Petition by GRE GACRUX LLC for a Declaratory Ruling, Pursuant to Connecticut General Statutes §4-176 and §16-50k, for the Proposed Construction, Maintenance and Operation of a 4.98 MW AC Ground-mounted Solar Photovoltaic Electric Generating Facility Located on Middletown Avenue in North Haven, Connecticut

Prepared for
The Connecticut Siting Council

April 10, 2018

Greenskies
a Clean Focus company

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APPENDICES

1.0 INTRODUCTION

This is a Petition for a Declaratory Ruling that a Certificate of Environmental Compatibility and Public Need (CECPN) is not needed for the construction, operation, and maintenance of the North Haven Solar PV Renewable Energy project (the Project) proposed by GRE GACRUX LLC (the Petitioner; GRE) in the Town of North Haven, Connecticut. The Project includes the development of a 4.98 megawatt (MW) alternating current (AC) ground-mounted solar photovoltaic (PV) system on two parcels of land in the Town of North Haven, Connecticut.

The Project was selected by the Connecticut Department of Energy and Environmental Protection (CTDEEP) under its March 2016 Connecticut Request for Proposal from Private Developers for Clean Energy (2016 RFP or RFP). Authorization by the Connecticut Siting Council via a declaratory ruling will allow this selected Project to transform rapidly from concept to a vital element of Connecticut's renewable energy infrastructure. Pending approvals, the Project will commence financing, detailed engineering, procurement, and construction efforts in 2018, with commercial operation planned for the entire Project in 2019.

The Project is located within an approximately 42 acre property (the Project Site) located entirely within the Town of North Haven. Within the Project Site, approximately 22 acres has been identified as the location for the Project (the Project Area). There are some residences located within 1,000 feet of the Project Area, with the closest residences abutting the Project Area. The majority of the residences are farther away and have natural vegetative barriers that screen them from the Project. The Town of North Haven has supported development of the Project in this location. The Project Site itself consists of two contiguous parcels and is owned by the Catholic Cemeteries association of the archdiocese of Hartford, Inc. The Project's layout maximizes use of open, previously disturbed areas to the greatest extent possible, and consolidates its features to minimize natural resource impact and carefully consider stormwater management. The characteristics of this type of solar facility minimizes the need for ground disturbance, avoids disruption of subsurface conditions, and allows for continued use of the Project Site as habitat for compatible species.

Connecticut General Statutes (CGS) §16-50k(a) provides, in relevant part:

> *Notwithstanding the provisions of this chapter or title 16a, the council shall, in the exercise of its jurisdiction over the siting of generating facilities, approve by declaratory ruling . . . the construction or location of any . . . grid-side distributed resources project or facility with a capacity of not more than sixty-five megawatts, as long as: (i) Such project meets air and water quality standards of the Department of Energy and Environmental Protection, (ii) the council does not find a substantial adverse environmental effect, and (iii) for a solar photovoltaic facility with a capacity of two or more megawatts, to be located on prime farmland or forestland, 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*

represents, in writing, to the council that such project will not materially affect the status of such land as prime farmland or the Department of Energy and Environmental Protection represents, in writing, to the council that such project will not materially affect the status of such land as core1 forest."

The Project, as designed, is consistent with the above requirements. As noted, it was selected by CTDEEP in a solicitation issued prior to July 1, 2017 and pursuant to CGS §16a-3j (specifically, the 2016 RFP) for 4.98 MW. The use of this specific property avoids the use of prime agricultural land. The Project Area does not include tree clearing and will not impact core forest. Because the Project was selected by CTDEEP in a solicitation issued prior to July 1, 2017, and neither prime agricultural land nor core forest will be impacted, documentation identified in subsection (iii) of CGS §16-50k(a) from the Department of Agriculture and CTDEEP is not required. Finally, as described more fully in this document, the construction, operation, and maintenance of the proposed Project satisfies the criteria of CGS §16-50k(a) and will not have a substantial adverse environmental impact.

2.0 PETITIONER

GRE GACRUX LLC a Connecticut limited liability company, as Petitioner, proposes here to develop, engineer, procure, construct and own a Class I renewable energy resource (as defined by Section 16-1 (a) (20) of the Connecticut General Statutes) . GRE GACRUX LLC is the developing single purpose entity which will own the Project, while Greenskies, a Clean Focus company, is an affiliated entity and an experienced Connecticut-based solar company.

The Clean Focus group of companies originates, develops, finances, constructs, owns, and operates renewable-energy projects in the United States, Taiwan, and China. Clean Focus Yield owns and operates clean, renewable-energy projects in commercial, industrial, small-utility, and community solar. Our projects pass strict technical and credit criteria to ensure steady cash flows and attractive dividends for our investors.

Founded in 2008, Greenskies, a Clean Focus company, is a privately held Connecticut-based solar developer and integrator that specializes in system design, financing, project implementation, and operation and maintenance. To date, the company has over 170 MW of solar assets in operation across 19 states: AZ, CA, CO, CT, FL, MA, MD, MI, MN, NH, NJ, NV, NY, OR, PA, RI, SC, TX, WI. Greenskies' pipeline for 2018, much of which is already under contract or starting construction, is expected to grow to 280 MW by early 2019.

Greenskies develops, builds, owns and operates solar PV projects for highly-rated commercial and municipal entities throughout the Country. While most of its competitors have a broad approach, which includes residential and utility-scale projects, Greenskies' unwavering focus on the municipal and commercial market has led to an unparalleled level of expertise. This allows the company to execute in the most cost-effective manner while maintaining the highest level of quality. Its highly-skilled team is able to provide its clients with custom-tailored solar services specifically designed to meet their needs.

As a vertically-integrated company, Greenskies manages every step of the solar development and implementation process. From project origination to design and engineering to construction and, ultimately, operation and maintenance, Greenskies brings years of industry knowledge and expertise at every level. Moreover, with hands-on management of on-site performance, both during construction and operation and maintenance, and sophisticated reporting processes in place, the company is able to ensure safety, quality control and optimal electrical generation throughout the life of each project.

Greenskies is headquartered in both Sunnyvale, California and Middletown, Connecticut with a business development team in Boston & Minnesota and a Project development team in Louisville, Colorado. Our team's experience working in the locations of potential project sites will allow our company to closely monitor all aspects of construction through completion, and respond quickly when necessary.

Correspondence and communications regarding this petition should be addressed to both of the following individuals.

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3.0 PROPOSED PROJECT

The following sections provide details regarding Project Site selection; a description of the Project Site property and ownership; a description of Project features; plans for electrical interconnection; construction schedule and sequencing; operational and maintenance (O&M) information; and a decommissioning plan.

The proposed Project includes the development, studies, design, construction, and operation of the solar PV energy generating facility. The PV project will interconnect with United Illuminating's existing power grid. The energy produced will all be sent into the grid and purchased by both UI and Eversource. All designs for this project will be completed by BL Engineering with Connecticut licensed professional engineers. The design includes electrical, civil, structural and storm water aspects. Construction will take place over an approximately four month period.

3.1 SITE SELECTION

The North Haven Project Site was carefully selected by GRE to not only be suitable for a solar PV project but also to have minimal environmental and natural resource impacts, to minimize adverse effects on quality agriculture land, and not diminish the quality of life of those who live in the vicinity. It is also important to select a site that allows interconnection of the generation facility to a feeder and substation of the Utility company that is compatible with their grid and goal of better serving customers.

GRE conducted an extensive search researching both public and private land resulting in the selection of this parcel. Third party contractors were used to understand the biological, environmental, historical, and archeological impacts of solar development on selected sites. While all development has impact on the area and community, when measured as a whole, the social and environmental impacts of the Project Site are a net positive.

Local jurisdictional support is also a large part of site selection. The town of North Haven supports this Project and site selection. The nearby towns of North Branford and East Haven also support the site selection and development of the Project.

In the course of selecting the Project Site, members of GRE evaluated 25 potential sites for renewable energy projects throughout the state. GRE attempted to use former municipal landfills in Torrington, Ellington, Sprague, Waterbury, and Ledyard for the siting of the Project. Unfortunately, in each instance the size of the buildable acreage on these landfills was too small to allow for the construction of a solar array of nearly 5 MW. Several farms and pieces of vacant land were also considered for the Project. These sites were located in Bristol, Torrington, Watertown and Salem. However, like the municipal landfill sites, these sites did not have sufficient acreage to allow the construction of a solar array of nearly 5 MW.

Alternative sites that were of suitable size were investigated in the towns of Brooklyn, Columbia, Coventry, East Windsor, Ellington, Enfield, Lebanon Lisbon, Somers, Southington, and Stonington. In each case, environmental concerns and cost considerations rendered the sites less suitable than the Project site. The cost considerations were chiefly due to either measures that would need to be taken to address wetlands or wildlife concerns or due to the costs of interconnection to distribution or transmission facilities from these site. As such, the Project Site was selected as the site most appropriately balancing the land required to construct the Project with the least amount of reconfiguration necessary to address wetlands and/or anticipated wildlife concerns associated with the construction of the Project.

3.2 PROJECT SITE DESCRIPTION

The North Haven PV Project is sited on a 42 acre area comprised of two parcels in Southeast North Haven; lot # 48/47 and #48/51. The site is accessed from and is due north of Middletown Avenue. The parcel is mostly flat and free of trees, thus tree removal is not required and civil work will be minimized. There are three independent wetlands that are completely avoided by the solar project, with a fourth that will be near Project construction activities. The majority of the site has historically been used for agriculture but has recently been unused. Studies have been completed to understand the likelihood of historical significance on the site. The state of

Connecticut is aware of two sensitive species in the area, the eastern box turtle and ground beetle. Studies are being completed to understand and mitigate potential impacts.

The site is zoned residential. The town of North Haven does not have an ordinance that explicitly allows or disallows solar as a use in a residential zone. Surrounding the site are multiple use groups. To the west there is a cemetery that is owned by the same land owner as the project site. Directly north, east, and south of the project site are residential plots. Northwest of the project site is unused land that is a mixture of open and forested area.

GRE has full control of the parcel via a 20 year lease with the property owner. GRE can also extend the lease by an additional 15 years if needed. The land owner is also in support of the Project Site being developed for this solar project.

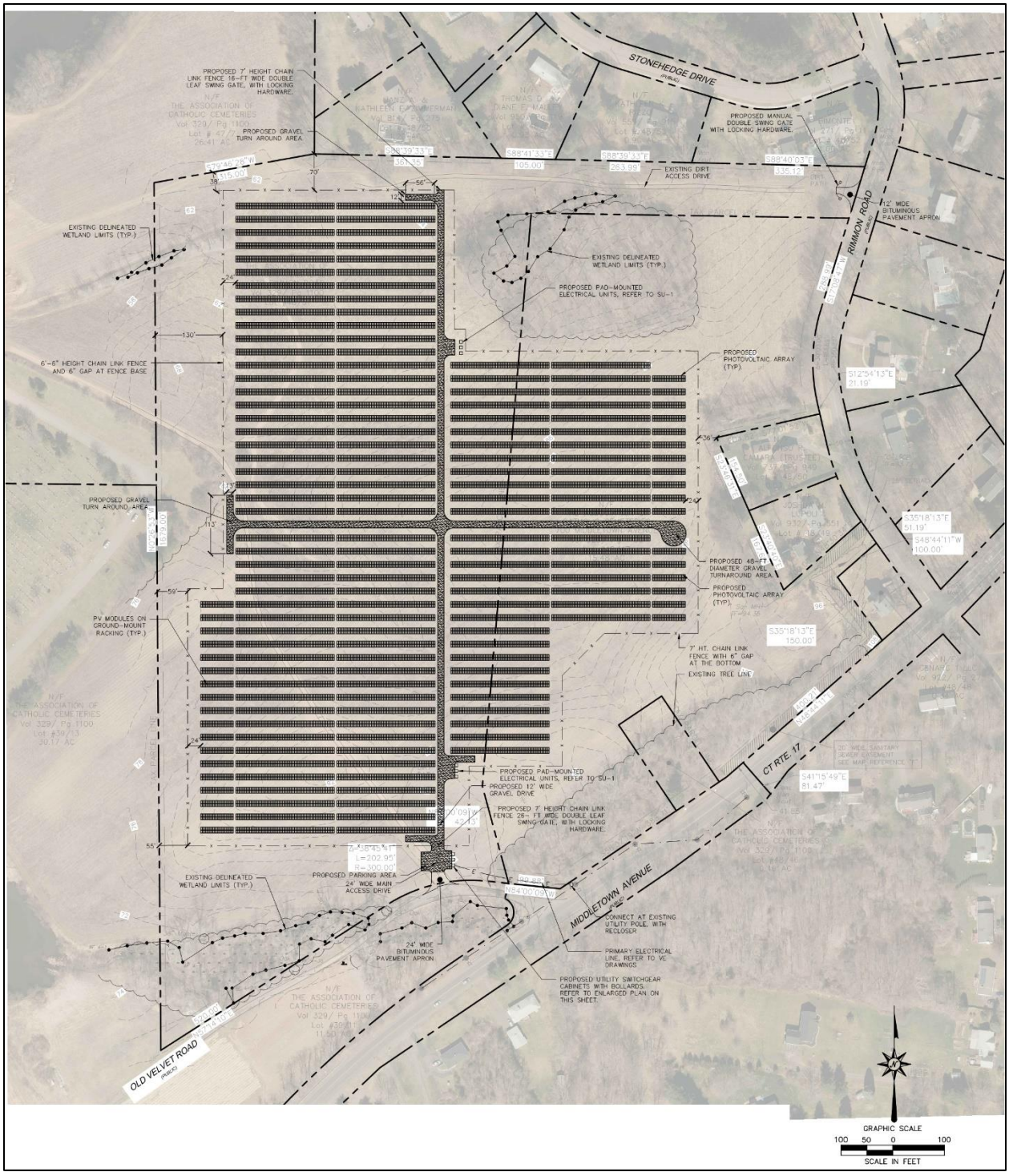

Figure 1 – Site Layout

3.3 PROJECT DESCRIPTION

The subject property is located at 700 Middletown Avenue (S.R. 17), North Haven, CT and comprised of three separate tax parcels containing approximately 42.09 acres +/- of undeveloped land, as depicted in Figure 1 above, as well as more detailed site drawings accompanying this

Petition as Appendix A. The site is located in the eastern portion of North Haven and is within 2,500 feet of the Town of North Branford. The Town of East Haven is located approximately 2,900 feet to the south east of the project site. A Vicinity Map depicting the project surroundings can be found in Appendix A.

The property is located within the R-40 Residence Zoning District and is bordered to the north and east by single family residential properties and the Rimmon Road right-of-way. To the south the property is bordered by Middletown Avenue (S.R. 17) and Old Velvet Road. The property to bordered to the west by additional lands of the Owner, The Association of Catholic Cemeteries, and All Saints Cemetery.

The subject property has continuously been used for agricultural purposes for decades. A review of aerial photographs found online at the UConn Map and Geographic Information Center website indicates that the property has been used as farmland since at least the 1930's.

In general, the topography of the land consists of gently rolling fields with elevations ranging from 59 feet to 102 feet. Four distinct designated inland wetland areas were identified on site. A single, 2-acre, stand of deciduous trees marks the north central portion of the site and contains an isolated pocket wetlands. A drainage divide running east to west, in the southerly third of the site, splits stormwater runoff into two watersheds. The southerly watershed collects overland runoff into an inland wetland area along the southerly property boundary at Old Velvet Road. The northerly watershed collects overland and shallow concentrated runoff into an inland wetland area located at the northwest corner of the subject property. All collected stormwater eventually reaches the Muddy Brook located along the western boundary of All Saints Cemetery.

The subject property is located within the South Central Coast Major Basin, the Quinnipiac Regional Basin, and Muddy Brook watershed. In addition, pursuant to the FEMA Flood Insurance Rate Map Number 09009C0452J for New Haven County, Connecticut, Town of North Haven 090086 map effective date: May 16, 2017, the site resides in FEMA Flood Hazard Zone X (Unshaded). This is defined as areas of minimal flood hazard.

3.3.1 Panel Arrays

The photovoltaic arrays are anticipated to be comprised of 340-watt panels arranged two-high in portrait set at an optimal angle to balance the solar yield with the area of available land. The panels will be mounted on proprietary steel racking with driven posts to a depth to attain sufficient structural capacity to resist the loads from the weight of the panels, as well as environmental loads including snow, wind and seismic forces.

3.3.2 String Inverter Configuration

The arrays are anticipated to be electrically orientated in direct-current strings of 18 to 19 panels, which will be combined with adjacent circuits for a total of 12 circuits into 60-to-65 kilowatt string inverters mounted throughout the array racking.

3.3.3 Site Access and Laydown Areas

Primary site access to the project site is proposed to be via an unpaved full service access driveway from Old Velvet Road, which is a paved local road, at the southern end of the site. Old Velvet Road is a dead end road with access to Middletown Avenue, which is also known as State

Route 17 and is characterized as a major collector. There is currently an existing dirt road access drive located at Old Velvet Road that provides site access.

An unpaved secondary access driveway is proposed to be constructed at the north end of the Project Site with gated access to Rimmon Road, where an existing dirt road provides access. The proposed gate will be located approximately 50 feet from the western gutterline of Rimmon Road to allow entering vehicles to pull completely off of the roadway.

Paved driveway aprons are proposed to be constructed at both driveway locations within the right-of-way in accordance with local standards.

Approximately 3100 linear feet of 12-ft wide internal gravel roads will be constructed within the Project Area to provide centralized access to the proposed solar array and electrical equipment. To minimize site disturbance the roadways are proposed to be constructed on prepared subgrades with a 12-inch layer of processed stone and matching existing grades. This approach will result in minimal grading and will facilitate sheetflow stormwater runoff which will mimic existing conditions.

Laydown areas are proposed for each phase of construction. A total of 5 construction phases are proposed in order to minimize site disturbance to no more than 5 acres at a time. Sedimentation and Erosion Control Plans have been developed in compliance with the Connecticut Guidelines for Soil Erosion and Sediment Control.

3.3.4 Stormwater Management

A Stormwater Pollution Control Panel has been prepared in accordance with the 2004 State of Connecticut Stormwater Quality Manual and the CTDOT Stormwater Drainage Manual. A copy of this Report is attached as Appendix B. As can be seen in the attached Plan, due to the proposed limited site disturbance, existing drainage patterns at the Project Site can be maintained following construction.

A HydroCAD model, using TR-55 methodology, was developed to evaluate the existing and proposed drainage conditions of the property. The results of the analysis demonstrate that there will not be an increase in peak stormwater runoff rates for the 2-,10-, 25-, and 100-year storm events. The reduction in peak rates of runoff are attributed to the proposed change in land use, from the existing fallow condition, to the proposed low-maintenance grass condition, which overall will generate less runoff from the developed site.

3.3.5 Fencing

A 7-foot high chain link fence is proposed to be installed around the perimeter of the solar array field to provide site security, as well as address NEC code requirements. The perimeter fencing will extend 4,500 linear feet around the array and will provide a 6-inch gap between the bottom of the fence and existing ground, to allow small wildlife animals to traverse the site if recommended by the pending wildlife studies. Access gates, with locking hardware, are proposed at both the southerly primary site access drive and the northerly secondary access drive. An additional security gate is proposed to be constructed adjacent to Rimmon Road at the eastern end of the northern secondary access road.

3.3.6 Construction Workspace, Clearing and Restoration

Since the Project Area has been distributed due to the existing land use of the site as agriculture, there is currently minimal vegetation to be cleared. There are no trees within the limits of disturbance of the Project Area. An existing stand of deciduous trees is located in the north central portion of the property and around the perimeter of the property. These existing trees will be protected and preserved during construction.

Restoration of the Project Area is proposed to include new low-maintenance ground cover within the solar array field and adjacent to the perimeter fencing. Establishing vegetative cover will help to stabilize the soil and reduce stormwater runoff.

3.4 ELECTRICAL INTERCONNECTION

The photovoltaic array is being proposed to interconnect with the utility distribution lines along Middletown Avenue at SNET Pole #2112, which will require the creation of an electrical service for the Project Site. An Interconnection Application has been submitted to UI, which is currently in the process of preparing a Line Study to confirm our proposed interconnection location, as well as to provide recommendations for the proposed electrical equipment.

3.5 CONSTRUCTION SCHEDULE AND SEQUENCING

Project construction is anticipated to begin in late 2018 or early 2019, depending on regulatory approvals. Initial work will involve site clearing and the installation of erosion control measures. Installation of additional erosion control and species protection measures (if warranted) will follow. Formal construction notice to proceed is anticipated in late 2018, with delivery of equipment likely commencing in late 2018 or early 2019. As each discrete area of installation is completed, the ground surface will be stabilized, although best management practices will remain in place until final stabilization occurs.

Land preparation and site work is anticipated to be completed quickly, with the final installation of array equipment in late 2018. Final site stabilization, testing, and commissioning are expected to be completed in the spring of 2019. Construction activities are expected to occur Monday through Saturday between the hours of 7:00 a.m. and 9:00 p.m. A construction schedule timeline is provided as Figure 2 on the next page.

Prior to construction, a health and safety plan will be finalized that will address not only the specific characteristics of the Project Site and the Project, but will reflect the nature of the surrounding land uses. As previously noted, an SWPCP will also be developed and implemented that will include regular inspection of erosion control measures to prevent sedimentation or water quality impact. A draft of the SWPCP is included as Appendix B to this filing.

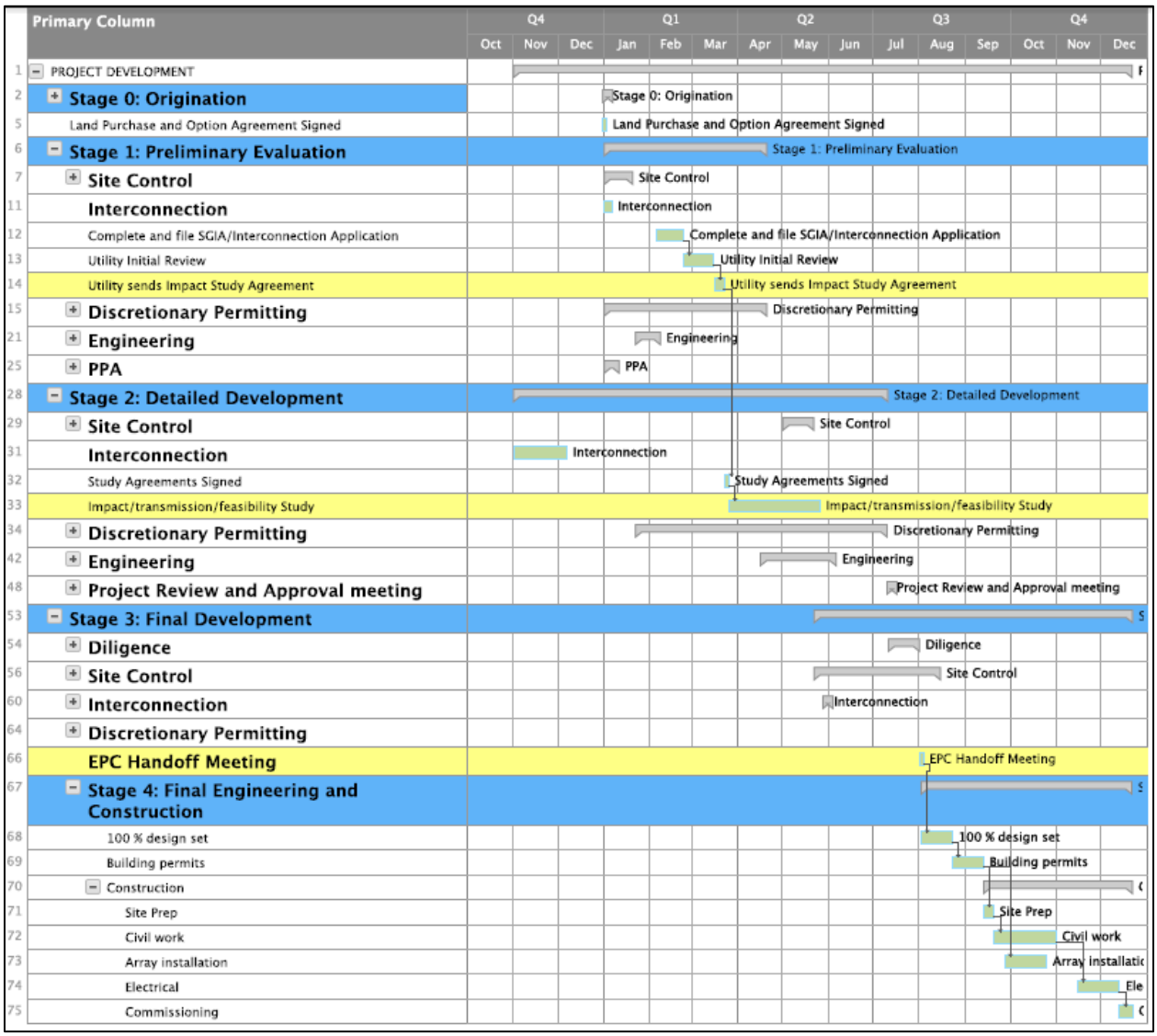

Figure 2 – Depiction of Permitting and Construction Schedule

3.6 OPERATION AND MAINTENANCE

Greenskies has a dedicated O&M team that currently monitors and maintains all operational assets in the Greenskies portfolio. This team will manage the efficient operation of the North Haven Project after it is turned on and the construction is complete. A team of individuals, including system analysts and field operators, will monitor the system 24 hours a day, 7 days a week. The operation center utilizes Also Energy's platform for site monitoring and generation reporting, along with a custom built in-house platform designed for improved site analytics. Custom alarm management provides instantaneous notifications. System performance analytics are completed weekly to better understand the health of each asset, and find trends in under producing systems

GRE Field Operations

Each O&M field team consists of a certified electrician and a solar technician. GRE field crews will perform two Preventative Maintenance site visits each year. Having crews structured by region allows for a quicker response time to corrective maintenance tasks. GRE field crews utilize the most advanced technology for PV testing and diagnostics of site issues.

Greenskies utilizes a semi-annual scheduled maintenance plan to identify and correct any issues that have or have the potential of arising on its operating assets. Reports are generated after each visit and performance data is analyzed and saved so that historical data can be used to track module performance vs. warrantied output.

When a system is not producing or is under-producing the data acquisition system will create an alarm. Once an alarm is created the production analyst will analyze the data. Subsequently, O&M trucks are dispatched to investigate and correct any issues. Greenskies O&M has a close working relationship with our major system component manufacturers, including modules, racking and electrical components/enclosures. We are able to perform warranty work with our in house technicians. We have centrally located warehouses which store spare modules, inverters, wire and other components that can be used for on-site replacements. Automated dispatch to projects dependent on generation loss and location make the solar technicians more efficient in correcting site issues.

GRE will not routinely remove snow from the solar project. In extreme events, snow removal is a possibility, but is a last resort. Module washing is performed on both a scheduled basis as well as a corrective measure if the is a major soiling event. The monitoring platform is used as a tool at the beginning of system operation to determine a soiling baseline as well as profile that determines how often washing of the modules will be required and scheduled.

Reports

Reports are used to track reoccurring issues. This helps Greenskies identify any design improvements that may prevent such issues in the future. GRE can then use this information to better understand regional trends and predict future issues. Maintenance reports are created after every maintenance visit.

3.7 DECOMMISSIONING

The Project is proposed with at least a 35 year design life. At the end of the Project's design life, all equipment, including racking systems, panels, inverters, ballast foundations, and electrical collection systems, will be removed in accordance with the Project's Decommissioning and Restoration Plan (Appendix C). The Project will decommission all above-grade facilities and foundations and restore the surface to a condition similar to that as it existed at the inception of the Project, as well as repair any damage to the Project site as a result of removing the improvements. It is anticipated that the salvage value of the equipment would fully offset the cost of decommissioning and restoration

4.0 PROJECT BENEFITS

The Project will provide the state's electrical system with additional generating capacity that will meet demand using renewable energy, contribute to grid stability, and foster the redevelopment

and reuse of underutilized industrial property. The Project was selected as part of the Department of Energy and Environmental Protection's Clean Energy RFP and was found to be consistent with Connecticut's 2013 Comprehensive Energy Strategy (CES). This version of the CES, along with the most recent version of the CES, sets forth clear goals for increasing the use of renewable energy as a part of the state's power generation portfolio:

> *The Global Warming Solutions Act (Connecticut Public Act 08-98) sets a goal of reducing greenhouse gas emissions by 80% by 2050. Connecticut's Renewable Portfolio Standard (RPS) requires that 20% of generation serving state customers be from renewables by 2020. Meeting the 2020 RPS goal will require the development of 6,196 gigawatt-hours, or nearly 3 gigawatts of low-carbon supply – more than 25 times the amount of power generated by Class I resources (i.e., solar power, wind power, and fuel cells) within Connecticut in 2011.*[1]

As part of the Clean Energy RFP, Greenskies was required to demonstrate the Project's consistency with the policy goals outlined in the 2013 CES, including, but not limited to: promotion of wind, solar and other renewables and low carbon energy technologies.[2] The Project will provide clean, renewable solar-powered electricity that will support achieving the state's legislatively mandated obligations under the RPS, as well as its other energy policies, including the goal to "develop and utilize renewable energy resources, such as solar and wind energy, to the maximum practical extent."[3] The construction of the Project becomes even more important in light of the 2018 CES's aspirations for even greater greenhouse gas emission reductions through the promotion of grid-scale renewable energy.

Selection of this Project for a PPA under the Clean Energy RFP process affirms the Project's consistency with the state's energy plans and objectives. In addition to the direct contribution the Project will make to increase the use of renewable energy, additional reduction of greenhouse gases and criteria air emissions will be associated with the displacement of older, less efficient fossil fuel generation. The Project will generate approximately 8,000,000 kilowatt-hours per year of clean, emissions-free electricity.

As reflected in the Carbon Debt Analysis presented in Appendix D, the Project provides an important contribution in the shift toward carbon-reduction strategies. Based on the US EPA's carbon reduction calculator, the construction of the Project will be the equivalent of a reduction of over 14.5 million miles driven by the average passenger vehicle, or the equivalent of the energy use of 643 homes. Given the attributes of the Project Site, there will be limited need for tree clearing, which is another key benefit of the Project.

The Project anticipates using local and regional labor, as practical, for construction, and will be a source of both direct and indirect revenue contribution to the local community. Approximately 143 total jobs (including direct, indirect, and induced) will be created during construction. Further, the operations and maintenance of the Project will be addressed by Greenskies, a

[1] 2013 CES, at 76 (footnotes omitted).
[2] Clean Energy RFP, at 31.
[3] CGS §16a-35k.

Connecticut business located in Middletown. In addition, the local community will benefit from a negotiated tax agreement that will provide additional revenue for the life of the Project.

5.0 STATE AND LOCAL INPUT AND OUTREACH

Representatives of the Project began meeting with relevant town officials in the Town of North Haven approximately six months ago to discuss the Project. The first meeting took place on October 20, 2017, when representatives of the Project met with members of the Town of North Haven's Clean Energy Task Force. In addition to the members of the Town's Clean Energy Task Force, the First Selectman for the Town of North Haven, Michael J. Freda was also present to meet with members of the Greenskies team at that October 20th meeting.

On January 16, 2018, representatives of Greenskies met with First Selectman Freda again to discuss the Project and to answer any questions Mr. Freda may have had concerning the Project. Representatives of the Project have continued to contact Mr. Freda by e-mail and by telephone to discuss the Project, with the most recent communication occurring between Mr. Freda and Greenskies on April 3, 2018.

In addition to the contact with representatives from the Town of North Haven, the Project team has met with officials from the Towns of East Haven and North Branford, given the fact that both of these towns are within 2,500 feet of the Project's boundaries. Representatives from Greenskies met with Sal Brancati, the Director of Economic Development for the Town of East Haven. This meeting took place on March 15, 2018, and resulted in the Project receiving a letter of support from the Town. That letter is included in Appendix E.

Representatives of Greenskies also met with Carey Duques, who is the Town Planner and the Planning and Zoning Administrator for the Town of North Branford. The meeting with Ms. Duques occurred on March 15, 2018, where Greenskies explained the Project in greater detail to her. Ms. Duques evinced no objections to the Project as contemplated.

6.0 POTENTIAL ENVIRONMENTAL EFFECTS

6.1 Site and Community Setting

The site total ± 42 acres and lies on the north side of Route 17 (a.k.a. Middletown Avenue) in the easterly portion of North Haven near the North Branford town line. The site is currently in agricultural use, however, the site is not considered prime farmland due to drainage issues. As can be seen on Figure 3 on the next page, the site would be considered prime farmland by the U.S. Department of Agriculture (USDA), but only if the site were properly drained.

Despite not being prime farmland, the site has been in continuous agricultural use since at least the 1930s[4]. Because of the ongoing agricultural use, the site is largely un-forested except for small patches of trees along the margins of the crop fields and around wetlands. A central farm road accesses the site from Middletown Avenue. Bordering land uses include residential on

[4] A review of 1934 aerial photography shows the site was being used for agricultural at that time.

Rimmon Road and Stonehenge Drive, All Saints Cemetery to the west, and additional agricultural land to the north and west.

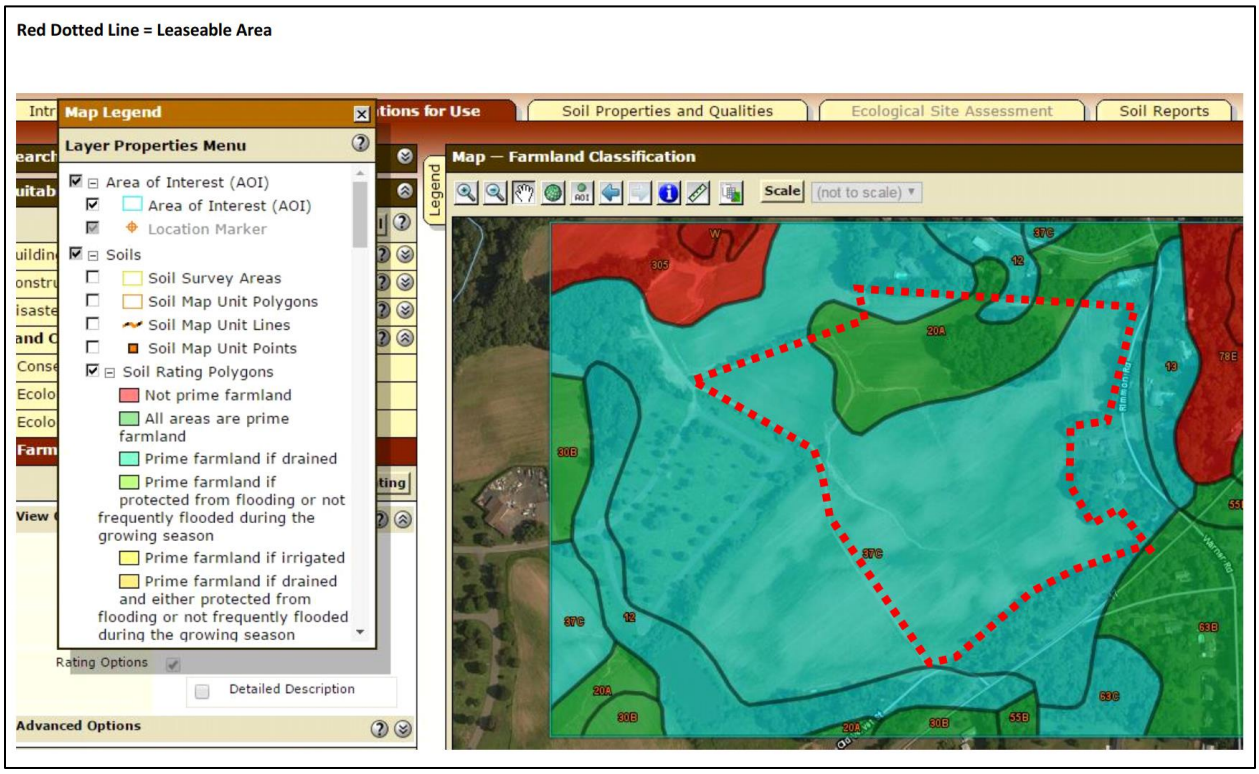

Figure 3 – Results of USDA Online Web Soil Suvey
Found at: https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/survey/

Physiography

The site lies in the western coastal ecoregion (Dowhan and Craig 1976). This is a seaboard region lying within five miles of the coast, within relatively rolling topography but with locally rugged and rocky protrusions of upland extending to the coastline. More locally, the site lies within a broad glacial outwash valley surrounding the Muddy River. Site topography is gently rolling. The elevation ranges from approximately 60 feet in the northwest corner of the site to 105 feet in the southeast corner.

Bedrock and Surficial Geology

The bedrock geology consists of Arkose sandstone. The surficial geology consists of sand and gravel. Sand and gravel surficial material is composed of mixtures of gravel and sand within individual layers and as alternating layers. Sand and gravel layers generally range from 25 to 50 percent gravel particles and from 50 to 75 percent sand particles. Layers are well to poorly sorted; bedding may be distorted and faulted due to post-depositional collapse[5].

Wetland Soil Types

Digitally available soil survey information was obtained from the Natural Resources Conservation Service (NRCS) and generally confirmed during the wetland delineation. Wetland

[5] CT DEEP GIS metadata descriptions.

soils on the site consist of the Raypol series. The Raypol series consists of very deep, poorly drained soils formed in loamy over sandy and gravelly glacial outwash. They are nearly level to gently sloping soils in shallow drainageways and low-lying positions on terraces and plains. The soils have a water table at or near the surface much of the year.

Non-wetland Soil Types

The non-wetland soils were not examined in detail, except as was necessary to determine the wetland boundary. Non-wetland soils consist of the Ellington as well as the Manchester series. The Ellington series consists of very deep, moderately well drained soils formed in loamy over sandy and gravelly glacial outwash. They are nearly level to strongly sloping soils on glaciofluvial landforms, typically in slight depressions and broad drainageways. Slope ranges from 0 to 15 percent. Permeability is moderate or moderately rapid in the surface layer and subsoil, and rapid or very rapid in the substratum.

The Manchester series consists of very deep, excessively drained soils formed in sandy and gravelly outwash and stratified drift. They are nearly level to steep soils on outwash plains, terraces, kames, deltas and eskers. Slope ranges from 0 to 45 percent. Permeability is rapid in the surface layer, rapid or very rapid in the subsoil, and very rapid in the substratum.

6.2 Public Health and Safety

The Project will meet or exceed applicable industry, state, and local codes and standards. All applicable health and safety requirements relevant to solar energy generating facilities will be followed during construction and operation, and the Project will not pose any safety concerns or hazards to the general public. The Project will not consume any raw materials, will not produce any by-products, and will be unstaffed during normal operating conditions.

During Project construction, construction contractors and employees will receive general and Project-specific health and safety training. Training will include review of state and local health and safety requirements; location and routes to nearby emergency care facilities; analyses of risks and procedures to mitigate any exposures; stop work triggers; and communication protocols for reporting health and safety issues. All construction workers will comply with required health and safety controls and will understand and observe the health and safety plan developed for the Project Site. Any and all unsafe conditions will be reported to the construction manager.

The Project is anticipated to have limited impact on traffic flow; however, the Project will coordinate with local authorities to minimize potential impacts of Project-related construction on existing traffic patterns and roadways. The location of the Project Site immediately proximate to major highways, including access from Interstate 91, will minimize effect on local roadways. Construction vehicles are anticipated to use Interstate 91 and Route 17 for access to the Project Site during the Project's construction period. Once operational, the Project will be generally unstaffed and only occasional vehicle trips to the Project Area will occur for routine maintenance activities. No raw or hazardous materials or fuels will be delivered to or stored at the Project Area. The Project will be secured by a 7-foot high fence, consistent with applicable codes.

The Project will be screened from much of the surrounding area due to existing development, topography, and intervening vegetation. The solar modules are designed to absorb incoming

solar radiation and minimize light reflected off the panels, with only a small percentage of incidental light reflected off the surface of the panels. The panels will be tilted toward the southern sky at an approximate angle of 10 degrees. The incidental light reflected off the panels will be significantly less than light reflected off of common building materials or the surface of undisturbed water; therefore, reflected light is not anticipated to impact public health and safety.

Before Project operation commences, GRE will meet with local first responders to supply information on responding to emergencies at solar facilities. A tour of the Project will be provided and the clearly marked disconnect switches will be identified for use during an emergency. The system will be remotely monitored through a data acquisition system, allowing for remote shutdown of the Project in the event of a fault or other power outage event. Emergency vehicles and service equipment will be provided adequate access to the Project Area via the Project's access roads.

6.3 Noise

The Project, which is located in a residential zone (Class A) surrounded by residential properties (Class A), is anticipated to be a low source of noise. The ambient noise associated with the roadway traffic is considered to be greater than that generated by this Project.

6.3.1 Noise Level Requirements and Guidelines

Connecticut regulations for the control of noise have been established by CTDEEP at section 22a-69 and Chapter 146 of the Town of North Haven Ordinances contain guidance pertaining to noise that apply to the Project. The local ordinance is generally consistent with CTDEEP noise regulations. The CTDEEP noise limits, which are prescribed according to land use, are shown in Table 1.

The regulations also prescribe provisions for impulse noise, not allowing impulse noise in excess of 80 decibels (dB) (peak) during nighttime hours in any Class A zone and not allowing impulse noise in excess 100 dB (peak) at any time to any zone. A limit of 100 dB pertains to infrasonic and ultrasonic noise. Construction noise is exempt from the CTDEEP noise regulations.

Table 1. CTDEEP Noise Limits

Emitter	Receptor (dBA[a])			
	Class C	Class B	Class A Daytime (7:00 am – 10:00 pm)	Class A Nighttime (10:00 pm – 7:00 am)
Class C – Industrial	70	66	61	51
Class B – Commercial and Retail Trade	62	62	55	45
Class A – Residential Areas and Other Sensitive Areas	62	55	55	45

[a] A-weighted decibels.

The Town of North Haven provides noise level standards applicable to the Project under Chapter 146 of the Town Ordinances. The Town noise-level standards are consistent with those prescribed by the CTDEEP, although the definitions of daytime and nighttime are different. The Town of North Haven considers daytime to be 7:00 am to 9:00 pm and nighttime to be 9:00 pm to 7:00 am.

As noted in Table 1, the Project is required to meet sound levels of 62 dBA at the nearest industrial property, 55 dBA at the nearest commercial property, levels of 55 dBA at the nearest residential property during the day (when electricity would be generated by the Project), and 45 dBA at the nearest residential property at night (when certain ancillary equipment may still be operating). The closest industrial or commercial property boundary is over 2500 feet from the Project Area, while the nearest residential properties are adjacent to the north and east, as well as across Middletown Avenue.

6.3.2 Acoustic Modeling Methodology and Inputs

A preliminary assessment of the potential noise generated by the Project has been performed, based on published sound levels from the electrical equipment being proposed. The solar inverters, with the closest being approximately 100 feet from any adjacent property limit, yield a sound pressure level of 55dBA at 3 meters. The transformers, with the closest being approximately 230 feet from the residential properties across Middletown Avenue, yield a sound pressure level of 62dBA.

6.3.3 Noise Prediction Model Results

Sound pressure levels (dBA) were evaluated, and are expected to produce noise levels below 40 dBA, which is well below the criteria limits described above. Table 2 shows the projected exterior sound levels resulting at sensitive receptor locations along the property boundary lines. At the selected residential receptors the noise levels range from 34 dBA to 35 dBA, which reflect compliance with the nighttime 45 dBA standard, and sound levels that are unlikely to be perceptible within the existing setting. Therefore, noise modeling results demonstrate that the Project will operate in compliance well within the applicable noise requirements.

Table 2. Acoustic Modeling Results Summary

Receptor Number	Location Description	Threshold Limit, dBA	Project Sound Level, dBA
1	Northern Residential Community	45 (night)	34
2	Eastern Residential Community	45 (night)	34
3	Western Cemetery Property (Residential)	45 (night)	35
4	Southern Residential Community (across Middletown Avenue)	45 (night)	35

6.4 Air Quality

The proposed Project is a solar PV energy generating facility, and, therefore, will generate no direct air emissions during operation and will not require an air permit. As mentioned above, an EPA GHG equivalency analysis was completed for the electric generation the Project will produce. The Project will result the equivalent of reducing 5,954 metric tons of carbon dioxide (CO2) equivalent emissions based on the generation of 8,000 MW-hours of electricity during the first year of operation. This reduction is equivalent to removing 1,275 vehicles off the road.

During construction, potential air emissions will include those from construction vehicles and construction activities. These air emissions will be temporary. As a result, any potential air quality effects associated with Project construction activities will be negligible in comparison to the emissions avoided, and should not exceed thresholds requiring an air permit.

6.5 Scenic Values and Visibility

The North Haven Solar Project will be set away from nearby roads and because of the existing topography and trees that will not be altered by the project the solar array will have very limited visibility by the public. Please see below images of depicting how the array area will be seen by the road. The location with the most significant visual impact is from the neighboring cemetery, which is owned by the same land owner as the Project Site.

Figure 4 - Looking south towards Project site from Stone Hedge Drive

Figure 5 - Looking north towards project from Middletown Ave at Old Velvet Street

Figure 6 - Looking east towards Site from the neighboring cemetery

6.6 Federal Aviation Administration Determination

On March 29, 2018, the Federal Aviation Administration (FAA) accepted the Project's request for a determination that no hazard to air navigation exists as a result of the construction or operation of the Project. A copy to that request is included as Appendix F. The Project anticipates that the FAA will find that the Project presents no hazard to air navigation. When that determination is made by the FAA, Greenskies will provide a copy to the Siting Council for its review.

6.7 Historic and Archaeological Resources

Heritage Consultants prepared a Phase IA Cultural Resources Assessment Survey for the Project Site and prepared a report for the Project in March of 2018. A copy of that report is included with this Petition as Appendix G.

As can be seen in the attached report, there are areas contained within the Project Site that were classified as either "moderate sensitivity areas" for producing archaeological deposits or "high potential" areas to yield archaeological deposits, given their relatively undisturbed nature. The remainder of the Project consists of areas of no/low archaeological sensitivity.

For the areas that were labeled as moderate or high potential for archaeological sensitivity, Heritage Consultants recommended conducting a Phase IB study to ascertain whether archaeological materials of significance are present at the site. GRE is currently working with Heritage Consultants on the details of what such a Phase IB study would entail.

6.8 Watercourses, Flood Plains and Wetlands

There are no watercourses located on the Project Area, and the Project Area is not located in any FEMA 100 year flood plains. There are, however, four wetland areas on the Project Site. These four wetland areas were delineated on December 16, 2017 by Registered Soil Scientists Eric Davison and Matthew Davison. The flagging sequences are noted in Table 3. The wetland boundary was delineated Wetlands and watercourses were delineated according to the requirements of the CT Inland Wetlands and Watercourses Act (P.A. 155). Wetlands are defined as areas of poorly drained, very poorly drained, floodplain, and alluvial soils, as delineated by a soil scientist. Watercourses are defined as bogs, swamps, or marshes, as well as lakes, ponds, rivers, streams, etc., whether natural or man-made, permanent or intermittent.

Table 3: wetland delineation flagging sequences

Wetland	Flagging Sequence
1	1-1 to 1-24
2	2-1 to 2-11
3	3-1 to 3-27
4	4-1 to 4-53

As a result of this flagging, four wetland areas were identified at the Project site, however, none of these wetlands are anticipated to be negatively impacted by the construction of the Project. A depiction of the wetland areas can be found at Figure 7 below and in the Wetlands/Watercourses Delineation Report, attached as Appendix H.

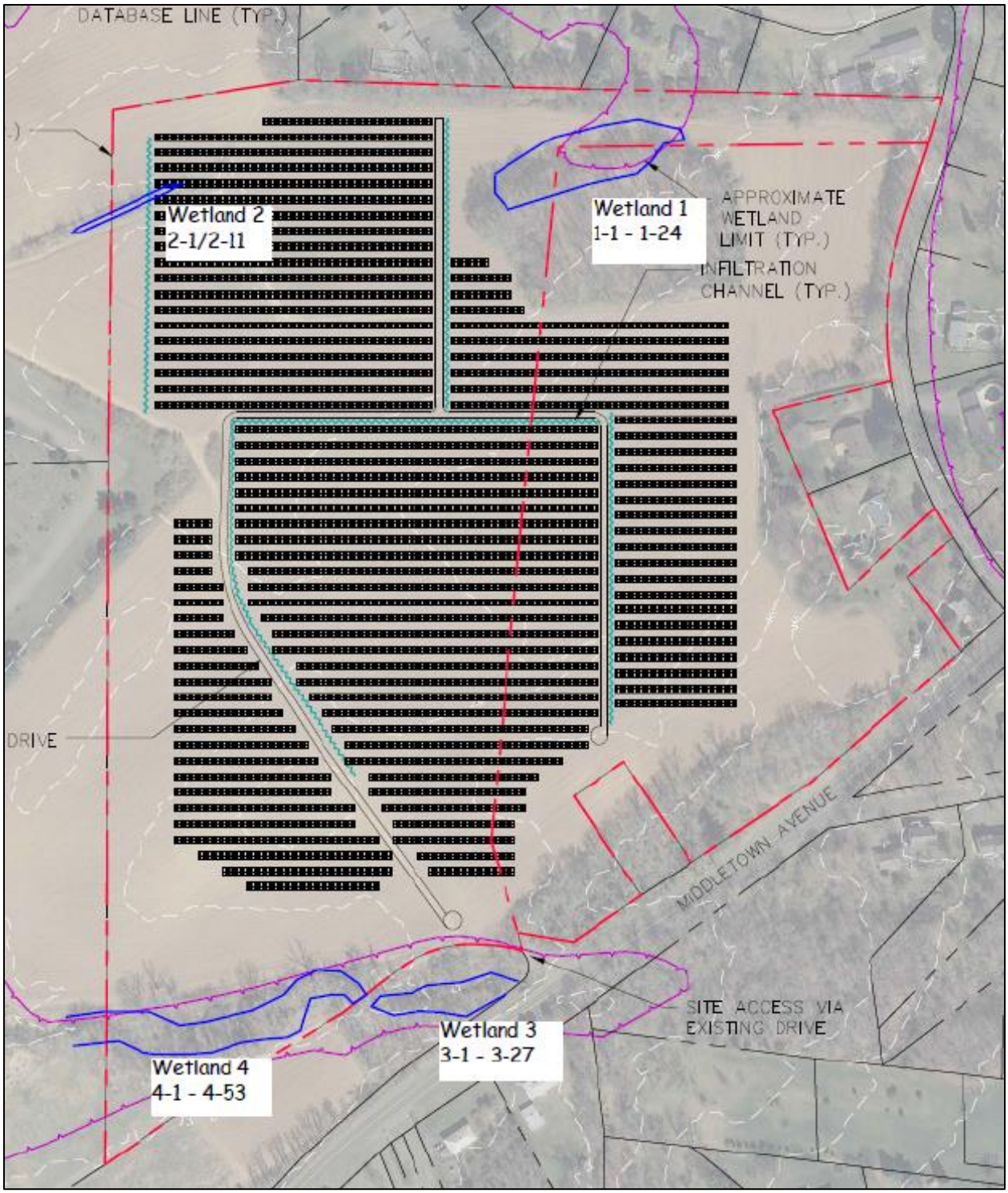

Figure 7 – Wetlands delineation

A detailed assessment of the wetlands and watercourses as well as a detailed assessment of the wetland functions and values will be conducted April through June 2018. Once these results have been received, they will be submitted to the Siting Council for review.

6.9 Wildlife and Habitat

From April through June 2018 wetland-dependent amphibian and reptile surveys will be conducted, including vernal pools. For birds, the inventory will be developed based on the presence of suitable habitat; however, birds observed during other onsite surveys will be noted. A detailed assessment of the upland cover types will also be conducted April through June 2018.

The Connecticut Department of Energy & Environmental Protection's ("CT DEEP's") Natural Diversity Database ("NDDB") program represents current documented data showing the known locations of any endangered, threatened or special concern species and significant natural communities. The most recent NDDB mapping dated December 2017 was reviewed. NDDB polygons lie immediately northwest of the Site. Therefore, an NDDB Review Request was submitted to CT DEEP. A response letter was received on March 22, 2018 and is included in this report as Appendix I. Species known to occur in the vicinity of the project site include the eastern box turtle (*Terrapene carolina*) and ground beetle (*Loxandrus vulneratus*).

As requested in the NDDB response letter, site surveys for the eastern box turtle and ground beetle will be conducted during the 2018 field season. It is anticipated that these surveys will be completed no later than June of 2018. Once the surveys are completed, they will be submitted to the Siting Council for review.

6.10 Water Supply

No water will be sourced on site from either a well or utility hook up. All water used for construction will be trucked in. Minimal long term water use will be required for operations for the purpose of cleaning modules and this water will also be trucked in.

6.11 Control of Stormwater Runoff

The Project has been designed to comply with applicable stormwater and erosion and sediment control requirements, including the Stormwater Manual for both Water Quality and Recharge; the SESC Guidelines; and Solar Stormwater Guidance issued by the CTDEEP on September 8, 2017. Consistent with the CTDEEP General Permit for the Discharge of Stormwater and Dewatering Wastewater for Construction Activities (October 1, 2013), a SWPCP will be prepared. The SWPCP and stormwater management systems within the Project Area will be designed to minimize pollution caused by soil erosion and sedimentation during and after construction and stormwater pollution caused by use of the Project Area after construction is completed. In addition, members of the Project team have reached out to CTDEEP to request a meeting with the Department's stormwater permitting team to begin the stormwater permitting process as expeditiously as possible.

A preliminary SWPCP has been prepared (as provided in Appendix B). Consistent with the requirements of the General Permit, the SWPCP includes plans showing where stormwater management and erosion and sediment control features are proposed to be located, as well as a narrative describing the Project, construction sequencing, control measures, and inspection and monitoring program for the Project Area.

No major grading is anticipated for the construction of the Project. Instead, it is anticipated that the panel installation will adjust foundations to accommodate existing grade. While the nature of the Project (solar panel installation) does not include significant grading with an associated soil disturbance, Greenskies recognizes that the Project includes the use of construction equipment. Therefore, care will be taken during the construction phase portion of the Project to minimize disturbance and manage erosion and sediment control throughout the Project Site. The Project will be sequenced in five phases, so that there will not be clearing of any portion of the Project site in an amount greater than five acres at any one time. Prior to soil-disturbing activities, appropriate BMPs will be installed to prevent erosion and sedimentation and to control activities within the Project site. Appropriate erosion and sediment control measures will be implemented, and these measures are discussed in greater detail Appendix B.

An updated SWPCP will be incorporated in the D&M Plan, and appropriate submittals will be made in a timely fashion to CTDEEP that will include identification of specific contractors with responsibility for implementation of the SPCP requirements.

7.0 CONCLUSION

The Project clearly meets the standards set forth in CGS §16-50k(a). Specifically:

- The Project meets CTDEEP's air and water quality standards, with no material emissions associated with either construction or operation and water quality standards associated with construction and operational stormwater management a primary focus of the Project's design;
- The Project has been configured to avoid and minimize other environmental impacts by using to the greatest extent possible portions of the Project Site that have been subject to former agricultural uses; and
- While the need for formal consideration of prime farmland or forest land is not required for the Project, as it holds a contract under the CTDEEP RFP process, the Project will not alter areas of prime farmland or core forest.

Given the benefits this Project will provide to the State of Connecticut, GRE GACRUX LLC respectfully requests that the Siting Council approve this Project as currently designed.