

Lee D. Hoffman
90 State House Square
Hartford, CT 06103-3702
p 860 424 4315
f 860 424 4370
lhoffman@pullcom.com
www.pullcom.com

September 26, 2019

ELECTRONIC MAIL & HAND DELIVERY

Melanie Bachman
Executive Director/Staff Attorney
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

**Re: Petition 1378 – Greenskies Renewable Energy, LLC (GRE) petition
for a declaratory ruling, pursuant to C.G.S. §4-176 and § 16-50k, for the proposed
construction, maintenance and operation of a 5.0 megawatt AC solar photovoltaic
electric generating facility on approximately 16.5 acres located generally east of
Taugwonk Road and Taugwonk Spur Road and north of Interstate 95 in
Stonington, Connecticut and associated electrical interconnection**

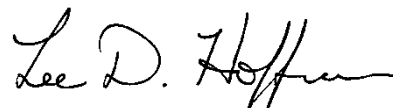
Dear Ms. Bachman:

I am writing on behalf of my client, Greenskies Renewable Energy LLC (“GRE”) in connection with the above-referenced Petition. With this letter, I am enclosing an original and 15 copies of GRE’s Responses to the Connecticut Siting Council’s First Set of Interrogatories.

Should you have any questions concerning this submittal, please contact me at your convenience. I certify that copies of this submittal have been made to all parties on the Petition’s service list.

If you have any questions concerning this submittal, please contact the undersigned at your convenience. I certify that copies of this submittal have been submitted to the Service List for this Petition.

Sincerely,



Lee D. Hoffman

Enclosures

**STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL**

**Greenskies Renewable Energy, LLC (GRE) petition
for a declaratory ruling, pursuant to C.G.S. §4-176 and
§ 16-50k, for the proposed construction, maintenance and
operation of a 5.0 megawatt AC solar photovoltaic
electric generating facility on approximately 16.5 acres
located generally east of Taugwonk Road and Taugwonk
Spur Road and north of Interstate 95 in Stonington,
Connecticut and associated electrical interconnection**

Petition No. 1378

September 26, 2018

**GREENSKIES RENEWABLE ENERGY LLC'S RESPONSES TO THE
CONNECTICUT SITING COUNCIL'S FIRST SET OF INTERROGATORIES**

The petitioner, GRE GACRUX LLC ("GRE" or "the Petitioner"), respectfully submits this response to the Connecticut Siting Council's First Set of Interrogatories in the above-referenced Petition. In response to the Siting Council's Interrogatories, GRE states as follows:

Project Development

1. Does Greenskies Renewable Energy LLC (GRE or Petitioner) have a contract to sell the electricity and/or renewable energy certificates (RECs) it expects to generate with the proposed project? If so, to which public utility? If the electricity is to be sold to more than one public utility, provide the percentage to be sold to each public utility.

Petitioner's contract is with Connecticut State Colleges & Universities (CSCU) within Eversource territory.

2. Page 19 of the Petition states, "Selection of this Project for a PPA under CSCU RFP process affirms the Project's consistency with the state's energy plans and objectives." What authority approves the power purchase agreement (PPA) for the facility? Has a PPA with an electric distribution company been executed? If so, at what alternating current megawatt output? If not, when would the PPA be finalized?

The PPA agreement was approved by the Office of the Attorney General. The Virtual Net Metering (VNM) contract was approved by Eversource. Petitioner has a signed PPA and VNM Agreement in place for this project for Phase 1 of the proposed project. Alternating current megawatt output is 2.5 MW for each of the two phases of the Project.

3. What is the length of the PPA? Are there provisions for any extension of time in the PPA? Is there an option to renew?

The duration/length of the PPA is twenty (20) years with a single, one time, extension option of five (5) years.

4. Is the alternating current megawatt capacity of the facility fixed at a certain amount per the PPA and/or the RFP? Is there an option within the PPA to allow for changes in the total output of the facility based on unforeseen circumstances?

Minimum output requirements are specified in the VNM between Petitioner and CSCU. Seller shall not be required to meet the Minimum Energy Output Requirement to the extent the failure to meet such Minimum Energy Output Requirement arises out of or results from: (i) a Person other than Seller or its approved service providers installing, removing or repairing the Solar Energy Facility [SEF]; (ii) destruction, damage, modification or alteration to the SEF or its ability to produce energy not caused by Seller or its approved service providers while servicing the SEF; (iii) Buyer's failure to perform, or breach of, its obligations under this Agreement; (iv) any third party acts that reduces the output of the SEF; (v) any event of Force Majeure; (vi) a power or voltage surge caused by a Person other than Seller or its approved service providers while servicing the SEF; (vii) any SEF failure not caused by a SEF defect; or (viii) theft of all or any part of the SEF.

5. If the PPA expires and is not renewed and the solar facility has not reached the end of its lifespan, will the Petitioner decommission the facility or seek other revenue mechanisms for the power produced by the facility?

Petitioner reserves the right to sign new revenue contracts for the sale of power after the end of the current PPA.

6. Would the petitioner participate in the ISO-NE Forward Capacity Auction? If yes, which auction(s) and capacity commitment period(s)?

Petitioner does not currently plan to participate in the ISO-NE Forward Capacity Auction.

Proposed Site

7. What type of development and minimum lot size is permitted per the zoning designation?

The minimum lot size for both the LI-130 (Light Industrial) and GBR-130 zoning districts is 130,000 square feet or 2.98 +/- acres.

The following uses are permitted within the LI-130 Light Industrial zoning district: assembly, packing and warehousing and buildings for assembly, packing and

warehousing up to 10,000 square feet; offices and/or corporate headquarters less than 5,000 square feet; research and development facilities. Ancillary uses in this zone include: off-street parking of up to 20 cars and commercial vehicles, recreational uses and structures (e.g. tennis courts and pools accessory to commercial and industrial uses); storage of goods and supplies; retail sale of goods or supplies which are either manufactured or processed on site.

Permitted uses in the GB-130 zoning district include: single family residential uses, aquaculture/agriculture; family day care; keeping and breeding of livestock including commercial stables. Ancillary uses include: barns, silos, greenhouses, outbuildings, and solar and energy conservation equipment; buildings or stands for display and sale of produce; garages, off-street parking up to 20 cars.

8. Have any land use development plans been approved by the municipality for the proposed site in the past?

Petitioner is not aware of any approved land use development plans for the proposed site.

9. Where is the nearest recreational area from the proposed site? Describe the visibility of the proposed project from this recreational area.

It appears the nearest public recreational facility to the proposed project site is the Spellman Recreational Complex at Spellman Drive in the vicinity of Stonington High School, 4.4 miles away. There is a parcel of land north of the northwestern portion of the project site that is owned by the Stonington Land Trust (SLT), however, this parcel is only accessible for SLT events.

10. Page 18 of the Phase 1A Cultural Resources Assessment Survey (Phase 1A Report) notes that, "Analysis of the aerial photographs, however, indicates that so long as the northern access road construction is built south of the visible stone walls, it will not impact any potential historical resources associated with those outbuildings." Would the northern access road and electrical interconnection corridor be located south of the visible stone wall (at the northern limits of the property)? Explain.

Yes. The northern access road and electrical interconnection corridor will be located south of the visible stone wall at the northern property limits.

11. By letter dated May 28, 2019, the Petitioner notified the Mohegan Tribe that the Phase 1A Report was completed, and a Phase 1B Report was planned. Additionally, the Mohegan Tribe was invited to a site visit. Did the Petitioner receive any feedback from the Mohegan Tribe?

Petitioner has not received any feedback from the Mohegan Tribe.

12. A copy of the Phase 1B Cultural Resources Survey Report (Phase 1B Report) was provided to the State Historic Preservation Office on or about July 2, 2019. Did the Petitioner receive any feedback from SHPO regarding the Phase 1B Report?

Yes. On September 24, 2019, the Petitioner received a letter from the SHPO that no historic properties would be impacted by the contemplated Project. A copy of that correspondence is attached hereto as Attachment A.

13. About how many acres of the subject property are currently used for agricultural purposes? About how many acres would remain in use post-construction?

Approximately 14 acres of the subject property are currently used for the landowner's haying operations, half of which are located south of the transmission line/proposed project area. In addition, there are approximately four (4) acres of pasture in the northwestern portion of the site. Post-construction, the landowner will continue to hay the land south of the proposed solar facility, and also plans to reclaim the four (4) acres of western pasture for future agricultural use. Prior to leasing the land to GRE, the landowner had anticipated harvesting trees to the west of the proposed project area and converting the land to hayfields; this is still under consideration.

14. Provide the distance, direction and address of the nearest off-site residence from the solar field perimeter fence.

The nearest residence is located at 166 Taugwonk Road to the west of the proposed solar energy facility. It is 1,380± feet from the Project property line and 1,620± feet from the solar field perimeter fence.

Energy Production

15. Would all 5 MW AC be dedicated to virtual net metering for the Connecticut State Colleges & Universities?

Yes.

16. Have electrical loss assumptions been factored in to the output of the facility? What is the output (MW AC) at the point of interconnection?

Yes, the system nameplate AC capacity is the output at the point of interconnection.

17. Page 13 of the Petition states that there would be approximately 16,680 solar panels at 390 Watts DC each. Sheet LD has a total of about 16,580 solar panels. Estimate the correct total and indicate if it has changed (since the original Petition filing) as a result of finalizing stormwater design.

The correct estimated total number of solar panels is 16,580. The Petition should be revised to show this correction. This number has not changed as a result of finalizing stormwater design.

18. Explain why a solar panel orientation to the south with its specified angle above the horizontal was selected for this facility. Is the project designed to maximize annual energy production or peak load shaving?

The system is designed to maximize overall annual yield.

19. What solar panel angle (above the horizontal) was used to determine the proposed MW AC of the facility and proposed MWh (AC) for the facility? Please correct to match the angle if necessary.

The designed solar panel tilt angle was used for the energy simulation.

20. What is the projected capacity factor (expressed as a percentage) for the proposed project?

The projected capacity factor is 20.4%.

21. What is the efficiency of the photovoltaic module technology of the proposed project?

The efficiency of the photovoltaic module technology is 19.1%.

22. Would the power output of the solar panels decline as the panels age? If so, estimate the percent per year.

Petitioner estimates a decline in output of .5 % each year.

23. Is the project being designed to accommodate the potential for a future battery storage system? If so, please indicate the anticipated size of the system, where it may be located on the site, and the impact it may have on the PPA.

No. The Project is not currently being designed to accommodate the potential for a future battery storage system, as the PPA did not provide for financing of such a system.

24. Page 18 of the Petition notes that, "Decommissioning consists of physical removal of all facility components, such as solar arrays, equipment (e.g. batteries, inverters and transformers)..." Are batteries proposed for this project, and what would the batteries be used for?

No. Batteries are not proposed for this Project.

25. Would the impact of soft shading, such as air pollution or hard shading, such as bird droppings or weather events, such as snow or ice accumulation, hail, dust, pollen, etc. reduce the energy production of the proposed project? If so, was this included in the proposed projects capacity factor? Would any of these expose the solar panels to damage?

Soiling can affect system performance, however, estimated soiling from things such as dust, leaves, bird droppings, and snow was accounted for in the energy model.

26. If applicable, what type of methods would be employed to clear the panels of the bird droppings, prey shells, snow and ice accumulation, hail, dust or pollen and at what intervals?

This style ground mount array typically does not suffer from snow and ice accumulation because of the slope in which the modules are mounted on the racking. In some cases, there may be minimal snow buildup on the bottom edge of the module frame, but such buildup does not require any removal related to safety or structural concerns. GRE outsources modules washing to third party vendors, who all operate with respect to any local environmental requirements. Module washing interval is determined on a monthly basis depending on actual soiling levels and production loss to the system. Frequently, such soiling is removed by naturally-occurring rainfall. The modules are rated to withstand hail storms, but would be replaced during a maintenance visit if one were to be damaged.

27. Could the project be designed to serve as a microgrid?

No.

28. Page 13 notes that, “The proposed Project is comprised of six independently metered systems...” Should one section of the solar array experience electrical problems and the section shuts down, could other sections of the system still operate and transmit power to the grid?

Yes.

Site Components and Solar Equipment

29. Page 13 of the Petition states that the panels would be installed at a 25 degree angle above the horizontal. Sheet SD-2 Photovoltaic Array has an angle of about 22.4 degrees. Sheet L-1 Site Plan & Array Layout has an angle of 15 degrees. Drawing G200 depicts an angle of 30 degrees. Please clarify which angle is correct and provide corrected drawings as applicable.

The module tilt angle will be 25 degrees, as noted in the PV Solar System Specifications table on Sheet LD. The tilt angle noted on Sheet SD-2 is representative of a “Typical Side Elevation” for a project of this type. Electrical

Drawing G200 is being revised based on the current civil layout and will show a 25-degree module tilt angle.

30. Provide the following information regarding the Project solar panels:

a) Will the panels be mounted in a portrait or landscape fashion?

Portrait

b) What is the minimum and maximum overall height of the panels above grade?

The minimum height of the lower edge of the panels is 3 feet and the maximum height is 8 +/- feet.

31. Were string inverters considered for this project? If so, what factors led the current design of several large inverters rather than the use of string inverters?

The term “string inverters” is general and has several meanings throughout the industry. Inverter sizes in the solar industry have been increasing. GRE considers its designed inverters to be string inverters. Central inverters are in the range of 1 MW capacity or higher.

32. What type of solar panel mounts are proposed? What is the design wind speed of the solar panel mount? How are the panels adhered to the mount? What prevents the solar panels from separating from either the racking or the foundation during high winds?

The modules are mechanically fastened to the racking purlins and vertical column support structures. The contractor installs modules and torque to specific values defined by the racking manufacturer. The racking manufacturer, in conjunction with the geotechnical engineer, calculates embedment depths based on design wind speed and soil characteristics from the geotechnical report. These calculations and torque values ensure modules do not separate from the racking structure and the structure itself remains intact.

33. How many panels will each rack hold? Provide a specification sheet if the rack system model has been selected, or, if the exact model has not been determined, a sheet for a similar system currently available.

Approximately twenty (20) panels will be mounted on each rack. Exact racking model/make has not been determined. See the specification sheet, attached as Attachment B, for similar/comparable equipment.

34. Is any wiring for the panels installed on the racking? If such wiring is external, are there any concerns regarding potential damage from weather exposure, vegetation maintenance, or animals?

DC string wiring will be attached to racking. It will be underneath modules to protect from UV exposure. Vegetation and animal damage are controlled through annual preventative maintenance visits.

35. Would any upgrades to the existing access road (such as additional gravel) be necessary to make it suitable for the construction and maintenance of this proposed solar facility?

A temporary, stabilized construction entrance pad, consisting of 6 inches minimum of 2" crushed stone will be installed and maintained during construction operations to prevent vehicular tracking of mud. An in-house pre-construction assessment of the existing access road will be conducted to determine whether any other improvements (e.g. widening or straightening of targeted areas) will be required.

No upgrades or improvements to the existing road are required for ongoing Project operation and maintenance.

36. Page 12 of the Petition notes that there would be 12-foot row spacing (for the solar panels). Drawing G-200 depicts a row spacing of 15 feet. Please provide the correct row spacing (i.e. measured from the edge of one solar panel to the edge of the next solar panel on an adjacent row)? If necessary, please revise Drawing G-200.

Row spacing between panels is specified as 12 feet as indicated on sheet LD and as depicted on the Photovoltaic Array detail on sheet SD-2 of the site plans. Drawing G-200 has been revised to agree with the site plans, and will be submitted to the Council shortly.

37. Is any portion of the proposed project located within a 100-year or 500-year flood zone?
If yes:
- a. Indicate which portion(s) of the project area are located within flood zones, and provide a Federal Emergency Management Agency flood zone map that includes the subject property;
 - b. Can the solar panel support posts withstand flood inundation?
 - c. Would the inverters, panels or wiring be damaged as a result of flood inundation?

No areas of the Project are located within the FEMA regulated 100-year or 500-year flood zones. Please see Attachment C for more information.

Interconnection

38. Would any of the power produced be used on-site (identify use), or would it all be fed into the local distribution system? If any of the power would be used on-site, estimate the total on-site load in kilowatts.

No. None of the power produced on-site will be used on-site.

39. Referencing page 14 of the Petition, the electrical interconnection impact/feasibility studies were completed for Phase 1 of the project. However, feasibility study for Phase 2 is pending. What is the status of such study? Has GRE received confirmation that the electrical distribution system can accommodate the interconnection of all 5 MW AC (for Phases 1 and 2) or only 2.5 MW AC (for Phase 1) at this time?

Impact studies are complete, and Petitioner has received from Eversource Draft Interconnection agreements for Phase 1 of the proposed project. Petitioner is in the process of finalizing and executing the documents.

40. Referencing page 15 of the Petition, it notes, “GRE will install lines below grade and, where necessary, will run overhead lines using a prescribed number of wooden utility poles to reach Taugwonk Road.” Drawing G200 depicts an underground 13.2-kV circuit that converts to overhead near Taugwonk Road and includes poles at this end of the line. Sheets LA-1 and LA-2 have an all overhead electrical interconnection. The Decommissioning Plan estimates about 18 utility poles to be removed. When does the Petitioner expect to have more firm/finalized plans for the electrical interconnection and potential wetland/watercourse impacts? Please provide an update on the utility route if available.

Overhead lines running from the north-central side of the array to Taugwonk Road will be utilized for interconnection. Electrical Drawing G200 is being revised to reflect the proposed plan, as noted in LA-1 and LA-2 of the permit plan set. Approximately 21 utility poles will be installed at a spacing of 125+/- feet. Poles will be sited to “straddle” wetlands and minimize potential impacts.

Public Safety

41. Would the solar facility have a protection system to shut the facility down in the event of a fault within the facility or isolate the facility during abnormal grid disturbances or during other power outage events?

Yes.

42. Would the project comply with any applicable National Fire Protection Association codes and standards?

Yes.

43. Page 15 of the Petition and page 7 of the Stormwater Report note that the fence would be 7 feet tall. Page 8 of the Stormwater Report indicates an 8-foot fence. Please provide the correct the fence height.

The perimeter fence (and gate) will be 7 feet tall.

44. Would the proposed project meet the applicable Department of Energy and Environmental Protection noise standards at the property boundaries?

Yes.

45. Would sun reflection off of the panels create a glare effect on any abutting residences or would such potential glare be shielded by existing vegetation?

There is no potential glare effect anticipated from the proposed project due to distance of residences from the project area and existing vegetative buffer.

46. Where is the nearest airport and/or airfield? Would glare from the solar arrays have any impact on air navigation? Has a glare analysis been conducted? If not, under what circumstances would a FAA glare analysis be required?

The nearest airfield is Stonington Airpark located approximately 2.75 miles south of the proposed project site. A glare analysis has not been conducted. The panels for the Project do not transmit a great deal of glare, given that they panels are designed to absorb light rather than reflect it back. Given the distance of the Project from the nearest airport, and the lack of glare from the panels, the Project is not anticipated to have an adverse impact on air navigation.

47. With regard to emergency response:

- d. Is outreach and/or training necessary for local emergency responders in the event of a fire or other emergency at the site?

Local emergency responders are contacted if there is a fire event that cannot be handled by standard fire prevention from our trained electricians. If there is no one on site, and there is an event then the local emergency responders should be contacted immediately. Typically when a project is nearing completion and final inspection, the local Fire Marshall will walk the job to inspect signage, site access in case of emergency, emergency shutoff disconnect locations and anything relevant to their response of an event. The Project expects that such a walk-through will happen for this Project. Local firefighters have electrical fire training and solar specific training.

- e. How would site access be ensured for emergency responders?

Emergency responders can have a butting lock system or a Knox box onsite for any locks associated with the Project. The Project will have a main access road and gate that will always be accessible to emergency responders.

- f. In the event of a brush or electrical fire, how would the Petitioner mitigate potential electric hazards that could be encountered by emergency response personnel?

There are emergency AC disconnect switches that can be used in order to shut down AC voltage to the system from the local utility. This will de-energize all of the equipment. There are also DC disconnects that can be shut off to isolate the DC voltage to the strings alone. All of these disconnects are clearly labeled.

- g. Could the entire facility be shut down and de-energized in the event of a fire? If so, how?

As noted above, the Project can isolate all AC voltage to the system. DC voltage can be isolated to the strings, but DC voltage will always be present during the day on a string/module level.

- h. Would there be an emergency key box for first responders to access the site for shutdown purposes?

Yes. A Knox box can be installed at the main entrance for emergency responders.

Environmental

48. Page 7 of the Petition notes that the proposed project is comprised of about 16.5 acres. Page 7 of the Stormwater Report notes that the project would be located on approximately 18.2 acres. Page I of the Phase 1A Report states the limits of work would occupy about 21.5 acres. Please provide the correct acreage of the footprint, and indicate if such acreage includes the access roads and overhead electrical interconnection corridor/route?

The total acreage of the footprint is approximately 22.6 acres. This area includes the following:

- **Area of the main site, which includes the entire fenced array area and areas outside of the fence line where work is being done, including tree clearing, grubbing, and grading = 21.1 acres**
- **Access road outside of the fenced array area = 0.4 acres**
- **Interconnection route involving tree clearing = 1.1 acres**

49. Please provide the following:

- i. Acreage of tree clearing only;
- j. Acreage of tree clearing and grubbing;
- k. Acreage of tree clearing in wetlands; and
- l. What methods would be used to clear trees in wetlands?

Areas of clearing and tree removal methods as follows:

- i. Acreage of tree clearing only (interconnection route) **1.1 Ac**
- j. Acreage of tree clearing and grubbing (westerly side of main site) **4.7 Ac**
- k. Acreage of tree clearing in wetlands (interconnection route) **0.3 Ac**
- l. **In wetland areas, trees will be cut flush with the ground, removed and stumps left in place.**

As indicated above, the tree clearing within the interconnection route will be tree clearing only with no grubbing. Grubbing will be required for the tree clearing areas located on the westerly side of the main site, which includes the western stormwater management basin and a portion of the proposed array field and fenced area. All tree clearing within the wetlands will only occur within the interconnection route.

50. Would any proposed tree clearing occur within 0.25 miles of a known northern long-eared bat hibernaculum or within 150 feet of a known occupied maternity roost tree?

No, the nearest known northern long-eared bat hibernaculum in Connecticut is in North Branford, which is greater than 50 miles from the project site.

51. On page two of the comments from the Council on Environmental Quality (CEQ) dated August 29, 2019, CEQ requested confirmation that the proposed Stormwater Management Basin No. 2 (located along the entire western boundary of the proposed site) would not adversely affect flow to wetlands and to the identified vernal pool. Please confirm.

Stormwater management basin No. 2, which lies approximately 920 feet from the identified vernal pool and 100 feet from the adjacent wetland, will not affect the overall drainage patterns or contributing watershed to wetland resources. The basin serves to attenuate peak rates of runoff from the solar panel drip edge and modulate overland flows. As the watershed to the wetlands will not be altered and water quality will be maintained through stormwater treatment, direct wetland impacts due to hydrologic modifications are not anticipated.

52. What effect would runoff from the drip edge of each row of solar panels have on the site drainage patterns? Would channelization below the drip edge be expected? If not, why not?

The Project anticipates that runoff from the drip edge of the panels will have little or no effect on the site drainage patterns recognizing that slopes within the facility

are mild that range between 1 and 3 percent. Other than for excavation associated with the stormwater management basins, no grading is proposed for the facility.

53. Referencing Appendix O of the Petition – Site Soils Information, the majority of the site development is located on 43A (Rainbow silt loam) and 45B (Woodbridge fine sandy loam) soils. The depth to the water table is between 18 and 30 inches below the surface. The depths to the restrictive features are 20 to 40 inches for 43A and 20 to 39 inches for 45B. What is the potential impact to the perched water table, intermittent streams and wetlands on this site? Would the installation of the posts for racking systems pierce the densic layer beneath the perched water table? What impact might this have on eliminating the perched water table and future agricultural use given the water table between 18 to 30 inches below the surface? Were any deep test pits conducted? What are the results and the impacts?

The solar facility is almost entirely located in the open field on top of a ridge that runs north south through the middle of the site and upland of the primary wetland resource areas west of the project area. Therefore, it is anticipated there will be minimal impact to intermittent streams and inland wetlands in the wooded area west of the site.

Four deep hole test pits were excavated on August 16, 2019 at the areas of the proposed stormwater management basins to observe general characterization of subsoils, record depth to groundwater, observe signs of mottling that would indicate seasonal high groundwater and any presence of ledge. The test pit logs show that the soils are generally characterized as organics/topsoil over fine to medium sands followed by fine sands and silt. Depth to groundwater was determined to be between 6- and 8-feet deep, contrary to the 18- to 30-inch depth depicted on NRCS mapping. No signs of distinct mottling or ledge was found in any of the test holes.

Shovel tests were undertaken to determine Hydrologic Soil Classification field verification within the area of the proposed solar array to confirm the infiltration capacity of in situ soils as required in the stormwater general permit. The results of the shovel tests will be included in the DEEP stormwater permit application.

Prior to construction, geotechnical borings will be conducted to verify soil properties within the array area in support of foundation design for the posts and solar panel racking systems. Properties of soils will determine if any special treatments to the posts are necessary to prevent corrosion.

54. Referencing the July 20, 2019 Vernal Pool Impact Assessment Memorandum in the Petition, would the proposed project be consistent with the 2015 U.S. Army Corps of Engineers Vernal Pool Best Management Practices?

The proposed project is compliant with vernal pool best development practices to the maximum extent practicable as no direct impact will result to the vernal pool envelope nor vernal pool depression. No tree clearing is proposed within 920-feet of the vernal pool. A portion of the 750-foot critical terrestrial habitat is currently

cleared and comprised of hayfield and Interstate 95. The project maintains the directional buffer for vernal pool migration through the overall minimization of tree clearing and maintenance of core wetland and upland forest.

55. What is the host municipality's setback regulation from wetlands?

Under the Town of Stonington's Inland Wetlands and Watercourse Regulations, "Regulated Area" is defined as "[a]ny wetlands or watercourses as defined in these Regulations, and a horizontal distance of 100 feet from the edge of any wetland or watercourse." See Sec. 2.1 ("Definitions") of the Town of Stonington's Inland Wetlands and Watercourse Regulations.

56. Referencing Figure 2 of the Wetland Delineation, could the wetlands and vernal pool be depicted in different colors for more contrast and to improve the readability of this figure?

Please see the revised Figure 2, which is included as Attachment D.

57. Page 14 of the Petition notes that, "Posts are typically driven into the earth to depth of 9 feet below grade." Are any impacts to groundwater quality anticipated? If so, how would the petitioner manage and/or mitigate these impacts?

As stated in the Response to Interrogatory 53, soil properties will be verified through subsequent geotechnical investigations in support of racking design and required post depths, and if soil chemical properties warrant additional coating treatment of posts to minimize corrosion and groundwater contamination.

58. Page 4 of the Phase 1A Report indicates the presence of rainbow soils, which are strongly acidic. Given that the posts would be up to 9 feet below grade, would such potentially acidic conditions accelerate the deterioration of the subsurface portion of the posts and render such posts non-recyclable in the future?

As referenced in the Response to Interrogatory 53, prior to construction, geotechnical borings will be conducted to verify soil properties within the array area in support of foundation design for the posts and solar panel racking systems. Properties of soils will determine if any special treatments to the posts are necessary to prevent corrosion.

Facility Construction

59. Referencing page 7 of the Stormwater Report, it states, "Proposed stormwater management improvements are designed to prevent and increase in the postdevelopment flows to off-site areas." Is it correct to say that, "...prevent an increase..." was intended?

Yes. The Stormwater Report will be revised to reflect the same.

60. Page 15 of the Petition notes that, "Petitioner will apply to CT DEEP for a Construction Stormwater General Permit, and an on-site pre-application with DEEP stormwater personnel is currently scheduled to take place on August 22, 2019." Did the Petitioner meet with DEEP stormwater personnel on that date or a different date? Please describe any recommendations, comments or concerns about the project provided by the Stormwater Division. If necessary, include an updated drawing with any material changes to the solar footprint, fence, stormwater management basins, etc. as a result of the discussions with DEEP Stormwater Division.

An on-site pre-application meeting was held on August 22, 2019 with the project team, representative from the town and DEEP stormwater personnel. During that meeting, DEEP requested the addition of level spreaders at the outlets of the stormwater basins to provide additional dissipation of outlet velocities as shown on the revised site plans. DEEP also stressed during that meeting that all solar projects must comply with the new solar stormwater guidance as outlined in a draft of Appendix I to the Stormwater General Permit. Lastly, as noted in the response to Interrogatory 53, shovel tests to verify the infiltration capacity of insitu soils have recently been conducted.

61. What is the status of the submittal of an application for a General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities from DEEP?

Now that shovel tests have been completed, the Project is in the process of completing the DEEP Stormwater General permit Application. The Application will be filed with DEEP shortly, and a copy of that Application will be provided to the Council at that time.

62. Regarding the two proposed stormwater management basins, would they have a wet or dry bottom of the basins? Were the elevations for spillways/emergency included? What environmental erosion and sedimentation controls would be in place? Provide the construction details for the basins.

The proposed stormwater management basins are designed as dry basins. Details and elevations of the basins and outlet weir walls are shown on the revised drawings. Provisions for sediment and erosion controls including details and notes are provided on the revised site plans.

63. With regard to earthwork required to developed the site, provide the following:
- a) Will the site be graded? If so, in what areas?
 - b) What is the desired slope within the solar array areas?
 - c) Could the solar field areas be installed with minimal alteration to existing slopes?
 - d) If minimal alteration of slopes are proposed, can existing vegetation be maintained to provide ground cover during construction?
 - e) Estimate the amounts of cut and fill in cubic yards for the access road(s)

- f) Estimate the amounts of cut and fill in cubic yards for solar field grading.
- g) If there is excess cut, will this material be removed from the site property or deposited on the site property?

A description of earthwork activities and quantities as follows:

- a) **Site grading will be limited to the westerly side of the site where clearing and grubbing is necessary for the construction of phase II of the facility. Both stormwater management basins will require excavation to attain the necessary stormwater storage volume. Otherwise existing grades will remain the same as existing for the rest of the site.**
- b) **Slopes will be maintained between 1 and 3 percent within the solar facility.**
- c) **As previously stated, much of the facility will be installed on existing ground particularly in the area of the open field without alteration of existing slopes.**
- d) **Existing vegetation will be maintained as much as possible for the duration of construction.**
- e) **The gravel access road will be constructed to match existing grades. Approximate excavation of existing material followed by gravel fill for the roadway is approximately 900 cubic yards.**
- f) **Earthwork for stormwater management basin no. 1 is approximately 480 cubic yards cut. Earthwork associated with stormwater management basin no. 2 and grading for phase II construction is approximately 8,400 cubic yards cut. All excess excavated material will be stored on the owner's property south of the project site as shown on the revised site plans.**

64. How would the posts (that support the racking system) be driven into the ground? In the event that ledge is encountered, what methods would be utilized for installation? Will blasting be required to install any site infrastructure? If not, what methods would be used if bedrock is encountered?

Posts will be driven using a track-mounted pile driver or attachment to an excavator. Where bedrock is encountered, ground screws are typically used. Blasting is not anticipated for the installation of any infrastructure at the proposed Project site.

65. Has a comprehensive geotechnical study been completed for the site to determine if site conditions support the overall project design? If so, summarize the results. If not, has the Petitioner anticipated and designed the project with assumed subsurface conditions? What are these assumed conditions?

Petitioner and its consultant, MMI, have completed detailed subsurface studies on site to confirm that the designed stormwater controls and hydrological analysis are correct. MMI coordinated with DEEP stormwater permitting staff regarding the scope of the test pit study and reviewed results of the study during a field/site visit in

August. In addition, MMI discussed with DEEP the scope of the soil mapping verification study. It was agreed that the results of both studies would be included in the Construction Stormwater General Permit application, which is currently being finalized for submission.

As mentioned above, a stormwater test pit study was completed. As noted in Petitioner's response to Interrogatory No. 53, at the areas of the proposed stormwater management basins, 4 deep hole test pits were excavated on August 16, 2019 to observe general characterization of subsoils, record depth to groundwater, observe signs of mottling that would indicate seasonal high groundwater and any presence of ledge. It was noted that soils are generally characterized as organics/topsoil over fine to medium sands followed by fine sands and silt. Depth to groundwater was determined between 6- and 8-feet deep, contrary to the 18- to 30-inch depth depicted on NRCS mapping. No signs of distinct mottling or ledge was found in any of the test holes.

An additional geotechnical study will be completed for the site before construction begins and in conjunction with the racking manufacturer. Push-pull testing will and various other analyses, including soil corrosivity testing will be conduct embedment depths based on design wind speed and soil characteristics from the geotechnical report. These calculations and torque values ensure modules do not separate from the racking structure and the structure itself remains intact.

66. Referencing the Schedule under Figure 7, "site control" began in February 2019. Explain what is meant by "site control."

The lease area was revised/finalized, and the lease agreement was fully executed in February 2019. Thus, as of the execution of the lease agreement the Project has control of the Project site.

67. Page 16 of the Petition notes that, "Construction of the Project (Phase 1) is expected to begin in late 2019...Official notice to proceed for construction is anticipated in early 2020." Page 8 of the Stormwater Report notes that, "Construction is anticipated to commence in February 2020 and will last approximately 3 months for phase one." However, Figure 7 – Construction Schedule indicates that construction would commence on April 6, 2020 beginning with site preparation. Please clarify the correct projected commencement date for construction of Phase 1 and also Phase 2 if known (based on the latest consultations with Eversource regarding the interconnection).

Phase 1 construction will begin once all permits are obtained; anticipated time frame is by April 6, 2020.

Maintenance Questions

68. How would the Petitioner remove snow that accumulates on the panels and any effects of blocking the sunlight? Would snow accumulation on the solar panels affect the output of

the facility? Under what circumstances would snow be removed? Describe snow removal methods including method of site access.

Refer to item #26 above. Typically, this style of system does not suffer from snow accumulation on the modules due to the tilt. If there was minimal buildup, we typically do not remove the snow because the system is already in its lowest production months and projections for the output of the system take into account snow losses in snowy regions. If snow did need to be removed, then soft window cleaning brushes are used to remove snow from the module.

69. Has any analysis been conducted to determine structural limits of snow accumulation on the solar panels and steel support structures, assuming heavy, wet snow and or ice? Would there be circumstances that would require snow/ice removal to prevent damage to the panels/rack system?

Modules are thoroughly tested by the manufacturer to ensure they are built to a standard to handle extreme snow loads. The racking manufacturer performs calculations to determine characteristics of the steel support structures. These calculations are performed using engineering design criteria (e.g., snow load, wind load, etc.) applicable to the township of the project. Modules are mounted at a tilt which allows snow and ice to slide off, eliminating the need for any manual removal.

70. Would any mowing be required under or around the proposed solar panels/modules, and if so, approximately how often would mowing occur? Would the petitioner adhere to any seasonal restrictions on mowing due to the presence of state and federal protected species?

There would be mowing required at the system. The interval in which mowings are performed depends highly on what vegetation is present. GRE has a solar landscaping company that maintains all of their ground mount projects in New England. They typically hold a 1 cut per month for 6 months each year. These typically start in April and end in September/October. This ensures that vegetation does not impact the production of the site, and satisfy any local fire marshal requirements for vegetation height. If there are federal protected species onsite, then that is clearly defined prior to the system being operational, and the mowing schedule will strictly adhere to that.

71. Describe the type and frequency of anticipated vegetation management for the site. Include areas inside and outside of the perimeter fence, as well as detention basins and swales.

As noted above, we typically mow our ground mount projects once per month, for 6 months of the year. All catch basins and erosion controls are inspected yearly by our O&M teams and are addressed if anything is out of the ordinary or not functioning properly.

72. Would the installed solar panels require regular cleaning or other, similar, maintenance? How would this be accomplished? Would any chemicals be used or only water? Would this maintenance activity have any impacts to water quality?

In New England, there is rarely the need for module washing due to frequent rain fall. If there is an abnormal buildup on the modules causing a production loss, then that is assessed internally and washed as necessary. Petitioner does not use chemicals on the modules, and typically utilizes only water and soft brushes. It will depend on the level of soiling or type of deposit on the modules. All washing is outsourced to licensed module washing companies.

73. How does the developer intend to promote and maintain grasses or other ground cover beneath the panels and within the solar array rows? Would bare ground areas or patchy growth increase site runoff?

Existing onsite grasses will be maintained beneath the array, except where posts are driven and within areas where stormwater basins are installed. All areas exposed during construction will be reseeded with an array seed mix containing a high percentage of pollinator species. A stormwater pollution prevention plan will be implemented as part of the CTDEEP Stormwater General Permit. Periodic mowing will occur each season as part of normal operations and maintenance.

74. Figure 9 and Figure 10 of the Petition include sample solar seed mixes. Is the Petitioner still evaluating what type of seed mix would be used at the site (for the consideration of pollinator friendly species and/or dual-use agriculture) or has the final seed mix been determined?

A final seed mix with a high percentage of pollinator species will be selected as part of the EPC process.

75. Would the petitioner store any replacement modules on-site in the event solar panels are damaged by hail, prey shells or other impact hazards? If so, where? How would damaged panels be detected?

In some cases, Petitioner will have a conex box onsite where additional modules and materials would be stored. The majority of Petitioner's store is offsite, and in this case would be stored at Petitioner's local warehouse. Technicians will bring such modules to site in their O&M trucks for replacement if any are damaged. Broken modules are mostly found during preventative maintenance (PM) visits which are performed twice per year. The production loss from a single module is minimal, and difficult to detect from a standard monitoring platform. If under production is observed on a certain inverter, it is noted to Petitioner's techs to inspect during their PM visits.

76. Referencing page 2 of the Operation and Maintenance Plan under Tab E of the Petition, Section 6.4 states, “Catch basin inspection – contact the Town of Royalston, Department of Public Works, as needed, to arrange maintenance and repair of King Street catch basin.” Please correct this statement.

The Operation and Maintenance Plan provided in Appendix E has been corrected to include stormwater basin outfall inspections. There are catch basins on the Project site.

Attachment A – SHPO Correspondence



Department of Economic and
Community Development

State Historic Preservation Office

September 24, 2019

Mr. David R. George
Heritage Consultants
PO Box 310249
Newington, CT 06131

Subject: Phase IA and Phase IB Cultural Resource Reconnaissance Survey
Proposed Greenskies Stoning Solar Center
35 Togwaunk Spur Road
Stonington, Connecticut
ENV-20-0014

Dear Mr. George:

The State Historic Preservation Office (SHPO) has reviewed the cultural resource reconnaissance survey prepared by Heritage Consultants, LLC (Heritage), dated June 2019. The proposed activities are under the jurisdiction of the Connecticut Siting Council and are subject to review by this office pursuant to the Connecticut Environmental Policy Act (CEPA). The proposed facility includes the construction of a solar facility, which is to occupy an approximately 21.5 acre Limit of Work (LOW), within a larger 86.8 acre parcel. The LOW is bordered to the west and north by forested areas and to the south and east by open agricultural fields. Access to the facility is to be by a dirt road, originating at 35 Taugwaunk Spur Road. The last segment of the access road, measuring approximately 1,033.5 feet long, is within an open field, and currently undisturbed. The facility is proposed to connect to an existing power corridor, located along the southern edge of the LOW. The submitted report is well-written, comprehensive, and meets the standards set forth in the *Environmental Review Primer for Connecticut's Archaeological Resources*.

The Phase IA assessment survey identified two previously identified archaeological sites located within 1 mile of the project area; however, their exact location was unable to be determined using available documentation. No properties listed or determined eligible for listing on the National Register of Historic Places were located within 1 mile of the project area.

Phase IB of the reconnaissance survey consisted of subsurface testing of areas deemed to have moderate to high archaeological sensitivity during Phase IA, and that would be subject to ground disturbing impacts as part of the proposed undertaking. A total of 331 of 331 planned shovel

State Historic Preservation Office

450 Columbus Boulevard, Suite 5 | Hartford, CT 06103 | P: 860.500.2300 | DECD.org

An Affirmative Action/Equal Opportunity Employer An Equal Opportunity Lender



Department of Economic and
Community Development

State Historic Preservation Office

tests were excavated successfully throughout the proposed work area, including a single centerline transect through the site of the proposed access road.

The reconnaissance survey identified four cultural resources Loci (Locus 1 through Locus 4). Locus 1, located in the northwest portion of the LOW, yielded 2 historic period artifacts: 1 manganese glazed earthenware sherd and 1 English salt glazed earthenware sherd, recovered from the plowzone, and consistent of 17th and 18th century field scatter. Locus 2, located in the west-central portion of the LOW, yielded a single pre-contact artifact: a possible fragment of a fire-cracked rock; no other artifacts were recovered from Locus 2. Locus 3, in the east-central portion of the LOW, identified a single yellowware sherd from the disturbed plowzone, and is indicative of 19th to early 20th century field scatter. Finally, Locus 4, located in the northeastern portion of the LOW, identified a single pre-contact artifact: a quartz secondary thinning flake. No other artifacts or cultural features were recovered from Locus 4. None of the artifacts recovered were diagnostic in nature, in significant number, or possessed unique properties, and therefore do not possess the qualities of significance as defined by the National Register of Historic Places criteria for evaluation (36 CFR 60.4 [a-d]).

As a result of the information submitted, SHPO concurs with the findings of the report that additional archeological investigations of the project areas are not warranted and that no historic properties will be affected by the proposed activities. However, please be advised that if construction plans change to include previously uninvestigated/undisturbed areas, SHPO should be contacted for additional consultation.

This office appreciates the opportunity to review and comment upon this project. For additional information, please contact Marena Wisniewski, Environmental Reviewer, at (860) 256-2754 or marena.wisniewski@ct.gov.

Sincerely,

A handwritten signature in blue ink that reads "Mary B. Dunne".

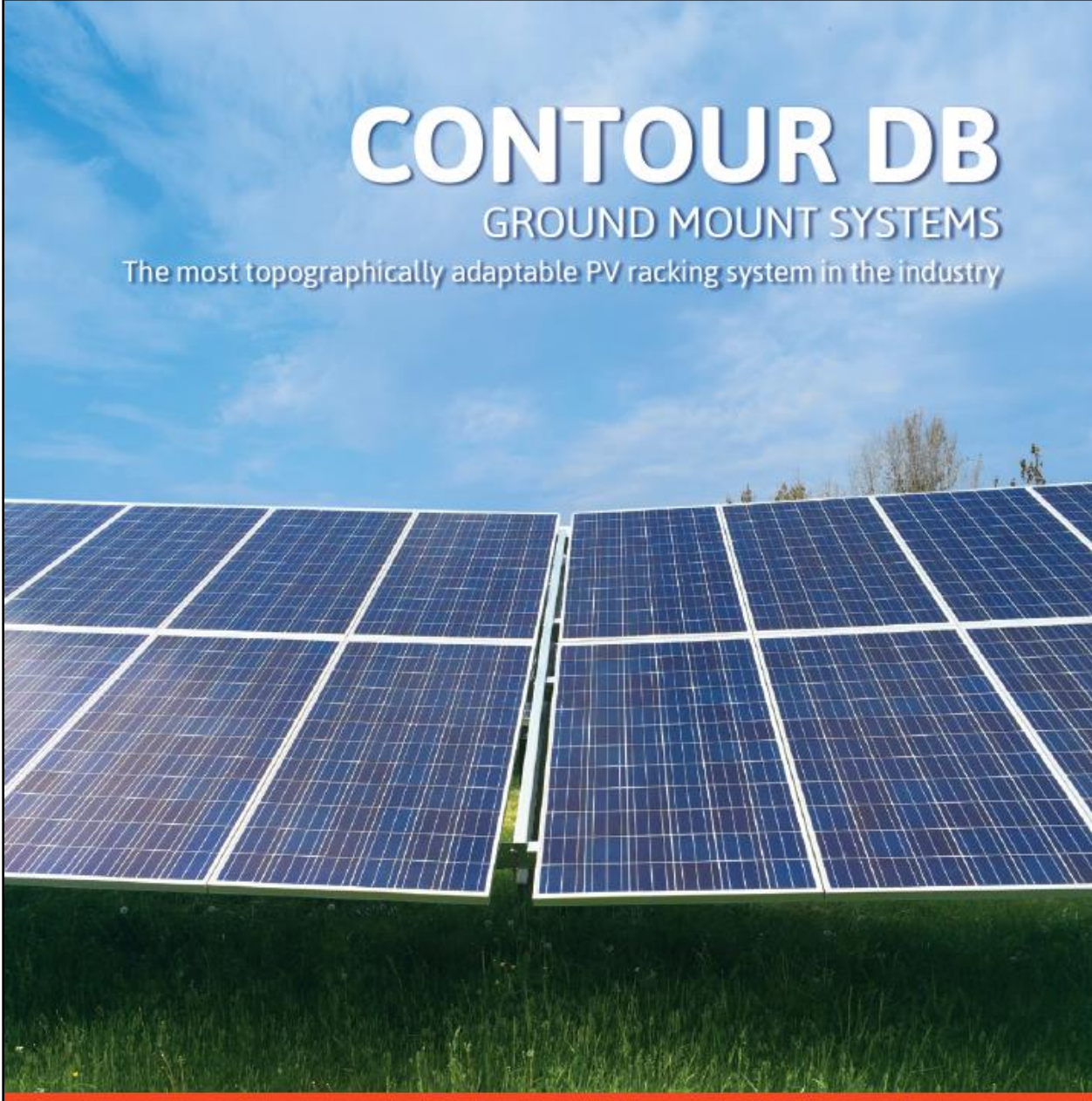
Mary B. Dunne
State Historic Preservation Officer

State Historic Preservation Office

450 Columbus Boulevard, Suite 5 | Hartford, CT 06103 | P: 860.500.2300 | DECD.org

An Affirmative Action/Equal Opportunity Employer An Equal Opportunity Lender

Attachment B – Specification Sheet




CONTOUR DB

GROUND MOUNT SYSTEMS

The most topographically adaptable PV racking system in the industry

Elevating the Future for Solar



DCE
SOLAR

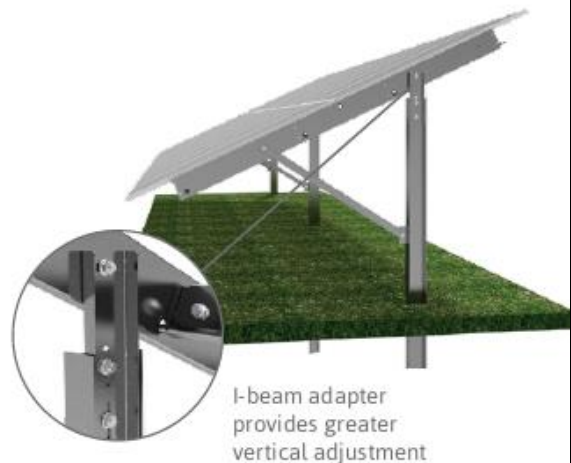
CONTOUR DB

The numerous benefits of DCE Solar's Contour DB result in the lowest system cost.

- » Single point purlin connection creates unmatched system compatibility with grade
- » Integrated wire support system
- » Integrated array grounding
- » Industry leading installation time

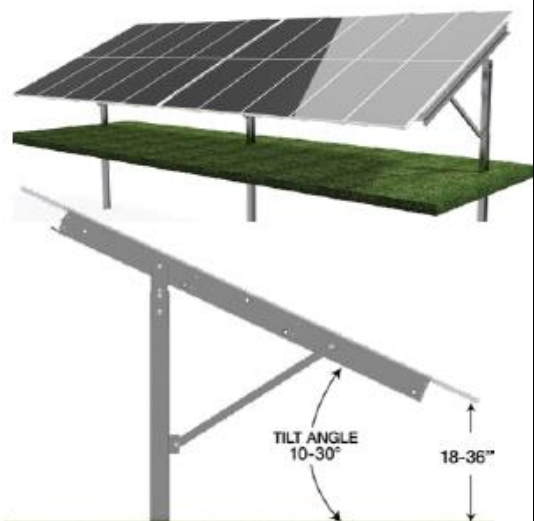
Driven Beam

Rugged and economical I-beam foundation provides a flexible solution for all conditions, including rocky soils.

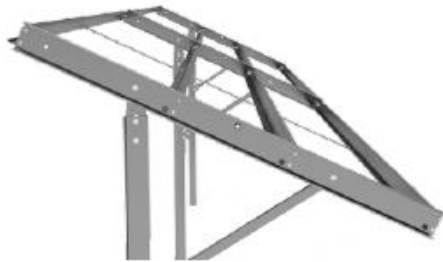


Grounding and Bonding

Grounding and bonding via serrated hardware certified to UL 2703 (listing available upon request).

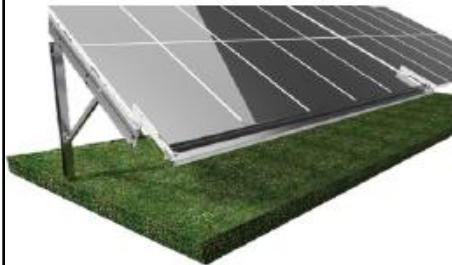


CONTOUR DB



Structural Components

All truss members are constructed from G115 galvanized steel. Driven beam and adjustment plate are hot dip galvanized to meet ASTM A123.



Assembly Jig

- » Allows for greater module installation efficiency which reduces labor costs significantly
- » Jig ensures perfect panel alignment the first time, negating post-installation adjustments
- » Jig provided at no additional cost



TECHNICAL SPECIFICATIONS

Wind Load	90-150 mph
Snow Load	0-60 psf
Leading Module Height	18-36" (max from ground)
Tilt Angle	10-30 °
Module Suitability	All Major Brands
System Orientation	Portrait (2H x 5W x 6W)
Warranty	20 Years



DCE SOLAR serves as market leader in industrial grade solar mounting hardware and consulting. DCE Solar leverages world-class engineering, fabrication facilities and American master craftsmen to create a full catalog of superior fixed-tilt mounting solutions for ground arrays and fixed-tilt solutions for roofs.



Elevating the Future for Solar |  Made in America

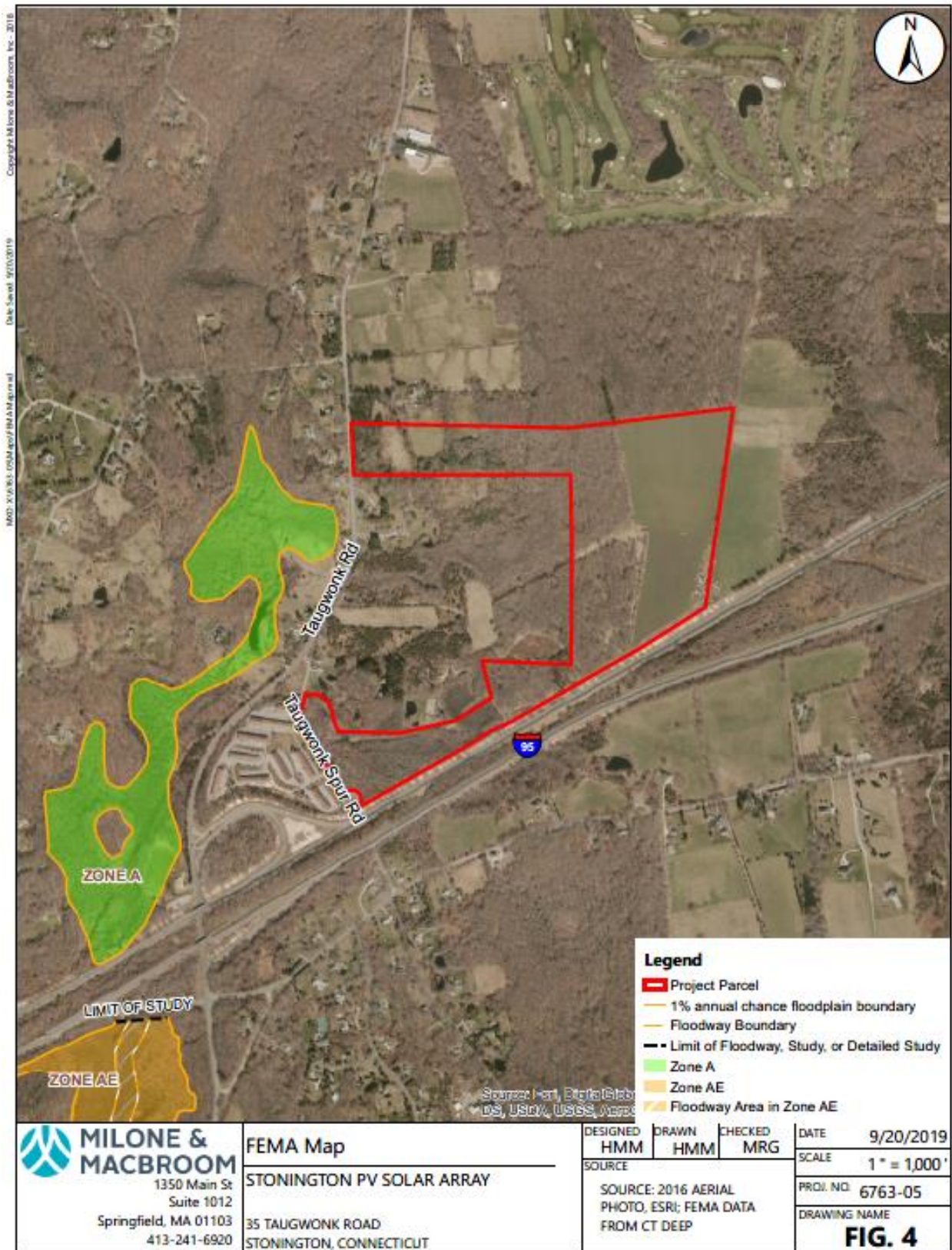
DCE Solar

19410 Jetton Road Suite 220 Cornelius, NC 28031 USA

Telephone: 704-659-7474 Fax: 704-875-0781

info@DCEsolar.com www.DCEsolar.com

Attachment C – FEMA Map



Attachment D – Wetland Delineation Map

