



ENVIRONMENTAL ASSESSMENT

PROPOSED
GOLF RANGE SOLAR PROJECT
391 DURHAM ROAD
MADISON, CONNECTICUT

Prepared for:

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1 Introduction

All-Points Technology Corporation, P.C. ("APT") prepared this Environmental Assessment ("EA") report on behalf of 391 Durham LLC (the "Petitioner") for the proposed installation and utility interconnection of a solar-based electric generating facility (the "Project" or "Facility") having an output of approximately 1.975 megawatts¹ located in the Town of Madison, 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 Facility.

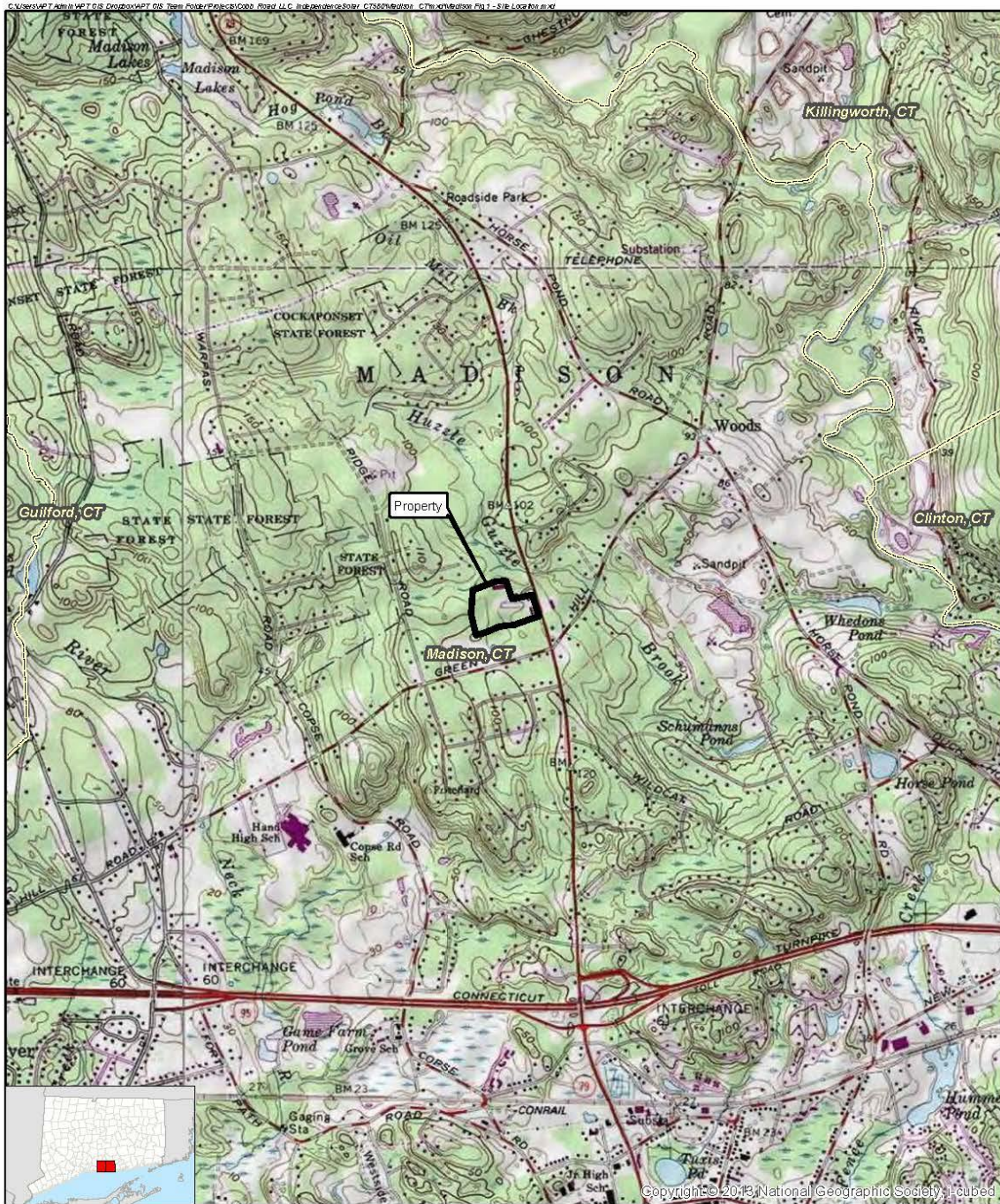
The results of this assessment demonstrate that the proposed development will comply with the air and water quality standards of the Connecticut Department of Energy and Environmental Protection ("DEEP") and will not have an undue adverse effect on the existing environment and ecology. Further, the proposed Project is neither defined as an "affecting facility" nor located within an "environmental justice community" under Connecticut General Statutes § 22a-20a.²

The Project will be located at 391 Durham Road (State Route 79) in Madison, Connecticut ("Property"). The Property is a parcel of approximately 12.7 acres currently developed with a golf driving range known as Kleins' Golf Range. One single-story, multi-tenant commercial building is located on the eastern portion of the Property adjacent to Durham Road.³ A maintenance barn and storage shed are located on the northern portion of the Property. Driving range tee boxes are located west and northwest of the commercial building. Remaining portions of the Property primarily consist of dense tightly mowed turf associated with the golf driving range operation. Narrow wooded areas are found along the northern, northeastern, southern, and western boundaries. The Property is privately owned and is zoned RU-1 Rural Residence District. Figure 1, *Location Map*, depicts the location of the Property and surrounding area.

¹ The output referenced is Alternating Current (AC).

² "Affecting facility" is defined, in part, as any electric generating facility with a capacity of more than ten megawatts and "Environmental justice community" means (A) a United States census block group, as determined in accordance with the most recent United States census, for which thirty per cent or more of the population consists of low income persons who are not institutionalized and have an income below two hundred per cent of the federal poverty level, or (B) a distressed municipality, as defined in subsection (b) of § 32-9p.

³ The building is currently occupied by Kleins' Driving Range, a pizza restaurant, and a consignment clothing store.



Legend

- Property
- Municipal Boundary

Map Notes:
 Base Map Source: USGS 7.5 Minute Topographic
 Quadrangle Map: Clinton, CT (1984) & Guilford, CT (1984)
 Map Scale: 1:24,000
 Map Date: November 2024

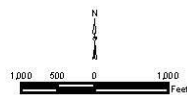


Figure 1 - Location Map

Proposed Solar Energy Facility
 391 Durham Road
 Madison, Connecticut



2 Proposed Project

2.1 Project Setting

The Project will be located within the central portion of the Property, which is located along the west side of Durham Road (State Route 79) in the northern portion of Madison. Access will be via a proposed gravel drive extending westward from Durham Road onto the southern portion of the Property and then turning northward and continuing to the central portion of the Property. The proposed interconnect route will extend from the central portion of the Property to existing demarcations located along Durham Road. The Project in its entirety will occupy 8.32 acres of the Property ("Site").

The Property's existing topography ranges from approximately 90 feet above mean sea level ("AMSL") in the southwestern corner to approximately 83 feet AMSL in the northeastern portion. Grades within the Project area generally slope gently downward from the western and eastern portions to the central portion of the Property. Figure 2, *Existing Conditions*, depicts the Site and current conditions on the Property. Representative photographs of the Property are provided in Appendix A.

The surrounding land use is characterized primarily by residential development to the northwest, west, and south, and commercial development to the east across Durham Road. An open space parcel, Old Mill Acres, owned by the Madison Land Conservation Trust abuts the Property to the north. It consists of undeveloped, wooded land with no blazed hiking trails.

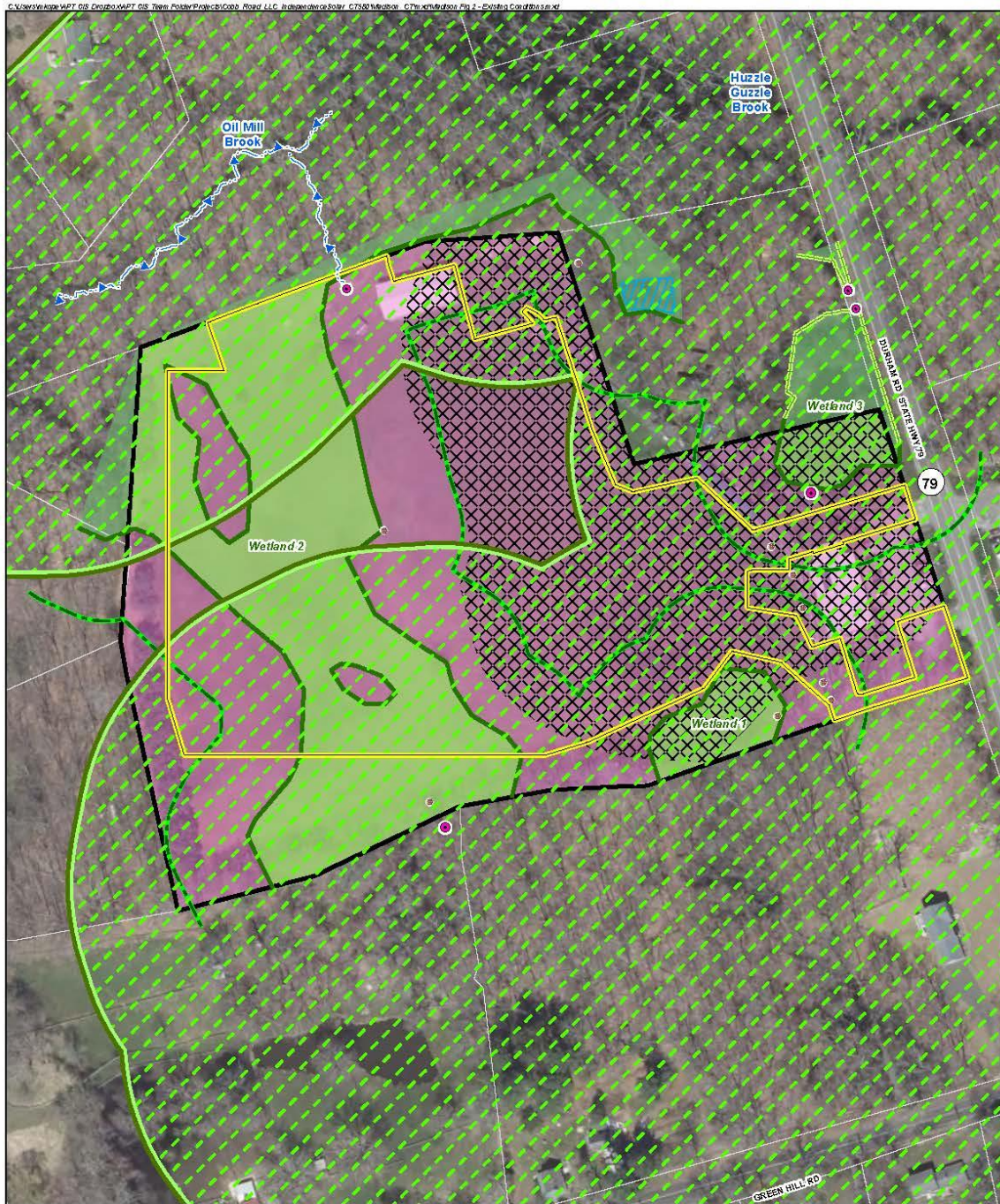


Fig. 2 - Existing Conditions
 Proposed Solar Energy Facility
 391 Durham Road
 Madison, Connecticut



2.2 Project Development and Operation

2.2.1 The Site

Upon its completion, the Facility will include 3,820 photovoltaic modules (“panels”); eight inverters; pad mounted switchgear and one pad-mounted 2,000-kVA transformer. A ground-mounted single-axis tracking racking system will be used to secure the panels. The perimeter of the Facility will be surrounded by a seven-foot tall chain link fence with privacy slats along the east, west and southern sides of the array area; no privacy slats are included along the northern fencing section. Wooden fencing is also provided along the eastern interconnection area and access road that ties into the existing commercial building to provide the Facility’s primary screening from Durham Road.

The Facility will be accessed via a new 15-foot wide gravel drive extending westward from an existing gravel parking area on the southeastern portion of the Property. The drive will pass through double-swing gates in the Facility’s eastern fence line and then continue to equipment pads in the east-central portion of the array field. In total, the new access drive will be approximately 705 feet long.

The Project will include one electrical service interconnection that will require the installation of five new utility poles. The interconnection route will extend overhead from the existing Eversource distribution system along Durham Road to utility poles on the central portion of the Property. The interconnection will then transition underground to pad-mounted electrical equipment within the Facility.

Once complete, the fenced Facility will occupy approximately 6.96 acres of the Site with an additional approximately 1.36 acres of improvements beyond the fenced limits, for a total Project area of approximately 8.32 acres. Proposed development drawings are provided in Appendix B, *Project Plans*.

The leading edge of the panels will be approximately 30-inches above the existing ground surface, which will provide adequate room for any accumulating snow to “sheet” off. The tracking system limits accumulated snow since the panels reach maximum tilt angles twice a day as it tracks from east to west. Any production degradation due to snow build-up has been modeled into the annual

system output and performance calculations. No need for snow removal operations is anticipated; rather, the snow will be allowed to melt or slide off.

The Facility will be unstaffed; after construction is complete and the Project is operable, traffic at the Site will be minimal. It is anticipated that the Facility will require routine inspection/maintenance of the equipment two to three times per year. Regular maintenance will typically involve two technicians for a day. Repairs will be made on an as-needed basis.

2.2.2 Public Health and Safety

The Project will meet 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 array will be fenced and entrance to the Facility will be locked and gated, limiting access to authorized personnel only. All Town emergency response personnel will be provided access via a Knox padlock. The Facility will be remotely monitored and will have the ability to de-energize via a switch at the entrance to the Property in the case of an emergency.

2.2.3 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. The Project will benefit the local community by improving electrical service for existing and future development through the availability of enhanced local generating capacity that does not rely solely on the congested regional electrical transmission network.

3 Environmental Conditions

The results of this environmental conditions assessment and impact evaluation at the Site demonstrate that the Project will comply with DEEP's air and water quality standards and will not have an undue adverse effect on the existing environment and ecology. Refer to Figure 3, *Proposed Conditions* for a depiction of the Project and its compatibility with the Site resources discussed herein.



3.1 Air Quality

Current mobile source emissions associated with operation of the driving range include equipment used for mowing, landscaping, golf ball retrieval, and maintenance activities. 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.

Temporary, construction-related mobile source emissions will include those associated with construction vehicles and equipment. Any potential air quality impacts related to construction activities can be considered de minimis. Such emissions will, nonetheless, be mitigated using available measures, including, inter alia, 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.

3.2 Water Resources

3.2.1 Wetlands and Watercourses

APT Registered Soil Scientists identified a total of three wetlands on the Property in proximity and within the Project during a field inspection and wetland investigation completed on September 11, 2023. The results of the wetland delineation are summarized below. The location of these resources is depicted on Figure 2, *Existing Conditions* and Figure 3, *Proposed Conditions*.

Wetland 1 consists of a seasonally saturated complex, draining north from off property forested areas to the south; the forested area is dominated by red maple and swamp white oak. The wetland is mainly formed within the maintained turf areas, dominated by typical cool-season grasses that are tightly mowed, where historic alteration to the native wetland profile has occurred. Edge forested areas occur to the far south of the delineated resource with maintained turf dominating the majority of this feature resulting from routine vegetation management as part of the Kleins' Golf Range operation. Due to the construction of the driving range and other historical uses of the Property, stripping of wetland topsoil and backfilling/grading with non-native sand and gravel fill material has significantly altered the historic extents and characteristics of this wetland resource. A catch basin is located within the central portion of Wetland 1 that drains

through an underground pipe into a man-made pond (Wetland 3). Wetland 1 is a seasonally saturated feature that has experienced varying degrees of historic disturbance through agricultural activities and more recently the golf driving range operation, installation of drainage, stripping of the native wetland soil and backfilling with non-native material resulting in an altered soil profile and hydrology.

Wetland 2 consists of a seasonally saturated complex draining in a northerly direction across the Property into bordering forested wetland areas that extend off the Property. The wetland is mainly formed within the maintained turf areas, dominated by typical cool-season grasses that are tightly mowed, where historic alteration to the native wetland profile has occurred. Due to the construction of the driving range and other historical uses of the Property, stripping of wetland topsoil and backfilling/grading with non-native sand and gravel fill material has altered the historic extents and characteristics of this wetland resource. A culvert located on the northern Property discharges flows into an intermittent watercourse and continues draining north into Oil Mill Brook followed by Huzzle Guzzle Brook. This on-Property intermittent watercourse previously extended south into Wetland 2 but was altered and filled with non-native soil and contained within an underground pipe during historic development activities. Two catch basins that collect surface runoff from the golf driving range are located within the central portion of Wetland 2 that drain directly into the culvert that flows from south to north through the golf driving range and daylights into relatively unaltered off-Property wetland to the north; relatively unaltered wetlands also exist at the south end of the Property. Two interior upland islands were also identified within this wetland. The upland islands contain fill material exceeding two feet in depth that lack wetland soil and hydrology characteristics. The off-Property wetland to the north eventually drains into Huzzle Guzzle Brook, located approximately 200 feet north of the Property. Edge forested areas occur to the far northern and southern edges of the delineated wetland resource with maintained turf encompassing the majority of this wetland feature. A small pocket was observed on the adjacent property with evidence of seasonal flooding, raising the potential to support vernal pool breeding habitat. See additional information regarding this area in Section 3.2.2 of this report.

Wetland 3 consists of a man-made pond feature that extends onto the adjacent residential property and connects to a seasonally flooded drainage swale along the west side of Durham Road. Located along Durham Road, this resource also receives hydrologic input from stormwater runoff that is conveyed through a connected grass-lined drainage swale bordering the roadway.

Banks of the pond are subject to routine maintenance creating some maintained lawn limiting diversity of vegetative communities.

3.2.2 Vernal Pool

The Department of the Army Regional General Permits for the State of Connecticut defines vernal pools as: depressional wetland basins that typically go dry in most years and may contain inlets or outlets, typically of intermittent flow. Vernal pools range in both size and depth depending upon landscape position and parent material. Several species of amphibians depend on vernal pools for reproduction and development. These species are referred to as obligate, or indicator, vernal pool species and their presence in a wetland during the breeding season helps to identify that area as a vernal pool. In most years, vernal pools support one or more of the following obligate indicator species: wood frog, spotted salamander, blue-spotted salamander, marbled salamander, Jefferson's salamander and fairy shrimp. However, they should preclude sustainable populations of predatory fish.

Vernal pool physical characteristics can vary widely while still providing habitat for obligate species. "Classic" vernal pools are natural depressions in a wooded upland with no hydrologic connection to other wetland systems. Often, vernal pools are depressions or impoundments within larger wetland systems. These vernal pool habitats are commonly referred to as "cryptic" vernal pools. "Anthropogenic" vernal pools are intentionally or unintentionally man-made depressions that support successful breeding by obligate species.

One potential vernal pool habitat was identified during the wetland investigation on an adjacent parcel associated with the eastern limits of Wetland 2. Since the Property provides suboptimal habitat due to the golf range development and regular maintenance, a formal vernal pool survey was not deemed necessary. For the purposes of this Project we have assumed this nearby vernal pool supports breeding by vernal pool obligate species.

3.2.3 Vernal Pool Analysis

It is widely documented that vernal pool dependent amphibians are not solely reliant upon the actual vernal pool, which is limited to use for breeding and egg/larval development; they require surrounding upland forest habitat for most of their adult lives. Accepted studies recommend conservation within the vernal pool envelope ("VPE" - within 100 feet of the pool's edge) and the critical terrestrial habitat ("CTH" - 100-750 feet of the pool's edge) (Calhoun, Klemens, 2002;

"BDP").⁴ Intact forest represents the highest value, or optimal, habitat within both of these conservation zones to support breeding opportunities for the various obligate vernal pool indicator species that rely on forested habitat (e.g., wood frog and spotted salamander). In addition, the U.S. Army Corps of Engineers ("USACE") New England District's *Vernal Pool Best Management Practices* establish the concept of "directional corridors" (referred to herein as "Migratory Corridors"). Identification of Migratory Corridors allows a project to evaluate potential impacts to optimal pool-breeding amphibian habitat with a focus on conserving the most essential habitats that link breeding pools, forested wetlands, and forested uplands. These interrelated habitats form essential Migratory Corridors at a landscape scale generally confined within the CTH. Migratory Corridors are identified through an evaluation of both wetland and terrestrial habitat structure qualities (e.g., vegetative cover types, width of vegetated buffer, soil surface moisture, thickness of duff layer, abundance of cover objects) that determine the locations of "Suitable Non-Breeding Habitat" and "Non-Habitat" in proximity to the vernal pool. Migratory Corridors occur in areas that link vernal pools and Suitable Non-Breeding Habitat (both forested wetland and upland habitats). Non-habitat areas such as developed areas, maintained lawn, and agricultural fields do not support Migratory Corridors due to the lack of sufficient vegetative conditions that are often associated with higher levels of predation and human activity, which can result in direct mortality.

Overall, the existing golf driving range provides suboptimal habitat primarily due to the entire lack of forest cover, or any woody habitat cover at all. Routine mowing within the 100-foot VPE to the west and south which overlaps with the range largely eliminated the function of this critical vernal pool conservation zone. The Project's perimeter fencing will encroach into the currently mowed portion of the 100-foot VPE. However, considering the limited function of this mowed portion of the 100-foot VPE, the Project will not result in a likely adverse impact to the vernal pool. In fact, with incorporation of a native conservation seed mix that will be mowed infrequently thereby providing improved cover for amphibians that may utilize this area, there will be an overall benefit to the vernal pool. Solar panel installation will occur outside the 100-foot VPE. Due to the relatively level topography, minimal grading will be necessary for this Project and the activity within the VPE is considered de minimus and mainly temporary in nature with the only potential

⁴ Calhoun, A.J.K. and M.W. Klemens. 2002. Best Development Practices ("BDPs"): Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northeastern United States. WCS/MCA Technical Paper No. 5.

permanent impact consisting of the installation of the perimeter fencing which would not impede any migrating amphibians.

Additionally, impacts to Migratory Corridors and Suitable Non-Breeding habitat are largely avoided by the proposed Facility. The Facility will be located within developed and developed wetland areas. Based on field reconnaissance efforts and review of aerial photography, Suitable Non-Breeding Habitat exists to the north, east and portions of southern areas where forested wetlands and uplands are present. In contrast, west/southwestern surrounding areas serve as non-habitat due to the general lack of vegetation, forest cover and routine activities associated with the golf range operation. Considering these facts and the separating distances that are provided between the Project area and vernal pool, no degradation would occur to the pool or potential obligate vernal pool species that may utilize the pool. Limited traffic and human activity would be associated with long-term operation of the Facility, further limiting the Project's potential effect to this vernal pool.

The potential does exist for short-term impacts to herpetofauna associated with the vernal pool during construction of the Facility, due to possible encounters with migrating and basking individuals that may intercept the proposed development footprint. Any such short-term impacts, to both obligate vernal pool species and herpetofauna that may be associated with the nearby wetland and riparian habitats, would be minimized by the proper installation and maintenance of erosion and sedimentation controls in accordance with *2024 Connecticut Guidelines for Soil Erosion and Sediment Control*. Further, the Petitioner proposes to implement a Resources Protection Plan to mitigate any such short-term impacts to herpetofauna during construction.⁵ The Resource Protection Plan is intended to prevent incidental injury to any migrating vernal pool species by excluding them from entering the Project area during construction with the use of silt fence barriers isolating the limits of construction activities. Wildlife sweeps will be performed once silt fence isolation barriers are installed and prior to initiation of construction activities to remove any wildlife from the work zone.

3.2.4 Wetland Impacts

Wetland impacts will be limited to existing developed and disturbed wetlands that are associated with the existing golf range facility. Due to the existing level of disturbance and current use of

⁵ See Appendix B, *Project Plans*, Sheet No. EN-1 Environmental Notes – Resources Protection Plan.

these wetlands which significantly hinders the wetland's ability to service typical functions, the small area of impact due to installation of the solar panel racking system's foundations (driven pile or ground screw) will not significantly affect these wetlands. This foundation system does not result in significant soil disturbance, so the area of impact associated with each foundation post is limited to the dimensions of the post. As shown on the accompanying Project Plans, the ± 300 foundation posts in "developed wetlands" will result in no more than ± 800 FT² of permanent wetland impact. A wetland mitigation plan that includes $\pm 7,548$ FT² of wetland restoration and $\pm 8,000$ FT² of wetland buffer enhancement will more than mitigate for this small wetland impact.

The functions and values that are currently supported by the "developed wetlands" to be permanently impacted by the installation of the solar panel racking system's foundation posts will not result in a likely adverse impact to the wetland's limited functions and values. While not required by the USACE or DEEP Land and Water Resources Division ("LWRD"), permanent and temporary impacts are proposed to be mitigated through the implementation of a comprehensive wetland mitigation plan. Details of the Wetland Restoration/Enhancement Plan, provided on Sheet No. WL-1 in the Project Plans in Appendix B.

Electrical connections between solar panels will consist of two different applications depending upon whether the panels are located in "developed wetlands" or not. For areas not located in wetlands, underground utility conduits will be installed while in wetland areas electrical wires will be hung off the racking system to avoid earthwork and direct temporary wetland impacts. This transition between underground utilities and overhead stringing on panels may require some temporary impact to wetlands along with some other incidental construction activities for the installation of this solar facility such as heavy equipment impacts during foundation installation. Due to the current condition of the "developed wetlands" and regular maintenance that includes the daily use of various equipment and vehicles to maintain the closely mowed lawn and retrieve golf balls, construction of the Facility is not anticipated to result in significant rutting or soil displacement. The total temporary impact related to the construction activities will result in a temporary wetland disturbance that is conservatively estimated at no more than $\pm 1,000$ FT².

To compensate for the Project's unavoidable activities within developed wetlands, wetland mitigation plan has been developed which will include approximately 7,548 FT² of wetland restoration and approximately 8,000 FT² of wetland buffer enhancement along the northern side of the Project. This wetland mitigation plan will restore a historically filled wetland and intermittent

watercourse to create new wetland habitat that adjoins the existing forested wetland system on the adjacent conservation parcel to the north and provide appropriate compensation for the Project's unavoidable impacts to developed wetlands. Please note that as part of the Project's federal wetland permitting, the USACE and DEEP did not require any wetland mitigation. The wetland mitigation plan will:

- Restore and daylight approximately 65 linear feet of intermittent watercourse channel through the removal of approximately 55 linear feet of existing reinforced concrete pipe to create an approximately 6-foot-wide stream channel with sandy/cobble bottom that matches characteristics of Oil Mill Brook located on the adjacent parcel to the north.
- Plant wetland mitigation areas with a sufficient density and variety of native plants (both species and structural), thus creating a diversity of wetland cover types to support a variety of functions and values with a particular focus on wildlife habitat, water quality renovation, and aesthetics.
- Improve wetland functions through enhancement of low functioning-maintained lawn developed buffer areas by plantings of native trees, shrubs, and meadow species surrounding the proposed wetland restoration area.
- Increase wildlife habitat function of the developed wetland within the Facility through conversion of low functioning-maintained lawn developed wetlands to native wet meadow habitat through the incorporation of various native grasses, rushes, sedges, and pollinator friendly forbs.

Considering the developed nature of the Property in combination with the Facility's stormwater management design (See Section 3.3.3) and implementation of the 2024 *Connecticut Guidelines for Erosion and Sediment Control*, the Project is not anticipated to result in a likely adverse impact to wetland resources. Any potential secondary wetland impacts will be further mitigated through the implementation of the Resources Protection Plan⁶ that has been developed to protect the abutting wetland resources during construction of the Project.

A Pre-Construction Notification ("PCN") Application for authorization by the USACE and DEEP Land and Water Resources Division ("LWRD") was submitted under the Department of the Army General Permits ("CT GPs") for the State of Connecticut as a GP 20: *Energy generation and*

⁶ See Appendix B, *Project Plans*, Sheet No. EN-1 Environmental Notes – Resources Protection Plan.

renewable energy facilities and hydropower project. USACE and DEEP agreed that the Project would result in minor wetland impacts with issuance of authorization under federal permit GP 20. The November 27, 2024 DEEP PCN eligibility letter and December 12, 2024 USACE federal permit authorization are provided in Appendix C.

3.2.5 Floodplain Areas

APT reviewed the United States Federal Emergency Management Agency ("FEMA") Flood Insurance Rate Map ("FIRM") for the area. 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. The Property is depicted on FIRM PANEL #09009C 0511H, dated December 17, 2010. Based upon the FIRM, the Property is located in an area designated as Zone X, which is defined as a minimal flood hazard area. The Site is not located within a 100- and 500-year flood zone and as such, no special considerations or precautions relative to flooding are required for the Project.

3.3 Water Quality

Once operative, 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. Stormwater generated by the proposed development will be properly handled and treated in accordance with the *Connecticut Stormwater Quality Manual ("SQM")*, effective March 30, 2024, and Appendix I, Stormwater Management at Solar Array Construction Projects ("Appendix I").

3.3.1 Groundwater

Groundwater underlying the Property is classified by DEEP as "GA".⁷ This classification indicates groundwater within the area is presumed to be suitable for human consumption without prior treatment. Based upon reviewed DEEP mapping, the Property is not located within a mapped (preliminary or final) DEEP Aquifer Protection Area. The Project will have no adverse environmental effect on ground water quality.

⁷ Designated uses in GA classified areas include existing private and potential public or private supplies of drinking water and base flow for hydraulically connected surface water bodies.

3.3.2 Surface Water

Based upon DEEP mapping, the Property is located in Major Drainage Basin 5 (South Central Coastal Basin), Regional Drainage Basin 50 (South Central Shoreline Complex), Subregional Drainage Basin 5106 (Hammonasset River), and Local Drainage Basin 5106-17 (Huzzle Guzzle Brook at mouth above Hammonasset River). The nearest named waterbody is Huzzle Guzzle Brook located approximately 200 feet north of the Property and approximately 300 feet from the closest portion of the Project. Huzzle Guzzle Brook is classified as a Class A surface waterbody by the DEEP.⁸ The Site will have no effect on this surface waterbody. Based upon DEEP mapping, the property is not located within a public drinking supply watershed.

The Project will be sufficiently set back from water resources proximate to the Property and will have no adverse environmental effect on surface water quality. During construction, erosion & sediment ("E&S") controls will be installed and maintained in accordance with the *Connecticut Guidelines for Soil Erosion and Sediment Control*, effective March 30, 2024. Once operative, stormwater will be managed in accordance with the *Connecticut Stormwater Quality Manual*, effective March 30, 2024.

3.3.3 Stormwater Management

In addition to the *Connecticut SQM* and *Connecticut Guidelines for Soil Erosion and Sediment Control*, both effective March 30, 2024, the Project has been designed to meet Appendix I. Combined, these address two main concerns: stormwater runoff peak attenuation, and E&S control during construction. The Applicant will apply for a General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities ("General Permit") from DEEP. Technical details, mapping, and HydroCAD modeling results are provided in a Stormwater Management Report to be provided to DEEP and included as Appendix D. A summary of these results is provided below.

Stormwater Runoff Peak Attenuation

The potential for changes in runoff from the Site as a result of Project construction has been evaluated and addressed in compliance with Appendix I and recommendations contained in the SQM. A primary goal of the SQM is to provide a comprehensive framework for the long-term

⁸ Designated uses for A classified waterbodies include fish and other aquatic life and wildlife habitat, potential drinking water supply, recreational use, navigation, and water supply for industry and agriculture.

protection of natural resources in and around the Property from degradation as a result of stormwater discharges. Another goal of the SQM is to ensure that long-term post-development stormwater quality is protected and that there will be no erosion caused by the development.

During an August 14, 2023 pre-application meeting with DEEP, Christopher Stone of DEEP's Stormwater Section stated that contingent upon securing authorization under the Department of Army Regional General Permits for the State of Connecticut (as a Pre-Construction Notification General Permit 20 – Energy Generation and Renewable Energy Facilities and Hydropower Projects, which was secured on December 12, 2024), this Project would be eligible for filing under the DEEP General Permit with waiver of the permit's Appendix I wetland buffer requirements.

The Project will disturb areas for the installation of the proposed solar installation, including the necessary utilities and access road as well as the wetland enhancement area, resulting in approximately 8.32 acres of disturbance. Overall, hydrologically, through the transition from open spaced lawn to meadow, the post-developed condition is designed to mimic or improve the pre-developed condition.

There is an overall decrease in post-development runoff due to the change in cover type associated with converting lawn to meadow and the increase in a half step of Hydrologic Soil Group within the proposed limit of disturbance. A half step reduction⁹ is required for the entire solar array to account for the compaction of soils that result from extensive machinery traffic over the course of the construction of the array. Thus, the storage within the proposed gravel access road, with a minimum field verified hydraulic conductivity of 0.0013 in/hr., is designed to provide the necessary water quality treatment volume for the additional impervious area provided by the access road and pads, as required by Appendix I.

The stormwater management for the Project has been designed such that the post development peak discharges to the waters of the State of Connecticut for the 2-, 25-, 50-, and 100-year storm events are less than the pre-development peak discharges. In addition, the Project adheres to the regulations and guidelines presented by DEEP's Appendix I as described above. As a result, the proposed solar array is not anticipated to result in adverse conditions to the surrounding areas and properties.

⁹ This relates to the difference of the runoff curve number between the Hydrologic Soil Group present on the Site and the next higher Hydrologic Soil Group.

Erosion and Sediment Control During Construction

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, subject to approval by DEEP Stormwater Management. The SWPCP will include monitoring of established E&S controls that are to be installed and maintained in accordance with the *Connecticut Guidelines for Soil Erosion and Sediment Control*, effective March 30, 2024, the DEEP General Permit, and Appendix I.

Perimeter erosion controls (compost filter sock and silt fence) will encircle the Project area to capture sediment potentially mobilized during Site work. Inlet protection and compost filter sock will be installed at existing catch basins located within and proximate to the Project.

The Project area currently consists of dense tightly mowed turf associated with the golf driving range operation. This dense turf will provide sufficient temporary stabilization during construction. The Project area will subsequently be seeded with a permanent Ernst Pollinator-friendly Solar Farm Seed Mix (ERNMX-147 Fuzz & Buzz) upon completion of construction with the use of a slice seeder to incorporate the seed mix in the existing turf. The phased erosion control plan and details are provided in Appendix B, *Project Plans*.

With the incorporation of these protective measures, stormwater runoff from Project development is not anticipated to result in an adverse impact to water quality associated with nearby surface waterbodies.

3.4 Habitat and Wildlife

Two distinct habitat types (vegetative communities), separated by transitional ecotones, are located on the Property; both are identified within the Project area. These habitats were assessed using remote sensing and publicly available datasets and physically inspected during a September 11, 2023 field evaluation.

The habitats occupying the Site are as follows:

- Developed; and
- Developed Wetland

3.4.1 Habitat Types

Developed

The Developed habitat encompasses the majority of the eastern, central and a portion of the western Property with east/central portions consisting of an alternative environment which will be discussed in subsequent paragraphs. Developed habitat consists of a commercial building with associated gravel parking area, golf driving range platforms, a maintenance building, and a large, maintained turf range. Routine frequent mowing results in a majority of the property being maintained in short turf; the perimeter of the range consists mainly of edge forest.

The Project will occupy large portions of the Developed habitat. The Project's development activities within this habitat type includes the installation of a gravel access road to the array area, solar panels, perimeter fencing, and trenchwork associated with the utility interconnection and components to the solar array. These activities are not anticipated to result in a significant negative impact due to the highly disturbed nature of this area and existing development.

Developed Wetland

Developed Wetland habitat occurs within the west/central portions of the Property. As previously discussed, these wetlands are mainly formed within the maintained turf areas, dominated by typical cool-season grasses that are tightly mowed, where historic alteration to the native wetland profile has occurred. Stripping of wetland topsoil and backfilling/grading with non-native sand and gravel fill material has altered the historic extents and characteristics of this wetland resource.

The Project will encompass 2.35 acres of Developed Wetland areas but only result in approximately 800 FT² of permanent direct impacts and approximately 1,000 FT² of temporary impacts to these areas. Additionally, a portion of the buffer enhancement and wetland restoration areas are included within these Developed Wetlands. As previously introduced, robust E&S control measures are proposed as part of the Project along with implementation of a Resource Protection Plan to avoid potential secondary and short-term impacts to this habitat during construction. Lastly, the proposed wetland mitigation plan is designed to compensate for the unavoidable impacts to these Developed Wetland areas resulting in the creation of high-functioning new wetland habitat and restoration of a segment of intermittent watercourse.

The following table provides the total acreages of each habitat type located on the Property.

Table 1: Habitat Areas		
Habitat Type	Total Area On-Property (±acres)	Area Impacted by Project (±acres)
Developed	8.8	5.97
Developed Wetland	3.9	2.35

3.4.2 Wildlife

Development of the Project will occur within Developed and Developed Wetland habitat types. Both habitats provide limited value from a wildlife utilization standpoint as a result of routine management and mowing of these areas, lack of diverse vegetative communities or cover, and high level of human activity associated with the active driving range. Development of the Project is not anticipated to adversely affect wildlife. Based on the surrounding land uses, the adjacent disturbed areas located in proximity to the Project area are likely utilized by species that are tolerant of human disturbance and habitat fragmentation. Generalist wildlife species common to the region, including but not limited to several resident and migrant song birds and mammals such as raccoon, striped skunk, grey squirrel, Virginia opossum, white-tailed deer, and eastern chipmunk, could be expected to use the Property. Due to the relatively disturbed nature of these habitat areas, and given the abundance of more suitable habitat west, south and north of the Property that supports habitat needs of these common species, the Project is not anticipated to result in a significant impact to wildlife and would not impact edge-intolerant species.

Noise and associated human activities during construction may result in limited, temporary disruption to wildlife using these habitats; however, the current driving range operation already results in a relatively high level of human activity and noise on the Property. Any possible wildlife displaced during construction would be expected to temporarily disperse deeper into the adjacent wetland habitat or nearby edge forest. Post construction, operation of the Project will not result in a likely adverse effect to wildlife using these habitats because it will be unoccupied and does not generate any significant traffic or a high level of human activity.

3.4.3 Core Forestland Habitat Determination

There will be no significant removal of mature vegetation associated with this Project as the majority of the development area is within Developed/Developed Wetland habitats, which are cleared lawn areas used as a golf driving range. Limited tree removal/trimming of no more than 0.1 acre would occur to edge forest area (not classified as Core Forest) primarily associated with

the access road from the existing gravel parking area in the southeastern corner of the Project and a few select trees in the northwest corner. Thus, a Core Forest Habitat Determination was deemed not necessary for this Project.

3.5 Rare Species

APT reviewed publicly available information to determine the potential presence of State/federally listed species and critical habitat on or proximate to the Site. A discussion is provided in the following sections.

3.5.1 USFWS Consultation

Consultation in accordance with Section 7 of the Endangered Species Act ("ESA") was completed through the U.S. Fish and Wildlife Service's ("FWS") Information, Planning, and Conservation System ("IPaC"). Two Federally listed Endangered species northern long-eared bat ("NLEB"; *Myotis septentrionalis*) and tricolored bat ("TCB"; *Perimyotis subflavus*) are known to occur in the vicinity of the Property. As a result of this preliminary finding, APT conducted an evaluation to determine if the Project would result in a likely adverse effect to NLEB and TCB.

The Project would require limited tree removal/trimming activities of no more than 0.1 acre; trees potentially provide NLEB and TCB habitat. A review of the DEEP Wildlife Division Natural Diversity Data Base ("NDDb") NLEB habitat map and Connecticut NLEB Observations by Town map revealed that the proposed Facility is not within 150 feet of a known occupied NLEB maternity roost tree and is not within 0.25 mile of a known NLEB hibernaculum (TCB may also use NLEB hibernaculum), and no known observations of NLEB are documented in the town of Madison documented. The nearest NLEB hibernaculum to the proposed Facility is located approximately 8.3 miles to the northwest in North Branford; the town of North Branford is also noted for NLEB winter and summer occurrences.

APT submitted the effects determination using the NLEB/TCB Determination Key ("DKey") within the IPaC system for this Facility and determined it "may affect, not likely to adversely affect" ("NLAA") NLEB and TCB. The NLAA determination is conditioned on a time of year restriction ("TOYR") for tree clearing resulting in tree clearing restricted to occur only during the inactive periods for NLEB and TCB, October 1 – April 14, as noted in a USFWS November 22, 2024 letter for NLEB and TCB generated by the NLEB/TCB DKey. Since the USFWS did not respond within

the allowed 15 days from the date of the letter, this ESA consultation is considered complete and no further action is required.

A full review of the ESA Compliance Determination, USFWS's Response Letter, and bat TOYR protection measures is provided in Appendix E, *USFWS and NDDB Compliance Statement*.

3.5.2 Natural Diversity Data Base

The DEEP NDDB program performs hundreds of environmental reviews each year to determine the impact of proposed development projects on state-listed species and to help landowners conserve the state's biodiversity. In furtherance of this endeavor, the DEEP also developed maps to serve as a pre-screening tool to help determine if there is the potential for 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) polygons on the maps. Exact locations have been masked to protect sensitive species from collection and disturbance and to protect landowners' rights whenever species occur on private property.

APT reviewed the most recent DEEP NDDB mapping (December 2024¹⁰), and identified State-listed species are depicted in the location of the proposed Facility. Since the proposed Facility and Property are located within a NDDB buffer area, consultation with DEEP was required in accordance with their review policy and a review request was submitted. Two State Species Concern Species, eastern box turtle (*Terrapene c. carolina*) and wood turtle (*Glyptemys insculpta*), are known to occur in the vicinity of the Property. Proposed turtle and bat protective measures have been incorporated into the Resources Protection Plan¹¹ that would be implemented during construction of the proposed Facility; a copy of the Resources Protection Plan was included in APT's submission to the DEEP, who concurred that the Plan would minimize impacts to turtles

¹⁰ A review of the June 2024 NDDB Map resulted in the 9/6/24 Determination letter; there are no substantial differences between the June and December 2024 NDDB Map for the Property.

¹¹ See Appendix B, *Project Plans*, Sheet No. EN-1 Environmental Notes – Resources Protection Plan.

during construction and issued a final Determination Letter (No. 202408844). Therefore, the proposed Facility is not anticipated to adversely impact any Federal or State Threatened, Endangered or Special Concern species. A copy of the NDDDB Determination Letter is provided in Appendix E, *USFWS and NDDDB Compliance Statement*.

3.6 Soils and Geology

Construction of the gravel access road and work within the wetland restoration area will generate approximately 1,200 c.y. of excess material. The Project plans on removal of the majority of those materials off the Property. Topsoil within the array area will remain in place with seeding sliced in following construction activities. Topsoil segregated from the excess material may be temporarily stockpiled and utilized during construction restoration work once the Facility is complete. Remaining excess soil will be removed in accordance with appropriate regulations and guidelines. All exposed soils resulting from construction activities will be properly and promptly treated in accordance with the *Connecticut Guidelines for Soil Erosion and Sediment Control*, dated September 30, 2023, effective March 30, 2024.

Surficial materials on the Property are identified as thin deposits of glacial till. Bedrock geology beneath the Property is identified as Middletown Formation. Middletown Formation is described as a heterogeneously interlayered dark to light-gray, generally medium-grained gneiss and granofels, ranging from quartz-biotite gneiss through felsic amphibole gneiss to amphibolite and characteristically containing anthophyllite or cummingtonite with or without hornblende. The Petitioner does not anticipate encountering bedrock during Project development.

3.6.1 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. They represent the most suitable land for producing food, feed, fiber, forage, and oilseed crops.

According to the Connecticut Environmental Conditions Online Resource Guide¹¹ approximately 5.62 acres of the Site contain Prime Farmland Soils (See Figure 2, *Existing Conditions Map*), with approximately 3.54 acres located within the Project area. This area is currently occupied by the

¹² Connecticut Environmental Conditions Online (“CTECO”) Resource Guide, <https://cteco.uconn.edu>.

driving range. No portion of the Property is currently cultivated for agricultural purposes. Limited excavation and regrading activities are necessary, along with limited tree removal and trimming, within areas mapped as Prime Farmland Soils to facilitate Project development. Although classified as Prime Farmland soil, detailed soil explorations performed by qualified soil scientists within the Project area revealed no natural soil profiles. These areas have been historically altered by removing the native topsoil and subsoil horizons and backfilling with sand and gravel. Those historic activities have effectively rendered these soils incapable of functioning as Prime Farmland Soils.

After its useful life, the Facility will be decommissioned, and all of the areas by the Project will be reseeded with the same (or approved equivalent) blend as established within the rest of the Project area, ultimately creating additional available cleared areas for agricultural use. Therefore, the Project will not materially affect Prime Farmland Soils.

3.7 Historic and Archaeological Resources

At the request of APT, and on behalf of the Petitioner, Heritage Consultants LLC (“Heritage”) reviewed relevant historic and archaeological information to determine whether the Property holds potential historic or cultural resource significance. The findings of this investigation revealed the proposed Project will not cause effects on properties or archaeological resources listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places. The results of this investigation were provided to the Connecticut State Historic Preservation Office (“SHPO”), and Federally recognized Tribal Historic Preservation Offices (“THPOs”) of Mashantucket Pequot Tribal Nation, Mohegan Tribe of Indians of Connecticut, Narragansett Indian Tribe, and Wampanoag Tribe of Gay Head-Aquinnah. SHPO responded in a September 27, 2024 letter that “it is the opinion of SHPO that no historic properties will be affected by the proposed solar project and no additional archaeological investigations are warranted.” With exception of the Mashantucket Pequot Tribe, which indicated the Project would have no effect on cultural resources, no responses from the other THPOs have been received as of the date of this document. As such, no additional archaeological investigation of the Property is recommended prior to construction of the Facility. See Appendix F, *SHPO Correspondence Letter*.

3.8 Scenic and Recreational Areas

No State or local designated scenic roads or scenic areas are located near the Property and therefore none will be physically or visually impacted by development of the Project. The nearest State-designated scenic road is a portion of the Boston Post Road (US Route 1), in the center of Madison approximately 1.79 miles to the south.

An open space parcel, Old Mill Acres, owned by Madison Land Conservation Trust abuts the northern portion of the Property. No blazed trails are located on the Old Mill Acres parcel. A portion of Madison Land Conservation Trust's Camp Hadley Trail is located approximately 0.25 mile west-northwest of the Property; west of Ridge Road. No direct or indirect impacts are anticipated to these resources. There are no Connecticut Blue Blaze Hiking Trails located proximate to the Property. See Figure 4, *Surrounding Features Map*, for this and other resources located within one mile of the Site.

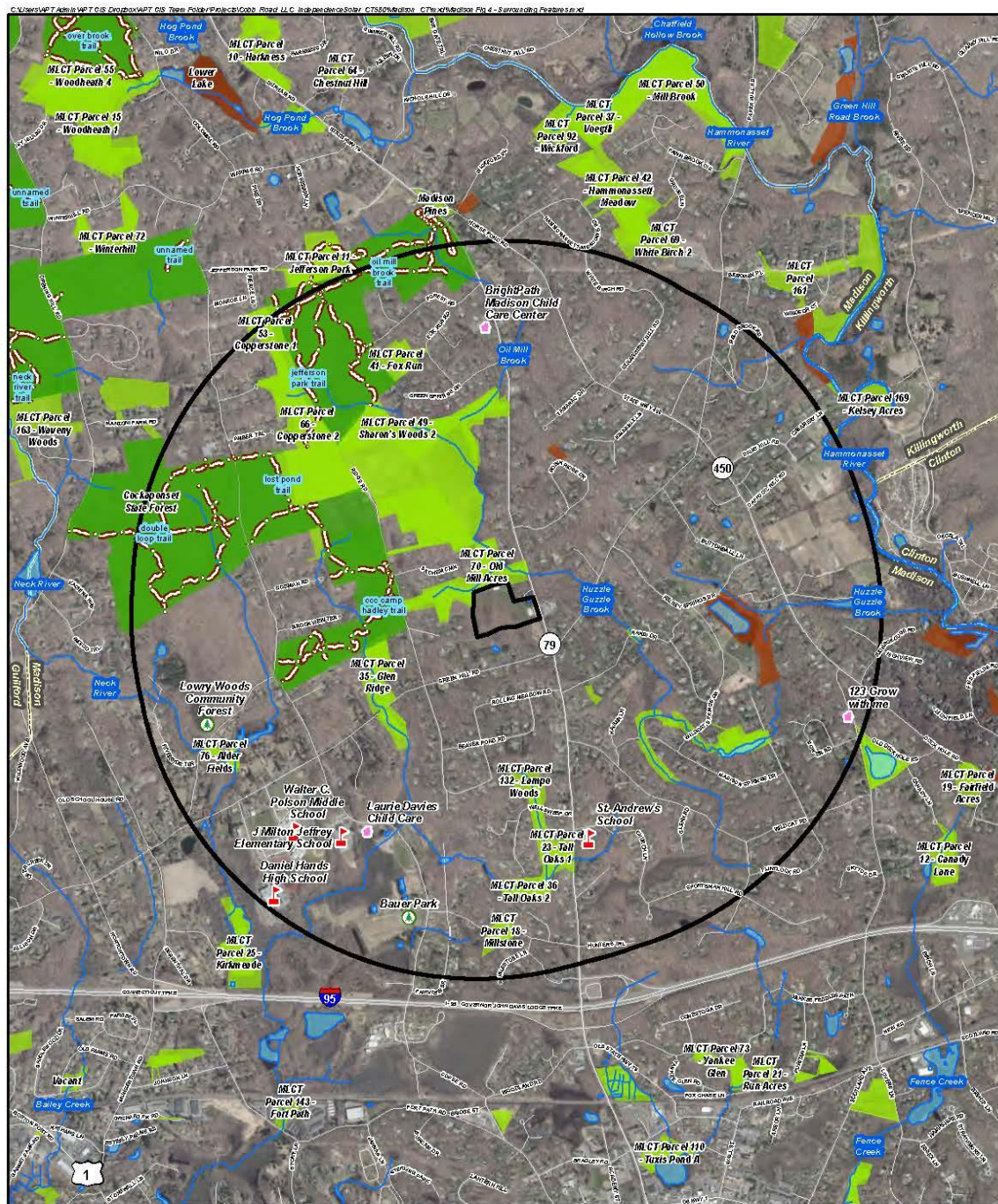



Figure 4 - Surrounding Features
Proposed Solar Energy Facility
391 Durham Road
Madison, Connecticut

Legend

-  Property
 1 Mile Radius
 Municipal Boundary
 Hiking Trail
- Surrounding Features**
 Park/Recreation/Open Space
 School
 Daycare
- Open Space Property (CTDEEP)**
 Land Trust / Municipal
 Private
 State
-  Watercourse (CTDEEP)
 Open Water (CTDEEP)

Map Notes:
Base Map Source: 2019 CT Aerial Imagery (CTECO)
Map Scale: 1 inch = 2,000 feet
Map Date: November 2024

1 in = 2,000 feet

2,000 1,000 0 2,000 Feet



3.9 Visibility

Portions of the Facility's screening features are predicted to be visible year-round from the east along Durham Road. Views of the Facility from this direction will be limited to the Facility's wooden screening fence south and north of the existing commercial building, the tops of the evergreen screening trees, and of the interconnection poles located along the eastern Property boundary extending from existing wooden distribution utility poles along Durham Road. Portions of the Facility may also be visible seasonally (when the leaves are off the deciduous trees) from abutting properties to the north, and south; these areas would likely only exhibit views of the Facility's privacy screening fence obstructed by existing intervening forest vegetation. Residences are located on abutting properties to the west and south. A dense evergreen tree line exists along the Property's western boundary, effectively obscuring views into the Project area. Screening trees will be planted along the southeastern corner of the array perimeter fence to provide additional screening for abutting properties to the south. See Appendix G, *Viewshed Maps and Photo-Simulations*.

3.10 Noise

The Petitioner retained Epsilon Associates, Inc. to evaluate the predicted sound levels from the Facility and determine the potential impact from the proposed Facility in the surrounding community. The primary sources of the noise from the Facility derive from eight inverters and one 2,000 kVA transformer. In order to limit noise level from the Project for abutting properties all of the Project's inverters and transformer are located more than two hundred (200) feet from the nearest property line in all directions. Upon development of the Facility, the Property will be considered a Class C source property. Properties immediately surrounding the Property are primarily residential and are considered Class A receptors.

Based on the report's modeling results, the sound level from the proposed Facility will comply with the State of Connecticut standards at all residential property lines and that increases in background sound levels are expected to be minimal. The report concludes that the proposed Facility will be in compliance with the State of Connecticut noise control regulations. The Madison Municipal Code, Section 13-1 "Noisemaking devices" does not contain any quantitative sound level limits. See Appendix H, *Sound Level Analysis*. Construction noise is exempted under State of Connecticut regulations for the control of noise, RCSA 22a-69-1.8(h).

3.11 Lighting

No exterior lighting is planned for the Project. Given the existing ambient lighting within the area of the Property, any incremental effect of Project lighting will be minimal.

3.12 FAA Determination

APT submitted relevant Project information to the Federal Aviation Administration ("FAA") for an aeronautical study to evaluate potential hazards to air navigation. The FAA provided a Determination of No Hazard to Air Navigation on November 18, 2024. See Appendix I, *FAA Determinations*. The nearest airport is Chester Airport, located approximate 7.5 miles northeast of the Site in Chester, Connecticut.

4 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 Site will be developed on an approximately 12.7-acre Property located west of Durham Road in Madison and will occupy approximately 8.32 acres of the Property.

Limited direct impacts to developed wetland systems are proposed. Due to the degraded functions and values associated with the historic and routine disturbance on the Property, there will not be a likely adverse impact to the wetland resource. To compensate for these unavoidable activities, a mitigation plan is proposed which includes restoring a historically filled intermittent watercourse and bordering wetland along with enhancement of developed wetland areas that will result in creation of a high functioning, densely planted new wetland area. The proximity of this wetland mitigation area to relatively unaltered wetlands on the adjacent conservation property only further enhances the functions and values of this new wetland area.

With implementation of the Resource Protection Plan, construction and operation of the Facility will properly protect rare species, wetland resources and other wildlife from any potential adverse effect. No core forest is located on the Site. Mapped prime farmland soils have historically been altered and infilled with sand and gravel. Excess soil generated from the gravel access road and wetland restoration area will be screened with the topsoil remaining on the Property for use during construction.

The Facility is anticipated to have limited and obstructed visibility within the immediately surrounding area, primarily on a seasonal basis.

Based on a noise analysis, the Facility will comply with State of Connecticut noise standards.