

# Vegetation Management Plan

Tobacco Valley Solar Project  
Simsbury, Connecticut

PREPARED FOR

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DWW Solar II, LLC  
1166 Avenue of the Americas  
9<sup>th</sup> Floor  
New York, NY 10036

PREPARED BY



100 Great Meadow Road  
Suite 200  
Wethersfield, CT 06109

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# 1

## Purpose of this Plan

This Vegetation Management Plan (VMP) has been prepared to fulfill the requirements of 1.q. of the Decision and Order (D&O) on Tobacco Valley Solar (TVS) Project issued by the Connecticut Siting Council's (CSC) on December 21, 2017. The purpose of the VMP is to describe vegetation management practices during the construction and operation and maintenance phases of the Project. Training will be provided to contractors and sub-contractors to ensure compliance with the conditions of the D&O and this VMP.

This Plan was prepared by VHB, in association with DWW Solar II, LLC and their contractors: Swinerton Builders and Duraroot Environmental Consulting.

The VMP includes four related elements of implementation:

1. Site Clearing – Provides measures for the clearing of woodlands and processing of wood products required to prepare the Project Site for construction.
2. Invasive Plant Control – Describes requirement to control invasive plant species present on-Project Site and monitoring and management during the operational phase of the Project.
3. Revegetation – Describe revegetation methods for both the solar field and the managed periphery. Revegetation includes replanting all areas disturbed during construction and after decommissioning. A separate Pollinator Habitat Enhancement Demonstration Project is part of this plan.
4. Maintenance – Describes mowing and other practices that will be used to maintain health vegetative cover at the Project Site during operation of the facility.

## **1.1 Existing Vegetation Conditions**

Under existing conditions, much of the TVS Site (Site) consists of row-cropped farm fields that are bordered by mixed hardwood/softwood forests and forested wetlands. There are wetland systems associated with Munnisunk Brook in the northern part of the Project Site and Saxton Brook in central and eastern portions of the Site. Bissell Brook forms the southern limits of the Project Site, but revisions to the solar collector layout eliminated activities south of Hoskins Road. Approximately 104 acres of agricultural fields are within the part of the Site to be developed. Approximately 19.2 acres of forest will be cleared adjacent to agricultural fields.

## **1.2 Protection of Sensitive Areas**

No work will be conducted within delineated inland wetlands or watercourses. To the extent practicable, the development maintains a 100-foot separation from wetlands and watercourses which is the Town of Simsbury Conservation Commission/Inland Wetlands Agency prescribed general Upland Review Area (URA). The Inland Wetlands and Watercourses Regulations of the Town of Simsbury, Connecticut provide specific criteria for determining the URA.



# 2

## Site Clearing

Anti-tracking pads will be installed at the construction exits and existing farm roads will be widened and hardened so that clearing and excavating equipment can be brought into the Site. As detailed in the Stormwater Pollution Control Plan (SWPCP), temporary perimeter sediment controls and diversions will be installed concurrent with the progress of land clearing and grubbing activities.

Prior to any clearing, the limit of disturbance will be surveyed and marked in the field. This limit will include the limit of tree clearing, the limit of stump grubbing and in areas where no clearing is required the limit of soil disturbance.

In woodlands, heavy equipment operation will not be permitted to travel beyond the limits of grubbing. Tree harvesters may reach beyond the limit of grubbing to cut and retrieve trees or trees may be cut with chain saws and cabled to the limit of grubbing. Tree removal may only occur before May 15th or after August 31st to comply with the time of year (TOY) restrictions prescribed by the Connecticut Department of Energy and Environmental Protection (CTDEEP) Natural Diversity Database (NDDDB) Program Determination No. 2017102132 dated March 5, 2018. This TOY restriction was applied to protect state-listed bird nestlings and maternity roosts for listed bat species which may be present within the Project Site.

After clearing limits are marked, individual trees within 10 feet of the clearing limit will be marked in the field for removal. Trees to be preserved within 10 feet of the clearing limit will receive tree protection. Tree clearing will be performed using whole tree harvesters, skidders, forwarders, and chain saws. Aerial lifts may be used to fell larger trees.

As shown in the Site Plans, where the solar array, roadway, or other grading is proposed stumps will be grubbed using tracked excavators. In areas cleared to minimize shading, stumps will be left in place to minimize ground disturbance.

Some of the harvested trees may be sold in log lengths as saw timber. Trees with substantial defect, stumps, and tops will be processed in a grinder to provide wood mulch for perimeter sediment control (CTDEEP, 2015). This will supplement the perimeter silt fence and compost filter socks.

Farmland soils and areas identified for permanent stormwater best management practices (BMPs) will be protected from equipment traffic using construction fencing or other methods. If farmland soils are not vegetated, a cover crop will be established as soon as weather conditions permit.



# 3

## Invasive Plant Control

Invasive plant species are present within the interface transition between woodlands and agricultural fields and are poised to invade new areas opened for the solar array. The most common invasive species are multiflora rose (*Rosa multiflora*), autumn olive (*Elaeagnus umbellata*), invasive honeysuckles (*Lonicera morrowii* and others), glossy buckthorn (*Frangula alnus*) and oriental bittersweet (*Celastrus orbiculatus*).

An invasive species survey will be performed prior to clearing and a licensed applicator will be retained to prepare and implement a site-specific control treatment plan. This plan will include two additional years of inspection and follow-up treatment if necessary. Potential treatment methods include:

### 3.1 Chemical Controls: Herbicides

Two common chemical herbicides used for invasive plant species control are Glyphosate and Triclopyr. Chemical controls are necessary in management situations where topography, access, growth rate, species specific factors, worker safety, or environmental/social concerns limit the potential for control by physical or mechanical methods.

### 3.2 Operational Guidelines for Herbicide Application

Applications of herbicide must be applied by a state-licensed professional. A list of licensed applicators will be provided to the Owner/contractor. The selected applicators will be provided a copy of the invasive species inventory and be requested to prepare a plan to target the specific species and infected areas of the site. The Owner/contractor will review

and approve the plan prior to implementation. All state and federal laws will be adhered to during the treatment process.

Treatment may include foliar applications with sprayers, cut and treat, and stem injection. The plan will include monitoring and reporting on the need to repeat treatment. Herbicides will be applied according to the label.

### **3.3 Manual Controls**

Small populations of invasive plants may be pulled and disposed.

### **3.4 Mowing**

During the establishment of grasses within the arrays, mowing may be an effective method of controlling invasive broadleaf weeds that are present in the seed bank of farmed soils. Stands of multiflora rose and honeysuckle may be cut and stems treated if thickets are too dense to penetrate with foliar applications. Care should be taken to dispose of cut materials so as not to spread propagules across the Project Site.

### **3.5 Monitoring**

Future invasive plant species control will be carried out when species are detected during inspections of the vegetation outside of the arrays. It is anticipated that countermeasures to control invasive plant species may be required once every three to five years during the operation of the Project.



# 4

## Revegetation

Revegetation of the Project Site will be limited to the solar field and any other areas that have been disturbed during construction, by clearing and grubbing or invasive species control. Areas that were cleared and grubbed will be seeded immediately after grubbing has been completed using a temporary or permanent grass mix. Outside of the security fence, cool season conservation grass mixes may be blended with warm season grasses and native forbs to enhance diversity. Areas cleared, but not grubbed may be difficult to convert to grass cover depending on the depth of the forest litter layer. Natural regeneration from the seedbank within the soil will be monitored to determine if supplemental measures are required to establish vegetative cover. Trees and shrubs that exceed 15 - 20 feet in height will be cut periodically to minimize shading impacts. Other measures are described in the Landscaping Plan.

### 4.1 Temporary Vegetative Control Measures

Temporary seeding is applicable to areas where an initial disturbance is followed by a period of inactivity greater than 30 days but less than one year. Soil stockpiles, diversion berms and temporary trench backfill are examples of areas where this practice is used to control erosion until permanent stabilization is accomplished (CTDEEP and Connecticut Council on Soil and Water Conservation, 2002).

The SWPCP describes where and how temporary seeding will be utilized. Fertilizer and lime rates should be based on the results of soil tests. Grasses used in temporary seed mixes are not turf forming and will not provide the same level of protection that permanent vegetative cover provides.

A 50:50 mix of annual and perennial rye is recommended for general use to stabilize stockpiles applied at a rate of 40 lbs./acre. For temporary cover on farm fields the mix planted is dependent on the season. For fall planting a mix of cereal rye at 120 lbs./acre and hairy vetch at 20 lbs./acre is recommended, for spring seeding annual rye at 15 lbs./acres with red clover at 10 lbs./acre is recommended and during the growing season buckwheat is recommended at 70 lbs./acre. These recommendations may be modified to address specific field conditions.

## **4.2 Permanent Vegetative Control Measures**

### **4.2.1 Permanent Seeding**

The purpose of permanent seeding is to permanently stabilize the soil with a stand of grass and/or legumes that will prevent damage from wind and/or water erosion and sedimentation. This type of vegetative control measure is applied when disturbed or erodible soils have been brought to final grade and where slope gradients are no steeper than 2:1. Factors that need to be considered in planting the permanent seed cover include the time of year at which the seed is applied, if topsoil is needed, the soil texture, final grade of the site, seed selection and mulching, and the type of application.

A mixture of low-growing, cool season fescues will be used within the array. As a group, fescues have wide ecological tolerances for soil moisture levels, fertility, and light levels. Short-stature, warm season grasses such as little bluestem (*Schizachyrium scoparium*) and purple love grass (*Eragrostis spectabilis*) and low-growing, nitrogen-fixing forbs such as partridge pea (*Chamaecrista fasciculata*), red clover (*Trifolium pratense*) and trailing clover (*Lespedeza procumbens*) may be planted to sustain soil fertility. Seeding methods and rates will be determined at time of application. If practicable, the permanent seed mix may be drilled into the array layout prior to the installation of posts and later damaged areas repaired and over-seeded as construction progresses.

Permanent seed and mulch should be applied to all graded areas as soon as practicable after final grades are achieved and always within 14 days to comply with conditions in the CTDEEP Construction General Permit (CGS). If final grading is to be delayed for more than 30 days after land disturbance activities cease, temporary soil stabilization measures shall be applied in accordance with the CGS.

Grass establishment should be inspected at least one week after application and will be monitored by the qualified Environmental Site Inspector as described in the SWPCP.

### **4.2.2 Landscape/Screening Plantings**

Perimeter landscaping will be implemented at the Site to protect and stabilize the soil as well as to provide a visual screen of the TVS. The Landscaping Plan has identified the species, location, number of each planting specified to be planted, the type of planting stock, and the anticipated timing for planting. The Landscaping Plan was prepared by a Landscape Architect familiar with the TVS site conditions and has selected the prescribed species

because they are native and well suited to the environment, will provide sufficient screening based on height and spread, and will require minimal care.

Landscape plantings will be installed by contractors specializing in landscape installation. The contractors will follow the transplanting procedures described in the CT Guide for Soil Erosion and Sediment Control (SESC). After planting, the Inspector will monitor the landscaping plants to ensure that they are becoming well-established. An established plant will exhibit normal growth patterns of bud break and leaf fall, and will have resumed a growth rate considered normal for the species. In accordance with the CT Guide for SESC, these inspections will continue for at least one year after planting. Any plantings that fail within the first year will be replaced.



# 5

## Vegetation Maintenance During Operations & Maintenance

Mowing within the solar array area may be conducted by the owner's maintenance crew one or more times per year, depending on growing conditions. Due to the anticipated heavy weed seed bank present in agricultural soils, more frequent mowing may be required during the establishment of permanent grass cover so that weeds are cut before they flower and produce seed. Frequent mowing favors grasses which grow from the base of the leaf and store a greater portion of their biomass below ground. To prevent excessive soil compaction, mowing should only take place a day or more after a significant rainfall events.

Outside of the security fence brush mowers will be used infrequently to control regrowth. Trees in the forest and shrub zones that have exceeded their height limitations will be trimmed or cut by chain saw as necessary. The vegetation outside of the security fence will be inspected each year and mowing frequency or selective removals will be carried out when necessary. These operations will be carried out in the fall after the migratory bird breeding season.

Note that the separate Landscape Plan and Pollinator Habitat Plan supplement this report.