From: Gina Wolfman < gina.wolfman@cleanfocus.us >

Sent: Tuesday, April 21, 2020 3:56 PM

**To:** Anderson, Stephen < Stephen.Anderson@ct.gov >; tollandc@snet.net; Kip.Kolesinkas@gmail.com;

wrobinson35@hotmail.com

**Cc:** Hoffman, Lee D. < <u>LHoffman@PULLCOM.COM</u>>; Shannon, Lance < <u>Lance.Shannon@ct.gov</u>>; Weimar,

Cameron <Cam.Weimar@ct.gov>; Hurlburt, Bryan <Bryan.Hurlburt@ct.gov>; Wilson, Nathan

 $<\!\!\underline{\text{Nathan.Wilson@ct.gov}}\!\!>; Bachman, Melanie <\!\!\underline{\text{Melanie.Bachman@ct.gov}}\!\!>; Jean-Paul \ La \ Marche <\!\!\underline{\text{jean-paul La Marche}}\!\!>; La \ Marche <\!\!\underline{\text{melanie.Bachman@ct.gov}}\!\!>; La \ Marche <\!\!\underline{\text{melanie.Bachman@ct.gov}}\!>; La \ Marche <\!\!\underline{\text{melanie.Bachman@ct.$ 

paul.lamarche@cleanfocus.us>

Subject: RE: Farmland Restoration Plan Application

+ M. Bachman

Steve, Barbara and Kip,

I hope you're all doing well during these extraordinary times.

On behalf of Wayne and Sue Robinson, I'm pleased to provide the following documentation associated with the Spur Farm Farmland Restoration Plan, prepared to satisfy Conditions 1 and 2 of Greenskies' CT Siting Council Petition #1378 Decision Document:

- Comment-Response letter to CT DOAg;
- Revised CSC Pet 1378 Farmland Restoration Plan with new and/or revised attachments only;
- Redline version of Farmland Restoration Plan Revisions.

Let me know if have any questions or comments. I look forward to hearing from you and finalizing the plan for submission to the Council.

With kind regards,

Gína L. Wolfman

Senior Project Developer/ Permitting Specialist Greenskies Clean Energy 180 Johnson St. | Middletown, CT 06457

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From: Anderson, Stephen [mailto:Stephen.Anderson@ct.gov]

Sent: Wednesday, April 8, 2020 12:46 PM

To: wrobinson35@hotmail.com

**Cc:** Gina Wolfman <<u>gina.wolfman@cleanfocus.us</u>>; Hoffman, Lee D. <<u>LHoffman@PULLCOM.COM</u>>; Shannon, Lance <<u>Lance.Shannon@ct.gov</u>>; Weimar, Cameron <<u>Cam.Weimar@ct.gov</u>>; Hurlburt, Bryan



April 21, 2020

Stephen Anderson State of Connecticut Department of Agriculture 450 Columbus Blvd., Suite 701 Hartford, CT 06103

Re: Farmland Restoration Plan (CSC Petition #1378) Stonington CSCU-Taugwonk Road

Dear Mr. Anderson,

As requested in your April 8, 2020 letter to Wayne Robinson, owner of 35 Taugwonk Spur Rd., Stonington, we've revised the Farmland Restoration Plan (attached) for the above-referenced CT Siting Council Petition. We have incorporated as many as possible of the recommendations provided in the Spur Farm Inspection Report, dated February 2020, and prepared by representatives of the North Central Conservation District (NCCD), however some of the comments are not possible because they would impact wetland areas, require more tree removal, or do not apply because they are directed at the solar array which is already approved by the siting council and has an approval under the DEEP general stormwater permit.

As you're aware, Wayne was required to apply to the CT Department of Agriculture's (DOAg's) Farmland Restoration Program pursuant to the Connecticut Siting Council (CSC) decision dated October 11, 2019, for Greenskies Renewable Energy LLC's siting of a 5.0 +/- MW solar photovoltaic facility located at Spur Farm. Please be aware the Robinsons do not intend to apply for reimbursement or any funding from the State to implement restoration activities within their property.

The following provides an overview of all comments presented by representatives of the North Central Conservation District in the Spur Farm Inspection Report, FLRP Application 19-301 dated February 2020 and provided to the DOAg in April 2020. In addition, responses note where in the revised plan comments have been addressed.



#### Section 3.0:

Comment 1: There are a number of errors in the soils description, such as Merrimac, not Merrimack

Comment 2: Most of these soils are deep, not moderately shallow.

Response: Addressed in Section 3.0, paragraph 3, p. 7.

Comment 3: More complete review of the soil survey should have been done for the area of the array as well as possible restoration areas. Only additional wetland mapping appears to be done. Some of the areas of the original NRCS mapping need modification and/or correction to better identify limitations important to the restoration activities.

Response: In Section 3.0, paragraphs 4 – 10, pages 7-8, see detailed discussion of onsite NRCS soil mapping verification study performed as required by CT DEEP's proposed Appendix I to the Stormwater General Permit for Construction. A soil scientist from Milone & Macbroom (MMI) completed the field investigation in September 2019. In addition, a deep-hole test pit study was conducted by MMI's project design engineer on August 16, 2019. Please see new Figure 4A – Soil Test Pit Locations, Revised Figure 6 – Prime Farmland Soils Map, Revised Figure 7 – Farmland Restoration & Agricultural Co-use, and new Appendix D – Deep Soil Test Pit Logs and Location Map; Stormwater Report Excerpts on Soil Mapping.

In addition, Section 7.0, paragraphs 4 and 5 on page 13 address conditions in potential restoration areas observed during the site inspection with NCCD representatives.

#### Section 4.0:

Comment 1: Avoid the installation of panels and racking and heavy equipment on fields when the soils are at or above field capacity (to reduce compaction).

Comment 2: Wait a minimum of 24 hrs after a rainfall of >1/2" before resuming activities.

Response: While we appreciate the District's feedback, the array area design has already been approved by the CT Siting Council and has an approved CT DEEP Stormwater General Permit, thus their review on this matter is not applicable. Addressed in Section 4.0, paragraph 4, on pages 9-10.

Comment 3: Perform baseline soil compaction tests and nutrient analysis in solar array area, with additional compaction tests post installation. Use soil test to guide



applied nutrients for desired vegetation, test every 2-3 years and apply nutrients accordingly. This will help maintain the desired vegetation and reduce invasives and other undesirable species.

Response: While we appreciate the District's feedback, the array area design has already been approved by the CT Siting Council and Greenskies has an approved CT DEEP Stormwater General Permit, thus their review on this matter is not applicable. The approved Operations & Maintenance Plan for the site does not include post-construction soil testing within the solar facility. Wayne Robinson/landowner has tested the soil regularly over the years in coordination with his fertilizer company to develop an application protocol. If available, this information can be provided as a baseline.

Comment 4: Trenching and other cuts and fills should be avoided as much as is practical. Trenching should sequence the removal and replacement of soil horizons and compaction as close to original conditions as possible. Areas excavated for pads and roads should also stockpile topsoil, subsoil, and substratum horizons separately. Consider installing engineering fabric with gravel topcoat directly over the soil surface for the less intensely used roadways. This eliminates the need for excavation/grading. A soil scientist should be present during trenching, grading to guide this effort.

Response: Addressed in Section 4.0, paragraph 3, on page 10. With regard to the latter portion of this recommendation the array area design has already been approved by the CT Siting Council and Greenskies has an approved CT DEEP Stormwater General Permit, thus the District's review of project engineering and design is not applicable.

#### Section 5.0:

Comment 1: Any soil materials not used immediately for farmland restoration should be stockpiled and stabilized with grass plantings.

Response: Comment addressed in Section 6.2, paragraph 2, page 12.

#### Section 6.0:

Comment 2: Ensure that the preservation of topsoil described in Section 6.2 is reflected in construction plans.

Response: Construction Plans have been finalized by the project design engineer and submitted the CT Siting Council. The Prime Farmland stockpile location is denoted on the drawing. The final Farmland Restoration Plan, with soil management procedure will be appended to the construction drawing set and Greenskies construction management personnel will conduct on-site training with the selected contractor.



#### Section 7.0:

Comment 1: Currently the total acreage of the area shown for restoration is less than the acreage that will be lost due to the array and infrastructure. This is due to not accounting for lost area due to wetlands and unsuitable soils. Some additional acreage was identified during our field visit but needs further verification and geo-referencing to guide restoration. I believe it will be possible to meet the desired acreage goal.

Response: As presented in Section 4.0, paragraph 2, page 9, actual permanent disturbance area of Prime Farmland Soils shall include the penetration points of all posts for the project's racking system, access roads, stormwater basin No. 1 and equipment pads. This amounts to 2.5 +/-acres and, therefore, landowner's restoration area must cover at least this much area. Proposed restoration areas amount to 9.52 +/-acres, of which 2.84 acres are located within 100' wetland buffer/setback areas where landowner might choose to not extend farming activities. The more conservative total is then 6.7 +/- acres, a total that more than satisfies this requirement.

Some of the additional acreage identified during the field visit with NCCD representatives might be within the 100' buffer/setback of delineated wetlands. CTDEEP Stormwater General Permit, Appendix I requires a project 100' no disturbance area around all wetlands. In addition, the Robinsons do not want to expand farming activities into areas that will require local inland wetlands permits.

#### Section 8.0:

Comment 1: Section 8.2.2 does not specify a time period for the 20 hours.

Response: The 20 hours will all occur within one "season" and the apiary manager/site beekeeper will determine the duration of the season.

Comment 2: Consider some perimeter areas to be managed for more intense hay and/or apiary production. Planting of clover/birdsfoot trefoil, or annuals like buckwheat, mustards, etc. can increase honey production at critical times. Clover/trefoil can also be harvested as hay or greenchop.

Response: This recommendation will be considered by the Robinsons (and at their discretion) once the apiary is established. The proposed seed mix being incorporated into the construction specs is the Ernst Seed company Fuzz & Buzz Mix – Premium. It includes various species of clover as well as Bird's foot trefoil. The spec sheet for this seed mix has been added to Appendix C of the plan.



Comment 3: Manage soil nutrients as per separate soil tests for the planted array and berry production area.

Response: Greenskies does not intend to perform soil testing within the array area. This is not part of the Operations & Maintenance Plan approved by the Siting Council, nor is it prescribed in the Decision Document as one of the conditions required by the Department. Soil testing within the berry production area will be performed at the landowner's discretion and based on conditions during implementation of this activity.

Comment 4: Although the soils are suitable for brambles (berry production), the described scheme is not in keeping with current recommended production practices. Please refer to the New England Small Fruit Management Guide for more information.

Response: The Robinsons appreciate this recommendation and will, at their discretion, consider such practices.

Comment 5: Ideally, an irrigation/water source would be needed for consistent apiary and fruit production, since climate change can produce irregular rainfall patterns. Perhaps a gutter system could be installed on the drip edge of solar panels, outletting into a cistern?

Response: The project apiary manager/beekeeper does not require a water source or irrigation on-site. Approved project design is complete and procurement of equipment is underway. Greenskies will not install drip edges on the panels to direct water to a cistern within the project area. If water is needed at some point, alternatives will be considered (e.g. on-site tank, portable water tanks to be filled at the Robinson's property, collection containers).

Comment 6: The farmer may also wish to contact Mary Concklin from UConn Extension as well; she is an excellent resource for fruit growers

Response: The Robinsons appreciate this recommendation and will, at their discretion, reach out to the contact provided.

#### Section 9.0:

Comment 1: Some of this information is incorrect. The site and surrounding hedgerows and woods are filled with invasives, both in the area to be restored as well as near the array. A plan for edge mowing and possible spot treatment will be critical to protect the plantings and solar array infrastructure. Mowing several times a year will probably be important for the first several years.



Response: Addressed in Section 9.0 on page 16..

#### Maps and Appendices:

New Figure 4A – Soil Test Pit Locations Revised Figure 6 – Farmland Soils Map Revised Figure 7 – Farmland Restoration & Agricultural Co-use Map Addition to Appendix C – Fuzz & Buzz Seed Mix New Appendix D – Deep Soil Test Pit Logs and Location Map and Stormwater Report Excerpts on Soil Mapping

We request that you/the Department accept the plan as revised. Please let me know if you have any questions or comments. I can be reached via email (<a href="mailto:gina.wolfman@cleanfocus.us">gina.wolfman@cleanfocus.us</a>) or remote landline and cell (203-270-1398; 201-816-7165).

Sincerely,

## Gína L. Wolfman

Gina L. Wolfman Senior Developer/Permitting Specialist Greenskies Clean Energy LLC

Cc: B. Kelly (NCCD)

K. Kolesinkas (NCCD)

L. Shannon (CT DOAg)

C. Weimer (CT DOAg)

<Bryan.Hurlburt@ct.gov>; Wilson, Nathan <Nathan.Wilson@ct.gov>

**Subject:** Farmland Restoration Plan Application

Hi Wayne,

Please see the attached letter concerning comments on the Farmland Restoration Plan (note I also attached the report from the North Central Conservation District). Please let me know if you have any questions or concerns.

Thanks Steve

Stephen Anderson | Supervising Environmental Analyst Connecticut Department of Agriculture 450 Columbus Blvd., Suite 701 Hartford, CT 06103

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## **DRAFT**

## **Farmland Restoration Plan**

# 35 Taugwonk Spur Road in Stonington, Connecticut CT Siting Council Petition #1378

Prepared for Connecticut's Conservation Districts and The Connecticut Department of Agriculture

Reviewed by:

North Central Conservation District

Kip Kolesinkas Barbara Kelly Emily Perko

April 21, 2020



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Figure 2 – Existing Conditions Map

Figure 3 – Site Survey

Figure 4 – Existing Soils Map

Figure 4A – Soil Test Pit Locations

Figure 5 – Proposed Site Layout (Aerial Map)

Figure 5A & Figure 5B –Site Layout & Grading Plan

Figure 6 - Prime Farmland Soils Map and Report

Figure 7 – Farmland Restoration & Agricultural Co-use Map

Figure 8 – Sample Soil Array Seed Mix Photos

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#### LIST OF APPENDICES:

Appendix A – CT Dept. of Agriculture and CT Siting Council Documentation

Appendix B – Farmland Restoration Program Application

Appendix C - Agricultural Co-Use Documentation

Appendix D – Deep Soil Test Pit Logs and Location Map; Stormwater Report Excerpts on Soil Mapping



#### 1.0 Introduction

This is a Farmland Restoration Plan for the development of a 5.0 +/- megawatt (MW) alternating current (AC) ground-mounted solar photovoltaic (PV) facility on a parcel of land located at 35 Taugwonk Spur Road, Stonington, Connecticut. See Figure 1 – Site Location Map.

The Project site is located on an 86.78-acre parcel in central Stonington situated east of Taugwonk and Taugwonk Spur Roads and north of Interstate 95. The Stonington Assessment Department lists the parcel as 84-1-2 and ownership is currently vested in Wayne Robinson. The parcel makes up a portion of the Robinson family's 151-acre farming operation, Pequot Meadow Farm, started by Wayne's father George Robinson. The area currently comprising Pequot Meadow Farm has been used as pasture and agricultural land for over 100 years. Despite its agricultural past, the site is no stranger to development. In 1960, 17 acres of farmland were acquired through eminent domain to construct the stretch of Interstate 95 that now splits the farm in two. Earlier that century, three acres were acquired by the Mystic Power Company through eminent domain to construct a transmission line that also bisects the parcel. See Figure 2 – Existing Conditions and Figure 3 – Site Survey.

While the Robinsons continue to try to preserve the agricultural character of the area, the economic realities of farming threaten the vitality of the family's business. For the last several decades, Wayne Robinson has worked second shift as a machinist, dedicating his mornings to work on the farm. At nearly 80 years of age, maintaining the family farm has become an increasingly difficult task for George Robinson. Greenskies Clean Energy LLC ("Greenskies") is leasing the Project site from the Robinson family so that the land will remain with the Robinsons. The income generated by the Project lease will allow Wayne to retire from his job as a machinist so he can farm full-time, replace outdated equipment, and invest in the family business.

The site is located within a mixed residential, agricultural, and light industrial area of New London County. The parcel itself straddles two zones in the town of Stonington: Light Industrial (LI-130) and Greenbelt Residential (GBR-130). Wayne Robinson currently resides on an abutting parcel just north of the access road from Taugwonk Spur Road. An avid carpenter, Wayne actively harvests the forest on site to build furniture and harvested lumber sourced on site to construct buildings on his property. The eastern fields on the site are currently used to cultivate hay which is sold to horse farms in Rhode Island.



Greenskies submitted Petition #1378 to the Connecticut Siting Council (CSC) on August 20, and received approval on October 10, 2019. Due to the presence of Prime Farmland soils on-site (See Figure 4 –Existing Soils Map and Figure 6 – Prime Farmland Soils Map), the CT Department of Agriculture ("DOAg") reviewed the proposed project plans and submitted conditions to the CSC to include in the Decision Letter (see Appendix A). Such conditions are summarized in Section 3.0, below. Greenskies worked with the landowner/farmer to prepare and submit a Farmland Restoration Program (FLRP) Application to the CT DOAg on November 22, 2019 (see Appendix B) for review and assignment to a Conservation District to implement this Farmland Restoration Plan. The purpose of this Farmland Restoration Plan is to address and meet the conditions set forth in the CSC Decision Letter, dated October 10, 2019 (see Appendix A).

## 2.0 Overview of Proposed Solar Project

The site entrance for the Project will be located at the end of Taugwonk Spur Road (at the southwestern end of the site), which serves various commercial/industrial uses. Taugwonk Spur Road connects to Taugwonk Road, approximately 1,800 feet from I-95 interchange 91. The surrounding road network is anticipated to readily support construction-related traffic.

There is an existing, 3,600-foot/.68-mile gravel access road originating at 35 Taugwork Spur Road. This pre-existing road will be utilized to access the Project site, and additional on-site, 15-foot wide gravel roads will be constructed to provide access to the proposed solar PV facility, as shown in Figure 5 – Proposed Site Layout. A total of .54 miles of existing road will be used, and approximately .4 miles of new onsite road is proposed.

The site is relatively flat and minor (if any) grading is anticipated along the proposed access roads. Two stormwater management basins will be excavated/installed at the site, one in the northeast corner of the project area (Stormwater Basin 1) and one along the western side of the project area (Stormwater Basin 2). Prime farmland soils are present within both stormwater basin locations and will be managed/stockpiled on-site before being reused in the future by the landowner to expand his hayfields to the west. The proposed location of the temporary



stockpile is west of the access road and south of the existing transmission line right-of-way. See Figures 5A and 5B – Site Layout & Grading Plan, for locations of the basins and stockpile.

The proposed Project is comprised of six, independently-metered systems with a total design capacity of about 5.0 +/- MW AC. The proposed solar PV facility has been sited on the parcel to avoid and minimize potential impacts to natural resources and other areas of interest, while maximizing the use of previously disturbed areas. Driven post panel racking systems will be utilized throughout the Project site, unless subsurface conditions require an alternative installation method, which will be determined during pre-construction, geotechnical analysis. Posts are typically driven into the earth to depth of 9 feet below grade. The proposed facility layout is shown in Figures 5A and 5B – Site Layout and Grading Plan.

Wiring that connects the panels will be placed in above grade wire systems/cable trays or trenched conduits. The area under the panels will remain vegetated and will be seeded with a pollinator mix consisting of native New England species. See Figure 8 – Sample Array Seed Mix Photos and Figure 9 – Sample Wildlife Conservation Seed Mix Photos.

## 3.0 Existing Site Soil Conditions

The uppermost geologic formation underlying the soils at the subject property is the Proterozoic Z age Mamacoke Formation. The Mamacoke Formation comprises the underlying stratigraphy and consists mostly of interlayered light-to dark-grey, medium-grained gneiss, composed of plagioclase, quartz, and biotite; sillimanite, garnet, hornblende, or microcline in certain layers; in upper part locally contains quartz-sillimanite nodules or thin layers of quartzite, amphibolite, or calc-silicate rock.

Based on initial review of information obtained from the USDA Natural Resources Conservation Service (NRCS) Web Soil Survey online database, the site is mapped as several soil types. The northwestern portion is mapped as mainly Merrimac fine sandy loam, the northeastern and northcentral portions are mapped as Rainbow silt loam (with a small portion of the northeast corner of the site Woodbridge fine sandy loam), the southeastern portion is mapped as mostly Paxton and Montauk fine sandy loam, and the southwest portion is mapped as mostly Udorthents-Urban land complex. The Rainbow and Woodbridge soil series are designated by



NRCS as "C" and "C/D" hydrologic soil groups, respectively. See Figure 4 – Existing Soils Map and associated Soil Report.

The Merrimac series consists of deep, somewhat excessively drained, moderately high to highly permeable soils formed from loamy glaciofluvial deposits derived from granite, schist, and gneiss over sandy gravelly glaciofluvial deposits derived from granite, schist, and gneiss. Depth to water table is typically > 80", as is depth to restrictive feature. The Rainbow silt loam consists of moderately well drained soils formed from Eolian deposits over coarse-loamy lodgment till derived from gneiss and/or schist and/or sandstone and/or basalt. Depth to water table is typically about 18" to 30" and depth to restrictive feature 20" – 40". The Paxton and Montauk series consist of well drained, very slow to moderately slowly permeable soils formed from coarse-loamy lodgment till derived from gneiss, granite, and/or schist. Depth to water table is typically about 18" to 37" and depth to restrictive feature 20" to 39".

As part of project site analysis and permitting, Greenskies performed all required reviews of the soil survey to meet Siting Council and CT DEEP stormwater permit provisions and guidelines. As required by CT DEEP's proposed Appendix I to the Stormwater General Permit for Construction, on September 26, 2019, a soil scientist from Milone & Macbroom (MMI), project civil engineer and environmental consultant, completed a field investigation to confirm the mapped soil series and verify the hydrologic soil groups. A total of seven test pits were dug by hand to a depth of 24 inches or 2 feet below grade within the project limits. Five of the test pits were dug within the existing agricultural field where the proposed solar panels will be located, and two test pits were located within the forested area where the proposed sediment basin will be located. See Figure 4A – Soil Test Pit Locations.

Four deep-hole test pits were dug on the site on August 16, 2019, in the vicinity of the proposed stormwater management basins. Test Pits 1, 2, and 3 were dug at approximately each end and the center of the proposed westerly basin. Groundwater was observed at 7.7', 8.0', and 7.0', respectively. Test Pit 4 was dug in the area of the proposed easterly stormwater management basin, and groundwater was observed at 5.5'. Test pit logs and a location map can be found in Appendix D.



In general, the five test pits (TP-1 through TP-5) completed within the agricultural field were consistent with NRCS mapping. The soil encountered consisted of a relatively thick Ap horizon ranging from 6 to 9 inches; dark brown (10YR 4/2) silt loam; weak fine granular structure; very friable with a clear distinct boundary; followed by a Bw horizon to the bottom of the test pits consisting of yellowish brown (10YR 5/6) silt loam; weak blocky structure; few fine roots; and few pebbles.

The two test pits within the forested area (TP-6 and TP-7) were also consistent with NRCS mapping. The Rainbow silt loam within the wooded area is very stony in the upper horizon with a relatively thick (4 inches) humic organic layer underlain by a distinct Ap horizon (10 to 12 inches) consisting of dark brown silt loam (10 YR 4/2); weak friable granular structure; followed by Bw horizon (13 to 18 inches) consisting of yellowish brown (10 YR 5/4) silt loam with stones; and weak blocky structure.

A Group "C" soil is defined by the NRCS as soils having a slow infiltration rate when thoroughly wet and consists chiefly of soils with a layer that impedes downward movement of water or soils of moderately fine texture or fine texture.

Based on the test pits, the mapped hydrologic group of "C" is consistent with the results of the field investigation. In general, the upper 12 inches of soil consists of silt loam that has been farmed historically, or actively with a distinct boundary and weak granular structure, underlain by a fine-grained subsoil with a weak block structure that would impede downward movement of water with soils consisting of a moderately fine texture.

For the purposes of the stormwater assessment, the soils were assigned a hydrologic soil group "D" for proposed conditions in accordance with recent CTDEEP policies regarding solar projects. CTDEEP requires the hydrologic soil group be reduced by one step to account for soil compaction due to construction activity. Stormwater analysis was performed in consideration of these guidelines and Petitioner received approval on their stormwater general permit application on November 14, 2019. A full version of the final Stormwater Report, Revised October 7, 2019, can be found in the CT Siting Council's public records for Petition #1378.



#### 4.0 Preservation of Prime Farmland Soils

The majority of the proposed Project area contains soils classified by the NRCS as Prime Farmland, however, no Farmland of Statewide Importance Soils have been mapped within the Project area. These designated soils series have been determined to have the potential to support agricultural practices by federal, state, and local organizations. As articulated in the Department of Agriculture's letter to the Siting Council, Greenskies plans to reduce/minimize the potential for adverse impacts to these important soils, and assure that their agricultural integrity is preserved, throughout all phases of development, operation, maintenance, and future decommissioning of the proposed solar facility. See Figure 6 - Prime Farmland Soils Map.

As noted, both soil types found within the Project area are Prime Farmland Soils. Rainbow silt loam comprises approximately 14.44 acres, or 94.6%, of the project area's limit of disturbance, while Woodbridge fine sandy loam makes up the remaining 5.4%, amounting to 0.81 acres. Permanent disturbance of Prime Farmland Soils within the project area includes: .75 acres of access road installation, .82 acres of stormwater basin excavation, .47 acres of equipment pads and 734 SF of post installation for the racking system; a total of 1,957 posts, each with a footprint of 6" x 9" will be used. Total permanent disturbance to/loss of Prime Farmland Soils amounts to a maximum of 2.5 acres, including trenching. To clarify, only Stormwater Basin No. 1 is sited on Prime Farmland Soils, as mapped by NRCS and field verified by project soil scientist. Temporary impacts to these soils as a result of the Project will be minimal and will take place entirely during construction. See Figure 6 – Prime Farmland Soils Map.

Since the grade of the proposed Project area is already suitable for solar panel racking, alterations to topography will be concentrated to the foundations of the Project's access roads and equipment pads, along with stormwater basins in the northeastern corner of the site (Phase 1 construction area) and western side of the project area (Phase 2 construction area). Displaced soils will remain on site, separated by profile layer as defined in the NRCS soil report accompanying Figure 4. Racking will be post-driven and will not cause a disturbance to the soil.

Since the array area design has already been approved by the CT Siting Council (under their authority over projects of this type and scale) and Greenskies has an approved CT DEEP Stormwater General Permit, the NCCD review on this matter is not applicable. Greenskies will



comply with all approval conditions and permit requirements and make the best effort to avoid compaction of soils within the project area. In addition, Greenskies will follow CT DEEP Stormwater General Permit requirements regarding time frames applicable to construction activities after various rain/storm events, particularly those with a rainfall of > ½". Once the solar farm/Project is online and vegetative cover is established, the only impact to prime farmland soils within the array area will be compaction from mowing as part of the O & M plan. Landowner will, likely, be contracted for mowing services and will utilize the same, if not smaller, equipment that's historically been driven through the fields as part of annual haying operations. Because a low-growing pollinator/meadow seed mix will be used, mowing is expected to occur 2 +/- times per season. Such vegetative cover will enhance the quality and nutrient content of the soil and provide habitat to support the on-site apiary, one of two agricultural co-uses to be implemented as part of this plan. The proposed use of the project area as a solar farm will preserve the majority of existing Prime Farmland Soils on the parcel for future agricultural use should the landowner's family or future property owner choose to convert the project area to such use at the end of the facility's life.

Trenching for conduits will be performed in compliance with all applicable electrical codes and standards. Trenching and other cuts and fills will be avoided to the extent practicable. Removal and replacement of soil horizons, and compaction, during trenching will be sequenced as close to original conditions as feasible.

## 5.0 Summary of CSC Petition Conditions

The Decision Letter prepared by the CSC includes the following conditions:

- The handling and management of any/all prime farmland soils disturbed by construction activities shall be in accordance with energy industry BMPs, including the most current Federal Energy Regulatory Commission (FERC) guidelines;
- Any/all prime farmland soils are separated and stored on the farm site, and shall be used and applied solely for agricultural purposes;
- In consultation with the farmland owner(s), a Farmland Restoration Plan shall be developed for the property to restore, at a minimum, an amount of acreage equivalent to the area disturbed, throughout the farm property for current and future agricultural purposes;



- The DOAg shall administer the Farmland Restoration Plan. Such Farmland Restoration
  Plan shall be prepared by a soil scientist who is approved by the Department of
  Agriculture, and is currently on contract with a Conservation District located in
  Connecticut, for the purposes of preparation and review of Farmland Restoration Plans;
- Greenskies shall be responsible for the costs of the farmland restoration work;
- In consultation with the DOAg, Greenskies shall conduct at least two co-location or dualuse agricultural activities on the site. Such co-location or dual-use activities shall include but are not limited to, creating native pollinator habitat, beekeeping, small livestock grazing, and select crop propagation;
- Any/all agricultural research reports, if any, by the University of Connecticut (UCONN),
   UCONN Cooperative Extension, and/or the Connecticut Agricultural Experiment Station of the dual-use agricultural activities conducted on the site shall be submitted to the DOAg.

## 6.0 Soils Management Plan

#### 6.1 Overview

Soils management is a necessary part of construction and preservation of farmland soils. The stockpiling process involves removal of the topsoil layer (top 6-8") and any other significant overburden soil layers. The topsoil is removed first and stockpiled in one pile and the soil layer below is also removed and stockpiled separately. When construction/installation of the solar facility is complete, the topsoil can be reapplied and spread over areas requiring seeding to provide a planting medium. Soils not needed for site restoration will remain in stabilized stockpiles until the landowner reuses the material onsite for additional agricultural purposes (e.g. expansion of hay fields). The storage period for stockpiled soil typically ranges from a few months to several years.

## 6.2 Soil Stockpiling and On-site Reuse of Prime Farmland Soils

Generally, soils throughout the solar array area will not be excavated or disturbed. Racking for the equipment will be post-driven and minor trenching will occur for subsurface conduits. Two, permanent, shallow stormwater basins will be installed in the northeastern corner of the site and along the western boundary of the project area. Only soils from Stormwater Basin No. 1 will be excavated, segregated and stockpiled for onsite reuse within the project area or for future,



agricultural purposes by the landowner. In addition, and as noted above in Section 4.0, soils to be managed will also be derived from installation of equipment pads and access road installation. Stormwater Basin No. 2 is not located on designated Prime Farmland Soils. As noted above in Section 4.0, trenching for conduits will be performed in compliance with all applicable electrical codes and standards. Trenching and other cuts and fills will be avoided to the extent practicable. Removal and replacement of soil horizons, and compaction, during trenching will be sequenced as close to original conditions as feasible. Trenches will be backfilled and remaining soil spread, seeded with a conservation/pollinator mix, and stabilized. Prime Farmland Soils will remain on-site and will be stockpiled (see Figure 7 – Farmland Restoration and Agricultural Co-use Plan) south of the transmission line and west of the proposed access road, in an area that will continue to be used by landowner for agricultural purposes (haying).

The topsoil will be placed into stockpiles at a designated location south of the solar array and west of the proposed access road as shown on the construction plans; see Figures 5A and 5B Site Layout and Grading Plan. Stockpiles will be treated with temporary soil stabilization and erosion control measures. Any soil materials not used immediately for farmland restoration will be stockpiled and stabilized with grass plantings. Topsoil stockpile height shall not exceed three meters (10 feet) and slopes will not exceed 12%. In addition, compaction of Prime Farmland Soils will be limited during construction. Periodically, and after each storm event or snow melt, the stockpile will be inspected, repaired, and reseeded if necessary to control erosion and loss of topsoil.

## 7.0 Restoration of Land for Future Agricultural Uses

As noted above, the Decision Letter prepared by the CSC includes the following condition requested by the CT DOAg:

In consultation with the farmland owner(s), a Farmland Restoration Plan shall be
developed for the property to restore, at a minimum, an amount of acreage equivalent to
the area disturbed, throughout the farm property for current and future agricultural
purposes;



As noted above in Section 4.0, the total permanent Prime Farmland Soil disturbance area/acreage is 2.5 ac. As part of this Farmland Restoration Plan, landowner is authorized to restore/reclaim portions of the parcel outside Greenskies' lease area. Such areas may not interfere with CT Siting Council approval and approved CT DEEP Stormwater General permit conditions and guidelines. As a result, no disturbance may occur within any 100-ft wetland setback/buffer areas associated with stormwater management for the solar project area.

To meet this condition, the landowner has agreed to restore land at two potential locations in the northwestern portion of the parcel for agricultural use (e.g. meadow/pollinator habitat, hayfield, pasture). In addition, landowner intends to expand the southern hayfield to the west and continuing haying for sale to horse farms in RI. During the site walk with North Central Conservation District representative, another suitable restoration area was identified south of the existing farm road west of the proposed array. The landowner prefers to not clear forest in that part of his property to create more fields. The total acreage of these potential restoration areas is 9.52 acres, much greater than the minimum required to replace permanently disturbed Prime Farmland Soils. Of this total, however, 2.84 acres are located within 100' wetland buffer/setback areas and 6.68 acres are located outside.

The landowners' preference is to restore the northwestern portion of their property for farming activities where mapped farmland soils are present, along with expanding existing haying operations to the west of the project access road. During the NCCD site visit, soils that could be classified as hydric were observed near the wetland boundary within the upland resource area. If and when the landowner chooses to expand this activity, he will stay well beyond any potentially "wet" areas. See Figure 7 – Farmland Restoration and Agricultural Co-use Plan.

## 8.0 Co-location and/or Dual-use Agricultural Activities

#### 8.1 Overview

Greenskies is currently developing a series of dual-use programs designed to incorporate agriculture and conservation in system design at various project sites. In addition, Greenskies has met with Dr. David L. Wagner (Ecology & Evolutionary Biology Dept.) and hopes to consult with him in an in advisory capacity regarding native pollinator habitat enhancement for future projects. Due to seasonal constraints, the beekeeping (apiculture) initiative will be tested on



one of Greenskies' existing solar facilities, the Antares Solar Farm in East Lyme, CT, beginning in Spring of 2020.

Dual-use programs in consideration for Greenskies' solar farm development projects include apiculture, native pollinator and habitat enhancement, berry and suitable crop cultivation, and sheep grazing pasture, among others. Once established, and where applicable, Greenskies intends to include some form of dual-use on appropriate project sites, whichever use is deemed most suitable based on the results of the research and the existing land use, site conditions and landowner preference. For photos of sample seed mixes typically used on solar facilities in New England (e.g. solar array and wildlife conservation seed mixes) see Figures 10 and 11.

Considering the presence of prime farmland and history of agriculture on this site, dual-use will be integral in preserving the agricultural character of the area. The selected uses for this solar system are establishment of pollinator habitat within the array area, beekeeping/apiary management and berry cultivation. The proposed Project will be one of Greenskies' first projects to include this feature.

#### 8.2 Beekeeping at Proposed Project Site

If the PV solar project is completed by the end of the 2020 calendar year, beekeeping will be initiated on the site in Spring 2021. The schedule can be adjusted, accordingly. Greenskies has contracted with Steve Dinsmore, President of the Connecticut Beekeepers Association, to design and manage beekeeping operations at the site.

#### 8.2.1 - Acquisition and Setup of Equipment and Materials

Steve Dinsmore shall obtain all equipment and materials (including bees) necessary to initially establish up to ten (10) hives/colonies on the site. Greenskies shall pay for all bees, equipment and medications, as needed. All equipment and materials will remain the property Greenskies.

#### 8.2.2 – Maintenance and Harvesting of Honey

Beekeeper will be paid a flat fee for time maintaining colonies and harvesting honey; any time above 20 hours per season is the beekeepers contribution. Greenskies will receive 30% of



honey starting in the second year. Split of colonies will be done to replace lost colonies and as swarm prevention. Beekeeper can utilize excess splits, and will replace frames taken. Excessive losses will be replaced by Greenskies. Landowner will consider management of some perimeter areas for more intense hay and/or apiary production. Landowner will also consider planting clover/birdsfoot trefoil, or annuals like buckwheat and mustards, which can increase honey production at critical times; closer/trefoil can be harvested as hay or greenchop.

Please note, there will, most likely, not be any honey the first year. In addition, Connecticut weather tends to make beekeeping challenging. In a severe winter, colony losses can be high. The equipment will be re-usable, but several colonies may need to be replaced. This may be offset with splits. Queens are needed for splits and poorly performing hives. Beekeeper and Greenskies will determine how honey is provided (e.g. in buckets or pails, Ball jars). Greenskies will cover cost of all containers needed for their share of the harvest.

In future years, some equipment will need to be replaced as part of normal rotation of equipment. Costs should not be excessive; Greenskies will cover the cost of replacement equipment.

#### 8.2.3 – Landowner Training/Mentorship

Beekeeper will allow landowner/Wayne Robinson to "shadow" and assist in activities throughout all steps of setup, ongoing maintenance and harvesting. No additional fee will be paid for this service; Greenskies and Beekeeper will agree to a reasonable duration of this mentorship. At some point in the future landowner might have an interest in becoming Beekeeper for the site. If such an interest is expressed a new beekeeping arrangement will be made.

## 8.3 Berry Cultivation at Proposed Project Site

The second agricultural co-use at the site will be berry cultivation. Wild blackberries are currently growing on-site which indicates soils are capable of sustaining such species. Landowner has historically tested the soil in with fertilizer selection and application. Such records may be provided and continued testing will occur at the landowner's discretion. Greenskies proposes the planting of raspberries or blackberries along a 100-foot section of the

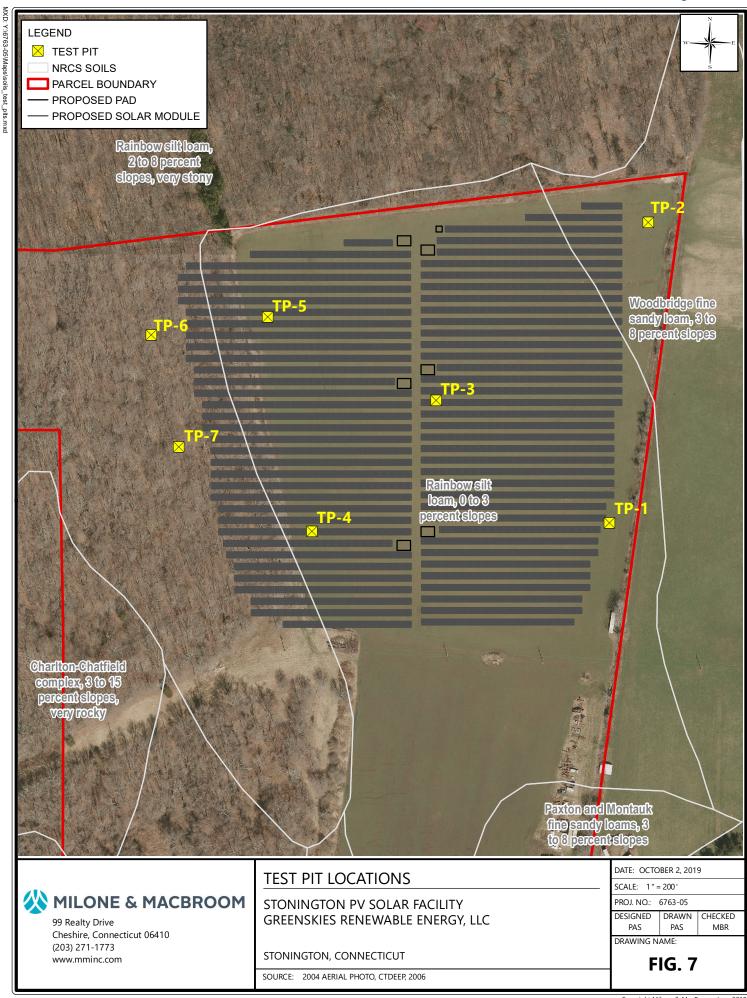


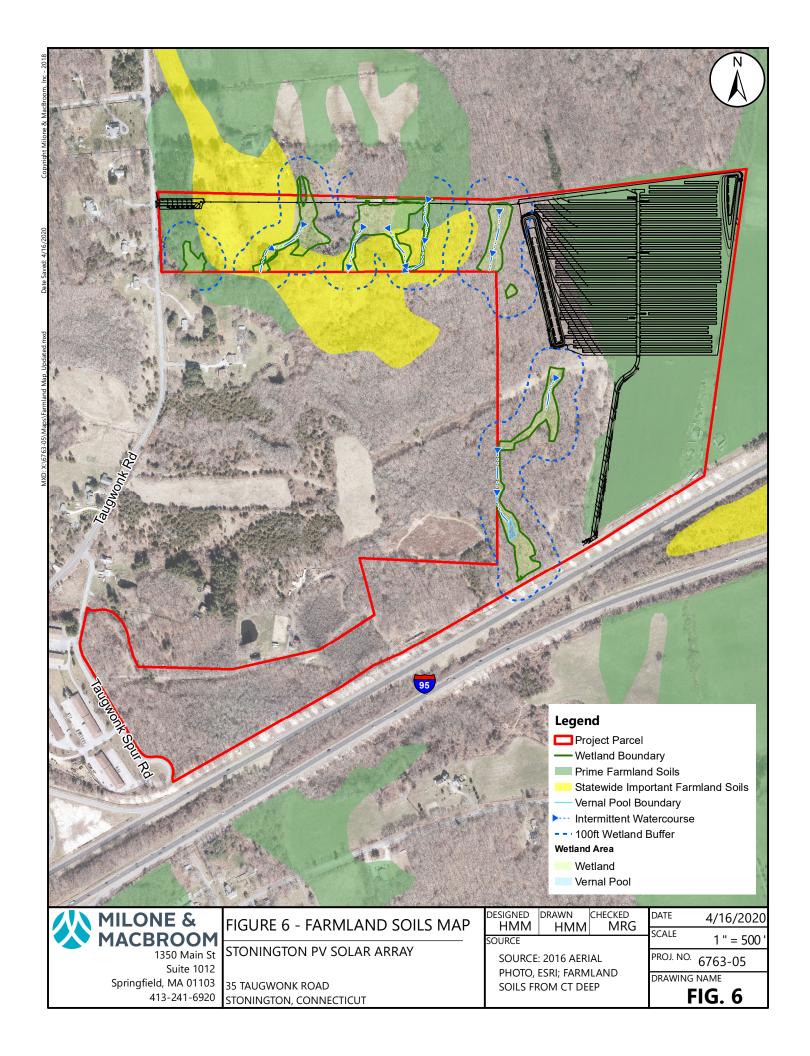
eastern end of the southern fence line of the array. Greenskies will obtain plants and space then accordingly, as recommended by the nursery or supplier. Plants will be secured and trained to grow up the designated section of the 7-foot chain link perimeter fence. Landowner will manage the berry production area. Based on outcome/success of above-noted, proposed planting scheme, landowner will consider other techniques in the future, in accordance with the New England Small Fruit Management Guide. See Figure 7 – Farmland Restoration & Agricultural Co-use Plan.

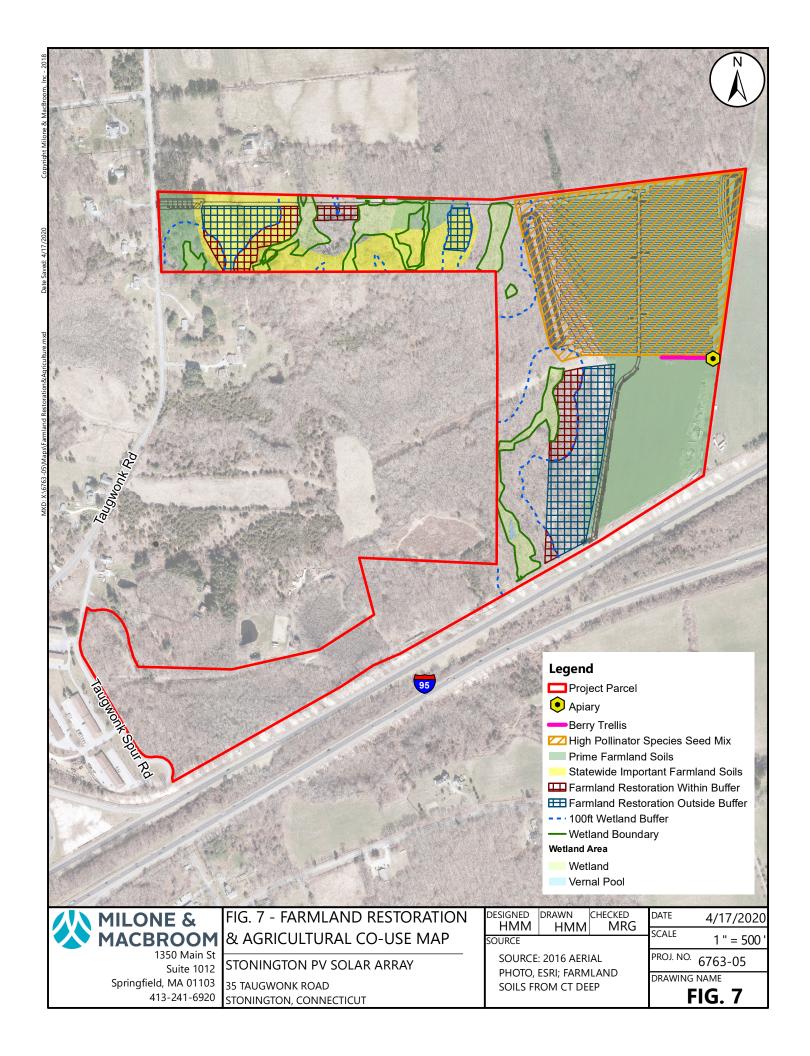
The Robinsons will maintain and care for the berry plants and will, ultimately, harvest the berries for canning and/or use in their fresh state. They will have the option of selling any products or donating to local food pantries.

## 9.0 Invasive Plant Species Management Plan

The current Project area consists primarily of a large hayfield. A portion of the wooded area to the west will be cleared and grubbed to accommodate some of the panels and a stormwater basin. Invasive plant species were not identified in this area during field studies (e.g. wetlands delineation and verification), however, all cleared areas will be seeded, managed and maintained with a high pollinator species seed mix and regular mowing will occur throughout the growing season over the course of the lease term. The site and surrounding hedgerows and woods contain invasives, both in the area to be restored as well as near the array. A plan for edge mowing and possible spot treatment will be developed to protect the plantings and solar array infrastructure. Mowing in these areas several times a year will likely be important for the first several years.









# Fuzz & Buzz™ Seed Mix for Solar Arrays

Ernst Conservation Seeds, the largest producer of native grass and wildflower seeds in the eastern United States, has partnered with Ernst Pollinator Service, a leader in pollinator establishment in all types of habitats, and the American Solar Grazing Association (ASGA), a non-profit trade organization devoted to promoting the grazing of sheep on solar installations, to develop the new Fuzz & Buzz™ Seed Mix

The Fuzz & Buzz™ seed mix was developed to address the unique nutritional needs of sheep, while providing a low-growing, easily maintained and sustainable vegetation solution for solar installations. The plant species chosen for the mix were vetted by experts at the Cornell University Sheep Program for their palatability to sheep.

The diversity of grass and flowering species in the mix adds the ecological benefit of providing pollen and nectar sources for honeybees, native pollinator species, birds and other wildlife.





Robin Ernst, president of Ernst Pollinator Service, said, "We embrace new and inventive ways for America's farmers to make their land productive and profitable, sometimes in ways they might not have previously considered. Solar sites offer many landowners just such an opportunity on their property. The addition of grazing potential for sheep on these sites can multiply that profitability even further. And when those sites bring with them habitat for pollinators, it's a winning proposition on many fronts."

"What could be better than a seed mix designed for solar sites that is durable, intended for grazing and biodiverse enough to support a range of pollinator species," said **Lexie Hain, executive director of the ASGA**. She continued, "This is the launch of the newest in solar: solar pastures.

"Our mission is to provide seeds that solve problems ecologically," said Calvin Ernst, president of Ernst Conservation Seeds. "With the Fuzz & Buzz™ seed mix, we're able to offer a three-part solution that minimizes maintenance for solar operators, provides an opportunity for sheep graziers who need additional pasture, and improves soil health and biodiversity for the benefit of pollinators and wildlife."

A portion of the proceeds from the sale of the mix will be donated to the ASGA in support of its mission. Contact customer service at **Ernst Conservation Seeds** for current pricing and formulation.

Phone: 800-873-3321

Email: sales@ernstseed.com or Fax: 814-336-5191



# Fuzz & Buzz™ Mix — Premium (ERNMX-147)

Lolium perenne, Tetraploid (Perennial Ryegrass, Tetraploid)

Dactylis glomerata'(Orchardgrass)

Festuca elatior (Meadow Fescue)

Poa pratensis (Kentucky Bluegrass (pasture type))

Trifolium hybridum (Alsike Clover)

Trifolium pratense, Medium (Red Clover, Medium)

Trifolium incarnatum (Crimson Clover)

Chrysanthemum leucanthemum (Oxeye Daisy)

Cichorium intybus (Blue Chicory)

Lotus corniculatus (Bird's Foot Trefoil)

Aster prenanthoides (Zigzag Aster)

Coreopsis lanceolata (Lanceleaf Coreopsis)

Solidago juncea (Early Goldenrod)

Tradescantia ohiensis (Ohio Spiderwort)

Zizia aurea (Golden Alexanders)

**Seeding Rate:** Expect to apply about 28 lbs per acre.

# Fuzz & Buzz™ Mix — Standard (ERNMX-146)

Lolium perenne, Tetraploid (Perennial Ryegrass, Tetraploid)

Dactylis glomerata (Orchardgrass)

Festuca elatior (Meadow Fescue)

Poa pratensis (Kentucky Bluegrass (pasture type))

Trifolium hybridum (Alsike Clover)

Trifolium pratense, Medium (Red Clover, Medium)

Chrysanthemum leucanthemum (Oxeye Daisy)

Cichorium intybus (Blue Chicory)

Lotus corniculatus (Bird's Foot Trefoil)

Coreopsis lanceolata (Lanceleaf Coreopsis)

Solidago juncea (Early Goldenrod)

**Seeding Rate:** Expect to apply about 26.5 lbs per acre.



<u>Note</u>: Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.



# Stormwater Report

35 Taugwonk Spur Road Stonington, Connecticut August 19, 2019

(Revised October 7, 2019)

Prepared for:
Greenskies Renewable Energy, LLC
180 Johnson Street
P.O. Box 251
Middletown, Connecticut 06457

MMI #6763-05-03

Prepared by:
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## **APPENDIX D**

DEEP HOLE TEST PIT RESULTS



	Stonington PV Solar, Taugwonk Spur		
Project:	Road, Stonington, CT	Job No.:	6763-05
Date:	August 16, 2019	Weather:	Clear, 70°
Test Performed by:	Michael R. Gagnon, P.E.	Test Hole No.:	1
Test Hole Depth:	7.7 feet	Depth to Groundwater:	7.7 feet

From	То	Description of Soils
0.0'	1.1'	Topsoil and organics
1.1'	3.2'	Light brown fine sand
3.2'	7.7'	Grey fine sand, silt
		Groundwater observed at 7.7'





## **TEST PIT LOG**

	Stonington PV Solar, Taugwonk Spur		
Project:	Road, Stonington, CT	Job No.:	6763-05
Date:	August 16, 2019	Weather:	Clear, 70°
Test Performed by:	Michael R. Gagnon, P.E.	Test Hole No.:	2
Test Hole Depth:	8.0 feet	Depth to Groundwater:	8.0 feet

From	То	Description of Soils	
0.0'	0.5'	Topsoil and organics	
0.5'	2.3'	Light brown fine to medium sand	
2.3'	6.3'	Grey fine sand, silt	
		Groundwater observed at 8.0'	
	it No. 2		



## **TEST PIT LOG**

	Stonington PV Solar, Taugwonk Spur		
Project:	Road, Stonington, CT	Job No.:	6763-05
Date:	August 16, 2019	Weather:	Clear, 70°
Test Performed by:	Michael R. Gagnon, P.E.	Test Hole No.:	3
Test Hole Depth:	7.7 feet	Depth to Groundwater:	7.0 feet

From	То	Description of Soils	
0.0'	1.2'	Topsoil and organics	
1.2'	3.4'	Light brown fine to medium sand	
3.4'	7.7'	Grey fine sand, silt	
		Groundwater observed at 7.0'	
	l oto 3 it No. 3		



## **TEST PIT LOG**

	Stonington PV Solar, Taugwonk Spur		
Project:	Road, Stonington, CT	Job No.:	6763-05
Date:	August 16, 2019	Weather:	Clear, 70°
Test Performed by:	Michael R. Gagnon, P.E.	Test Hole No.:	4
Test Hole Depth:	7.7 feet	Depth to Groundwater:	5.5 feet

From	То	Description of Soils
0.0'	0.7'	Topsoil
0.7'	3.5'	Light brown fine to medium sand, little silt
3.5'	5.5'	Light brown and grey fine sand, silt
		Groundwater observed at 5.5'
<u>Pho</u>	to 4	
Test Pit No. 4		
		E 2







## Stormwater Report

35 Taugwonk Spur Road Stonington, Connecticut August 19, 2019

(Revised October 7, 2019)

Prepared for:
Greenskies Renewable Energy, LLC
180 Johnson Street
P.O. Box 251
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Wetland Delineation Report

#### 2.5 <u>Natural Resources Conservation Service (NRCS) Hydrologic Soil Group (HSG)</u>

Soil types within the watershed were obtained from the NRCS Web Soil Survey for New London County, Connecticut. Most of the site is mapped by NRCS as Rainbow silt loam, with a small portion in the northeast as Woodbridge fine sandy loam. The Rainbow and Woodbridge soil series are designated by NRCS as "C" and "C/D" hydrologic soil groups, respectively.

On September 26, 2019, MMI completed a field investigation to confirm the mapped soil series and verify the hydrologic soil groups. A total of seven test pits were dug by hand to a depth of 24 inches or 2 feet below grade within the project limits. Five of the test pits were dug within the existing agricultural field where the proposed solar panels will be located, and two test pits were located within the forested area where the proposed sediment basin will be located (Figure 7).

In general, the five test pits (TP-1 through TP-5) completed within the agricultural field were consistent with NRCS mapping. The soil encountered consisted of a relatively thick Ap horizon ranging from 6 to 9 inches; dark brown (10YR 4/2) silt loam; weak fine granular structure; very friable with a clear distinct boundary; followed by a Bw horizon to the bottom of the test pits consisting of yellowish brown (10YR 5/6) silt loam; weak blocky structure; few fine roots; and few pebbles.

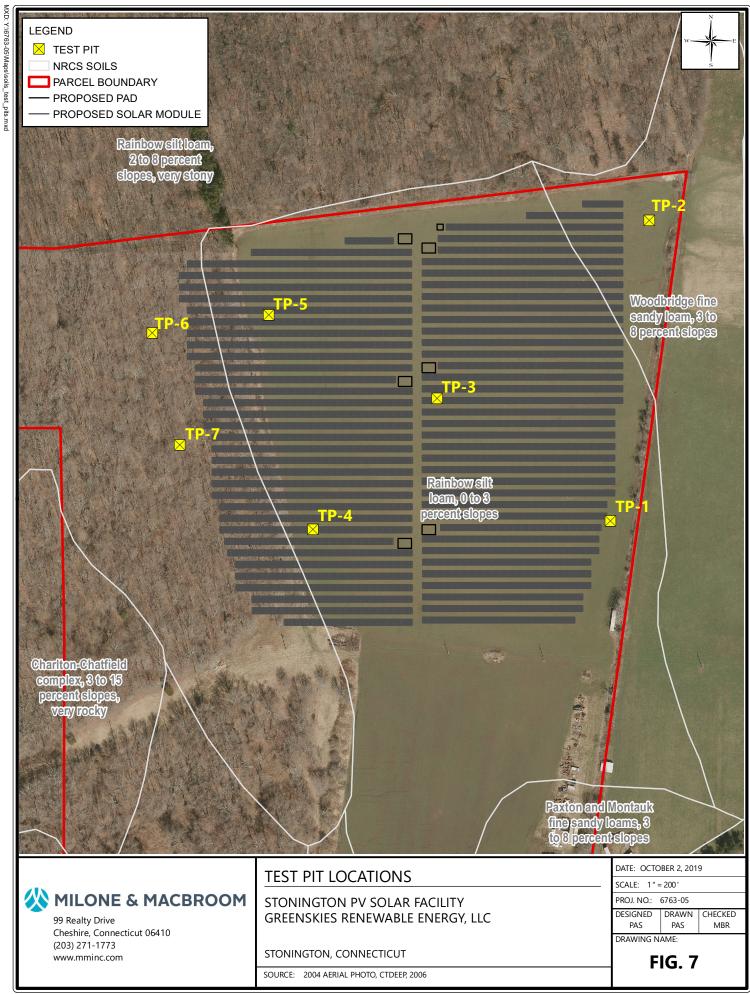
The two test pits within the forested area (TP-6 and TP-7) were also consistent with NRCS mapping. The Rainbow silt loam within the wooded area is very stony in the upper horizon with a relatively thick (4 inches) humic organic layer underlain by a distinct Ap horizon (10 to 12 inches) consisting of dark brown silt loam (10 YR 4/2); weak friable granular structure; followed by Bw horizon (13 to 18 inches) consisting of yellowish brown (10 YR 5/4) silt loam with stones; and weak blocky structure.

A Group "C" soil is defined by the NRCS as soils having a slow infiltration rate when thoroughly wet and consists chiefly of soils with a layer that impedes downward movement of water or soils of moderately fine texture or fine texture.

Based on the test pits, the mapped hydrologic group of "C" is consistent with the results of the field investigation. In general, the upper 12 inches of soil consists of silt loam that has been farmed historically, or actively with a distinct boundary and weak granular structure, underlain by a fine-grained subsoil with a weak block structure that would impede downward movement of water with soils consisting of a moderately fine texture.

For the purposes of the stormwater assessment, the soils were assigned a hydrologic soil group "D" for proposed conditions in accordance with recent CTDEEP policies regarding solar projects. CTDEEP requires the hydrologic soil group be reduced by one step to account for soil compaction due to construction activity.







## **DRAFT**

## **Farmland Restoration Plan**

# 35 Taugwonk Spur Road in Stonington, Connecticut CT Siting Council Petition #1378

Prepared for Connecticut's Conservation Districts and The Connecticut Department of Agriculture

Reviewed by:

\_\_\_\_\_, Soil ScientistNorth Central Conservation District

Kip Kolesinkas

Barbara Kelly Emily Perko

March April 21, 2020



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Figure 8 – Sample Soil Array Seed Mix Photos

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<u>Appendix D – Deep Soil Test Pit Logs and Location Map; Stormwater Report Excerpts on Soil Mapping</u>



### 1.0 Introduction

This is a Farmland Restoration Plan for the development of a 5.0 +/- megawatt (MW) alternating current (AC) ground-mounted solar photovoltaic (PV) facility on a parcel of land located at 35 Taugwonk Spur Road, Stonington, Connecticut. See Figure 1 – Site Location Map.

The Project site is located on an 86.78-acre parcel in central Stonington situated east of Taugwonk and Taugwonk Spur Roads and north of Interstate 95. The Stonington Assessment Department lists the parcel as 84-1-2 and ownership is currently vested in Wayne Robinson. The parcel makes up a portion of the Robinson family's 151-acre farming operation, Pequot Meadow Farm, started by Wayne's father George Robinson. The area currently comprising Pequot Meadow Farm has been used as pasture and agricultural land for over 100 years. Despite its agricultural past, the site is no stranger to development. In 1960, 17 acres of farmland were acquired through eminent domain to construct the stretch of Interstate 95 that now splits the farm in two. Earlier that century, three acres were acquired by the Mystic Power Company through eminent domain to construct a transmission line that also bisects the parcel. See Figure 2 – Existing Conditions and Figure 3 – Site Survey.

While the Robinsons continue to try to preserve the agricultural character of the area, the economic realities of farming threaten the vitality of the family's business. For the last several decades, Wayne Robinson has worked second shift as a machinist, dedicating his mornings to work on the farm. At nearly 80 years of age, maintaining the family farm has become an increasingly difficult task for George Robinson. Greenskies Clean Energy LLC ("Greenskies") is leasing the Project site from the Robinson family so that the land will remain with the Robinsons. The income generated by the Project lease will allow Wayne to retire from his job as a machinist so he can farm full-time, replace outdated equipment, and invest in the family business.

The site is located within a mixed residential, agricultural, and light industrial area of New London County. The parcel itself straddles two zones in the town of Stonington: Light Industrial (LI-130) and Greenbelt Residential (GBR-130). Wayne Robinson currently resides on an abutting parcel just north of the access road from Taugwonk Spur Road. An avid carpenter, Wayne actively harvests the forest on site to build furniture and harvested lumber sourced on site to construct buildings on his property. The eastern fields on the site are currently used to cultivate hay which is sold to horse farms in Rhode Island.



Greenskies submitted Petition #1378 to the Connecticut Siting Council (CSC) on August 20, and received approval on October 10, 2019. Due to the presence of Prime Farmland soils on-site (See Figure 4 –Existing Soils Map and Figure 6 – Prime Farmland Soils Map), the CT Department of Agriculture ("DOAg") reviewed the proposed project plans and submitted conditions to the CSC to include in the Decision Letter (see Appendix A). Such conditions are summarized in Section 3.0, below. Greenskies worked with the landowner/farmer to prepare and submit a Farmland Restoration Program (FLRP) Application to the CT DOAg on November 22, 2019 (see Appendix B) for review and assignment to a Conservation District to implement this Farmland Restoration Plan. The purpose of this Farmland Restoration Plan is to address and meet the conditions set forth in the CSC Decision Letter, dated October 10, 2019 (see Appendix A).

## 2.0 Overview of Proposed Solar Project

The site entrance for the Project will be located at the end of Taugwonk Spur Road (at the southwestern end of the site), which serves various commercial/industrial uses. Taugwonk Spur Road connects to Taugwonk Road, approximately 1,800 feet from I-95 interchange 91. The surrounding road network is anticipated to readily support construction-related traffic.

There is an existing, 3,600-foot/.68-mile gravel access road originating at 35 Taugwork Spur Road. This pre-existing road will be utilized to access the Project site, and additional on-site, 15-foot wide gravel roads will be constructed to provide access to the proposed solar PV facility, as shown in Figure 5 – Proposed Site Layout. A total of .54 miles of existing road will be used, and approximately .4 miles of new onsite road is proposed.

The site is relatively flat and minor (if any) grading is anticipated along the proposed access roads. Two stormwater management basins will be excavated/installed at the site, one in the northeast corner of the project area (Stormwater Basin 1) and one along the western side of the project area (Stormwater Basin 2). Prime farmland soils are present within both stormwater basin locations and will be managed/stockpiled on-site before being reused in the future by the landowner to expand his hayfields to the west. The proposed location of the temporary



stockpile is west of the access road and south of the existing transmission line right-of-way. See Figures 5A and 5B – Site Layout & Grading Plan, for locations of the basins and stockpile.

The proposed Project is comprised of six, independently-metered systems with a total design capacity of about 5.0 +/- MW AC. The proposed solar PV facility has been sited on the parcel to avoid and minimize potential impacts to natural resources and other areas of interest, while maximizing the use of previously disturbed areas. Driven post panel racking systems will be utilized throughout the Project site, unless subsurface conditions require an alternative installation method, which will be determined during pre-construction, geotechnical analysis. Posts are typically driven into the earth to depth of 9 feet below grade. The proposed facility layout is shown in Figures 5A and 5B – Site Layout and Grading Plan.

Wiring that connects the panels will be placed in above grade wire systems/cable trays or trenched conduits. The area under the panels will remain vegetated and will be seeded with a pollinator mix consisting of native New England species. See Figure 8 – Sample Array Seed Mix Photos and Figure 9 – Sample Wildlife Conservation Seed Mix Photos.

## 3.0 Existing Site Soil Conditions

The uppermost geologic formation underlying the soils at the subject property is the Proterozoic Z age Mamacoke Formation. The Mamacoke Formation comprises the underlying stratigraphy and consists mostly of interlayered light-to dark-grey, medium-grained gneiss, composed of plagioclase, quartz, and biotite; sillimanite, garnet, hornblende, or microcline in certain layers; in upper part locally contains quartz-sillimanite nodules or thin layers of quartzite, amphibolite, or calc-silicate rock.

Based on <u>initial review of</u> information obtained from the USDA Natural Resources Conservation Service (NRCS) Web Soil Survey online database, the site is mapped as several soil types. The northwestern portion is mapped as mainly Merrimack fine sandy loam, the northeastern and northcentral portions are mapped as Rainbow silt loam (with a small portion of the northeast corner of the site Woodbridge fine sandy loam), the southeastern portion is mapped as mostly Paxton and Montauk fine sandy loam, and the southwest portion is mapped as mostly Udorthents-Urban land complex. The Rainbow and Woodbridge soil series are designated by



NRCS as "C" and "C/D" hydrologic soil groups, respectively. See Figure 4 – Existing Soils Map and associated Soil Report.

The Merrimack series consists of very-deep, somewhat excessively drained, moderately high to highly permeable soils formed from loamy glaciofluvial deposits derived from granite, schist, and gneiss over sandy gravelly glaciofluvial deposits derived from granite, schist, and gneiss. <a href="Depth to water table is typically">Depth to water table is typically</a> 80", as is depth to restrictive feature. The Rainbow silt loam consists of moderately shallow, moderately well drained soils formed from Eolian deposits over coarse-loamy lodgment till derived from gneiss and/or schist and/or sandstone and/or basalt. <a href="Depth to water table">Depth to water table is typically about 18" to 30" and depth to restrictive feature 20" – 40". The Paxton and Montauk series consist of moderately shallow, well drained, very slow to moderately slowly permeable soils formed from coarse-loamy lodgment till derived from gneiss, granite, and/or schist. <a href="Depth to water table is typically about 18" to 37" and depth to restrictive feature 20" to 39".">Depth to water table is typically about 18" to 37" and depth to restrictive feature 20" to 39".</a>

As part of project site analysis and permitting, Greenskies performed all required reviews of the soil survey to meet Siting Council and CT DEEP stormwater permit provisions and guidelines.

As required by CT DEEP's proposed Appendix I to the Stormwater General Permit for Construction, on September 26, 2019, a soil scientist from Milone & Macbroom (MMI), project civil engineer and environmental consultant, completed a field investigation to confirm the mapped soil series and verify the hydrologic soil groups. A total of seven test pits were dug by hand to a depth of 24 inches or 2 feet below grade within the project limits. Five of the test pits were dug within the existing agricultural field where the proposed solar panels will be located, and two test pits were located within the forested area where the proposed sediment basin will be located. See Figure 4A – Soil Test Pit Locations.

Four deep-hole test pits were dug on the site on August 16, 2019, in the vicinity of the proposed stormwater management basins. Test Pits 1, 2, and 3 were dug at approximately each end and the center of the proposed westerly basin. Groundwater was observed at 7.7', 8.0', and 7.0', respectively. Test Pit 4 was dug in the area of the proposed easterly stormwater management basin, and groundwater was observed at 5.5'. Test pit logs and a location map can be found in Appendix D.



In general, the five test pits (TP-1 through TP-5) completed within the agricultural field were consistent with NRCS mapping. The soil encountered consisted of a relatively thick Ap horizon ranging from 6 to 9 inches; dark brown (10YR 4/2) silt loam; weak fine granular structure; very friable with a clear distinct boundary; followed by a Bw horizon to the bottom of the test pits consisting of yellowish brown (10YR 5/6) silt loam; weak blocky structure; few fine roots; and few pebbles.

The two test pits within the forested area (TP-6 and TP-7) were also consistent with NRCS mapping. The Rainbow silt loam within the wooded area is very stony in the upper horizon with a relatively thick (4 inches) humic organic layer underlain by a distinct Ap horizon (10 to 12 inches) consisting of dark brown silt loam (10 YR 4/2); weak friable granular structure; followed by Bw horizon (13 to 18 inches) consisting of yellowish brown (10 YR 5/4) silt loam with stones; and weak blocky structure.

A Group "C" soil is defined by the NRCS as soils having a slow infiltration rate when thoroughly wet and consists chiefly of soils with a layer that impedes downward movement of water or soils of moderately fine texture or fine texture.

Based on the test pits, the mapped hydrologic group of "C" is consistent with the results of the field investigation. In general, the upper 12 inches of soil consists of silt loam that has been farmed historically, or actively with a distinct boundary and weak granular structure, underlain by a fine-grained subsoil with a weak block structure that would impede downward movement of water with soils consisting of a moderately fine texture.

For the purposes of the stormwater assessment, the soils were assigned a hydrologic soil group "D" for proposed conditions in accordance with recent CTDEEP policies regarding solar projects. CTDEEP requires the hydrologic soil group be reduced by one step to account for soil compaction due to construction activity. Stormwater analysis was performed in consideration of these guidelines and Petitioner received approval on their stormwater general permit application on November 14, 2019. A full version of the final Stormwater Report, Revised October 7, 2019, can be found in the CT Siting Council's public records for Petition #1378. The Montauk series consist of moderately shallow, well drained, very low to moderately highly permeable soils formed from coarse-loamy over sandy lodgment till derived from gneiss, granite, and/or schist.



The Udorthents series consist of very deep, well drained, very low to highly permeable soils formed from drift.

### 4.0 Preservation of Prime Farmland Soils

The majority of the proposed Project area contains soils classified by the NRCS as Prime Farmland, however, no Farmland of Statewide Importance Soils have been mapped within the Project area. These designated soils series have been determined to have the potential to support agricultural practices by federal, state, and local organizations. As articulated in the Department of Agriculture's letter to the Siting Council, Greenskies plans to reduce/minimize the potential for adverse impacts to these important soils, and assure that their agricultural integrity is preserved, throughout all phases of development, operation, maintenance, and future decommissioning of the proposed solar facility. See Figure 6 - Prime Farmland Soils Map.

As noted, both soil types found within the Project area are Prime Farmland Soils. Rainbow silt loam comprises approximately 14.44 acres, or 94.6%, of the project area's limit of disturbance, while Woodbridge fine sandy loam makes up the remaining 5.4%, amounting to 0.81 acres. Impacts to these soils as a result of the Project will be minimal and will take place entirely during construction. Permanent disturbance of Prime Farmland Soils within the project area includes: .75 acres of access road installation, .82 acres of stormwater basin excavation, .47 acres of equipment pads and 734 SF of post installation for the racking system; a total of 1,957 posts, each with a footprint of 6" x 9" will be used. Total permanent disturbance to/loss of Prime Farmland Soils amounts to a maximum of 2.5 acres, including trenching. To clarify, only Stormwater Basin No. 1 is sited on Prime Farmland Soils, as mapped by NRCS and field verified by project soil scientist. Temporary impacts to these soils as a result of the Project will be minimal and will take place entirely during construction. See Figure 6 – Prime Farmland Soils Map.

Since the grade of the proposed Project area is already suitable for solar panel racking, alterations to topography will be concentrated to the foundations of the Project's access roads and equipment pads, along with stormwater basins in the northeastern corner of the site (Phase 1 construction area) and western side of the project area (Phase 2 construction area). Displaced



soils will remain on site, separated by profile layer as defined in the NRCS soil report accompanying Figure 4. Racking will be post-driven and will not cause a disturbance to the soil.

Since the array area design has already been approved by the CT Siting Council (under their authority over projects of this type and scale) and Greenskies has an approved CT DEEP Stormwater General Permit, the NCCD review on this matter is not applicable. Greenskies will comply with all approval conditions and permit requirements and make the best effort to avoid compaction of soils within the project area. In addition, Greenskies will follow CT DEEP Stormwater General Permit requirements regarding time frames applicable to construction activities after various rain/storm events, particularly those with a rainfall of  $> \frac{1}{2}$ ". Once the solar farm/Project is online and vegetative cover is established, the only impact to prime farmland soils within the array area will be compaction from mowing as part of the O & M plan. Landowner will, likely, be contracted for mowing services and will utilize the same, if not smaller, equipment that's historically been driven through the fields as part of annual haying operations. Because a low-growing pollinator/meadow seed mix will be used, mowing is expected to occur 2 +/- times per season. Such vegetative cover will enhance the quality and nutrient content of the soil and provide habitat to support the on-site apiary, one of two agricultural co-uses to be implemented as part of this plan. The proposed use of the project area as a solar farm will preserve the majority of existing Prime Farmland Soils on the parcel for future agricultural use should the landowner's family or future property owner choose to convert the project area to such use at the end of the facility's life.

Trenching for conduits will be performed in compliance with all applicable electrical codes and standards. Trenching and other cuts and fills will be avoided to the extent practicable. Removal and replacement of soil horizons, and compaction, during trenching will be sequenced as close to original conditions as feasible.

## 5.0 Summary of CSC Petition Conditions

The Decision Letter prepared by the CSC includes the following conditions:

 The handling and management of any/all prime farmland soils disturbed by construction activities shall be in accordance with energy industry BMPs, including the most current Federal Energy Regulatory Commission (FERC) guidelines;



- Any/all prime farmland soils are separated and stored on the farm site, and shall be used and applied solely for agricultural purposes;
- In consultation with the farmland owner(s), a Farmland Restoration Plan shall be developed for the property to restore, at a minimum, an amount of acreage equivalent to the area disturbed, throughout the farm property for current and future agricultural purposes;
- The DOAg shall administer the Farmland Restoration Plan. Such Farmland Restoration
  Plan shall be prepared by a soil scientist who is approved by the Department of
  Agriculture, and is currently on contract with a Conservation District located in
  Connecticut, for the purposes of preparation and review of Farmland Restoration Plans;
- Greenskies shall be responsible for the costs of the farmland restoration work;
- In consultation with the DOAg, Greenskies shall conduct at least two co-location or dualuse agricultural activities on the site. Such co-location or dual-use activities shall include but are not limited to, creating native pollinator habitat, beekeeping, small livestock grazing, and select crop propagation;
- Any/all agricultural research reports, if any, by the University of Connecticut (UCONN), UCONN Cooperative Extension, and/or the Connecticut Agricultural Experiment Station of the dual-use agricultural activities conducted on the site shall be submitted to the DOAg.

## 6.0 Soils Management Plan

#### 6.1 Overview

Soils management is a necessary part of construction and preservation of farmland soils. The stockpiling process involves removal of the topsoil layer (top 6-8") and any other significant overburden soil layers. The topsoil is removed first and stockpiled in one pile and the soil layer below is also removed and stockpiled separately. When construction/installation of the solar facility is complete, the topsoil can be reapplied and spread over areas requiring seeding to provide a planting medium. Soils not needed for site restoration will remain in stabilized stockpiles until the landowner reuses the material onsite for additional agricultural purposes (e.g. expansion of hay fields). The storage period for stockpiled soil typically ranges from a few months to several years.



#### 6.2 Soil Stockpiling and On-site Reuse of Prime Farmland Soils

Generally, soils throughout the solar array area will not be excavated or disturbed. Racking for the equipment will be post-driven and minor trenching will occur for subsurface conduits. Two, permanent, shallow stormwater basins will be installed in the northeastern corner of the site and along the western boundary of the project area. Only soils from Soils from the basins Stormwater Basin No. 1 will be excavated, segregated and stockpiled for onsite reuse within the project area or for future, agricultural purposes by the landowner. In addition, and as noted above in Section 4.0, soils to be managed will also be derived from installation of equipment pads and access road installation. Stormwater Basin No. 2 is not located on designated Prime Farmland Soils. As noted above in Section 4.0, trenching for conduits will be performed in compliance with all applicable electrical codes and standards. Trenching and other cuts and fills will be avoided to the extent practicable. Removal and replacement of soil horizons, and compaction, during trenching will be sequenced as close to original conditions as feasible. Trenches will be backfilled and remaining soil spread, seeded with a conservation/pollinator mix, and stabilized. Prime Farmland Soils will remain on-site and will be stockpiled (see Figure 7 -Farmland Restoration and Agricultural Co-use Plan) south of the transmission line and west of the proposed access road, in an area that will continue to be used by landowner for agricultural purposes (haying).

The topsoil will be placed into stockpiles at a designated location south of the solar array and west of the proposed access road as shown on the construction plans; see Figures 5A and 5B Site Layout and Grading Plan. Stockpiles will be treated with temporary soil stabilization and erosion control measures. Any soil materials not used immediately for farmland restoration will be stockpiled and stabilized with grass plantings. Topsoil stockpile height shall not exceed three meters (10 feet) and slopes will not exceed 12%. In addition, compaction of Prime Farmland Soils will be limited during construction. Periodically, and after each storm event or snow melt, the stockpile will be inspected, repaired, and reseeded if necessary to control erosion and loss of topsoil.



## 7.0 Restoration of Land for Future Agricultural Uses

As noted above, the Decision Letter prepared by the CSC includes the following condition requested by the CT DOAg:

In consultation with the farmland owner(s), a Farmland Restoration Plan shall be
developed for the property to restore, at a minimum, an amount of acreage equivalent to
the area disturbed, throughout the farm property for current and future agricultural
purposes;

As noted above in Section 4.0, the total permanent Prime Farmland Soil disturbance area/acreage is 2.5 ac. As part of this Farmland Restoration Plan, landowner is authorized to restore/reclaim portions of the parcel outside Greenskies' lease area. Such areas may not interfere with CT Siting Council approval and approved CT DEEP Stormwater General permit conditions and guidelines. As a result, no disturbance may occur within any 100-ft wetland setback/buffer areas associated with stormwater management for the solar project area.

To meet this condition, the landowner has agreed to restore land at two two potential locations in the northwestern portion of the parcel for agricultural use (e.g. meadow/pollinator habitat, hayfield, pasture). In addition, landowner intends to expand the southern hayfield to the west and continuing haying for sale to horse farms in RI. During the site walk with North Central Conservation District representative, another suitable restoration area was identified south of the existing farm road west of the proposed array. The landowner prefers to not clear forest in that part of his property to create more fields. The total acreage of these potential restoration areas is equivalent 9.52 acres, much greater than to the minimum required to replace permanently disturbed the area Prime Farmland Soils to be disturbed by the Project. Of this total, however, 2.84 acres are located within 100' wetland buffer/setback areas and 6.68 acres are located outside.

The landowners' preference is to restore the northwestern portion of their property for farming activities where mapped farmland soils are present, along with expanding existing having



operations to the west of the project access road. During the NCCD site visit, soils that could be classified as hydric were observed near the wetland boundary within the upland resource area. If and when the landowner chooses to expand this activity, he will stay well beyond any potentially "wet" areas. See Figure 7 – Farmland Restoration and Agricultural Co-use Plan.

## 8.0 Co-location and/or Dual-use Agricultural Activities

#### 8.1 Overview

Greenskies is currently developing a series of dual-use programs designed to incorporate agriculture and conservation in system design at various project sites. In addition, Greenskies has met with Dr. David L. Wagner (Ecology & Evolutionary Biology Dept.) and hopes to consult with him in an in advisory capacity regarding native pollinator habitat enhancement for future projects. Due to seasonal constraints, the beekeeping (apiculture) initiative will be tested on one of Greenskies' existing solar facilities, the Antares Solar Farm in East Lyme, CT, beginning in Spring of 2020.

Dual-use programs in consideration for <u>Greenskies' solar farm</u> development <u>projects</u> include apiculture, native pollinator and habitat enhancement, berry and suitable crop cultivation, and sheep grazing pasture, among others. Once established, and where applicable, Greenskies intends to include some form of dual-use on appropriate project sites, whichever use is deemed most suitable based on the results of the research and the existing land use, site conditions and landowner preference. For photos of sample seed mixes typically used on solar facilities in New England (e.g. solar array and wildlife conservation seed mixes) see Figures 10 and 11.

Considering the presence of prime farmland and history of agriculture on this site, dual-use will be integral in preserving the agricultural character of the area. The selected uses <u>for this solar system</u> are <u>establishment of pollinator habitat within the array area,</u> beekeeping/apiary management and berry cultivation. The proposed Project will be one of Greenskies' first projects to include this feature.



## 8.2 Beekeeping at Proposed Project Site

If the PV solar project is completed by the end of the 2020 calendar year, beekeeping will be initiated on the site in Spring 2021. The schedule can be adjusted, accordingly. Greenskies has contracted with Steve Dinsmore, President of the Connecticut Beekeepers Association, to design and manage beekeeping operations at the site.

#### 8.2.1 – Acquisition and Setup of Equipment and Materials

Steve Dinsmore shall obtain all equipment and materials (including bees) necessary to initially establish up to ten (10) hives/colonies on the site. Greenskies shall pay for all bees, equipment and medications, as needed. All equipment and materials will remain the property Greenskies.

#### 8.2.2 – Maintenance and Harvesting of Honey

Beekeeper will be paid a flat fee for time maintaining colonies and harvesting honey; any time above 20 hours per season is the beekeepers contribution. Greenskies will receive 30% of honey starting in the second year. Split of colonies will be done to replace lost colonies and as swarm prevention. Beekeeper can utilize excess splits, and will replace frames taken. Excessive losses will be replaced by Greenskies. Landowner will consider management of some perimeter areas for more intense hay and/or apiary production. Landowner will also consider planting clover/birdsfoot trefoil, or annuals like buckwheat and mustards, which can increase honey production at critical times; closer/trefoil can be harvested as hay or greenchop.

Please note, there will, most likely, not be any honey the first year. In addition, Connecticut weather tends to make beekeeping challenging. In a severe winter, colony losses can be high. The equipment will be re-usable, but several colonies may need to be replaced. This may be offset with splits. Queens are needed for splits and poorly performing hives. Beekeeper and Greenskies will determine how honey is provided (e.g. in buckets or pails, Ball jars). Greenskies will cover cost of all containers needed for their share of the harvest.

In future years, some equipment will need to be replaced as part of normal rotation of equipment. Costs should not be excessive; Greenskies will cover the cost of replacement equipment.



#### 8.2.3 – Landowner Training/Mentorship

Beekeeper will allow landowner/Wayne Robinson to "shadow" and assist in activities throughout all steps of setup, ongoing maintenance and harvesting. No additional fee will be paid for this service; Greenskies and Beekeeper will agree to a reasonable duration of this mentorship. At some point in the future landowner might have an interest in becoming Beekeeper for the site. If such an interest is expressed a new beekeeping arrangement will be made.

#### 8.3 Berry Cultivation at Proposed Project Site

The second agricultural co-use at the site will be berry cultivation. Wild blackberries are currently growing on-site which indicates soils are capable of sustaining such species.

Landowner has historically tested the soil in with fertilizer selection and application. Such records may be provided and continued testing will occur at the landowner's discretion.

Greenskies proposes the planting of raspberries or blackberries along a 100-foot section of the eastern end of the southern fence line of the array. Greenskies will obtain plants and space then accordingly, as recommended by the nursery or supplier. Plants will be secured and trained to grow up the designated section of the 7-foot chain link perimeter fence. Landowner will manage the berry production area. Based on See-outcome/success of above-noted, proposed planting scheme, landowner will consider other techniques in the future, in accordance with the New England Small Fruit Management Guide. See Figure 7 – Farmland Restoration & Agricultural Co-use Plan.

The Robinsons will maintain and care for the berry plants and will, ultimately, harvest the berries for canning and/or use in their fresh state. They will have the option of selling any products or donating to local food pantries.

## 9.0 Invasive Plant Species Management Plan

The current Project area consists primarily of a large hayfield. A portion of the wooded area to the west will be cleared and grubbed to accommodate some of the panels and a stormwater basin. Invasive plant species were not identified in this area during field studies (e.g. wetlands



delineation and verification), however, all cleared areas will be seeded, managed and maintained with a high pollinator species seed mix and regular mowing will occur throughout the growing season over the course of the lease term. The site and surrounding hedgerows and woods contain invasives, both in the area to be restored as well as near the array. A plan for edge mowing and possible spot treatment will be developed to protect the plantings and solar array infrastructure. Mowing in these areas several times a year will likely be important for the first several years.