

# **VISUAL IMPACT STATEMENT**

## **2150 DRYDEN RD. SOLAR PROJECTS**

Location of Proposed Activity:

2150 Dryden Road,  
Town of Dryden, NY

Prepared for:  
SUN8 PDC LLC  
c/o Distributed Sun LLC  
601 13<sup>th</sup> Street NW  
Suite 450 South  
Washington, DC 20005

Labella Number: 2170026

**LABELLA**  
Associates, P.C.

105 North Tioga Street,  
Suite 200  
Ithaca, NY 14850  
(607) 319-4136  
[www.labellapc.com](http://www.labellapc.com)

April 12, 2017

**Project Name and Location:**

2150 Dryden Road - Multiple 2MW Solar PV Arrays  
Town of Dryden, NY

**Tax Map reference numbers:**

38.-1-3.1

**Developer Name and Address:**

SUN8 PDC LLC  
c/o Distributed Sun LLC  
601 13<sup>th</sup> Street NW  
Suite 450 South  
Washington, DC 20005

**Contact:**

Bharath Srinivasan,  
Senior Vice President of Operations  
[Bharath@distributedsun.com](mailto:Bharath@distributedsun.com)

**Introduction**

SUN8 PDC LLC has proposed to construct and operate solar photovoltaic arrays in the Town of Dryden in Tompkins County, New York as part of New York State's Community Distributed Generation program. As part of this proposal, SUN8 is proposing solar arrays at 2150 Dryden Road, on property owned by Scott Pinney. SUN8 is proposing separate solar arrays north of Stevenson Road, west of Turkey Hill Road, and east of Dodge Road owned by Cornell University.

Labella Associates, D.P.C. has been engaged by SUN8 to perform engineering services, including a visual impact assessment, for the Special Use Permit application in the Town of Dryden. This report provides supplemental information to the Special Use Permit application, specifically on visual impact.

SUN8 also engaged Trowbridge Wolfe Michaels Landscape Architects LLP to provide an assessment of visual impact, review site conditions, develop a 3D model of the site with solar arrays, provide a planting plan to mitigate visual impact and to generate renderings to illustrate the mitigative measures.

**Guidelines**

The New York State Department of Environmental Conservation published the Program Policy document titled Assessing and Mitigating Visual Impacts (DEP-00-2) on July 31, 2000. The document provides guidance on methodology to assess visual impacts. The DEC describes the procedure to verify the inventory of aesthetic resources, verify the visual assessment using graphic and line-of-sight analyses, determine the significance of the impact, and confirm reasonability or propose mitigation. This impact statement follows above-mentioned guidelines.

**Description of Proposed Solar Arrays**

The proposed solar arrays use PV panels. A typical PV panel measures 77" by 39". The panels are made of silicon cells, enclosed by glass on the top and an off-white polymer back sheet. Several PV panels are mounted onto a metal rack. The rack is made of galvanized steel and aluminum components. The modules are securely fastened to the racks using bolted clips. The entire structure is designed to meet all applicable safety and code requirements. The components are expected to have a 30+ year operational lifetime. Wiring within the array fence is secured underneath the PV panels, or buried in a trench. After construction, a carefully chosen seed mix is used to ensure good ground cover. The lower edge of the rack will be 24 inches off the grade and the higher end will be 8 ft. off the grade. No significant grading is proposed.

A fence is required by the national electric code for safety and security. The components within the array are valuable both for secondary use and for scrap value. The arrays operate at 1000V and are required to be fenced to allow access only to qualified personnel. SUN8 also proposes to use sheep for grazing and maintaining the vegetative cover on the ground – these sheep need to be contained and protected from predators. The proposed fence is a 7-foot high (6-ft fence with string wire on top) woven wire fence on wood posts (also called an agricultural fence). No barbed wire or razor wire is being proposed.

The low profile of the solar arrays (8ft) does not impose a significant impact on the view shed. Due to the low profile of the array, the view of the horizon is not affected (see below for an example photo).



*Photo showing a neighbor's view shed from a recently installed solar array in Ledyard, NY.*

### **Project Locations**

Labella reviewed the tax parcel 38.-1-3.1 to verify whether it is listed DEC databases for visual inventory. No registered, public view sheds were listed on the DEC inventory for these properties. The arrays however will be visible from the Willow Glen Cemetery.

## **Views from vantage points within the Cemetery**

Locations of existing view/vantage points are provided below.



View (panoramic) from north of existing building looking north from the cemetery toward the proposed arrays



View looking west from the eastern edge of the property boundary



View from the cemetery looking north toward proposed arrays

The above photos capture the view points along the property line and from within the cemetery. The low profile of the structures will not impact views from any viewpoints at a distance.

The following performance criteria were used to develop a customized mitigation plan:

Given the adjacency of the Willow Glen Cemetery to the project site, several major criteria were considered for the selection of a plant palette that will function as a visual buffer and add aesthetic value:

1. The potential visual impacts to the view shed from Willow Glen Cemetery.
2. The nature of the existing cemetery and its current planting regime.
3. The broader surrounding landscape, land use, and historical approach to planting in the area.
4. The potential for shadows cast from any plantings to negatively impact the solar photovoltaic production.

To minimize the view shed concern, the following mitigation measures are proposed:

Evergreen conifers were selected to provide year-round screening, while seasonal interest is provided by deciduous trees. The deciduous specimens selected are multi-stem, which shall provide more screening than typical single-trunk trees. The selected install size is specified to be 14-16 feet tall so that the plants are sufficiently large at the time of installation to provide screening, but not too large such that they would be difficult to procure, prohibitively expensive, or overly prone to transplant shock.

The following species were selected for plantings:

- Acer rubrum – Red maple
- Amelanchier laevis – Allegheny Serviceberry
- Juniperus virginiana ‘Burkii’ – Burkii Juniper
- Pinus flexilis ‘vanderwolf’s Pyramid’ – Vanderwolf’s Pyramid Pine

The planting plan attached to this document provides the layout of the proposed vegetative buffer.

Additional reasoning behind the selection of these species is described below:

1. Central to the planting concept is an effort to complement and enhance the existing natural beauty of the area and to provide a diverse, long-lived, resilient and dense bank of vegetation.
2. None of the selected species are on the New York State Department of Environmental Conservation Nuisance or Invasive Species lists or the Tompkins County invasive species list (2009).
3. Species have been selected for both winter and summer interest, offering maximum seasonal visual density.
4. All selected species reach a mature height of approximately 30-feet, are long-lived, and have historically proven to be relatively disease-free.
5. All selected species are readily available from local distributors.

Additional efforts to mitigate visual impact:

1. Setbacks, buffers and offsets. (per Note 3 in the DEC workbook)
  - a. Array 5 is set back by at least 130 ft. away from the property line to the south.

- b. Arrays are set back by at least 140 ft. away from the western edge of the property line
- c. Array 6 is set back at least 100 ft. away from the neighboring property line and from the limit of the Rt. 13 highway easement. Both sides of array 6 (facing the neighboring property and Rt. 13) will be buffered by vegetative screens.

Rendered images of the proposed solar arrays with no vegetative buffer, with the vegetative buffer at the time of planting and with the vegetative buffer 20 years after planting are attached as exhibits to this statement.

### **Solar Glare Hazard Analysis**

A glare analysis was performed using SGHAT, a web application published by Sandia National Laboratories. Data was input into SGHAT, including the fact that the specified modules have an anti-reflective coating, the 8ft top-elevation metric, the 20° tilt, and the site layout over a web-based mapping program. The program uses the input data of photovoltaic structural design and determines the effect on a human pupil based on a clear-sky sun. Several vantage points in the neighborhood of the array were analyzed, all at 6 ft. above ground surface elevation, approximating the height of an above-average person.

The results provided by the SGHAT are included in Table 1, below. SGHAT provides its output in three categories: low potential for temporary after-image, potential for temporary after-image and potential for Permanent Eye Damage – no vantage point was found to have objectionable glare from the solar arrays. It should also be noted that the SGHAT performs analysis with publicly available topographic data, but it assumes no existing or proposed vegetation in between the array and the vantage point. The analysis was performed for all the arrays as a group. The analysis does not distinguish between direct sunlight and reflected sunlight when the sun is visible through the space between the rows (east-west line in the space between a norther and southern row of panels)

**Table - SGHAT results of vantage points surrounding arrays at 2150 Dryden Road (before mitigation)**

Description	Latitude (°N) Longitude (°W)	Result of Analysis	Sensitive Time of Day	Sensitive Time of Year
Dryden Road towards the SW corner of the array	42.4871310507 76.3414406776	Low potential for after-image	5:45am- 6:00am	May – Aug.
Dryden Road traveling west from the intersection of George Rd and Rt. 13	42.4896311155 76.3295102119	Potential for temporary after-image	5:45pm- 6:15pm	Mar. – Sep.
House at 2180 Dryden Road	42.4905883924 76.329934001	Low potential for after-image	6:00pm- 6:30pm	Mar. – Sep.
House at 334 George Road	42.4946546777 76.3297516108	Low potential for after-image	6:00pm-6:30pm	Mar. – Sep.
Willow Glen Cemetery (property section to the west of the proposed arrays)	42.4886817356 76.3379538059	Potential for temporary after-image	6:00am – 6:30am	Apr. – Aug.

For the view point from Rt. 13 (heading west), the tool does not account for the existing vegetation in the wetlands, or the new vegetation proposed to the west of the solar arrays. During the hours of 5:45 – 6:15 pm (Mar – Sep), the elevation of the sun is at an angle lower than the height of the existing vegetation (west of the cemetery).

For the view point from the cemetery section to the west of the proposed arrays, the elevation of the sun during the hours 6:00-6:30am does not account for the existing vegetation (a) in the wetlands, (b) to the east of the solar arrays (trees on the Osmeloski property line), or (c) the trees along the N-S property line between the cemetery and the proposed project site.

### **Conclusion**

Labella Associates, D.P.C. has performed an assessment of visual impact per the guidelines of the DEC's Assessing and Mitigating Visual Impacts guidance document. Based on the proposed changes in the layout, setbacks, vegetative screens, the visual impact from the solar arrays can be effectively mitigated.

Trowbridge Wolfe Michaels Landscape Architects has reviewed actual site conditions, proposed array locations and has developed a proposed planting plan. Based on simulated renderings, the arrays are buffered from views at the cemetery property line.

# Exhibit A

Planting Plan and Rendered Images  
with and without Vegetative Plantings

It is a violation of New York Education Law Article 145 Sec. 7209, for any person, unless acting under the direction or license of an architect, professional engineer, or land surveyor, to alter an item in any way. If an item bearing the seal of an architect, engineer, or land surveyor is altered, the altering architect, engineer, or land surveyor shall affix to the item their seal and notation "altered by" followed by their signature and date of such alteration, and a specific description of the alteration.

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## SOLAR PHOTOVOLTAIC PLANTS

sun8 PDC LLC  
DISTRIBUTED SUN

## 2150 DRYDEN ROAD PROJECT

DRYDEN, N.Y. 13068

REVISIONS  
NO: DATE: DESCRIPTION:

PROJECT NUMBER:  
2170026

DRAWN BY:  
BRD

REVIEWED BY:

ISSUED FOR:

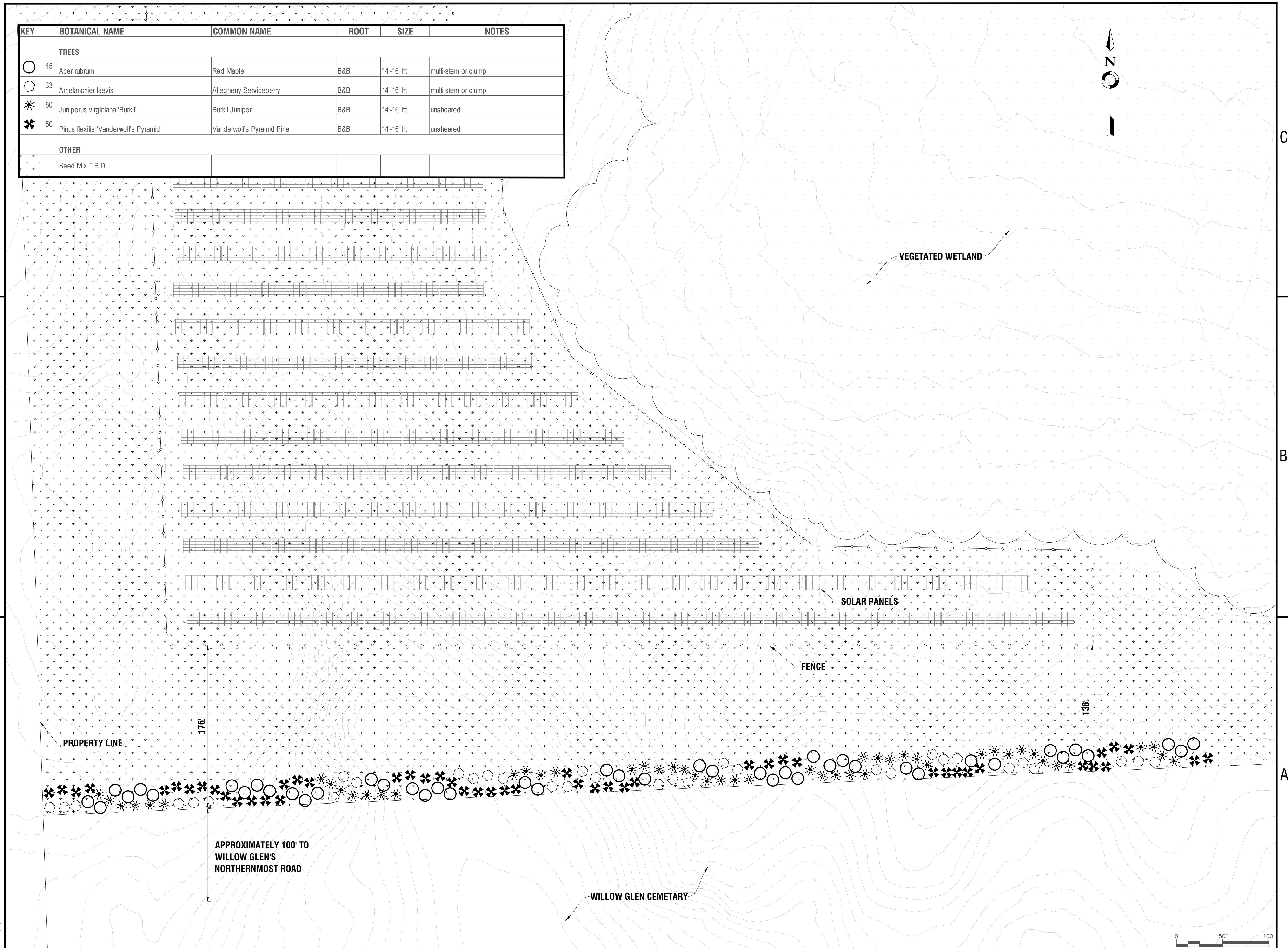
DATE:  
04/11/2017

DRAWING NAME:

## PROPOSED PLANTING PLAN

DRAWING NUMBER:

L-101



# View 1 – No Buffer



# View 1 – Initial Planting



# View 1 – 20 Years After Planting



# View 2 – No Buffer



# View 2 – Initial Planting



# View 2 – 20 Years After Planting

