

DRAFT

**Docket 505
Haddam Quarter Solar, LLC
Johnson Lane, Durham, Connecticut
Development and Management Plan**

**Staff Report
August 11, 2023**

On December 6, 2021, the Connecticut Siting Council (Council) issued a Certificate of Environmental Compatibility and Public Need (Certificate) to Haddam Quarter Solar, LLC (HQS) for the construction, maintenance, and operation of an approximately 2.8 megawatt (MW) solar photovoltaic electric generating facility located north of Johnson Lane in Durham, Connecticut and associated electrical interconnection (Project). In its Decision and Order (D&O), the Council required HQS to submit a Development and Management (D&M) Plan in compliance with Sections 16-50j-60 through 16-50j-62 of the Regulations of Connecticut State Agencies (RCSA).

On June 12, 2023, in compliance with RCSA §16-50j-61(d), HQS submitted the D&M Plan for the facility to the Council. The Council issued interrogatories to HQS on June 27 and July 28, 2023. HQS submitted responses to the interrogatories on July 18 and July 28, 2023.

Pursuant to RCSA §16-50j-60(d), the Council is required to approve, modify or disapprove a D&M Plan not later than 60 days after receipt of the D&M Plan and therefore, August 11, 2023 was the deadline for a Council decision on this D&M Plan. By letter dated July 25, 2023, the Council requested an extension of time until September 23, 2023 to approve, modify or disapprove the D&M Plan. By letter dated July 28, 2023, HQS granted the extension of time.

The Project is located on an approximate 10.5-acre site located on a 48.4-acre host parcel abutting Haddam Quarter Road to the north and Johnson Lane to the south. The solar facility will be constructed in an open field area north of Johnson Lane.

After the Certificate was issued, the facility was reduced in size from 2.8 MW AC (original facility) to 1.95 MW AC (reduced facility) to be eligible for participation in the Non-Residential Renewable Energy Solutions (NRES) Program, the successor to the Low Emission Renewable Energy Credit and Zero Emission Renewable Energy Credit (LREC/ZREC) Program. NRES Program contracts are limited to proposals with a generating capacity of 2 MW or less.

The original facility consisted of Trina Solar 465W panels that met Toxicity Characteristic Leaching Procedure (TCLP) nonhazardous waste regulatory criteria. For the reduced facility, HQS intends to use Vietnam Sunenergy JSC 550W panels (VSUN550).

TCLP results for the VSUN550 panels are not available. TCLP results conducted by the manufacturer were provided for similar panel models- VSUN535 and VSUN545- together with correspondence stating that these panel models are the same in manufacture to the VSUN550. The submitted TCLP results indicate the VSUN 535 panels do not meet TCLP criteria for lead with a result of 10.3 mg/L (5.0 mg/L regulatory limit). The VSUN545 panels did meet TCLP criteria for lead with a result of 4.9 mg/L.

The Council will require TCLP test results for the selected solar panels that indicate the panels would not be characterized as hazardous waste at the time of disposal, under current testing criteria prior to installation at the site.

Condition No. 1 of the D&O requires a copy of the DEEP-issued Stormwater Permit to be submitted prior to commencement of construction. The permit application has been filed with DEEP.

Condition No. 2 of the D&O requires the following information to be included in the D&M Plan:

- a) **A final site plan including, but not limited to, final facility layout, access road, electrical interconnection including riser pole locations, equipment pads, fence design, and stormwater management control structures;**

The final site plan includes the final facility layout, and specifications for the access drive, electrical interconnection, equipment pad, perimeter fence design and stormwater management control structures.

The reduced facility will consist of 5,496 VSUN550 solar panels rated at 550 Watts with an output of 1.95 MW AC. The output of the original facility was 2.8 MW AC (7,434 Trina solar panels rated at 465 Watts). The solar panels will be installed at a 25-degree angle on a fixed, post-mount racking system. A 16.5-foot vegetated aisle will be established between panel rows. The fenced area of solar array would occupy approximately 8.9 acres.

Access to the facility will be from two, 15-foot wide gravel access drives extending north from Johnson Lane; one on the east end and one on the west end of the site. The east access drive will extend for approximately 80 feet to facilitate post-construction maintenance activities. The west access drive will extend for approximately 150 feet, to the facility equipment pad. Site access would be controlled by two 20-foot wide swing gates.

A 15.5-foot by 17.5-foot concrete equipment pad will be installed along the west end of the solar array for a transformer, switchgear, switchboard and data acquisition system. From the equipment pad, two utility poles, owned by Eversource, would be installed adjacent to the west end of the access drive to support the meter and recloser.

Thirteen inverters will be located on a rack adjacent to the equipment pad. Noise from operation of the inverters and transformers would not exceed 55 dBA at the nearest property line.

A seven-foot tall agricultural fence with a 6-inch mesh, compliant with the current National Electrical Code, will be installed to enclose the solar array and equipment pad. A minimum 15-foot wide clearance would be maintained between the fence and the solar panel rows.

One permanent stormwater management basin will be constructed at the southeast end of the site with an outflow directed to a downgradient wetland area. Grass-lined swales with riprap outflow structures will be established near both access drives. Gravel drip edge dissipaters will be installed where the solar panel rows are installed on a small knoll that has a grade of 20-25 percent. The dissipaters will direct flows to a gravel berm at the base of the knoll.

- b) **Erosion and sedimentation control plan consistent with the 2002 Connecticut Guidelines for Erosion and Sedimentation Control and the DEEP-issued Stormwater Permit including, but not limited to, temporary sediment basin details, site stabilization seeding/growing season details prior to the installation of post driving/racking system, site stabilization measures during construction, inspection and reporting protocols, methods for periodic cleaning of temporary sediment traps and swales during construction, and final cleaning of sediment traps/stormwater basins upon site stabilization;**

The D&M Plan includes erosion and sedimentation (E&S) control measures consistent with the 2002 Connecticut Guidelines for Erosion and Sedimentation Control (2002 E&S Guidelines). E&S controls include but are not limited to, filter sox around the perimeter of the work area, and the installation of two temporary sediment traps and two diversion swales.

Disturbed areas will be stabilized no later than 7 days if no work is occurring in the area. Stabilization blankets will be used in areas where slopes are 2:1 or greater. Temporary sediment traps, swales and E&S controls will be inspected weekly and after storm events, as specified the Stormwater Pollution Control Plan (SWPCP) that will be part of the DEEP-issued Stormwater Permit required for the Project. Sediment traps will be cleaned once the basin accumulates sediment to half its capacity. Post-construction inspection protocols will be in accordance with SWPCP.

- c) **Site construction detail/phasing plan including, but not limited to, construction laydown area, site clearing/grubbing, site grading, excess earth material disposal locations, and soil stockpile locations;**

Construction of the Project will require the disturbance of an approximate 11.5-acre area.

The Project would be constructed in two main phases, the Pre-Construction Sequence and the Construction Sequence, as follows:

Pre-Construction Sequence- A pre-construction meeting will be held to flag the limits of disturbance and to discuss E&S control measures. A construction entrance will be established at each access drive location. Trees and other vegetation will be removed to establish perimeter E&S controls, followed by the installation of sediment traps and swales. A temporary soil stockpile would be established near the eastern temporary sediment trap. The access drives and the sediment traps and swales will require site grading. No other grading is specified.

The disturbed areas would be stabilized with straw mulch/seeding prior to the commencement of the Construction Sequence. A growing season has not been specified but could be required as part of the DEEP Stormwater Permit.

Construction Sequence- Installation of electrical infrastructure including equipment pads and conduit, racking posts and framing, and solar panels. Upon completion of construction, the site will be stabilized with specified seed mix. The north sediment trap will be removed, replaced by a permanent gravel berm installed along the edge of the panel rows. The eastern sediment trap will be cleaned and converted into a permanent stormwater basin.

d) Modification of the limit of disturbance to increase the wetland buffer adjacent to the southeast temporary sediment trap, if feasible;

HQS determined it is not feasible to redesign the eastern temporary sediment trap to increase the existing 35-foot buffer to the wetland. The sediment trap will be installed in an existing agricultural field, improving water quality discharge to the wetland over its existing condition. Post-construction, the permanent sediment trap and related outfall will be 50 feet from the wetland, as specified by the DEEP Stormwater Permit, Appendix I.

e) Final Landscaping Plan including, but not limited to, tree removal inventory, landscape plantings, pollinator plantings, and final seed mix;

HQS included a Final Landscape Plan in the D&M Plan. The plan specifies tree removal areas along Johnson Lane and in two locations along the north edge of the site.

Landscape planting includes the installation of 71 shrubs/small trees along Johnson Lane consisting of native shrubs, dwarf trees, and arborvitae, and the installation 120 native shrubs/small trees in two areas along the north side of the site. The native shrubs are berry producing species to enhance wildlife value.

Final stabilization will utilize various seed mixes for different areas of the site. The solar array will be seeded using a mix that includes a variety of grasses and forbs, including native species that support pollinator wildlife species. Areas outside of the solar array will be seeded with a wetland/conservation mix that include species tolerant of moist areas. The stormwater basin will be seeded with a wetland mix.

f) Post-Construction Operations and Maintenance Plan that includes inspection of facility components, vegetation and stormwater basin/controls, corrective/remediation measures, and vegetation/site management procedures;

A post-construction Operations and Maintenance (O&M) Plan has been established that includes provisions for an annual field inspection of physical site features, structural and electrical components, and the stormwater management system. Annual preventative maintenance tasks will be performed during the inspection, if necessary. Drone reconnaissance will also be performed annually or bi-annually to observe site conditions.

Corrective action maintenance/repair procedures are included within the O&M Plan.

Mowing of the site and trimming of trees and shrubs will occur on an as needed basis.

g) Agricultural Co-use Plan;

HQS does not intend to have an agricultural co-use at the site. Farming operations will continue on the host parcel, outside of the site boundary.

h) Spill Prevention Control Plan with details of fuel storage and refueling;

The D&M Plan includes a Spill Prevention Control Plan. Site Plan GN-2 contains fuel and oil storage inspection protocols and spill containment/cleanup procedures. Contact information has been provided for the Spill Response Contractor (ACV Enviro Corporation) and the DEEP Spill Emergency Response and Spill Prevention Unit.

i) Electric interconnection that reduces the number of utility poles to the extent feasible;

The original facility proposed an interconnection that required 7 utility poles. HQS subsequently redesigned the interconnection for the reduced facility to include a pad-mounted relay and metering equipment as part of the D&M Plan. This redesign only requires two new utility poles on Eversource's side of the meter to support Eversource's interconnection equipment. The poles will be set back from Johnson Lane.

j) Final structural design for solar module racking system stamped by a Professional Engineer duly licensed in the State of Connecticut; and

The D&M Plan includes structural details of the racking system, stamped by a Professional Engineer licensed in the State of Connecticut. The structural design includes tolerances for wind and snow loading.

k) Project construction hours/days of the week.

Construction hours will be Monday through Friday between 7:00 a.m. and 4:00 p.m.

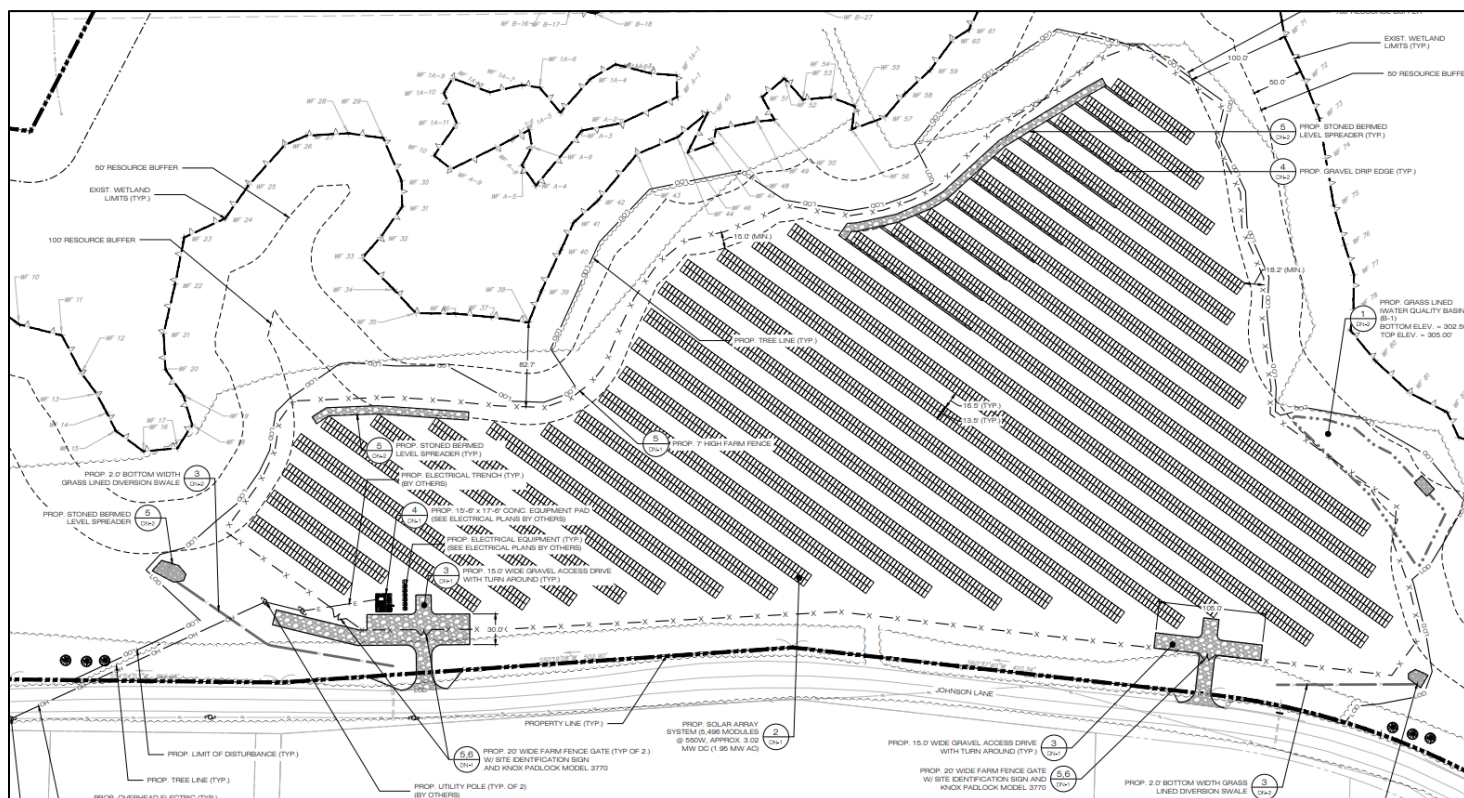
Conclusion

The D&M Plan is in compliance with the Council's D&O dated December 2, 2021.

If approved, staff recommends the following condition:

1. Submit TCLP test results for the selected solar panels that indicate the panels would not be characterized as hazardous waste at the time of disposal, under current testing criteria.

Site Plan



(Landscaping not shown)