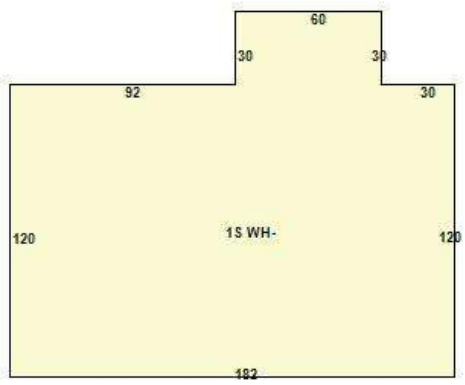
Category:	Industrial	Use:	Light Industrial	GLA:	21,600
Stories:	1.00	Construction:	Steel	Year Built:	1984
Heating:	Forced Hot Air	Fuel:	Natural Gas	Cooling Percent:	100
Siding:	Pre-Finish Metal	Roof Material:	Enamel Metal Shingle	Beds/Units:	0

Special Features

Unfinished Mezzanine	1600

Attached Components

Building 2



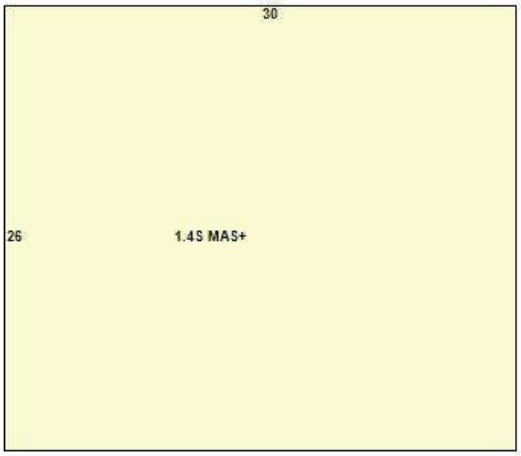
Category:	Industrial	Use:	Warehouse	GLA:	23,640
Stories:	1.00	Construction:	Steel	Year Built:	1987
Heating:	Hot Air No Duct	Fuel:	Natural Gas	Cooling Percent:	0
Siding:	Pre-Finish Metal	Roof Material:	Enamel Metal Shingle	Beds/Units:	0

Special Features

Wet Sprinklers	23640

Attached Components

Building 3



Building Use:	Single Family	Style:	Cape	Living Area:	1,092
Stories:	1.40	Construction:	Masonry	Year Built:	1900
Total Rooms:	6	Bedrooms:	4	Full Baths:	1
Half Baths:	0	Fireplaces:	1	Heating:	Hot Water

Fuel:	Oil	Cooling Percent:	0	Basement Area:	780
Basement Finished Area:	0	Basement Garages:	0	Roof Material:	Asphalt
Siding:	Stone/Masonry/Vinyl Siding	Units:			

Special Features

Fireplace	1

Attached Components

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Paving	1984	0.00	0.00	20,000

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Sale Price
THREE SEVENTY FOUR (374) SOMERS RD CO LL	0477	0604	08/17/2016	Quit Claim	$0
SOMERS ROAD COMPANY	0211	0678	09/02/1994	Quit Claim	$0
SOMERS ROAD COMPANY	0127	0393	04/16/1984		$0
RICE WILLIAM A	0125	0260	11/14/1983		$0
RICE WILLIAM A	0120	0043	05/21/1982		$0

Building Permits

Permit Number	Permit Type	Date Opened	Reason
39315	Miscellaneous	12/11/2013	RESTRENGHTEN STEEL BEAM ROOF SUPPORT

Permit Number	Permit Type	Date Opened	Reason
32561	Electrical	11/30/2007	SERVICE CHANGE @ 374 SOMERS RD
31571	Electrical	04/18/2007	SERVICE CHANGE AT JIT WAREHOUSE
26026	Miscellaneous	12/16/2003	HOME - CONVERT HEAT FROM OIL TO NATURAL GAS
25997	Miscellaneous	12/09/2003	CONVERT HEAT FROM LP TO NATURAL GAS FOR NORTHERN MOST BLDG
25985	Roof	12/05/2003	REROOF HOUSE
14628	Electrical	10/02/1995	
14566	Comm Renovations	08/31/1995	LEASE IMPROVEMENTS ACTION PACKAGING

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Information on the Property Records for the Municipality of Ellington was last updated on 12/1/2021.

Parcel Information

Location:	381 SOMERS RD	Property Use:	Residential	Primary Use:	Residential
Unique ID:	00334300	Map Block Lot:	122 008 0000	Acres:	0.93
490 Acres:	0.00	Zone:	RAR	Volume / Page:	0447/0571
Developers Map / Lot:		Census:	5352		

Value Information

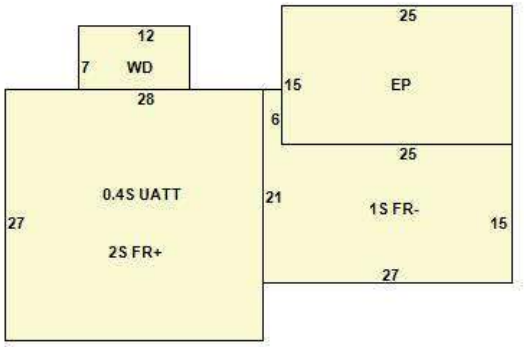
	Appraised Value	Assessed Value
Land	63,040	44,130
Buildings	140,530	98,370
Detached Outbuildings	14,020	9,810
Total	217,590	152,310

Owner's Information

Owner's Data

Owner's Data
RON POULIN LLC PO BOX 662 WINDSOR LOCKS, CT 06096

Building 1



Building Use:	Two Family	Style:	Multi Family	Living Area:	1,929
Stories:	2.00	Construction:	Wood Frame	Year Built:	1900
Total Rooms:	9	Bedrooms:	4	Full Baths:	2
Half Baths:	0	Fireplaces:	0	Heating:	Forced Hot Air
Fuel:	Propane Gas	Cooling Percent:	0	Basement Area:	756
Basement Finished Area:	0	Basement Garages:	0	Roof Material:	Asphalt
Siding:	Vinyl Siding	Units:			

Special Features

Attached Components

Type:	Year Built:	Area:
Wood Deck	1900	84
Enclosed Porch	1900	375
Unfinished Attic	1900	302

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Detached Garage	1980	0.00	0.00	768

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Sale Price
RON POULIN LLC	0447	0571	04/19/2013	Warranty Deed	$80,000
DESCHENEAUX GERVAISE G	0136	0612	12/02/1985	Quit Claim	$0
DESCHENEAUX FERNAND R + GERVAISE G	0092	0240	01/07/1974		$0

Building Permits

Permit Number	Permit Type	Date Opened	Reason
39090	Electrical	10/03/2013	CHGE 1 FAMILY TO 2FAMILY
29650	Boiler	11/28/2005	REPLACE OIL FIRED FURNACE
19441	Siding	10/13/1999	Replace Roofing & New Vinyl Siding

Information Published With Permission From The Assessor

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Parcel Information

Location:	389 SOMERS RD	Property Use:	Residential	Primary Use:	Residential
Unique ID:	00334100	Map Block Lot:	122 007 0000	Acres:	2.07
490 Acres:	0.00	Zone:	RAR	Volume / Page:	0244/0900
Developers Map / Lot:	LOT #1	Census:	5352		

Value Information

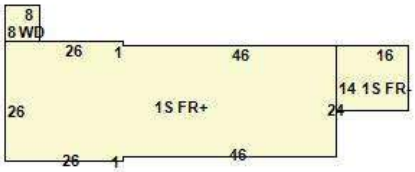
	Appraised Value	Assessed Value
Land	66,310	46,410
Buildings	159,050	111,340
Detached Outbuildings	0	0
Total	225,360	157,750

Owner's Information

Owner's Data

Owner's Data
JACQUES MAUREEN C 389 SOMERS RD ELLINGTON, CT 06029

Building 1



Building Use:	Single Family	Style:	Ranch	Living Area:	2,004
Stories:	1.00	Construction:	Wood Frame	Year Built:	1968
Total Rooms:	10	Bedrooms:	6	Full Baths:	2
Half Baths:	0	Fireplaces:	0	Heating:	Hot Water
Fuel:	Oil	Cooling Percent:	0	Basement Area:	1,780
Basement Finished Area:	0	Basement Garages:	2	Roof Material:	Asphalt
Siding:	Aluminum Siding	Units:			

Special Features

Fireplace	1

Attached Components

Type:	Year Built:	Area:
Wood Deck	1968	64

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Above Ground Pool	2015	0.00	0.00	1

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Sale Price
JACQUES MAUREEN C	0244	0900	09/04/1998	Warranty Deed	$117,000
DANDELSKE LOUISE E-EXEC	0242	0783	07/01/1998	Quit Claim	$0
ARSENAULT CORRINE A	0222	0006	02/12/1996	Quit Claim	$0

Building Permits

Permit Number	Permit Type	Date Opened	Reason
20575	Electrical	07/17/2000	ELECTRIC FOR POOL
20615	Pool	07/17/2000	ABOVE GROUND POOL W/ DECK ENCLOSURE
19898	Electrical	02/28/2000	Electric for Alterations
19853	Addition	02/14/2000	Change Use to One Family - C.O. #4058
19762	Heating	01/10/2000	New Oil Heating System
19711	Electrical	12/21/1999	Electric for Addition
19646	Addition	12/03/1999	Dining Room Addition - C.O. #4023

Information Published With Permission From The Assessor

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Information on the Property Records for the Municipality of Ellington was last updated on 12/1/2021.

Parcel Information

Location:	403 SOMERS RD	Property Use:	Residential	Primary Use:	Residential
Unique ID:	00333900	Map Block Lot:	122 005 0000	Acres:	2.30
490 Acres:	0.00	Zone:	RAR	Volume / Page:	0300/0392
Developers Map / Lot:	#6	Census:	5352		

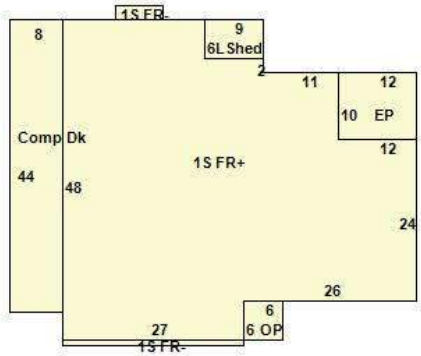
Value Information

	Appraised Value	Assessed Value
Land	66,970	46,870
Buildings	199,210	139,450
Detached Outbuildings	53,050	37,140
Total	319,230	223,460

Owner's Information

Owner's Data
WILLIS KENNETH G JR + NANCY A 403 SOMERS RD ELLINGTON, CT 06029

Building 1



Building Use:	Single Family	Style:	Ranch	Living Area:	2,071
Stories:	1.00	Construction:	Wood Frame	Year Built:	1966
Total Rooms:	6	Bedrooms:	3	Full Baths:	3
Half Baths:	1	Fireplaces:	0	Heating:	Hot Water
Fuel:	Oil	Cooling Percent:	100	Basement Area:	2,030
Basement Finished Area:	500	Basement Garages:	2	Roof Material:	Asphalt
Siding:	Vinyl Siding	Units:			

Special Features

Fireplace	1

Attached Components

Type:	Year Built:	Area:
Composite Deck	2015	352
Enclosed Porch	1966	120
Open Porch	1966	36
Lumber Shed	1966	54

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
1 Story Barn	1966	0.00	0.00	640
Gazebo	2010	0.00	0.00	77
Detached Patio	1983	0.00	0.00	300
Vinyl Pool	1983	0.00	0.00	490
Frame Shed	1980	0.00	0.00	96
Frame Shed	1980	0.00	0.00	96
Utility Storage	1988	0.00	0.00	2,304

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Sale Price
WILLIS KENNETH G JR + NANCY A	0300	0392	12/04/2002	Warranty Deed	$290,000
LUGINBUHL RONALD L + KAY A	0098	0688	08/22/1975		$0

Building Permits

Permit Number	Permit Type	Date Opened	Reason
OP2009-112	CO Issued	12/01/2008	CU - PELLET STOVE
33678	Stoves Gas/Wood	10/27/2008	PELLET FIREPLACE INSERT
29983	Roof	03/06/2006	REROOF
MP0157	Heating	01/08/2003	MP-2003-0157-HEATING CONVERSION

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Information on the Property Records for the Municipality of Ellington was last updated on 12/1/2021.

Parcel Information

Location:	406 SOMERS RD	Property Use:	Automotive	Primary Use:	Commercial Garage
Unique ID:	00333100	Map Block Lot:	121 028 0000	Acres:	0.92
490 Acres:	0.00	Zone:	I	Volume / Page:	0425/0297
Developers Map / Lot:		Census:	5351		

Value Information

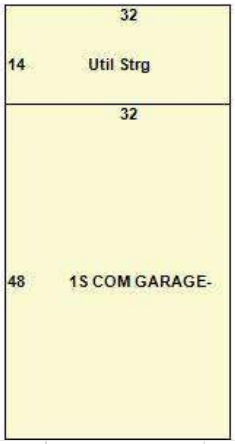
	Appraised Value	Assessed Value
Land	100,000	69,990
Buildings	42,440	29,710
Detached Outbuildings	3,110	2,180
Total	145,550	101,880

Owner's Information

Owner's Data

Owner's Data
COOL BEAN LLC 174 RED OAK HILL RD FARMINGTON, CT 06032

Building 1



Category:	Automotive	Use:	Commercial Garage	GLA:	1,536
Stories:	1.00	Construction:	Wood Frame	Year Built:	1980
Heating:	Forced Hot Air	Fuel:	Oil	Cooling Percent:	0
Siding:	Aluminum Siding	Roof Material:	Asphalt	Beds/Units:	0

Special Features

Attached Components

Type:	Year Built:	Area:
Utility Storage	1980	448

Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Paving	1980	0.00	0.00	3,108

Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Sale Price
COOL BEAN LLC	0425	0297	06/09/2011	Warranty Deed	$120,000
DEGRAY FRANCIS A	0095	0593	09/24/1974		$0

Information Published With Permission From The Assessor

Appendix V:
CT SHPO Correspondence

RE: Phone Message

Labadia, Catherine Catherine.Labadia@ct.gov
3/17/2021 3:45 PM

To: Tery Harris Cc: jclemens; ecomer

Hello Tery,

Unfortunately, our office still is not open to the public and staff continues to work remote. What I have been doing for researchers is conducting the research for them or trying to identify other avenues for completing due diligence. It sounds like these are manageable projects, so let's see what I can provide you over the internet. I will add that depending on the area of the state, some information is more readily available than other locations. In those situations, I do go into the office every few weeks to get information that is not available in a digital format.

To get started, please send me a map with the APE clearly marked and, if different from the APE, a search radius. Once I have that information, I can let you know exactly what inventories or files that I can provide to you. Also, emails get quickly buried – if you do not hear from me for than a week, please send me a reminder or gentle nudge.

Thanks,

Cathy

From: Labadia, Catherine
Sent: Thursday, April 1, 2021 4:35 PM
To: Tery Harris
Subject: RE: File review EAC/Archaeology projects

Hi Tery,
This is not going to be the response that you want. No previously recorded archaeological sites or properties listed on the National Register are located within or near the APEs you outlined. For the property in Ellington, there is nothing within another mile of your boundaries and in Columbia, nothing within another 0.5 miles. The problem is the context. The lack of previously recorded sites may largely result from a lack of completed surveys in the area, particularly ones completed within the past 15-20 years. Let me look around a little more for a helpful survey report. I attached a guide of resources that can be accessed remotely and I also would recommend taking a look at http://magic.lib.uconn.edu/index.html for historic maps/aerials.
Cathy

From: Tery Harris <tharris@eacarchaeology.com>
Sent: Thursday, April 1, 2021 2:41 PM
To: Labadia, Catherine <Catherine.Labadia@ct.gov>
Subject: Re: File review EAC/Archaeology projects
Importance: High

We have reconfigured my email set up, and hopefully this email will now reach you. I have just forwarded the original sent last week, since it appears to have bounced to your junk folder as it did the previous time.

Tery Harris
Archaeologist
EAC/Archaeology, Inc. Baltimore, MD

From: Tery Harris
Sent: Monday, March 29, 2021 9:48 AM
To: Labadia, Catherine
Subject: Re: Phone Message

I apologize for the delay in getting these maps to you in response. At the end of this email is a Dropbox link to files with a markup of the appropriate 7.5 minute USGS quadrangles for the two projects. If we were doing this ourselves we would record archaeological sites and built environment resources within the APE (early concept) and within the search buffer separately, and note any surveys previously conducted.

I have already downloaded the pertinent historic context documents from your website, but if there is

a particularly well researched archaeological survey in the general area (either Tolland or Harford County) which is available as a pdf, that would be very helpful as well, since our access to CT predictive models is limited to what I still have on hand from my time in New England and therefore out of date.

https://www.dropbox.com/sh/hiu1s9u0eftz01n/AACVvoKQJMufvXrQJRGQN27va?dl=0

Tery Harris
Project Archaeologist
EAC/Archaeology, Inc. Baltimore, MD

Quoting "Labadia, Catherine" <Catherine.Labadia@ct.gov>:

> Hello Tery,
> Unfortunately, our office still is not open to the public and staff
> continues to work remote. What I have been doing for researchers is
> conducting the research for them or trying to identify other avenues
> for completing due diligence. It sounds like these are manageable
> projects, so let's see what I can provide you over the internet. I
> will add that depending on the area of the state, some information is
> more readily available than other locations. In those situations, I
> do go into the office every few weeks to get information that is not
> available in a digital format.
> To get started, please send me a map with the APE clearly marked and,
> if different from the APE, a search radius. Once I have that
> information, I can let you know exactly what inventories or files
> that I can provide to you. Also, emails get quickly buried - if you
> do not hear from me for than a week, please send me a reminder or
> gentle nudge.
> Thanks,
> Cathy
>
> From: Tery Harris <tharris@eacarchaeology.com>
> Sent: Wednesday, March 17, 2021 2:06 PM
> To: Labadia, Catherine <Catherine.Labadia@ct.gov>
> Cc: jclemens <jclemens@eacarchaeology.com>; ecomer
> <ecomer@eacarchaeology.com>
> Subject: Re: Phone Message
>
> EXTERNAL EMAIL: This email originated from outside of the
> organization. Do not click any links or open any attachments unless
> you trust the sender and know the content is safe.
>
> Thank you for responding to the voice mail message.
>
> We are a CRM firm in Baltimore primarily working in the MidAtlantic
> Region, however one of our existing clients has requested we screen
> two projects for them in CT. We would like to arrange for an appoint
> to conduct site file research, archaeological and build environment,
> there at the SHPO's office. Since we will also be using this trip to
> conduct the walkovers of the sites, if possible we would like to

> schedule the appointment with at least one back up dates. March 23
> would be ideal, March 24, or March 29 less so but doable. Are any of
> these available, with a second date as backup in case there is bad
> traveling weather, or the project sites are unavailble around either
> date?
>
> We will be sending two staff memebers, one Sec. of Interior qualified
> and one still working on his supervisory period for qualification.
> Beyond their resumes, is there additional information you need before
> scheduling an appointment?
> Tery Harris
> Project Archaeologist
> EAC/Archaeology, Inc. Baltimore, MD
>
>
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>
> Quoting "Labadia, Catherine"
> <Catherine.Labadia@ct.gov<mailto:Catherine.Labadia@ct.gov>>:
> Hello Terry,
>
>
> You are correct, I never received your email. Please try responding
> to mine and let's see if I could get you some file access.
>
>
> Thank you,
>
>
> Cathy
>
>
>
>
>
>
>
> Catherine Labadia
>
>
> Staff Archaeologist
>
>
> State Historic Preservation Office
>
>
> Department of Economic & Community Development
>
>
> 450 Columbus Boulevard, Suite 5
>
>
> Hartford, CT 06103

>
>
> 860-500-2329 (direct)

From: Labadia, Catherine
Sent: Monday, April 12, 2021 9:44 AM
To: Tery Harris
Subject: RE: File review EAC/Archaeology projects

Tery,
Unfortunately, there just has not been much work specific to this area. It did occur to me, however, that you could try searching the Connecticut Siting Council website (https://portal.ct.gov/CSC). They usually post surveys for dockets and petitions – there are lots of cell tower reports and a few larger utility reports that may have the context you are looking for, such as: https://portal.ct.gov/-/media/CSC/1_Dockets-medialibrary/Docket_424/424_Application/V3InterstateCSCApplicationV3pdf.pdf
You could look at the bibliography in this and other reports for commonly cited publications. I hope that helps.
Cathy

From: Tery Harris <tharris@eacarchaeology.com>
Sent: Monday, April 12, 2021 9:20 AM
To: Labadia, Catherine <Catherine.Labadia@ct.gov>
Subject: RE: File review EAC/Archaeology projects

I wanted to follow up on this, since I only have ten days to complete these Phase IA reports, and have found very limited material online. Have you had any luck locating a recent survey from the region which is available as a pdf and would give me an updated predictive model (or references for the same). Recommendations for recently published articles would also perhaps work as I may be able to access pdfs through the publication website. It unfortunately looks like there are no online studies available through the U of Conn Connecticut Historic Preservation Collection.

The staff member who did the pedestrian inspection is also our geomorphologist, and tells me that both sites appear to have significant past earth disturbance in some area. We found no evidence of prehistoric occupation, but I still need an adequate text summary of the prevailing predictive model for the reports.

Tery Harris
Archaeologist
EAC/Archaeology, Inc. Baltimore, MD

From: Labadia, Catherine
Sent: Thursday, April 1, 2021 4:35 PM
To: Tery Harris
Subject: RE: File review EAC/Archaeology projects

Hi Tery,

This is not going to be the response that you want. No previously recorded archaeological sites or properties listed on the National Register are located within or near the APEs you outlined. For the property in Ellington, there is nothing within another mile of your boundaries and in Columbia, nothing within another 0.5 miles. The problem is the context. The lack of previously recorded sites may largely result from a lack of completed surveys in the area, particularly ones completed within the past 15-20 years. Let me look around a little more for a helpful survey report. I attached a guide of resources that can be accessed remotely and I also would recommend taking a look at http://magic.lib.uconn.edu/index.html for historic maps/aerials.
Cathy

From: Tery Harris <tharris@eacarchaeology.com>
Sent: Thursday, April 1, 2021 2:41 PM
To: Labadia, Catherine <Catherine.Labadia@ct.gov>
Subject: Re: File review EAC/Archaeology projects
Importance: High

We have reconfigured my email set up, and hopefully this email will now reach you. I have just forwarded the original sent last week, since it appears to have bounced to your junk folder as it did the previous time.

Tery Harris
Archaeologist
EAC/Archaeology, Inc. Baltimore, MD

From: Tery Harris
Sent: Monday, March 29, 2021 9:48 AM
To: Labadia, Catherine
Subject: Re: Phone Message

I apologize for the delay in getting these maps to you in response. At the end of this email is a Dropbox link to files with a markup of the appropriate 7.5 minute USGS quadrangles for the two projects. If we were doing this ourselves we would record archaeological sites and built environment resources within the APE (early concept) and within the search buffer separately, and note any surveys previously conducted.

I have already downloaded the pertinent historic context documents from your website, but if there is a particularly well researched archaeological survey in the general area (either Tolland or Harford County) which is available as a pdf, that would be very helpful as well, since our access to CT predictive models is limited to what I still have on hand from my time in New England and therefore out of date.

https://www.dropbox.com/sh/hiu1s9u0eftz01n/AACVvoKQJMufvXrQJRGQN27va?dl=0

Tery Harris
Project Archaeologist
EAC/Archaeology, Inc. Baltimore, MD

Quoting "Labadia, Catherine" <Catherine.Labadia@ct.gov>:

> Hello Tery,
> Unfortunately, our office still is not open to the public and staff
> continues to work remote. What I have been doing for researchers is
> conducting the research for them or trying to identify other avenues
> for completing due diligence. It sounds like these are manageable
> projects, so let's see what I can provide you over the internet. I
> will add that depending on the area of the state, some information is
> more readily available than other locations. In those situations, I
> do go into the office every few weeks to get information that is not
> available in a digital format.
> To get started, please send me a map with the APE clearly marked and,
> if different from the APE, a search radius. Once I have that
> information, I can let you know exactly what inventories or files
> that I can provide to you. Also, emails get quickly buried - if you
> do not hear from me for than a week, please send me a reminder or
> gentle nudge.
> Thanks,
> Cathy
>
> From: Tery Harris <tharris@eacarchaeology.com>
> Sent: Wednesday, March 17, 2021 2:06 PM
> To: Labadia, Catherine <Catherine.Labadia@ct.gov>
> Cc: jclemens <jclemens@eacarchaeology.com>; ecomer
> <ecomer@eacarchaeology.com>
> Subject: Re: Phone Message
>
> EXTERNAL EMAIL: This email originated from outside of the
> organization. Do not click any links or open any attachments unless
> you trust the sender and know the content is safe.
>
> Thank you for responding to the voice mail message.
>
> We are a CRM firm in Baltimore primarily working in the MidAtlantic
> Region, however one of our existing clients has requested we screen
> two projects for them in CT. We would like to arrange for an appoint
> to conduct site file research, archaeological and build environment,
> there at the SHPO's office. Since we will also be using this trip to
> conduct the walkovers of the sites, if possible we would like to
> schedule the appointment with at least one back up dates. March 23
> would be ideal, March 24, or March 29 less so but doable. Are any of
> these available, with a second date as backup in case there is bad
> traveling weather, or the project sites are unavailble around either
> date?
>
> We will be sending two staff memebers, one Sec. of Interior qualified

> and one still working on his supervisory period for qualification.
> Beyond their resumes, is there additional information you need before
> scheduling an appointment?
> Tery Harris
> Project Archaeologist
> EAC/Archaeology, Inc. Baltimore, MD
>
>
>
>
> Quoting "Labadia, Catherine"
> <Catherine.Labadia@ct.gov<mailto:Catherine.Labadia@ct.gov>>:
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> 860-500-2329 (direct)

July 30, 2021

Ms. Tery Harris
EAC/Archaeology, Inc.
4303 N. Charles St.
Baltimore, MD 21218
(sent only via email to tharris@eacarchaeology.com)

Subject: Cultural Resources Screening for the Proposed Somers Solar Power Project
Somers Road
Ellington, Connecticut

Dear Ms. Harris:

The State Historic Preservation Office (SHPO) has reviewed the referenced report prepared by EAC/Archaeology, Inc. (EAC). SHPO understands that the proposed project consists of a solar facility containing 140 pole mounted racks and associated improvements (e.g., access roads, fencing, and stormwater retention). Although the project parcel is comprised of approximately 136 acres, project impacts will be limited to an area encompassing approximately 33 acres to the north and west of Ellington Airport. As a project subject to review by the Connecticut Siting Council, it is subject to the provisions of the Connecticut Environmental Policy Act and a review by this office. In addition, it appears the proposed project will require a Stormwater Discharge permit issued by the Department of Energy and Environmental Protection through the authority of the Environmental Protection Agency; therefore, it is subject to review by this office pursuant to Section 106 of the National Historic Preservation Act.

EAC completed a background review and pedestrian survey as part of the current investigation. SHPO understands that the project may have both direct and indirect effects, but our office also understands that the pedestrian survey only included a review of the area of direct effects. Although no formal presentation of an Area of Potential Effect (APE) for indirect effects was presented, the assessment of indirect effects suggested that the viewsheds of a residential structure at 381 Somers Road, the Ellington Airport Complex at 360 Somers Road, and a collection of mid-twentieth century outbuildings in the center of the APE, also likely associated with the airport, could be adversely impacted by the project. Without understanding either the indirect APE or why these structures would be considered significant for listing on the National of Historic Places, it is difficult for SHPO to provide comment. The single report photograph of the outbuilding, as well as Google Street views of the remaining buildings suggest that they are of common and highly altered design and the report did not suggest any significant associations. SHPO recommends defining the APE for indirect effects and providing an appropriate summary of all historic resources located within it; including, but not limited to, photographs, date of construction, street address, and architectural style. SHPO does not have a prescribed

methodology for defining a visual APE because this should be largely dependent on the type of project. In this situation, it does not need to be a complex generated computer model but can consist of a field study resulting in a delineated map showing where the view becomes obstructed.

The report describes the proposed APE for direct effects as primarily consisting of agricultural fields with secondary growth woodland along its border. A review of historic aerial images suggests that the central portion of the APE was substantially impacted by prior earth moving activities, as evidenced by push piles and exposed soils. This suggestion is further corroborated by the classification of soils in this area as Udorthents-Pit Complex, as well as topographic maps showing depressions. Pedestrian survey in this location described modern evidence of disturbances related to the construction and use of a garage/shop, active piles of soil, and scattered debris. SHPO concurs that no additional archaeological consideration of the central portion of the APE is warranted; this area is depicted in Figure 16 of the report as Areas of Documented Disturbance. As a minor note of correction, the legend for Figure 3 (Soils in the Study Area), has a misspelling (*Odorthents*) and it does not include the prevalent Ellington Series.

Topographic maps, aerial photographs, and the soil survey all depict a relatively constant landscape within the northern and southern agricultural fields. Photographs taken during pedestrian survey of the northern and southern fields do not demonstrate the substantial earth moving disturbances documented in the central portion of the APE. While it is possible that the entire APE has been stripped as suggested in the report, SHPO does not agree with that conclusion based on the submitted information. It is our opinion, given the high probability for encountering pre-contact archaeological sites that a subsurface investigation is warranted. Subsurface testing should evaluate all areas of anticipated ground disturbance associated with the proposed project (utility corridors, access roads, racks, etc.). In Connecticut, archaeological reconnaissance surveys typically consist of shovel test pits measuring 50x50 centimeters excavated to glacial till at 15-meter intervals along transects spaced 15 meters apart. SHPO expects this level of effort unless a pattern of pervasive prior disturbance can be documented.

This office looks forward to additional consultation as the project moves forward. For additional information, please contact Catherine Labadia, Staff Archaeologist and Environmental Reviewer, for additional information at (860) 500-2329 or catherine.labadia@ct.gov.

Sincerely,

Jonathan Kinney
Deputy State Historic Preservation Officer

Appendix G

Product Information Sheets

PV INVERTER

Commercial Series / M125HV

Features

- High DC input voltage up to 1500 Vdc
- Excellent efficiency performance, 99.2% peak & 99.0% CEC
- Integral AC & DC switch, type 2 SPD and 20 string fuses
- Electrolytic capacitor free, more than 20 years life
- NEMA 4X protection level
- Integral DC Arc fault detector
- String monitoring
- Operating temp. range -13°~140°F

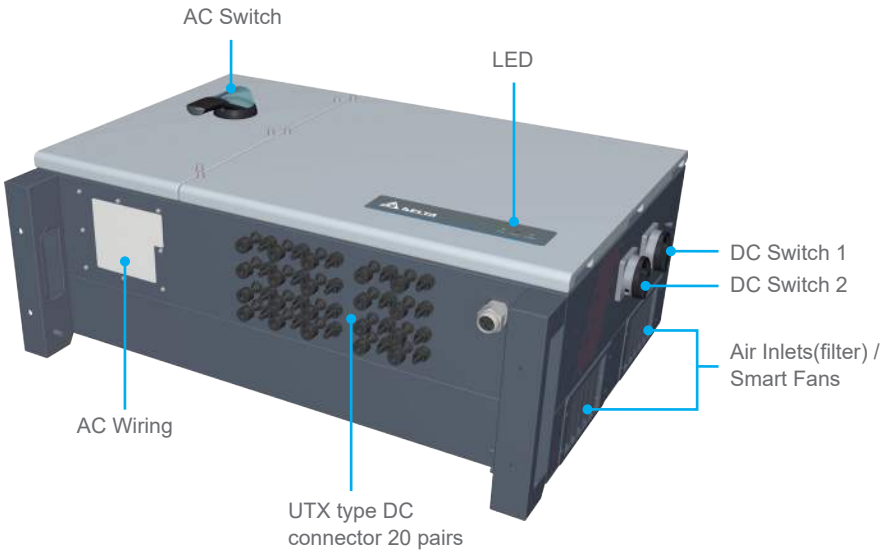
www.deltaww.com

DELTA

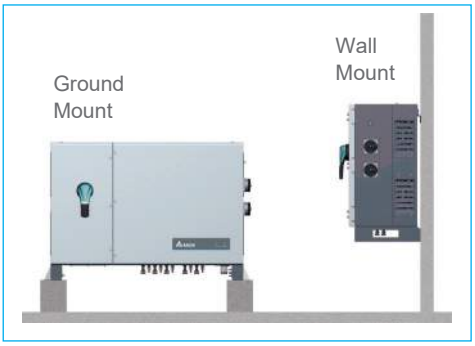
Product Overview

Delta M125HV has excellent power efficiency to reach 99.2% peak and 99.0% CEC over converting PV energy. It features all-in-one design to integrate string fuses, surge protection devices and DC switch in one unit body. Thanks for electrolytic capacitor free design and NEMA 4X protection, the M125HV is the most reliable and durable inverter than ever.

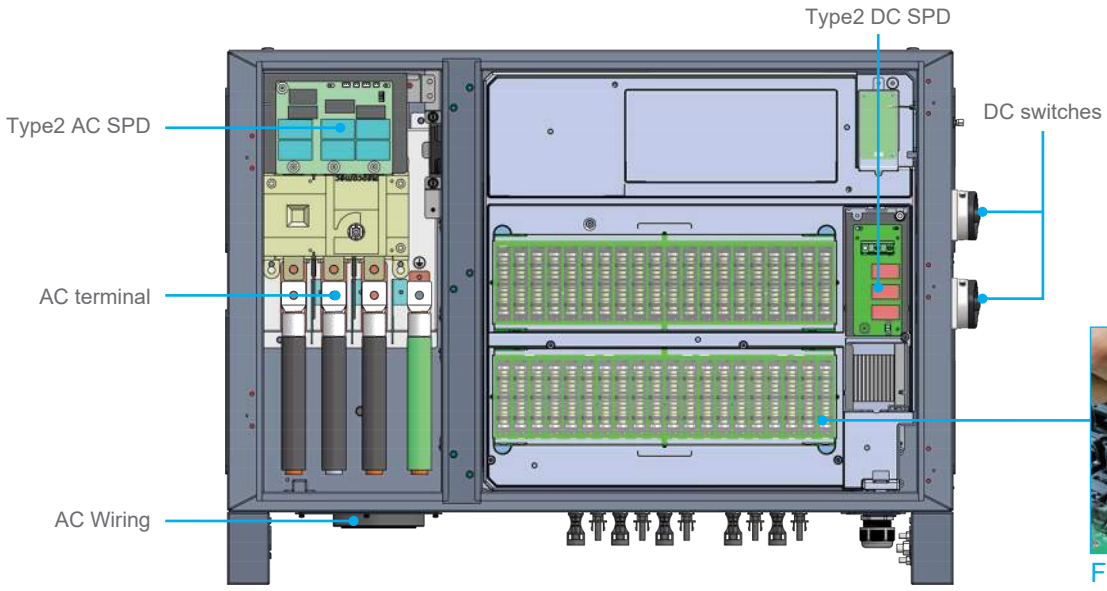
Form Factor



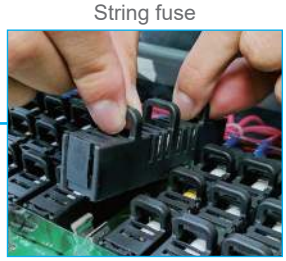
Landscape installation



Wiring Box Configurations



String fuse



Finger-safe fuse holder

Specifications

Model Number	M125HV
DC Input	
Occasionally Max Voltage	1500 V
Operating Voltage Range	860 - 1500 V
Mpp Voltage Range	860 - 1450 V [1)]
Rated Voltage	1050 V
Mpp Tracker	1
Max. Operating Current	150 A
Max. Allowable Array Isc	320 A
String Fuse Provisioned	20 A / 1500 V PV fuses
Connection	20 pairs of UTX connectors
Surge Protection	Type 2 SPD
Dc Switch	Yes
String Current Monitoring	Yes
AC Output	
Rated Output Power	125 kW [2)]
Max. Apparent Power	140 kVA [3)]
Max. Output Current	135 A
Grid Configuration	3P / PE
Operating Voltage Range	Vac 600V : -36% to +15%
Operating Frequency Range	50 / 60Hz ± 5Hz
Power Factor	0.8 ind - 0.8 cap adjustable (1 - 0.9 at maximum power)
Surge Protection	Type 2 SPD
Ground Fault Protection	Yes
Thd	< 3%
Connection	Ring terminal lug with Terminal busbar (Max. 150mm^2 Cu or Al wire)
Night Time Consumption [4)]	< 3.5W
Efficiency	
Peak Efficiency	99.2%
CEC Efficiency	99.0%
Information	
Communication Port	RS-485 (Delta / Sunspec)
Display	LED (Grid, Alarm, COMM.)
Regulation	
	UL 1741 SA, UL1741, UL1998, UL 1699B IEEE1547, IEEE1547.1, CSA C22.2
General Data	
Smart Inverter Functionality	Voltage / Frequency Ride through, Volt / Var, Volt / Watt, Power curtailment, Frequency / Watt
Operating Temp Range	-13°~140°F, >122°F de-rating
Protection level	NEMA 4X
Operating Elevation	<9800 ft, Outdoor, wet locations
Cooling	Forced air cooling with Smart fan control
Dimension (W x H x D)	35.4 x 26.1 x 14.5 in
Weight	176 lb

1) Ambient < 0°C : 860 - 1450V
Ambient < 25°C : 860 - 1350V
Ambient < 40°C : 860 - 1250V

2) @TAMB ≤ 50°C, VIN ≤ 1050VDC

3) @TAMB ≤ 40°C, VIN ≤ 1050VDC

4) Night time consumption with standby communication

*All specifications are subject to change without prior notice

Delta Electronics, Inc.
39 Section 2 Huandong Road, Shanhua Township,
Tainan County 74144, Taiwan,R.O.C.
TEL：+886 6 505-6565
FAX：+886 6 505-1919
info@deltaww.com

2019 / 05 / 24

ARRAY TECHNOLOGIES

DuraTrack® HZ v3

RELIABILITY IS POWER.

167×

fewer components than competitive trackers

25,000+

Megawatt Years of Operation

THE MOST RELIABLE TRACKER UNDER THE SUN

HIGHEST POWER DENSITY.

Higher density means more power and more profit. DuraTrack HZ v3 offers the unique ability to maximize the power density of each site, boasting 6% more density than our closest competitor.

LEADING TERRAIN ADAPTABILITY.

Uneven terrain? Hill yes! Our flexibly linked architecture, with articulating driveline joints and forgiving tolerances, create the most adaptable system in market for following natural land contours and creates the greatest power generation potential from every site.

FEWER COMPONENTS. GREATER RELIABILITY.

Less is more. Array was founded on a philosophy of engineered simplicity. Minimizing potential failure points (167 times fewer components than competitors), DuraTrack HZ v3 consistently delivers higher reliability and superior uptime.

FAILURE-FREE WIND DESIGN.

DuraTrack HZ v3 was designed and field tested to withstand some of the harshest conditions on the planet. It is the only tracker on the market that reliably handles wind events with a fully integrated, fully automatic wind-load mitigation system.

ZERO SCHEDULED MAINTENANCE.

Three decades of solar tracker system design, engineering and testing has resulted in uncompromising reliability. Maintenance-free motors and gears, fewer moving parts, and industrial-grade components means maintenance-free energy generation.

ARRAY TECHNOLOGIES, INC.

3901 Midway Place NE
Albuquerque, NM 87109 USA

+1 505.881.7567
+1 855.TRACKPV (872.2578)
+1 505.881.7572

sales@arraytechinc.com

arraytechinc.com

DuraTrack® HZ v3

COST VERSUS VALUE

We believe value is more than the cost of a tracking system. It's about building with forgiving tolerances and fewer parts so construction crews can work efficiently. It means protecting your investment with a failure-free wind management system. It also includes increasing power density. But most of all, value is measured in operational uptime, or reliability.

THE GLOBAL LEADER IN RELIABILITY

Array has spent decades designing and perfecting the most reliable tracker on the planet. Fewer moving parts, stronger components and intelligent design that protects your investment in the harshest weather are but a few of the innovative differences that keep your system running flawlessly all day and you resting easy at night.

STRUCTURAL & MECHANICAL FEATURES/SPECIFICATIONS	
Tracking Type	Horizontal single axis
MW per Drive Motor	Up to 1.036800 MW DC using 360W crystalline
String Voltage	Up to 1,500V DC
Maximum Linked Rows	32
Maximum Row Size	90 modules crystalline, 90 modules glass-on-glass, 240 modues First Solar 4, 72 modules First Solar 6
Drive Type	Rotating gear drive
Motor Type	2 HP, 3 PH, 480V AC
Motors per 1 MW DC	Less than 1
East-West / North-South Dimensions	Site / module specific
Array Height	54" standard, adjustable (48" min height above grade)
Ground Coverage Ratio (GCR)	Flexible, 28–45% typical, others supported on request
Terrain Flexibility	N-S tolerance: 0° - 8.5° standard, 15° optional Driveline: 40° in all directions
Modules Supported	Most commercially available, including frameless crystalline and thin film
Tracking Range of Motion	± 52° standard, ± 62° optional
Operating Temperature Range	-30°F to 140°F (-34°C to 55°C)
Module Configuration	Single-in-portrait standard. Two-or-three in landscape (framed or frameless), four-in-landscape (thin film) also available.
Module Attachment	Single fastener, high-speed mounting clamps with integrated grounding. Traditional rails for crystalline in landscape, custom racking for thin film and frameless crystalline per manufacturer specs.
Materials	HDG steel and aluminum structural members
Allowable Wind Load (IBC 2012)	135 mph, 3-second gust exposure C
Wind Protection	Passive mechanical system relieves wind and obstruction damage — no power required
ELECTRONIC CONTROLLER FEATURES/SPECIFICATIONS	
Solar Tracking Method	Algorithm with GPS input
Control Electronics	MCU plus Central Controller
Data Feed	MODBUS over Ethernet to SCADA system
Night-time Stow	Yes
Tracking Accuracy	± 2° standard, field adjustable
Backtracking	Yes
INSTALLATION, OPERATION & MAINTENANCE	
PE Stamped Structural Calculations & Drawings	Yes
On-site Training & System Commissioning	Yes
Connection Type	Fully bolted connections, no welding
In-field Fabrication Required	No
Dry Slide Bearings & Articulating Driveline Connections	No lubrication required
Scheduled Maintenance	None required
Module Cleaning Compatibility	Robotic, Tractor, Manual
GENERAL	
Annual Power Consumption (kWh per 1 MW)	400 kWh per MW per year, estimated
Land Area Required per 1 MW	Approx. 4 to 4.5 acres per MW @ 33% GCR (site and design specific)
Energy Gain vs. Fixed-Tilt	Up to 25%, site specific
Warranty	10 year structural, 5 year drive & control components
Patent Numbers	US patent 8,459,249 US patent 9,281,778 US patent 9,581,678 B2 and patents pending
Codes and Standards	UL Certified (3703 & 2703)

EAGLE
MODULES

THE MOST DEPENDABLE SOLAR BRAND

EAGLE 72HM G5b

515-535 WATT • MONO HALF CELL BIFACIAL

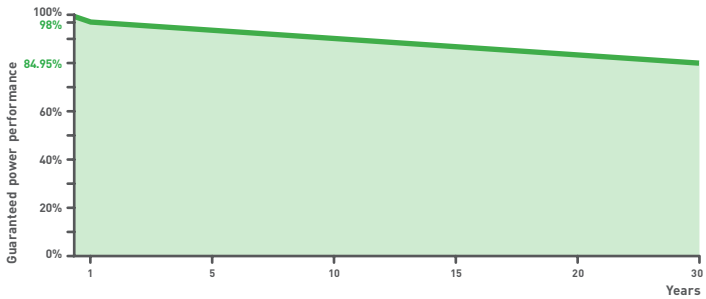
Positive power tolerance of 0~+3%

Featuring **Diamond Half Cell Technology**

- NYSE-listed since 2010, Bloomberg Tier 1 manufacturer
- Best-selling module globally for last 4 years
- Top performance in the strictest 3rd party labs
- 99.9% on-time delivery to the installer
- Automated manufacturing utilizing artificial intelligence
- Vertically integrated, tight controls on quality
- Premium solar panel factories in USA and Malaysia

LINEAR PERFORMANCE WARRANTY

30-Year Performance Warranty



- ISO9001:2015 Quality Standards
- ISO14001:2015 Environmental Standards
- IEC61215, IEC61730 certified products
- ISO45001: 2018 Occupational Health & Safety Standards
- UL61730 certified products

*Certifications Pending

KEY FEATURES

Multi Busbar Half Cell Technology
High efficiency mono half cut solar cells deliver high power in a small footprint.

Bifacial Power Gain
Bifacial cell architecture allows backside bonus and more lifetime power yield.

Designed for Long Life
Uses the same DuPont protective film as the Space Station, Mars Lander, and jetliners. 30-year warranty.

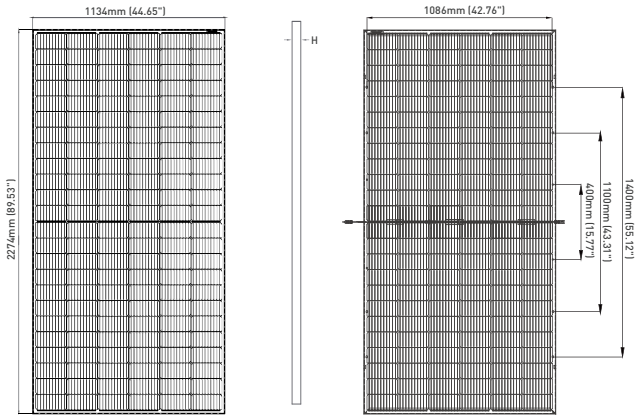
Shade Tolerant
Twin array design allows continued performance even with shading by trees or debris.

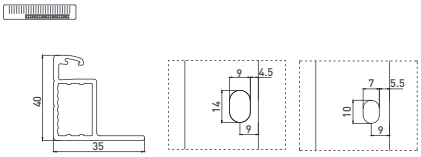
Power Boost in Cloudy Conditions
A special film diffuses light, boosting performance even with shading by trees or debris.

Protected Against All Environments
Certified to withstand humidity, heat, rain, marine environments, wind, hailstorms, and packed snow.

ENGINEERING DRAWINGS

Front Side Back

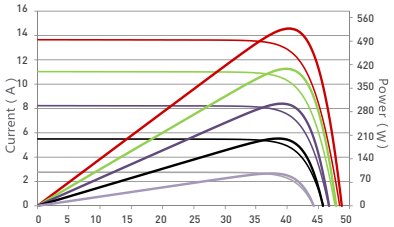




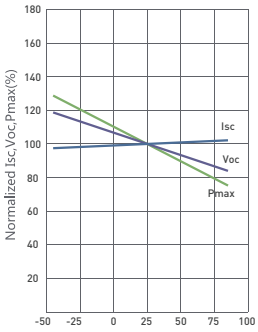
Length: ± 2mm
Width: ± 2mm
Height: ± 1mm
Row Pitch: ± 2mm

ELECTRICAL PERFORMANCE & TEMPERATURE DEPENDENCE

Current-Voltage & Power-Voltage Curves (520W)



Temperature Dependence of Isc, Voc, Pmax



MECHANICAL CHARACTERISTICS

Cells	Mono Diamond Cell
No. of Half Cells	144 (2x72)
Dimensions	2274×1134×40mm (89.53×44.65×1.57in)
Weight	29.2kg (64.37lbs)
Front Glass	3.2mm, Anti-Reflection Coating High Transmission, Low Iron, Tempered Glass
Frame	Anodized Aluminum Alloy
Junction Box	IP68 Rated
Output Cables	12 AWG, 1400mm (55.12in) or Customized Length
Fire Type	Type 1
Pressure Rating	5400Pa (Snow) & 2400Pa (Wind)

TEMPERATURE CHARACTERISTICS

Temperature Coefficients of Pmax	-0.35%/°C
Temperature Coefficients of Voc	-0.28%/°C
Temperature Coefficients of Isc	0.048%/°C
Nominal Operating Cell Temperature (NOCT)	45±2°C

MAXIMUM RATINGS

Operating Temperature (°C)	-40°C~+85°C
Maximum System Voltage	1500VDC (UL and IEC)
Maximum Series Fuse Rating	25A

PACKAGING CONFIGURATION

(Two pallets = One stack)

27pcs/pallets, 54pcs/stack, 540pcs/40 HQ Container

BIFACIAL OUTPUT-REARSIDE POWER GAIN

5%	Maximum Power (Pmax)	541Wp	546Wp	551Wp	557Wp	562Wp
	Module Efficiency (%)	20.97%	21.17%	21.38%	21.58%	21.78%
15%	Maximum Power (Pmax)	592Wp	598Wp	604Wp	610Wp	615Wp
	Module Efficiency (%)	22.97%	23.19%	23.41%	23.64%	23.86%
25%	Maximum Power (Pmax)	644Wp	650Wp	656Wp	663Wp	669Wp
	Module Efficiency (%)	24.96%	25.21%	25.45%	25.69%	25.93%

ELECTRICAL CHARACTERISTICS

Module Type	JKM515M-72HL4-TV		JKM520M-72HL4-TV		JKM525M-72HL4-TV		JKM530M-72HL4-TV		JKM535M-72HL4-TV	
	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax)	515Wp	383Wp	520Wp	387Wp	525Wp	391Wp	530Wp	394Wp	535Wp	398Wp
Maximum Power Voltage (Vmp)	40.40V	37.49V	40.50V	37.60V	40.61V	37.74V	40.71V	37.88V	40.81V	37.98V
Maximum Power Current (Imp)	12.75A	10.22A	12.84A	10.29A	12.93A	10.35A	13.02A	10.41A	13.11A	10.48A
Open-circuit Voltage (Voc)	49.12V	46.36V	49.20V	46.44V	49.27V	46.50V	49.35V	46.58V	49.42V	46.65V
Short-circuit Current (Isc)	13.47A	10.88A	13.54A	10.94A	13.64A	11.02A	13.71A	11.07A	13.79A	11.14A
Module Efficiency STC (%)	19.97%		20.17%		20.36%		20.55%		20.75%	

***STC:** Irradiance 1000W/m² Cell Temperature 25°C AM = 1.5
NOCT: Irradiance 800W/m² Ambient Temperature 20°C AM = 1.5 Wind Speed 1m/s

*Power measurement tolerance: ±3%

The company reserves the final right for explanation on any of the information presented hereby. JKM515-535M-72HL4-TV-D2-US

Prolec GE Step Up Transformers for Solar Energy Applications

PROLEC GE
Powering reliable solutions for you

Prolec GE has developed Step Up Transformers designed specifically for Solar Power Generation applications. Operational characteristics include thermal design for higher ambient temperature ranges and core and coils designed for step up application with an electrostatic shield for protection against electrical noise coming from the grid and the inverter. Various efficiency levels are available to match project financial requirements, including ultra-efficient amorphous metal cores.

Product scope / Standard features

- From 500 kVA to 1000 kVA
- High Voltage ratings: 12470 V, 24940 V & 34500 V (See Table 2)
- Low voltage rating: 480Y/277 (See Table 2)
- HV connection: DELTA
- LV connection: Wye
- 60 Hz operation
- 65°C winding temperature rise
- HV tap changer for (2) 5% full capacity tape above and below rated voltage
- Loop feed dead front HV terminals
- Cooling Class: ONAN
- % Impedance: 5.75% +/- 7.5%
- ANSI 70 Paint Finish
- Altitude of operation up to: 3300 ft
- Bayonet expulsion fuse plus partial range current-limiting fuses
- Built to all applicable IEEE standards

Value Added

Concept	Features	Value point
Step Up	Increased margin for core over excitation, withstanding high magnetizing inrush currents	Prevent core saturation or ferroresonance
Electronic Protection	Electrostatic Shield	Provide a pathway to ground for any residual resonance
Network Protection		Prevent capacitive coupling between the grid and capacitive banks of the inverter
* Solutions for Arc Flash	Accessories externally accessible and monitoring of the transformer	Mitigate the hazard during the performance of the O&M routines

** Detailed information in PGE catalog: Transformer solutions for Arc Flash Risks.*

Special / Optional features

- From 1000 kVA to 4000 kVA single voltage
- From 1000 kVA to 2800 kVA dual voltage
- Other connections available
- LV ratings: from 208 V to 600 V
- HV BIL: from 95 kV to 200 kV
- LV BIL: from 30 kV to 60 kV
- 50 Hz operation
- 55°C winding temperature rise
- Bayonet fuse holders with flappers
- High fire point fluids, such as silicone, hydrocarbon or vegetable fluids
- Internal oil switch (radial or loop)
- Under oil internal arresters
- Seismic designs IBC Certified
- Stainless steel tank and cabinet construction
- Optional colors

Standards and certifications available

UL LISTED · c UL LISTED · SEISMIC CERTIFIED · FM APPROVED

PROLEC GE

Powering reliable solutions for you

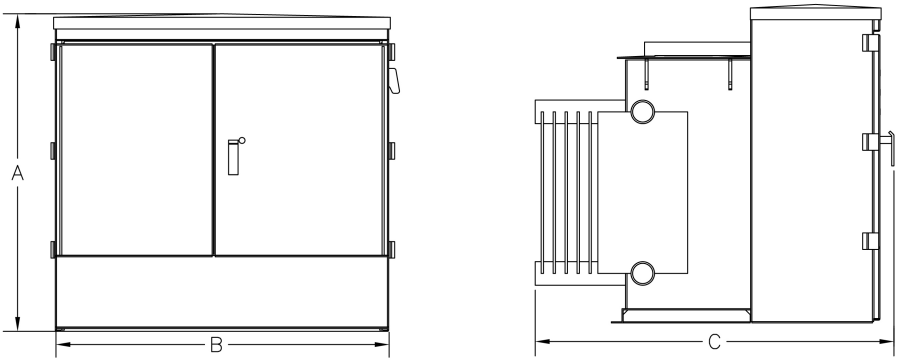


Table 1
Overall typical dimensions for reference

kVA	A* Height	B* Width	C* Depth	WEIGHT (lb)	Core Material
700	70	70	80	7,000	Silicon Steel
1000	75	90	80	9,000	
700	75	85	80	8,000	Amorphous Metal
1000	80	90	80	11,000	

** Dimensions in inches*
*** Dimensions and weight are approximate and subject to change without notice and should not be used for construction purposes*
**** Other ratings available upon request*

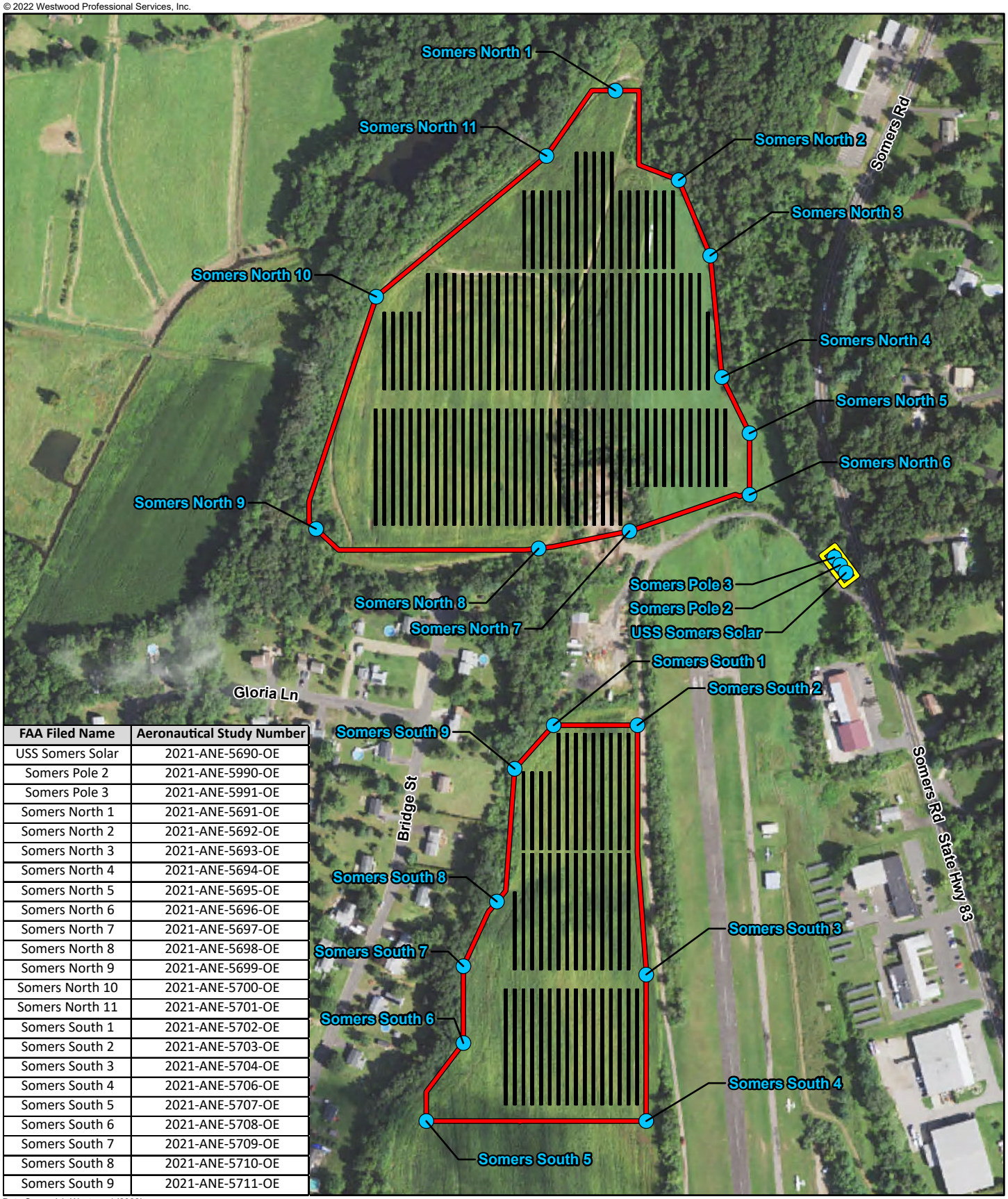
Table 2
Standard ratings

kVA	HV Ratings	BIL	LV Ratings
700 1000	12470 DELTA	95	480Y/277
	24940 DELTA	150	
	34500 DELTA	150	

For more information contact your local GE Sales Representative or visit our website at www.prolecge.com
Phone: Toll free 1 800-437-7653 (US & Canada) / +52 (81) 8030-2341 (Mexico) / +971 4 429 6101 (Middle East) Fax: +52 (81) 8030-2323 or 2325

Appendix H

FAA Correspondence



FAA Filed Name	Aeronautical Study Number
USS Somers Solar	2021-ANE-5690-OE
Somers Pole 2	2021-ANE-5990-OE
Somers Pole 3	2021-ANE-5991-OE
Somers North 1	2021-ANE-5691-OE
Somers North 2	2021-ANE-5692-OE
Somers North 3	2021-ANE-5693-OE
Somers North 4	2021-ANE-5694-OE
Somers North 5	2021-ANE-5695-OE
Somers North 6	2021-ANE-5696-OE
Somers North 7	2021-ANE-5697-OE
Somers North 8	2021-ANE-5698-OE
Somers North 9	2021-ANE-5699-OE
Somers North 10	2021-ANE-5700-OE
Somers North 11	2021-ANE-5701-OE
Somers South 1	2021-ANE-5702-OE
Somers South 2	2021-ANE-5703-OE
Somers South 3	2021-ANE-5704-OE
Somers South 4	2021-ANE-5706-OE
Somers South 5	2021-ANE-5707-OE
Somers South 6	2021-ANE-5708-OE
Somers South 7	2021-ANE-5709-OE
Somers South 8	2021-ANE-5710-OE
Somers South 9	2021-ANE-5711-OE

Data Source(s): Westwood (2022); Connecticut NAIP Imagery (2021); Census Bureau (2019).

Legend

- FAA Filing Location
- Fence Line Boundary
- Utility Poles Easement Boundary
- Solar Arrays

N

0 350 Feet

Somers Solar Project

Tolland County, Connecticut

FAA Filing Locations Map

EXHIBIT 1

Westwood
Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

Map Document: N:\0028111.00\GIS\ArcPro\R0028111_Somers_Solar_FAA_Filing\R0028111_Somers_Solar_FAA_Filing.aprx 1/14/2022 11:13 AM radevito

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-5690-OE

Issued Date: 02/11/2022

David Watts
US Solar
100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Utility Pole USS Somers Solar
Location:	Ellington, CT
Latitude:	41-55-42.84N NAD 83
Longitude:	72-27-21.25W
Heights:	284 feet site elevation (SE)
	38 feet above ground level (AGL)
	322 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, red lights-Chapters 4,5(Red),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/11/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 13, 2022. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on March 23, 2022 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Rules and Regulations Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed

structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Stephanie Kimmel, at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5690-OE.

Signature Control No: 493414099-511565835 (DNH)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

The Utility Pole, at a height of 38 feet (ft.) above ground level (AGL), 322 ft. above mean sea level (AMSL), would be located approximately 0.20 nautical miles (NM) north of the Ellington (7B9) airport reference point (ARP), Ellington, CT.

The proposal has been identified as an obstruction under the standards of Title 14, Code of Federal Regulations (CFR), Part 77, as applied to 7B9 as follows:

Section 77.19 (e): Transitional Surface. The proposal exceeds the Runway 01/19 Transitional Surface by 32 ft.

The proposal would exceed the 7B9 Runway 01/19 Traffic Pattern Airspace Transitional Surface by 32 ft. for all categories of aircraft.

In order to facilitate the public comment process, the study was circularized on January 4, 2022 to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received.

Aeronautical study disclosed that the proposal would have no effect on existing or proposed arrival, departure, or en route instrument flight rule (IFR) operations, minimum flight altitudes, minimum vectoring altitudes (MVA), aeronautical procedures, or aeronautical facilities at 7B9 or at any other known public use or military airport. Information on the proposal shall be forwarded for appropriate aeronautical charting.

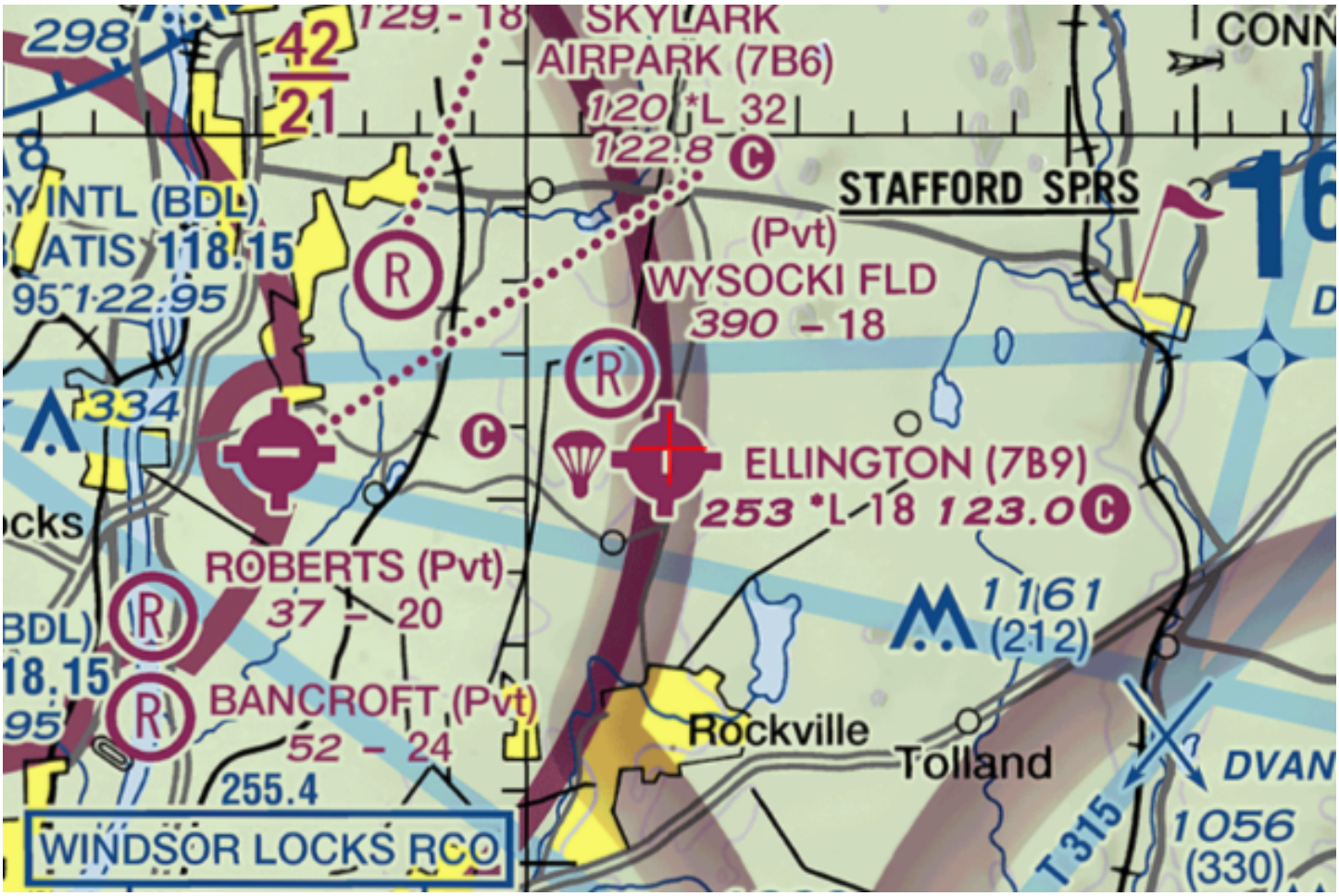
Study for possible VFR effect disclosed the proposal would exceed the traffic pattern airspace as noted above. The proposal would not require a VFR aircraft to change its regular flight course or altitude, restrict VFR operations in any way, or create a dangerous situation during a critical phase of flight while operating under VFR conditions. Therefore, at a height of 38 ft. AGL, the proposal would have no substantial adverse effect on VFR en route flight operations or on any VFR routes in the vicinity of this location.

The structure should be appropriately obstruction marked/lighted to make it more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposal, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Sectional Map for ASN 2021-ANE-5690-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-5990-OE

Issued Date: 02/11/2022

David Watts
US Solar
100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Utility Pole Somers Pole 2
Location:	Ellington, CT
Latitude:	41-55-43.04N NAD 83
Longitude:	72-27-21.44W
Heights:	282 feet site elevation (SE)
	38 feet above ground level (AGL)
	320 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, red lights-Chapters 4,5(Red),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

This determination expires on 08/11/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
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NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

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This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed

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If we can be of further assistance, please contact Stephanie Kimmel, at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5990-OE.

Signature Control No: 495277660-511568911 (DNH)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

The Utility Pole, at a height of 38 feet (ft.) above ground level (AGL), 320 ft. above mean sea level (AMSL), would be located approximately 0.20 nautical miles (NM) north of the Ellington (7B9) airport reference point (ARP), Ellington, CT.

The proposal has been identified as an obstruction under the standards of Title 14, Code of Federal Regulations (CFR), Part 77, as applied to 7B9 as follows:

Section 77.19 (e): Transitional Surface. The proposal exceeds the Runway 01/19 Transitional Surface by 31 ft.

The proposal would exceed the 7B9 Runway 01/19 Traffic Pattern Airspace Transitional Surface by 31 ft. for all categories of aircraft.

In order to facilitate the public comment process, the study was circularized on January 4, 2022 to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received.

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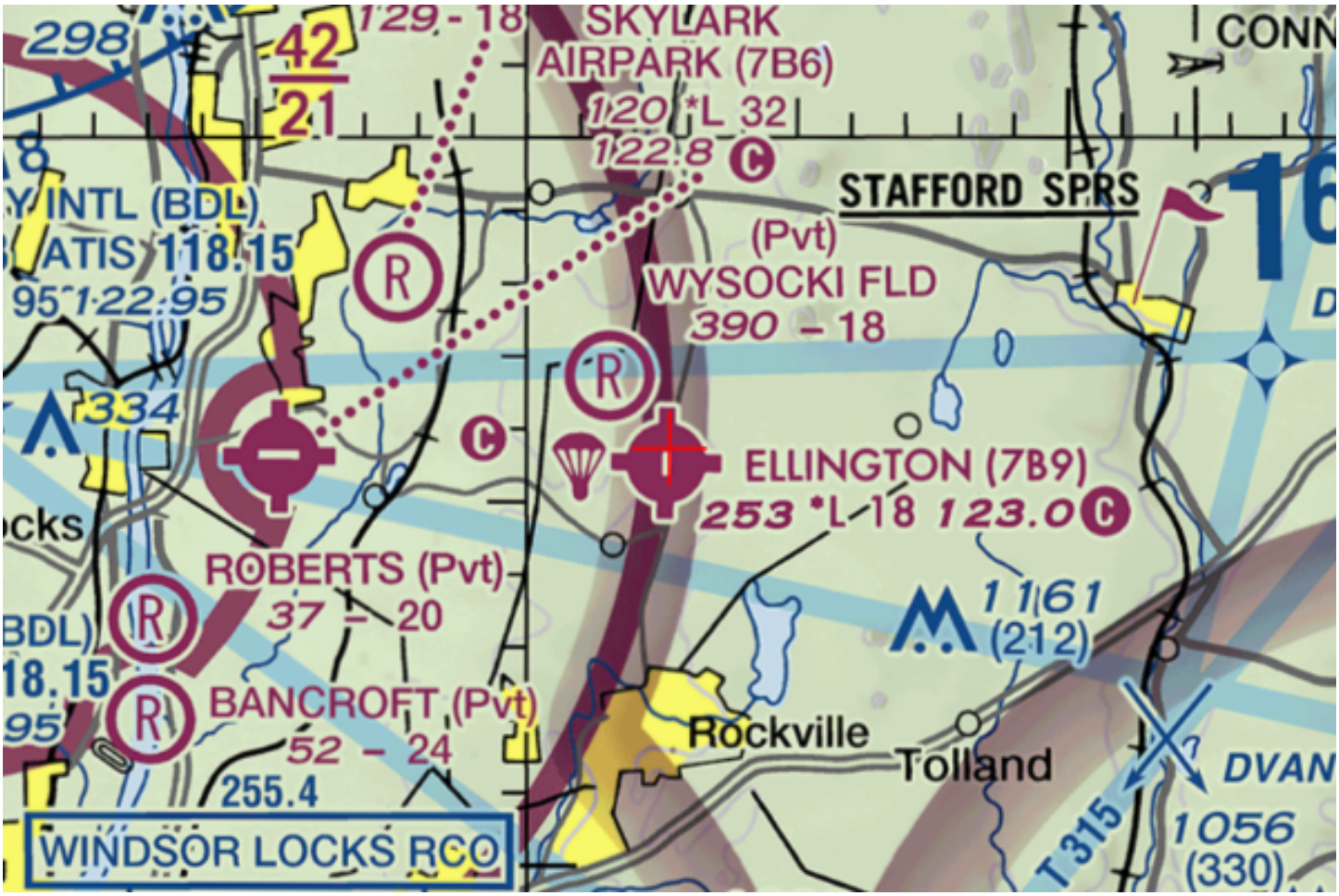
Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Sectional Map for ASN 2021-ANE-5990-OE



Mail Processing Center
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Obstruction Evaluation Group
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Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-5991-OE

Issued Date: 02/11/2022

David Watts
US Solar
100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Utility Pole Somers Pole 3
Location:	Ellington, CT
Latitude:	41-55-43.23N NAD 83
Longitude:	72-27-21.64W
Heights:	281 feet site elevation (SE)
	38 feet above ground level (AGL)
	319 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

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This determination is subject to review if an interested party files a petition that is received by the FAA on or before March 13, 2022. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Rules and Regulations Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

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This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

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structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Stephanie Kimmel, at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5991-OE.

Signature Control No: 495278258-511569629 (DNH)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

The Utility Pole, at a height of 38 feet (ft.) above ground level (AGL), 319 ft. above mean sea level (AMSL), would be located approximately 0.20 nautical miles (NM) north of the Ellington (7B9) airport reference point (ARP), Ellington, CT.

The proposal has been identified as an obstruction under the standards of Title 14, Code of Federal Regulations (CFR), Part 77, as applied to 7B9 as follows:

Section 77.19 (e): Transitional Surface. The proposal exceeds the Runway 01/19 Transitional Surface by 31 ft.

The proposal would exceed the 7B9 Runway 01/19 Traffic Pattern Airspace Transitional Surface by 31 ft. for all categories of aircraft.

In order to facilitate the public comment process, the study was circularized on January 4, 2022 to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. No letters of objection were received.

Aeronautical study disclosed that the proposal would have no effect on existing or proposed arrival, departure, or en route instrument flight rule (IFR) operations, minimum flight altitudes, minimum vectoring altitudes (MVA), aeronautical procedures, or aeronautical facilities at 7B9 or at any other known public use or military airport. Information on the proposal shall be forwarded for appropriate aeronautical charting.

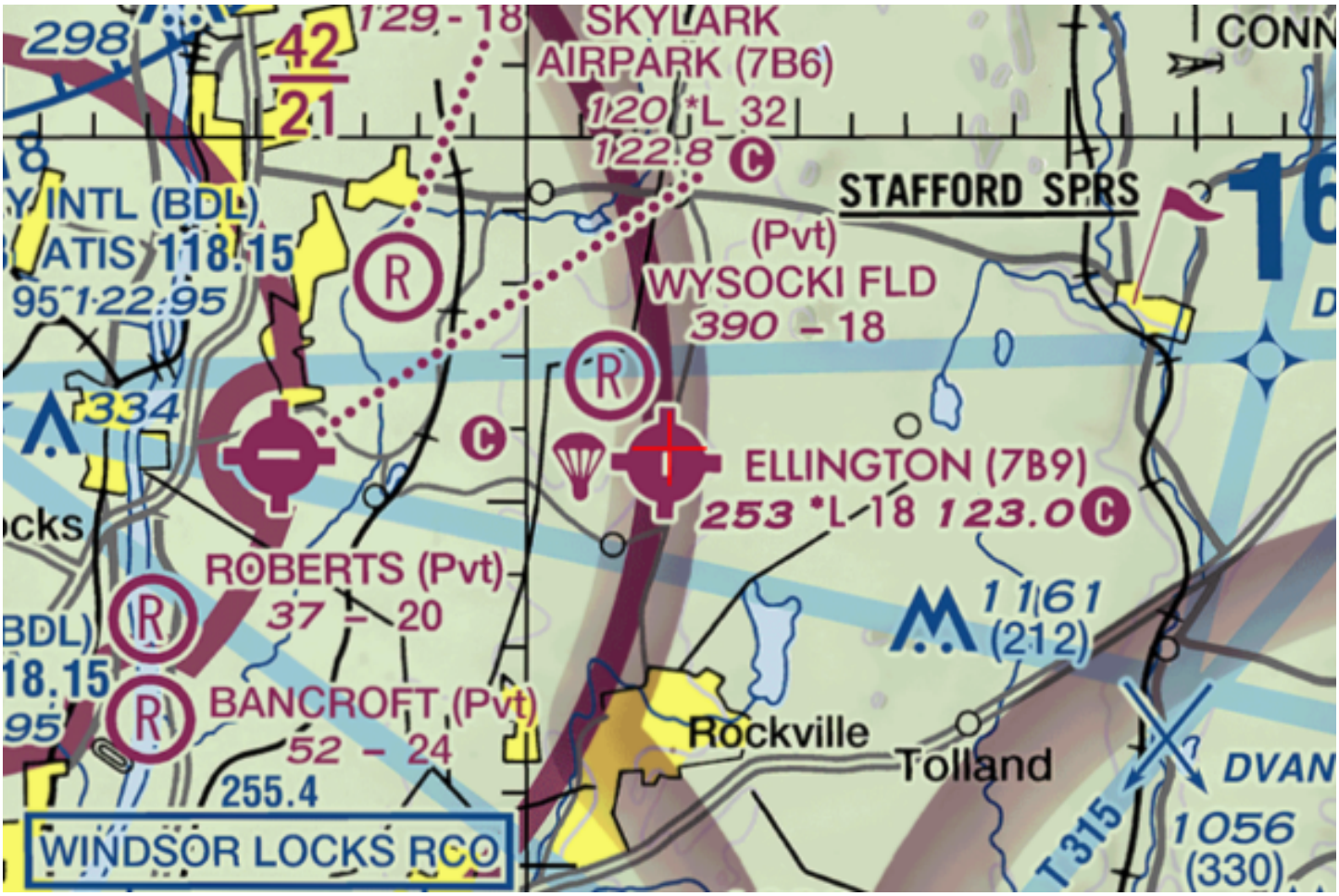
Study for possible VFR effect disclosed the proposal would exceed the traffic pattern airspace as noted above. The proposal would not require a VFR aircraft to change its regular flight course or altitude, restrict VFR operations in any way, or create a dangerous situation during a critical phase of flight while operating under VFR conditions. Therefore, at a height of 38 ft. AGL, the proposal would have no substantial adverse effect on VFR en route flight operations or on any VFR routes in the vicinity of this location.

The structure should be appropriately obstruction marked/lighted to make it more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposal, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any significant adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposals affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions set forth in this determination are met.

Sectional Map for ASN 2021-ANE-5991-OE



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Aeronautical Study No.
2021-ANE-5691-OE

Issued Date: 01/05/2022

David Watts
US Solar
100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers North 1
Location:	Ellington, CT
Latitude:	41-55-55.35N NAD 83
Longitude:	72-27-29.19W
Heights:	235 feet site elevation (SE)
	12 feet above ground level (AGL)
	247 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 07/05/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

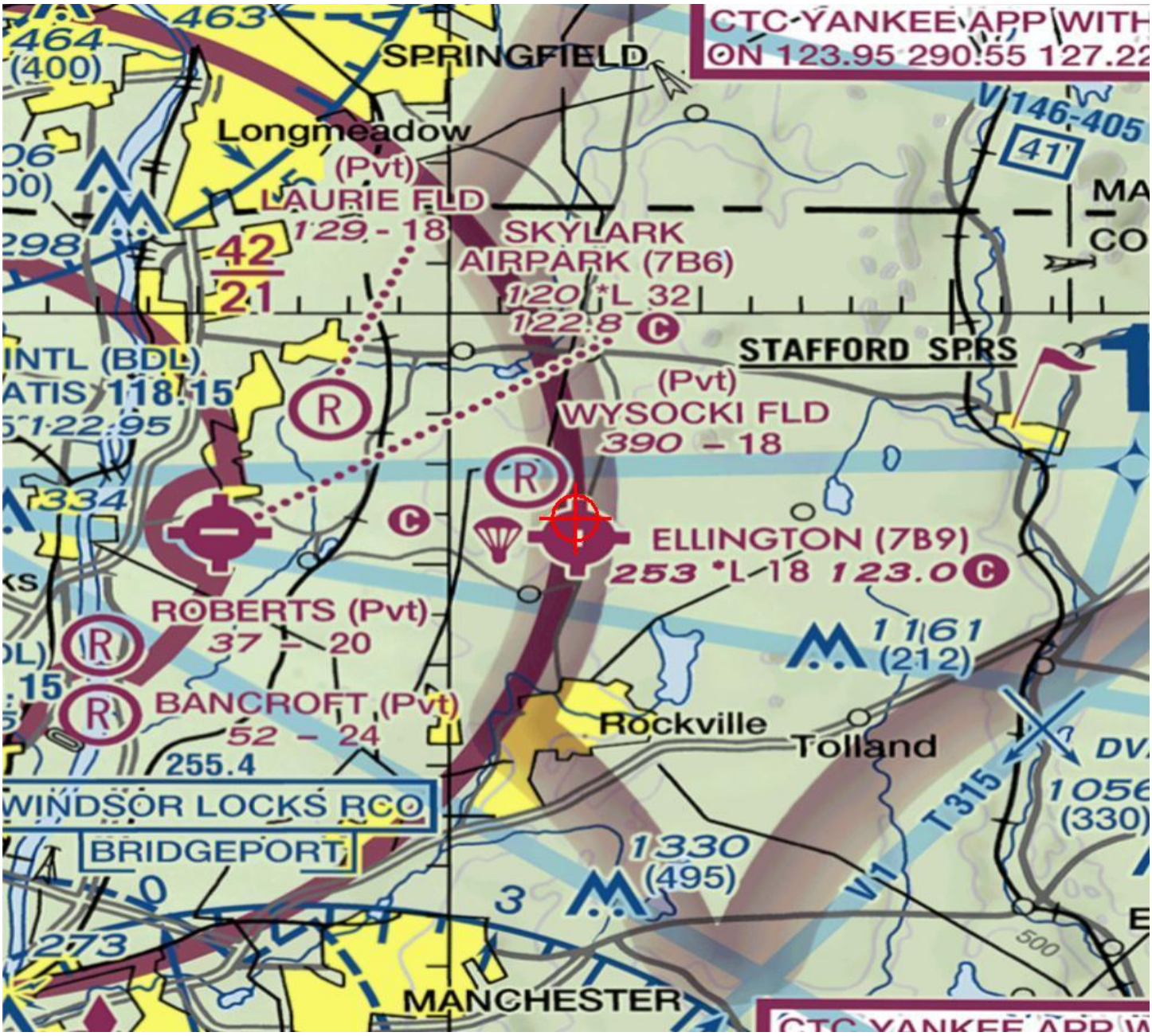
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5691-OE.

Signature Control No: 493416702-506722583 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-5691-OE



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Aeronautical Study No.
2021-ANE-5692-OE

Issued Date: 01/05/2022

David Watts
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Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers North 2
Location:	Ellington, CT
Latitude:	41-55-53.03N NAD 83
Longitude:	72-27-27.00W
Heights:	240 feet site elevation (SE)
	12 feet above ground level (AGL)
	252 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 07/05/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

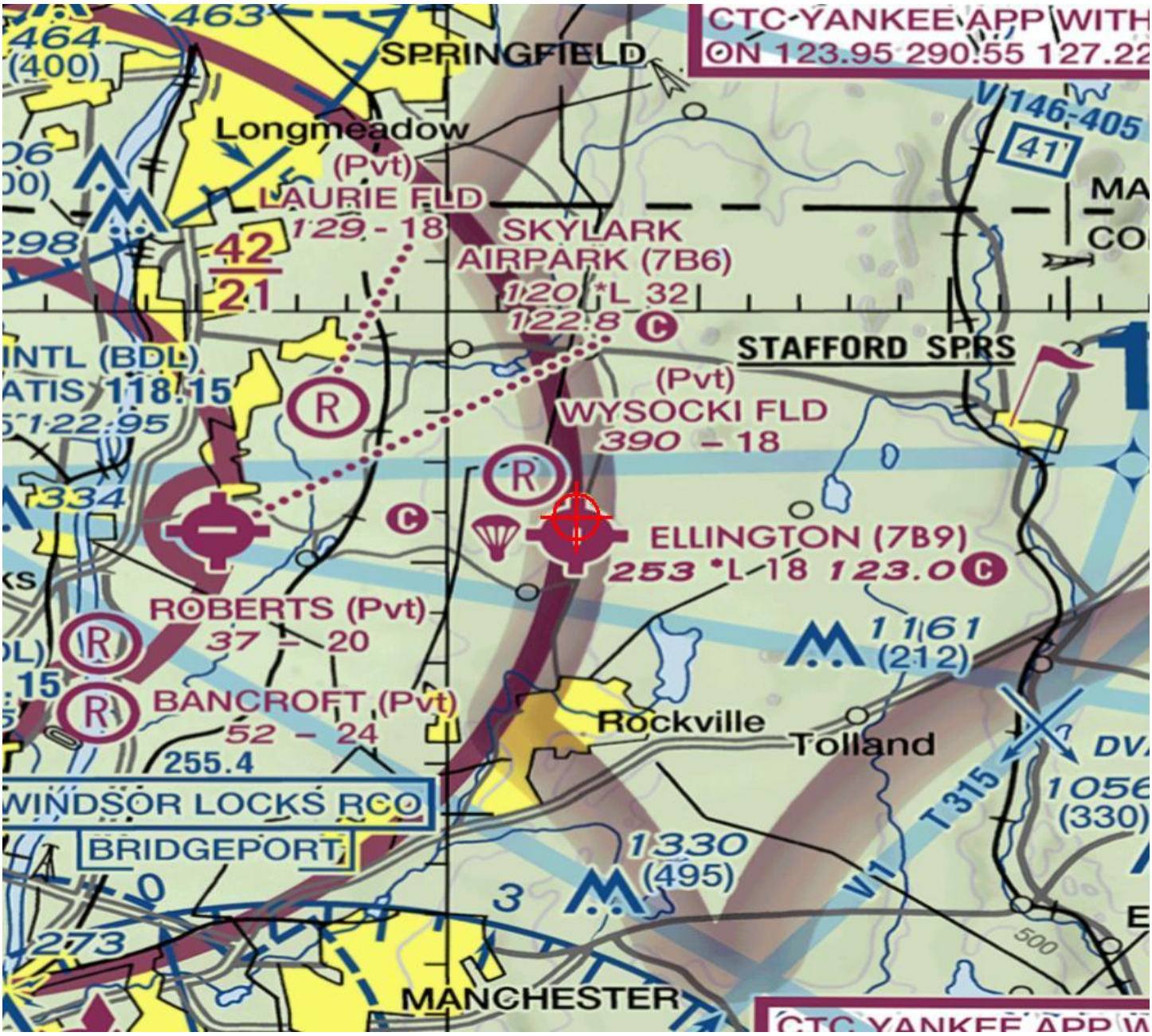
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5692-OE.

Signature Control No: 493418832-506722574 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-5692-OE



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Aeronautical Study No.
2021-ANE-5693-OE

Issued Date: 01/05/2022

David Watts
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100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers North 3
Location:	Ellington, CT
Latitude:	41-55-51.07N NAD 83
Longitude:	72-27-25.92W
Heights:	244 feet site elevation (SE) 12 feet above ground level (AGL) 256 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 07/05/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

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This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5693-OE.

Signature Control No: 493419318-506722579 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-5693-OE

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Aeronautical Study No.
2021-ANE-5694-OE

Issued Date: 01/05/2022

David Watts
US Solar
100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers North 4
Location:	Ellington, CT
Latitude:	41-55-47.92N NAD 83
Longitude:	72-27-25.52W
Heights:	252 feet site elevation (SE)
	12 feet above ground level (AGL)
	264 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 07/05/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

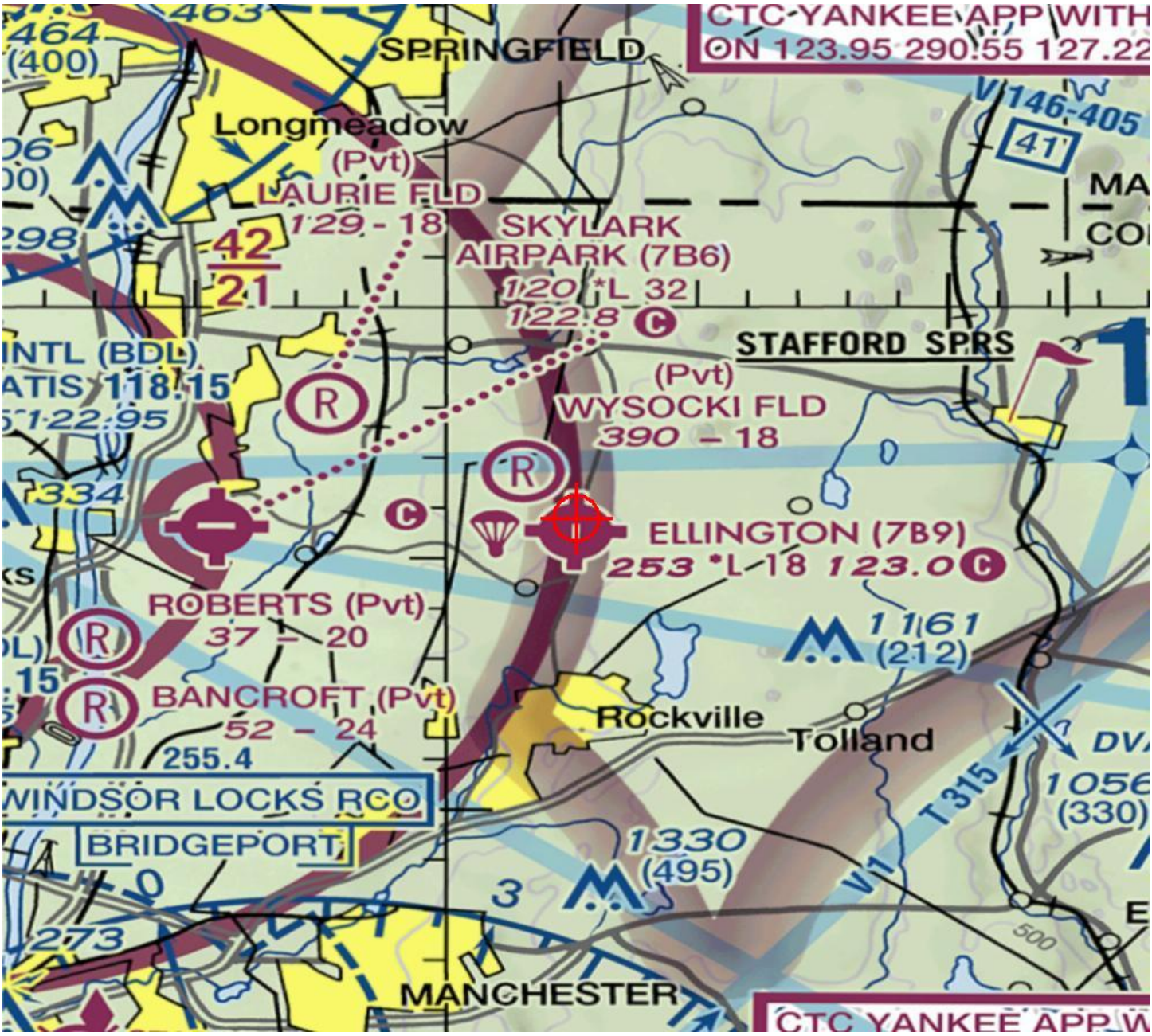
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5694-OE.

Signature Control No: 493419886-506722575 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-5694-OE



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Aeronautical Study No.
2021-ANE-5695-OE

Issued Date: 01/05/2022

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**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers North 5
Location:	Ellington, CT
Latitude:	41-55-46.46N NAD 83
Longitude:	72-27-24.57W
Heights:	256 feet site elevation (SE) 12 feet above ground level (AGL) 268 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 07/05/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

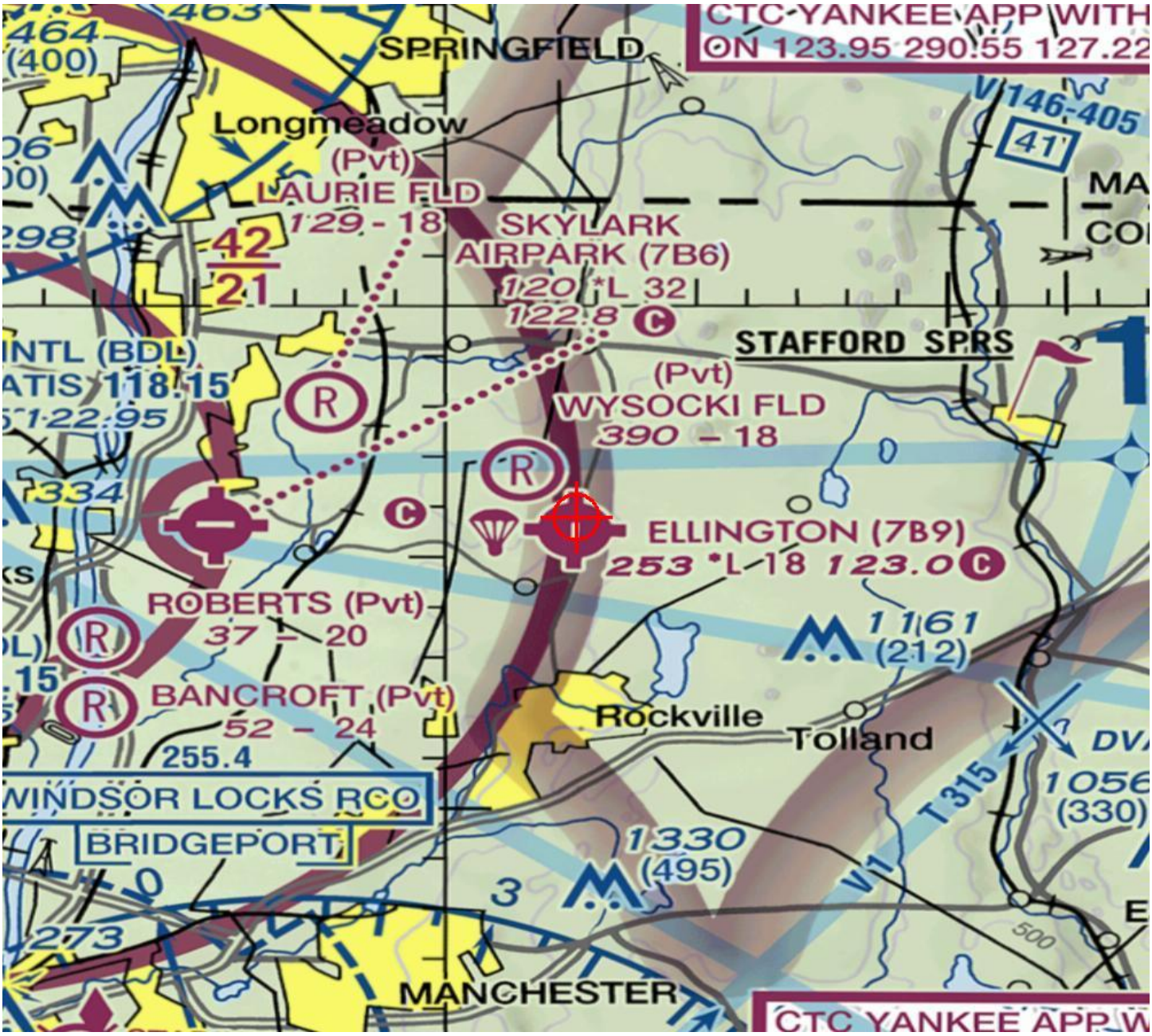
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5695-OE.

Signature Control No: 493420599-506722582 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-5695-OE



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**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers North 6
Location:	Ellington, CT
Latitude:	41-55-44.87N NAD 83
Longitude:	72-27-24.58W
Heights:	257 feet site elevation (SE)
	8 feet above ground level (AGL)
	265 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

Any height exceeding 8 feet above ground level (265 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 07/04/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

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If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

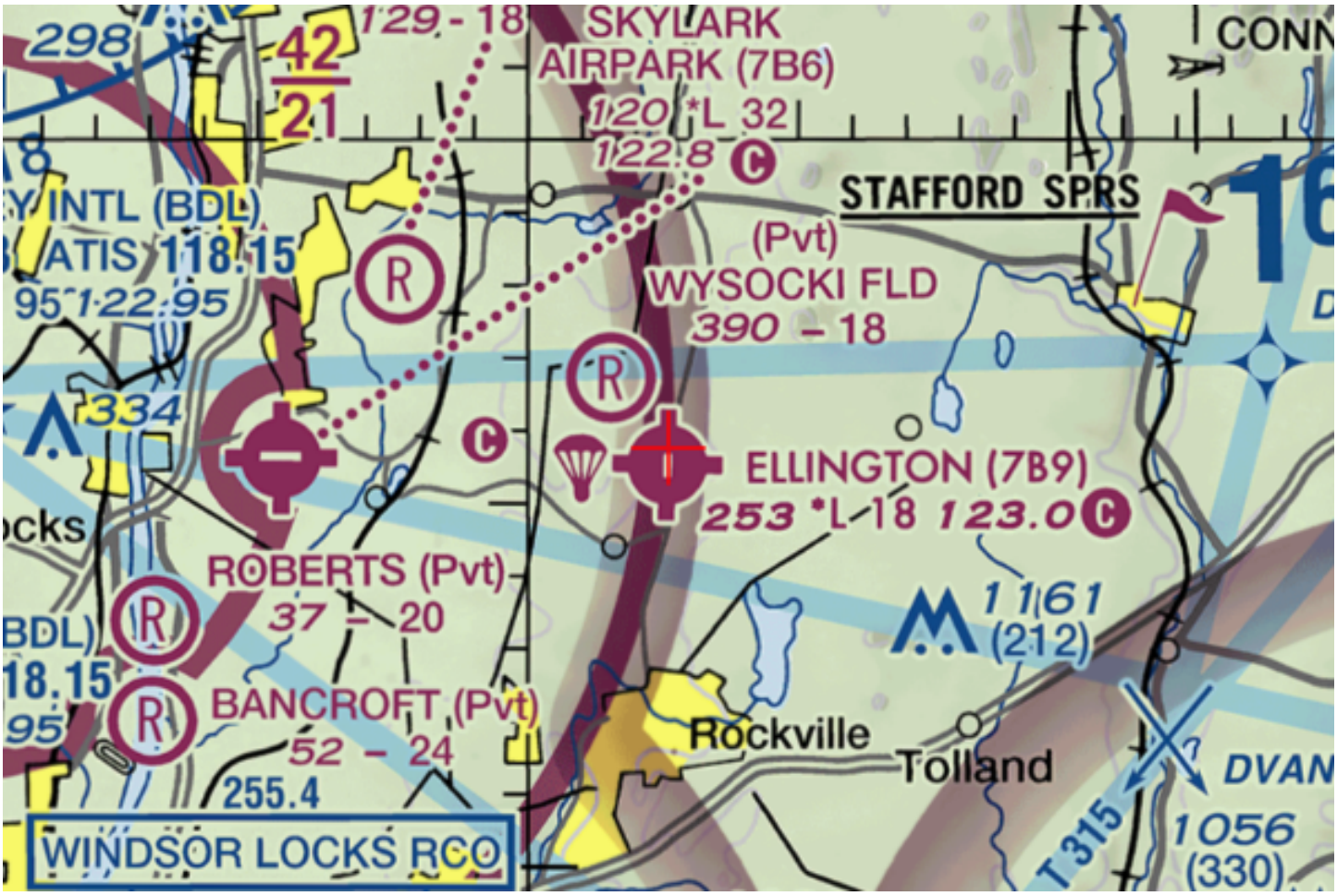
This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5696-OE.

Signature Control No: 493421151-506542709 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)


SKYLARK
AIRPARK (7B6)
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(Pvt)
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BANCROFT (Pvt)
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WINDSOR LOCKS RCO
Rockville
Tolland
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334
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(212)
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Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-5697-OE

Issued Date: 01/05/2022

David Watts
US Solar
100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers North 7
Location:	Ellington, CT
Latitude:	41-55-43.94N NAD 83
Longitude:	72-27-28.75W
Heights:	243 feet site elevation (SE) 12 feet above ground level (AGL) 255 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 07/05/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

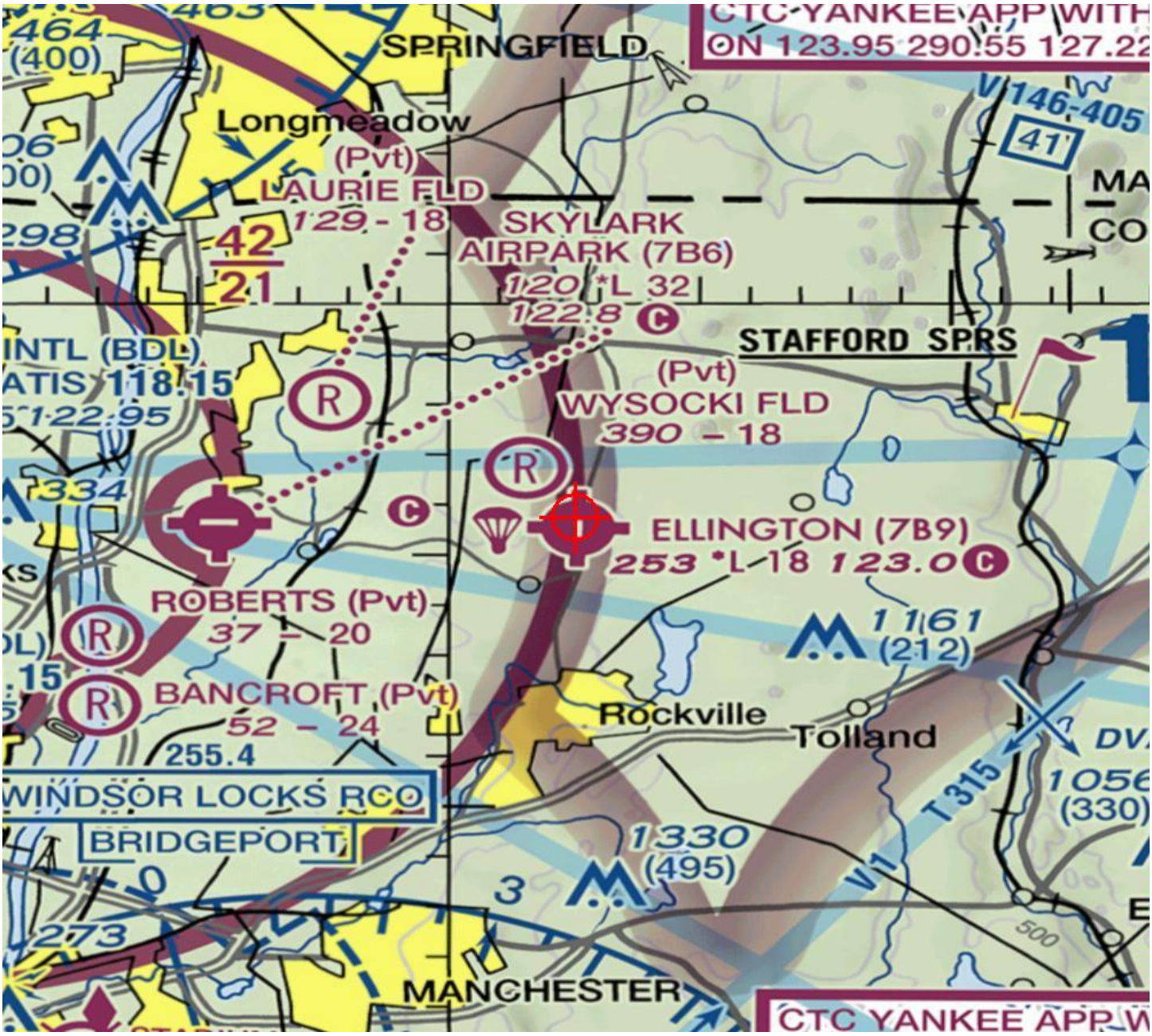
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5697-OE.

Signature Control No: 493421620-506722593 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-5697-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-5698-OE

Issued Date: 01/05/2022

David Watts
US Solar
100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers North 8
Location:	Ellington, CT
Latitude:	41-55-43.49N NAD 83
Longitude:	72-27-31.91W
Heights:	242 feet site elevation (SE)
	12 feet above ground level (AGL)
	254 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 07/05/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

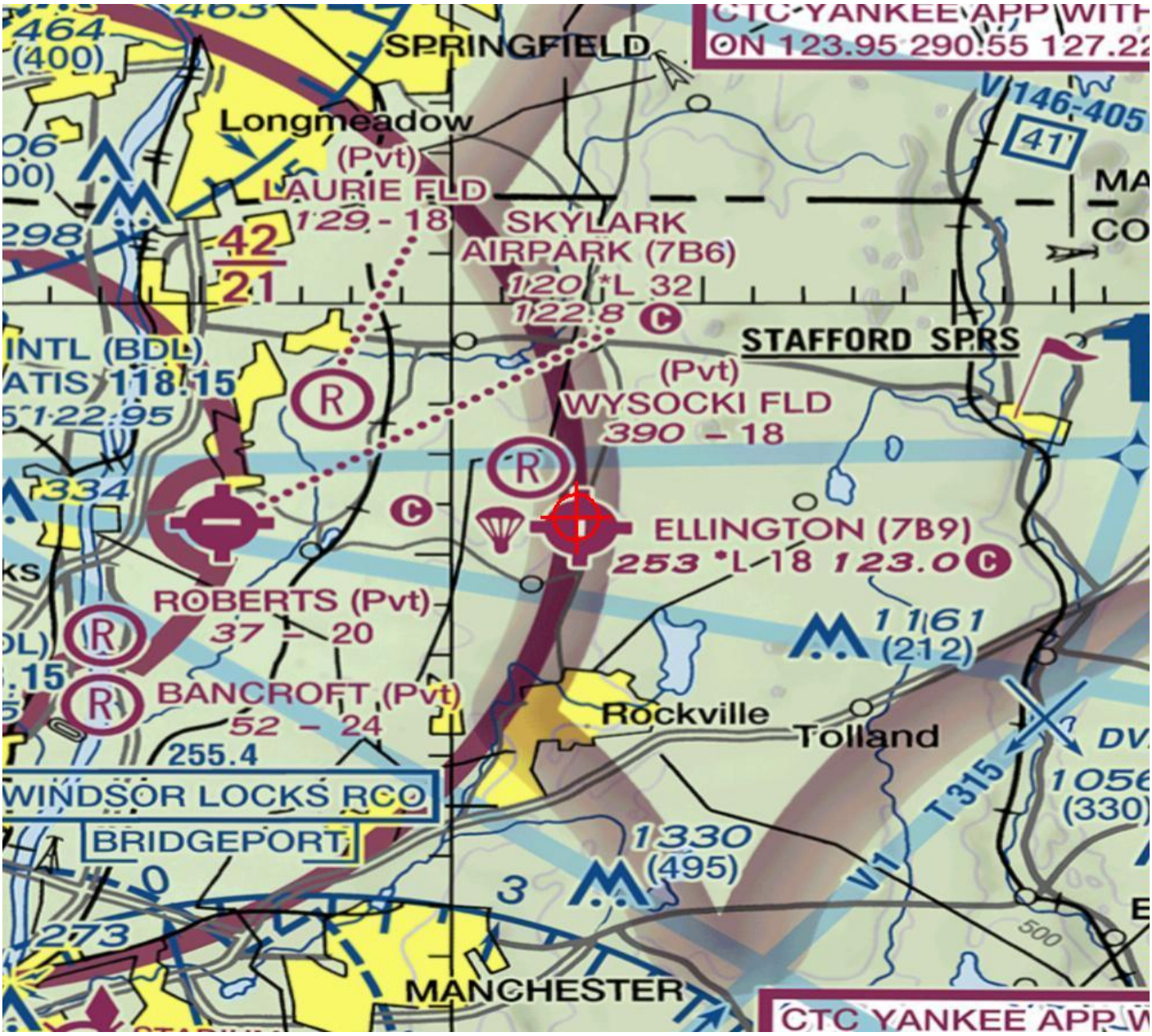
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5698-OE.

Signature Control No: 493422368-506722589 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-5698-OE



Mail Processing Center
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10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-5699-OE

Issued Date: 01/05/2022

David Watts
US Solar
100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers North 9
Location:	Ellington, CT
Latitude:	41-55-44.02N NAD 83
Longitude:	72-27-39.63W
Heights:	235 feet site elevation (SE) 12 feet above ground level (AGL) 247 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 07/05/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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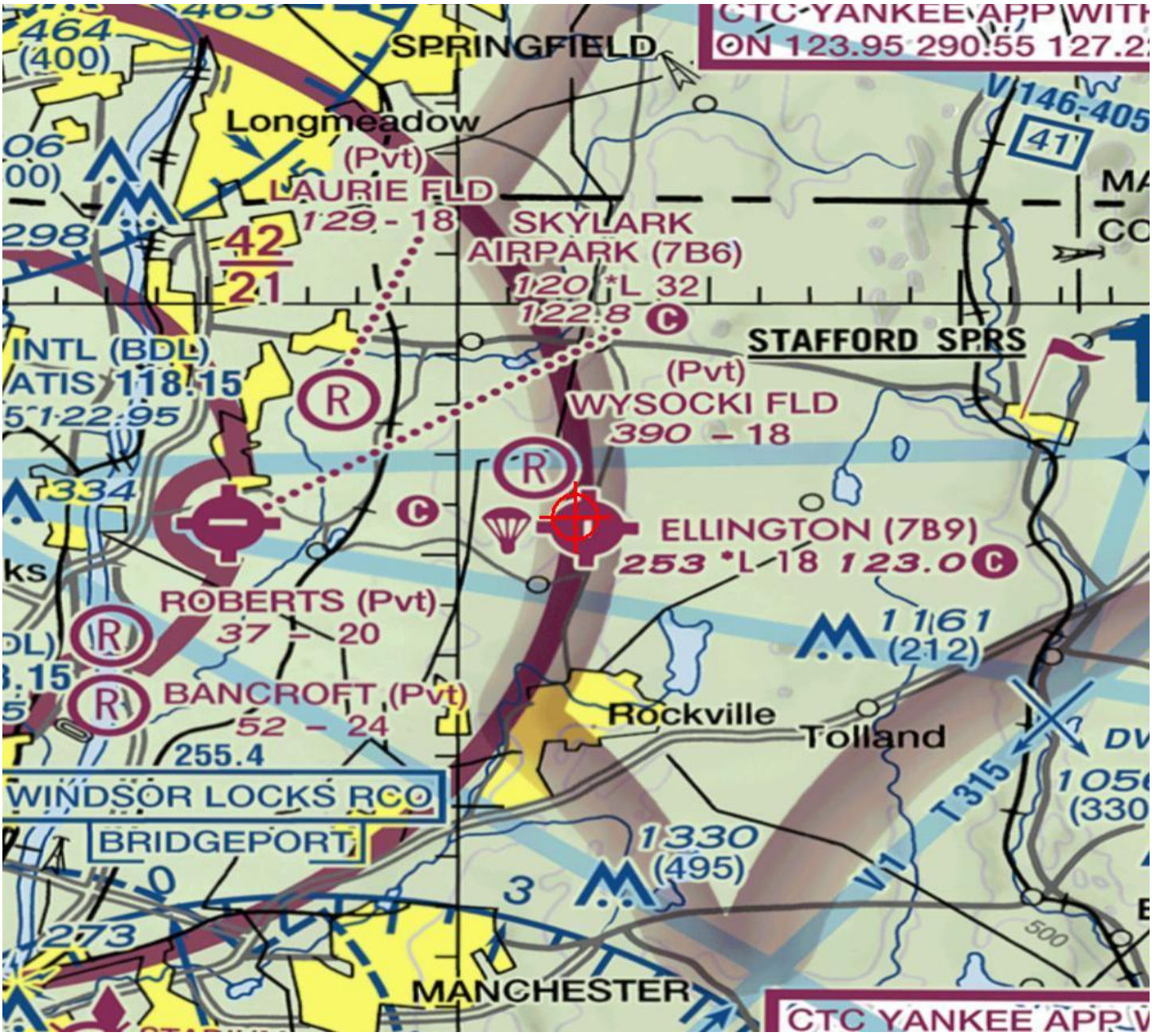
This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5699-OE.

Signature Control No: 493423021-506722594 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)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Longmeadow
(Pvt)
LAURIE FLD
129 - 18
SKYLARK
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INTL (BDL)
ATIS 118.15
122.95
STAFFORD SPRS
(Pvt)
WYSOCKI FLD
390 – 18
ELLINGTON (7B9)
253 *L 18 123.0
ROBERTS (Pvt)
37 – 20
BANCROFT (Pvt)
52 – 24
255.4
1161
(212)
Rockville
Tolland
WINDSOR LOCKS RCO
BRIDGEPORT
1330
(495)
MANCHESTER
CTC YANKEE APP
ON 123.95 290.55 127.2
146-405
41
T315
V1

Mail Processing Center
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Aeronautical Study No.
2021-ANE-5700-OE

Issued Date: 01/05/2022

David Watts
US Solar
100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers North 10
Location:	Ellington, CT
Latitude:	41-55-50.03N NAD 83
Longitude:	72-27-37.52W
Heights:	236 feet site elevation (SE) 12 feet above ground level (AGL) 248 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 07/05/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5700-OE.

Signature Control No: 493424126-506722577 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-5700-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-5701-OE

Issued Date: 01/05/2022

David Watts
US Solar
100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers North 11
Location:	Ellington, CT
Latitude:	41-55-53.67N NAD 83
Longitude:	72-27-31.59W
Heights:	235 feet site elevation (SE)
	12 feet above ground level (AGL)
	247 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 07/05/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5701-OE.

Signature Control No: 493425118-506722576 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-5701-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-5702-OE

Issued Date: 01/05/2022

David Watts
US Solar
100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers South 1
Location:	Ellington, CT
Latitude:	41-55-38.91N NAD 83
Longitude:	72-27-31.41W
Heights:	241 feet site elevation (SE)
	12 feet above ground level (AGL)
	253 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 07/05/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

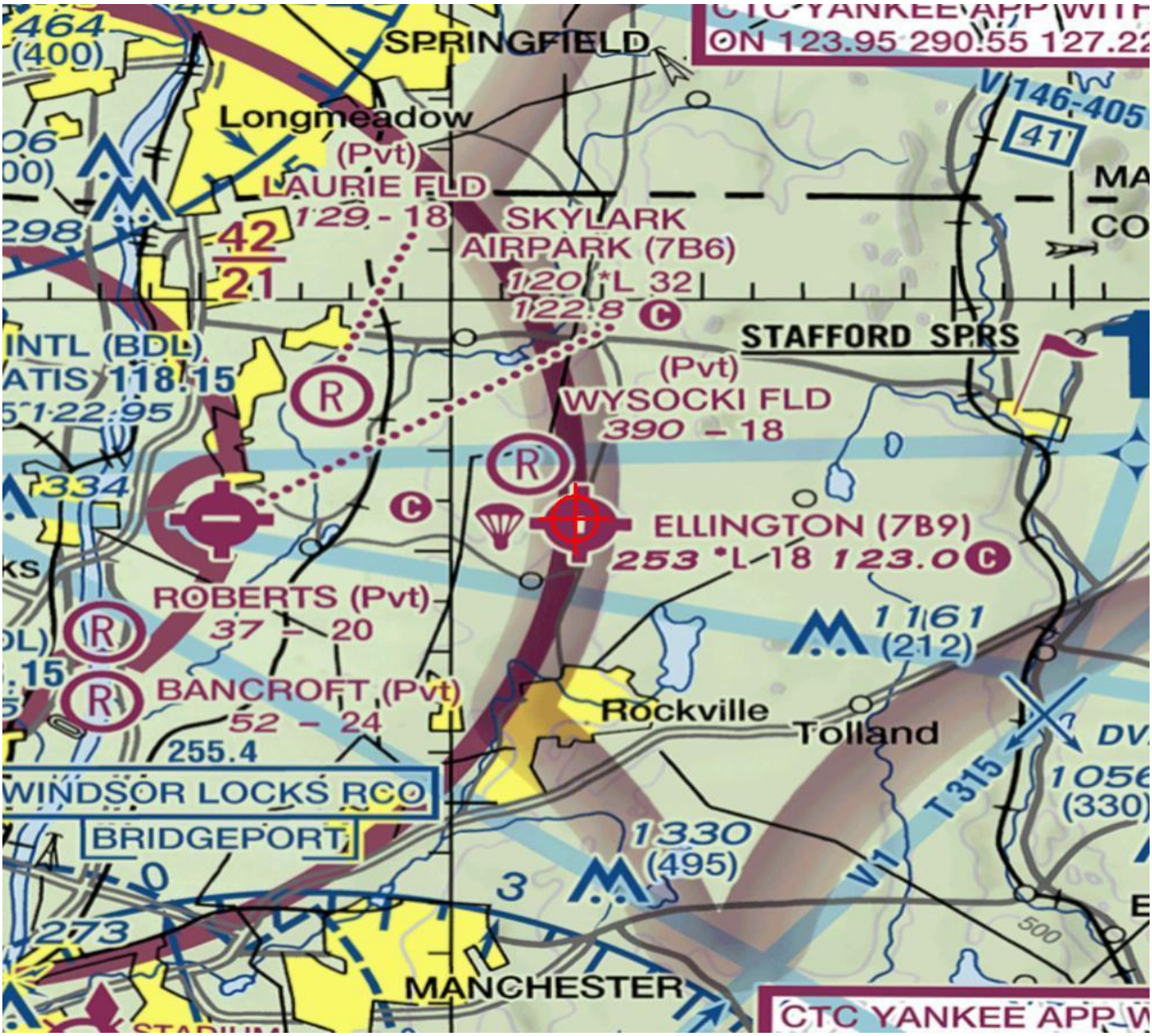
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5702-OE.

Signature Control No: 493426086-506722596 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-5702-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-5703-OE

Issued Date: 01/04/2022

David Watts
US Solar
100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers South 2
Location:	Ellington, CT
Latitude:	41-55-38.90N NAD 83
Longitude:	72-27-28.50W
Heights:	242 feet site elevation (SE)
	11 feet above ground level (AGL)
	253 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

Any height exceeding 11 feet above ground level (253 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 07/04/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

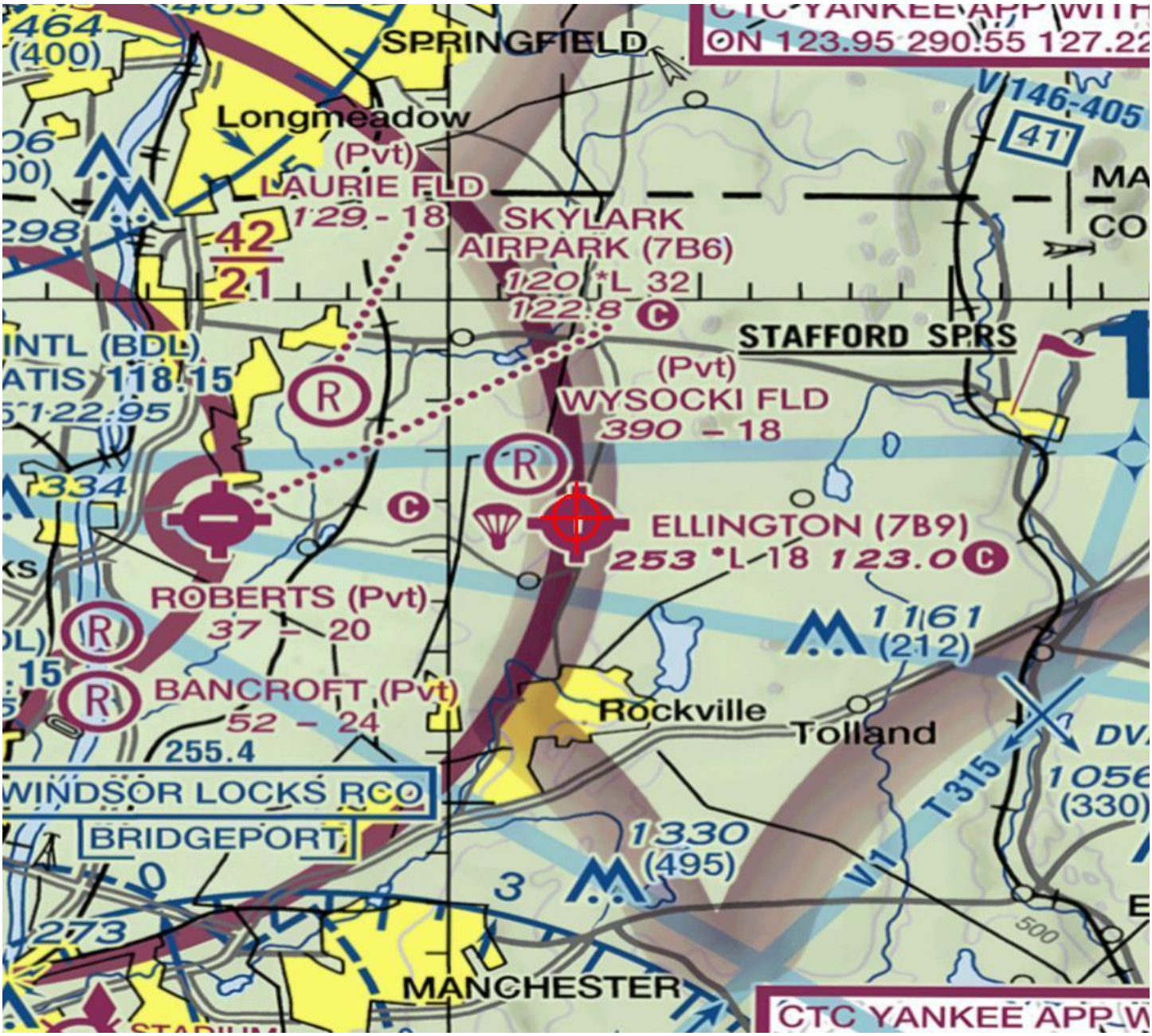
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5703-OE.

Signature Control No: 493428936-506543064 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-5703-OE



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Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-5704-OE

Issued Date: 01/05/2022

David Watts
US Solar
100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers South 3
Location:	Ellington, CT
Latitude:	41-55-32.44N NAD 83
Longitude:	72-27-28.22W
Heights:	239 feet site elevation (SE)
	12 feet above ground level (AGL)
	251 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 07/05/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

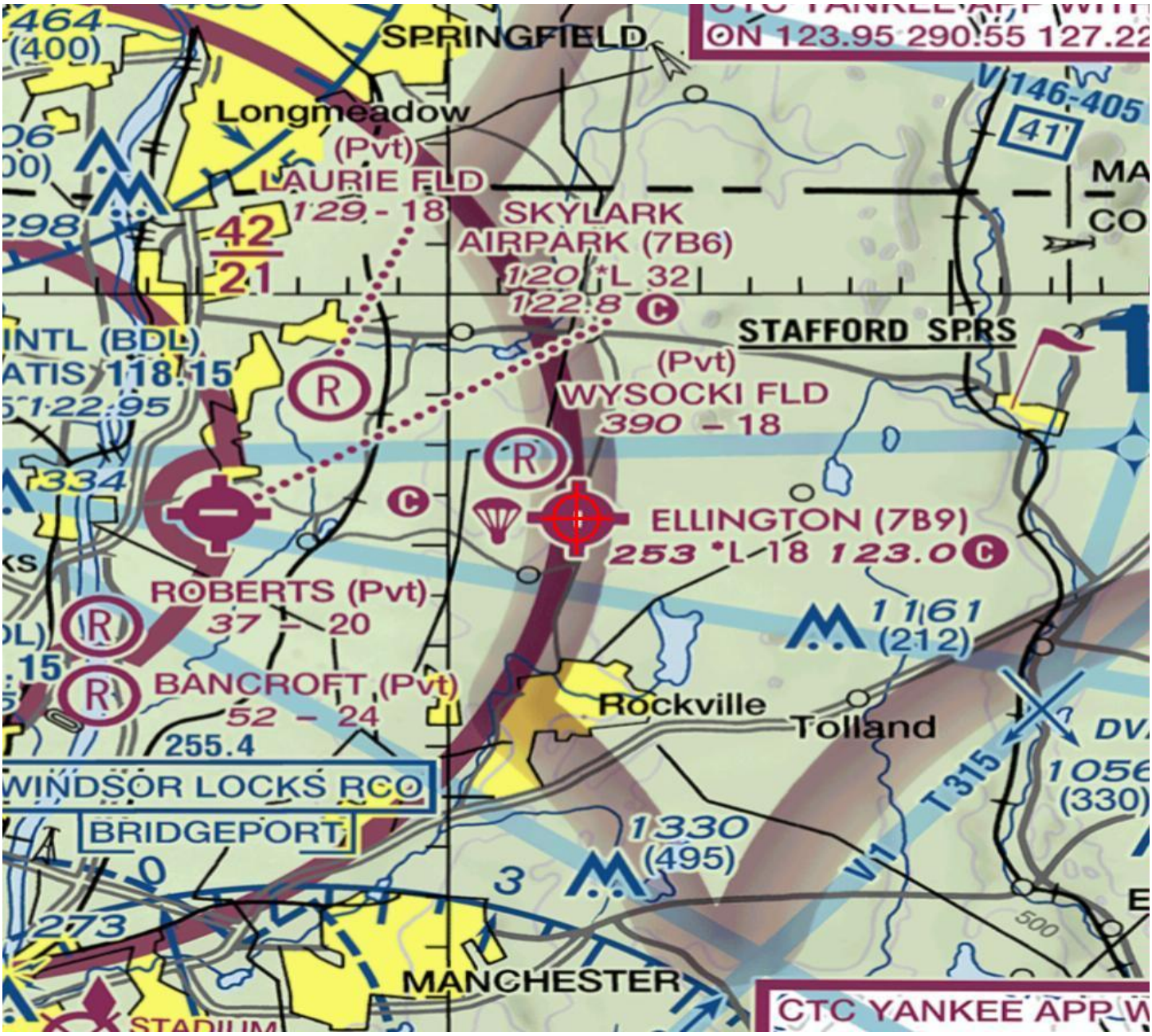
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5704-OE.

Signature Control No: 493429851-506722597 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-5704-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-5706-OE

Issued Date: 01/05/2022

David Watts
US Solar
100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers South 4
Location:	Ellington, CT
Latitude:	41-55-28.64N NAD 83
Longitude:	72-27-28.24W
Heights:	241 feet site elevation (SE) 12 feet above ground level (AGL) 253 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 07/05/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

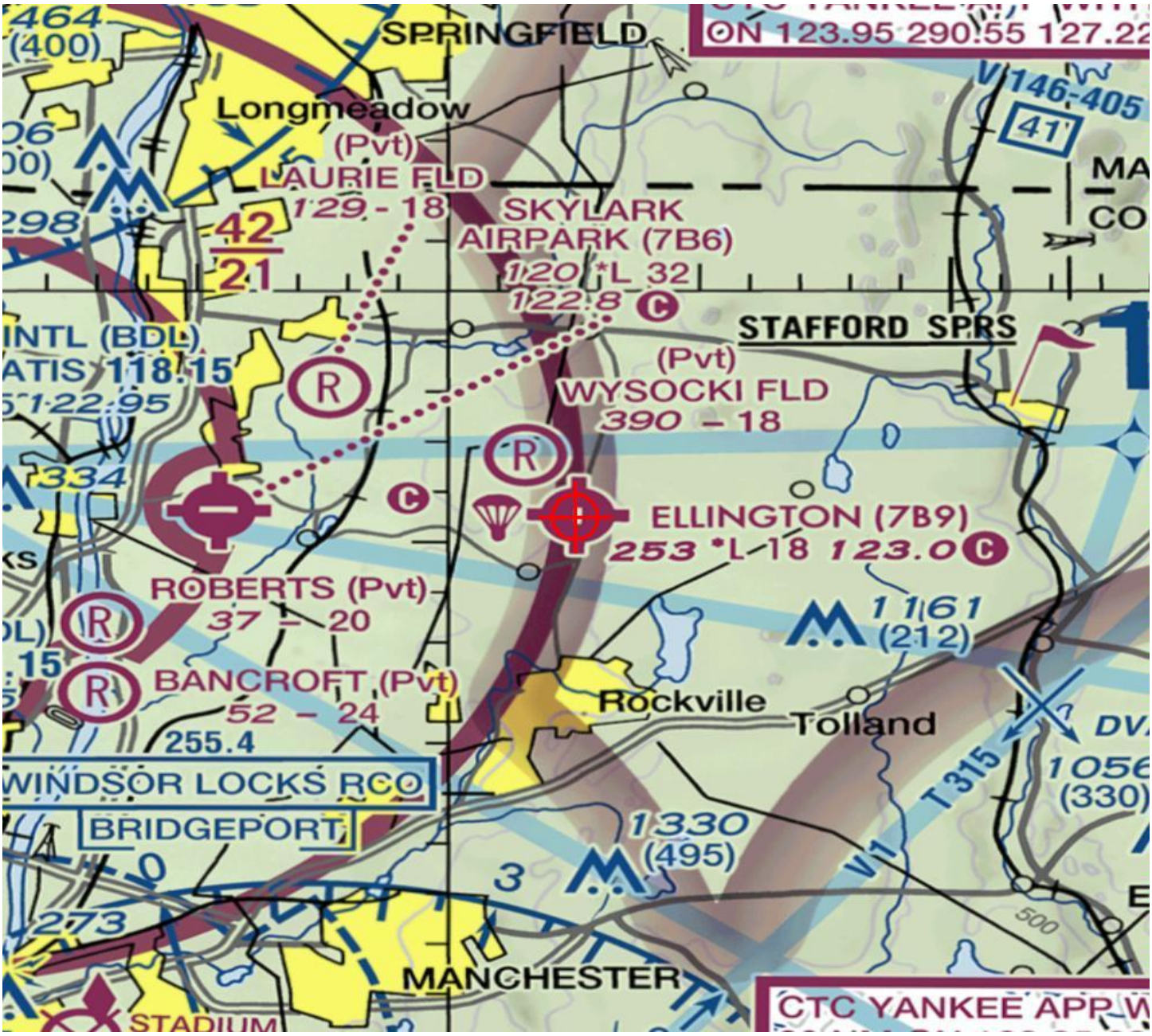
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5706-OE.

Signature Control No: 493430825-506722581 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-5706-OE



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Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-5707-OE

Issued Date: 01/05/2022

David Watts
US Solar
100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers South 5
Location:	Ellington, CT
Latitude:	41-55-28.66N NAD 83
Longitude:	72-27-35.87W
Heights:	232 feet site elevation (SE) 12 feet above ground level (AGL) 244 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 07/05/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

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This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5707-OE.

Signature Control No: 493431491-506722588 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-5707-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-5708-OE

Issued Date: 01/05/2022

David Watts
US Solar
100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers South 6
Location:	Ellington, CT
Latitude:	41-55-30.68N NAD 83
Longitude:	72-27-34.58W
Heights:	233 feet site elevation (SE)
	12 feet above ground level (AGL)
	245 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 07/05/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5708-OE.

Signature Control No: 493432036-506722586 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-5708-OE

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-5709-OE

Issued Date: 01/05/2022

David Watts
US Solar
100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers South 7
Location:	Ellington, CT
Latitude:	41-55-32.67N NAD 83
Longitude:	72-27-34.57W
Heights:	233 feet site elevation (SE) 12 feet above ground level (AGL) 245 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 07/05/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

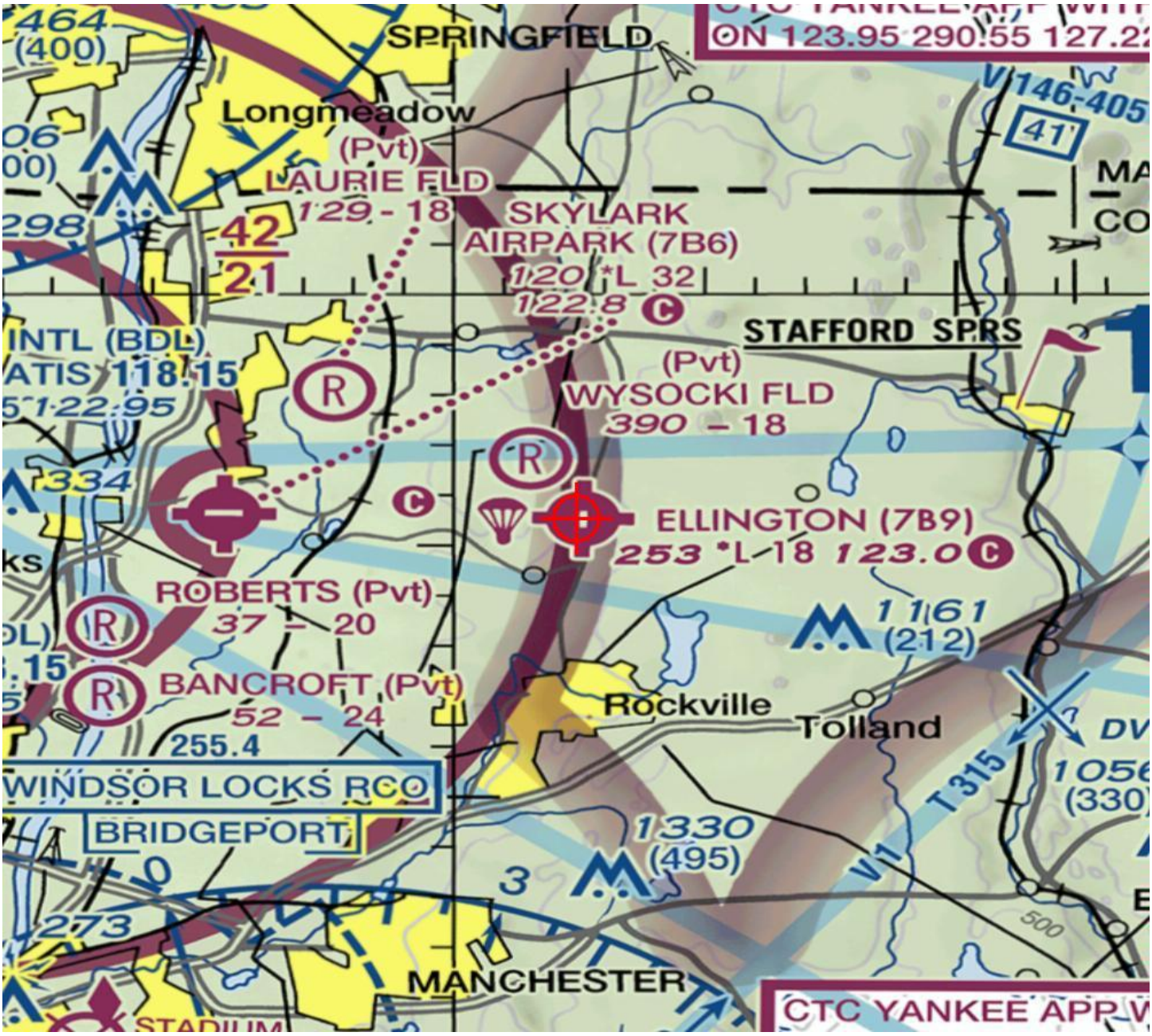
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5709-OE.

Signature Control No: 493432388-506722587 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-5709-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-5710-OE

Issued Date: 01/05/2022

David Watts
US Solar
100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers South 8
Location:	Ellington, CT
Latitude:	41-55-34.34N NAD 83
Longitude:	72-27-33.40W
Heights:	237 feet site elevation (SE)
	12 feet above ground level (AGL)
	249 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 07/05/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

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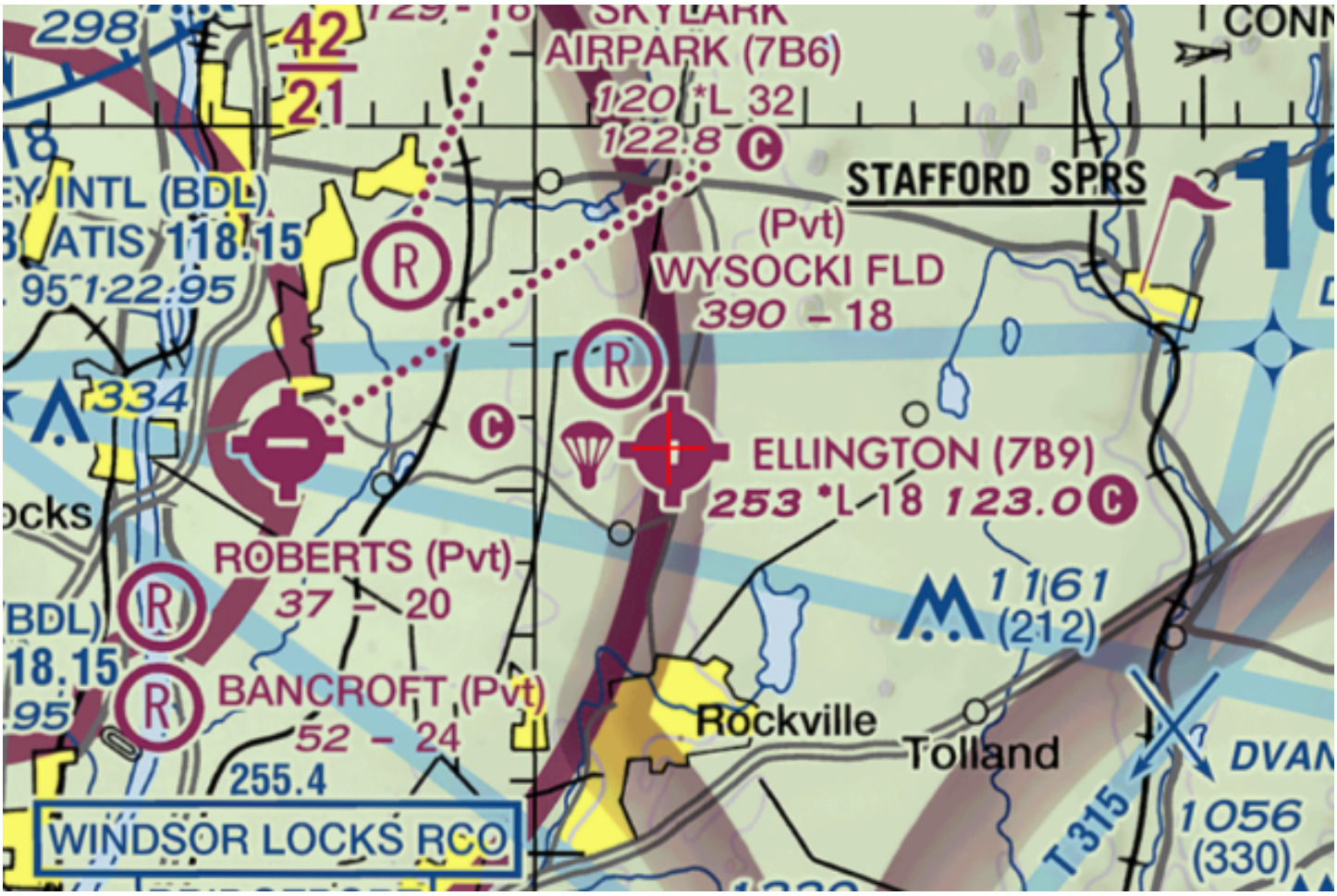
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5710-OE.

Signature Control No: 493432538-506722580 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-5710-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-ANE-5711-OE

Issued Date: 01/05/2022

David Watts
US Solar
100 N 6th St, Suite 410B
Minneapolis, MN 55403

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Solar Panel Somers South 9
Location:	Ellington, CT
Latitude:	41-55-37.78N NAD 83
Longitude:	72-27-32.77W
Heights:	242 feet site elevation (SE)
	12 feet above ground level (AGL)
	254 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 07/05/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

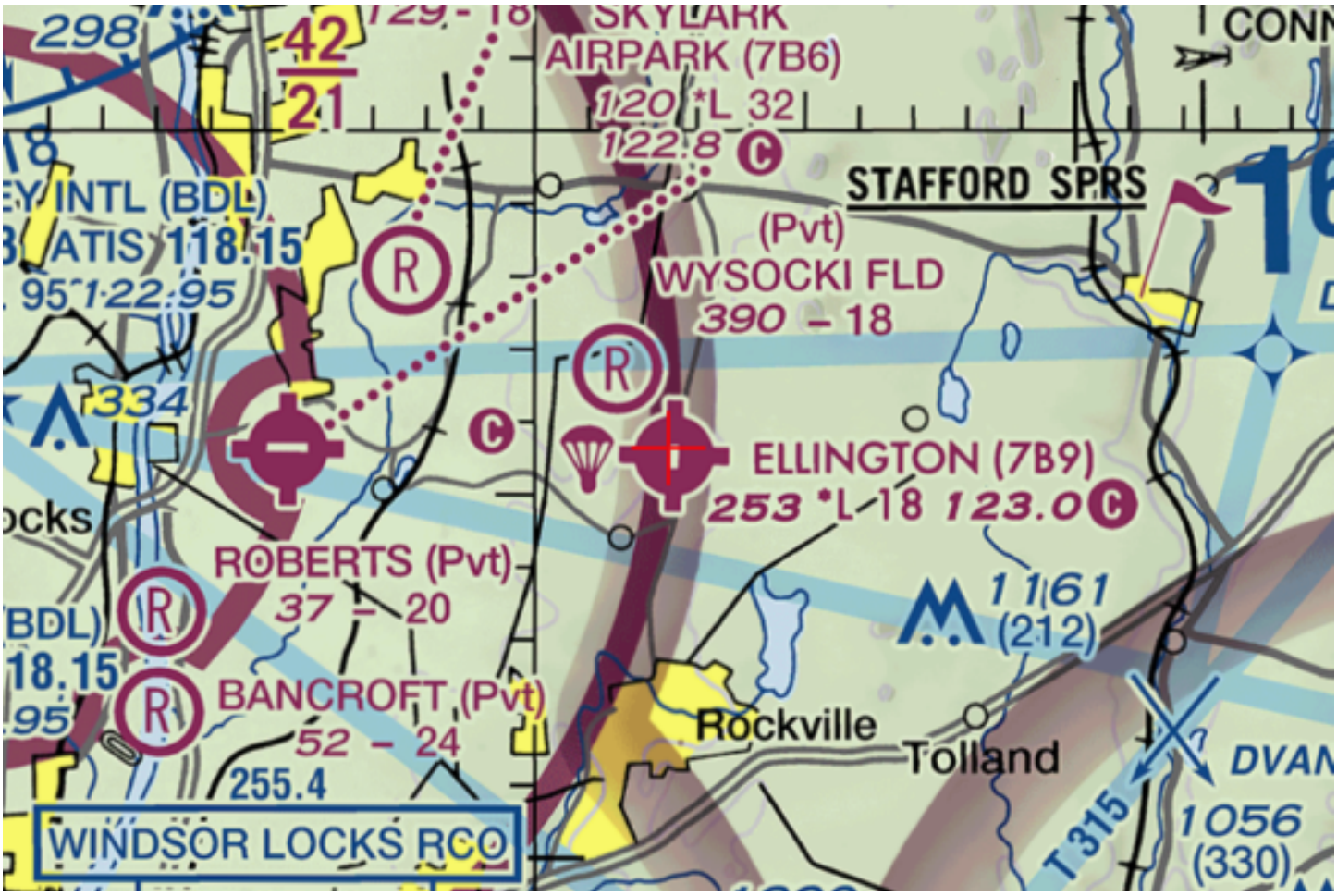
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-6582, or Stephanie.Kimmel@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-ANE-5711-OE.

Signature Control No: 493432660-506722578 (DNE)
Stephanie Kimmel
Specialist

Attachment(s)
Map(s)

Sectional Map for ASN 2021-ANE-5711-OE



Appendix I

Sheep Pasture Rotation and Grazing Plan

Sheep Pasture Rotation and Grazing Plan for USS Somers Solar LLC in Ellington, Connecticut

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2150 Post Road, Suite 505
Fairfield, CT 06824
203-505-6969

Sheep Rotation and Grazing Plan for USS Somers Solar LLC

360 Somers Road, Ellington CT

Summary

The purpose of this document is to present a specific sheep grazing plan for the USS Somers Solar LLC Project ("the Project") to be constructed in Ellington, Connecticut, on a parcel owned by JLM Associates LLC. Mobilization for construction of the solar facility is expected to occur in early to mid-2024, with full installation taking place upon conclusion of the growing season, which will include an approximately 17.5 acre fenced-in panel area available for sheep grazing beginning in late 2024.

The project site is uniquely situated to host sheep grazing in addition to solar energy production due to the following characteristics:

- The developer of the solar project, United States Solar Corporation, maintains a standard business practice of establishing pollinator habitat throughout solar sites, utilizing grasses and flowering plants native to respective project areas. Such seed mixes produce flora that are "sheep ready," where fodder is appetizing to and nutritious for sheep;
- The site is generally obscured from roadways and surrounded by mature tree lines, offering sheep protection from any neighbors, noxious commercial uses, or potentially hazardous industrial activity;
- The project area is largely flat, offering a clear view of the entire project area for the grazer;
- Ellington, Connecticut gets approximately 50 inches of rain per year, which creates a favorable growing environment for the vegetative cover.

The practice of rotational sheep grazing is also conducive to the generation of solar energy, in how it acts as a vegetation control tactic to prevent panel shading, removes invasive species, and limits erosion of topsoil. Establishing a sheep grazing arrangement is immensely beneficial to this project in guaranteeing that the greatest levels of energy production are achieved throughout the lifetime of the solar facility. The solar maintenance team will work in concert with the sheep grazer to support the successful attainment of these outcomes.

The Project will utilize a rotational grazing system in order to maximize the benefits of sheep grazing on the establishment and growth of the vegetation. The grazer will create paddocks for the sheep to intermittently graze on a section basis via the use of the portable electric fencing. Within the 17.5 acre solar project, it is expected that five (5) paddocks will be designated within the fenced in area. The sheep grazer will establish these paddocks as needed based on the frequency by which sheep exhaust the existing growth.

Establishment of Vegetative Cover

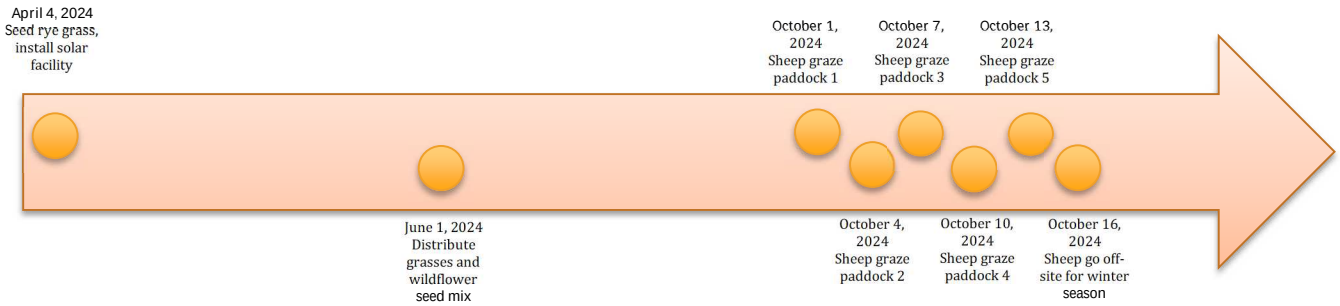
The Project will establish a vegetative cover within the fenced project area by utilizing plant species native to the Northeastern United States. The Project will seed the site prior to the outset

of construction, in order to appropriately prepare the land to host sheep upon the 2025 season. The site will be seeded with rye grass in the Spring of 2024, for the purpose of contributing to the ease of construction and the start of sheep grazing in the end of 2024.

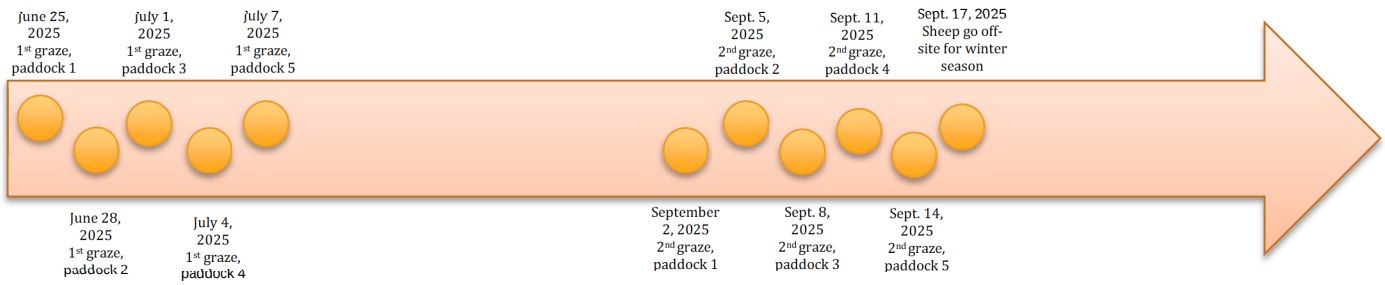
The parcel's primary use is an airport operation, with approximately 40 to 45 acres of the 127 acre parcel currently being utilized for agricultural production (i.e. corn and/or hay). Soils comprising the parcel's tillable acreage include gravelly loam (48.4%), Manchester gravelly sandy loam (34.5%), and Ellington silt loam (17.1%). Given the simultaneously rocky and loamy characteristic of the on-site soils, and particularly the fertile nature of well-draining loamy soils, there are several native wildflowers and grasses that could adequately establish a vegetative cover at the Somers Solar site. USS will assemble and later distribute a wildflower and grasses seed mix including, but not limited to, the following plant species (given by common name): Butterfly Weed, Wild Red Columbine, Sideoats Grama, New England Aster, Stiff Goldenrod, Yellow Stargrass, Bergamot, Pale-leaved Sunflower, Purple Coneflower, Blue Vervain, Purple Prairie Clover, Spiderwort, Broomsedge, and White Yarrow. Based on internal research, The Project believes that this collection of native grasses and flowers will benefit the project land base, support native pollinators, and provide sufficient bulk for rotationally grazing sheep. However, if the Department of Agriculture deems necessary, the Project is able and willing to consult an external seed vendor to garner site-specific expertise to achieve the aforementioned goals.

Further, the Project foresees planting alfalfa throughout the fenced solar project area, which is predicted to do well in the Ellington climate given its adaptability to a wide range of growing conditions. The alfalfa will provide nutritional benefit to the sheep, and will be a constructive supplement to the aforesaid list of native wildflowers and grasses. Further, the Project intends to establish a few climbing vegetables within the solar project area, including bush beans, soybeans, and peas. The Project recognizes the chance that these species do not proliferate; however, growth rate aside, the climbing vegetables will supplement the sheep's diet and contribute to soil health. Around the perimeter of the fenced solar project area, the Project will distribute the wildflower seed mix, which will also support the pollinators that will be incorporated outside of the array area.

Proposed Timeline, Year 1



Proposed Timeline, Years 2+



Paddock Area

The Project was assessed for rotational sheep grazing in congruence with the proposed site plan, which includes the fenced solar project area of 17.5 acres. The fence constituting the perimeter of both areas of the solar facility will be a six (6)-foot tall chain-link security fence. Within the 17.5 acre solar footprint, five paddocks will be created, which will act as discrete grazing units. The paddocks will be designated by use of electric poly fencing (i.e. poly tape), a portable fence that is commonplace in rotational grazing arrangements. The Project has chosen this fence given its ease in utilization, which appeals to grazers in a range of agricultural uses.

Four fence lines will be established in creation of the 5 discrete paddocks within the solar project area. Fence line 1 is approximately 850 feet in length, fence line 2 is approximately 360 feet in length, fence line 3 is approximately 650 feet in length, and fence line 4 is approximately 370 feet in length. The selected fencing, poly tape fencing, is sold in units of 500 feet in length, and therefore the Project will purchase five units for the purpose of forming the five discrete paddock sections.

The Project site was delineated into five paddocks on account of several factors, including but not limited to the proposed solar array layout and associated solar modules, racking, and associated equipment, proposed plant species to be interspersed in open rows between panels, and optimal acreage for intermittent sheep grazing over a specific time period. Reference Figure 1 for a project site layout portraying the five proposed paddocks and fence line segments.

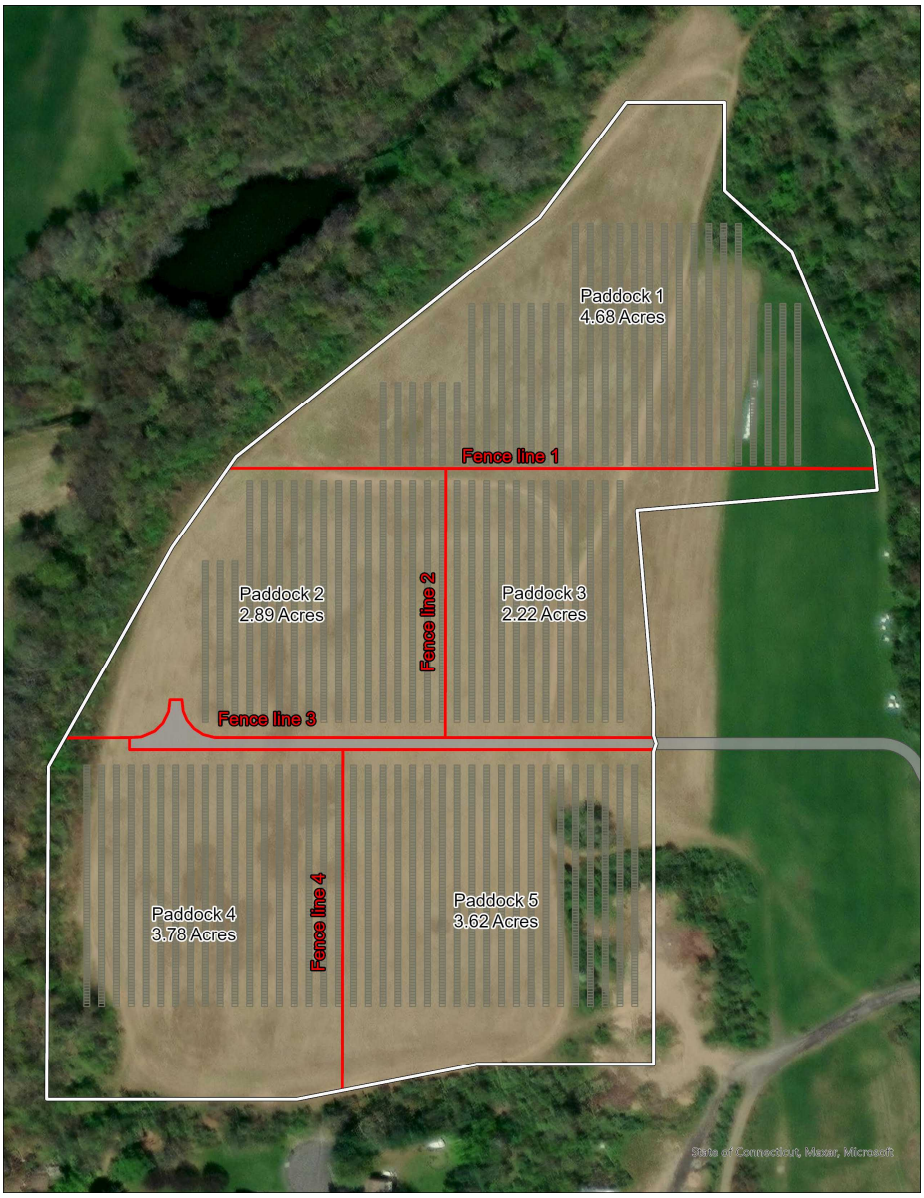

Paddock 1
4.68 Acres
Fence line 1
Paddock 2
2.89 Acres
Fence line 2
Paddock 3
2.22 Acres
Fence line 3
Paddock 4
3.78 Acres
Fence line 4
Paddock 5
3.62 Acres

Figure 1. USS Somers Solar LLC Project Site Layout with discrete paddocks and fence lines identified. Note that this is a preliminary depiction and is subject to change.

- Paddock 1 (north): 4.68 acres
- Paddock 2 (north): 2.89 acres
- Paddock 3 (north): 2.22 acres
- Paddock 4 (north): 3.78 acres
- Paddock 5 (north): 3.62 acres

Animal Quantity and Rotation

The quantity of sheep (i.e. the flock) has been determined based off of available acreage within the solar project area identified for grazing, over a time period of 60 days. The total number of sheep per acre, or the "stocking rate," assumes a full rotation, meaning that there will be a sufficient number of sheep present on a paddock basis, not including rest days. Sheep will transition from one paddock to the following every three days. The table below depicts the stocking rate calculation for the Project site, and is subject to change based on weather and vegetative growth conditions. The need for adjustment and corresponding shifts in calculations shall be determined by the sheep grazer.

Table 1. Grazing Plan Somers Solar Facility

	Item	*Paddock 1*	*Paddock 2*	*Paddock 3*	*Paddock 4*	*Paddock 5*	*Total*
Acreage	Array size, ac # of paddocks Paddock size, ac Rest period, days Days in paddock	4.68	2.89	2.22	3.78	3.62	17.5 5 2.22-4.68 45 15
Sampling and analysis	Vegetative cover: %, ac DM/ac, lbs DM/paddock, lbs Utilization rate: %, lbs Total paddock DM, lbs	80%, 2.8 1,300 3,640 50%, 1,820 1,820	80%, 2.8 1,300 3,640 50%, 1,820 1,820	80%, 2.8 1,300 3,640 50%, 1,820 1,820	80%, 2.8 1,300 3,640 50%, 1,820 1,820	80%, 2.8 1,300 3,640 50%, 1,820 1,820	80%, 24.64 1,300 32,032 50% 16,016 16,016
Feed intake	Average sheep weight, lbs DM Intake: % BW, lbs						170 3.5% 5.95

Assumptions utilized in Table 1: vegetative cover of 80% within the project footprint; dry matter of 1,300 pounds on a per acre basis; utilization rate of 50% (given plant density exceeding 75%); average dry matter intake of 3.5% and sheep weight of 170 pounds; Connecticut average stocking rate of 2.5 to 3 sheep per acre; expert recommended 2 to 3 day sheep rotation per paddock.

Table 1 Analysis and Summary

The vegetative cover has been approximated to be 80%, given that plant species noted in section 'Establishment of Vegetative Cover' above will likely not reach maturity until year two or three. Upon commencement of sheep grazing after project construction and planting, the vegetative cover will be estimated on a per-paddock basis, and the discrete percentage approximations will be monitored and adjusted accordingly. Further, vegetative growth samples will be collected and analyzed in order to continually refine the sheep stocking rate. The American Solar Grazing Association ("ASGA") offers ample materials and recommendations relating to solar grazing mechanics, and USS will reference such resources when refining stocking rate calculations per maturation of proposed organic matter on-site.

The provided rotational grazing schema is intended to suffice as a preliminary guide to the flock grazer (who USS will select through a competitive procurement process in early 2024); while the detailed grazing management plan is a requisite component in guiding the sheep grazer, it is anticipated that revisions will be made upon solar facility commissioning and outset of grazing activities. Additionally, there will be variability in grazing rotation throughout the year in accordance with the seasons (e.g. increase in stocking rate following bouts of heavy rainfall between April and June), and thus Table 1 ought to be regarded as a precursory guide. Resources in support of successful deployment of the rotational grazing operation -- such as on-site water resources for the flock -- will be handled by the selected sheep grazer, with coordination-based support provided by USS as needed.

Per the calculations in Table 1, it is estimated that approximately nine sheep will graze the five paddocks created within the 17.5 acre solar facility project site. This is based on an assumption of three grazing days per paddock, and 45 resting days.

References

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