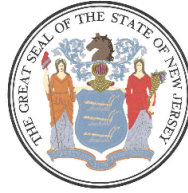


State of New Jersey  
Governor Philip D. Murphy  
Lt. Governor Sheila Y. Oliver



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Mary-Anna Holden  
Dianne Solomon  
Upendra Chivukula  
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Board of Public Utilities



[www.nj.gov/bpu/](http://www.nj.gov/bpu/)

## NOTICE<sup>1</sup>

### IN THE MATTER OF COMPETITIVE SOLAR INCENTIVE ("CSI") PROGRAM PURSUANT TO P.L. 2021, C.169

Docket No. [QO21101186](#)

Pursuant to the Open Public Meetings Act, N.J.S.A. 10:4-6 et seq., Staff of the New Jersey Board of Public Utilities (NJBPUB or Board) hereby gives notice and invites all interested parties and members of the public to participate in two virtual Stakeholder Meetings to discuss the implementation of Section 6 of the Solar Act of 2021 (L. 2021, c. 169, or Act). Section 6 of the Act governs the design and establishment of siting rules applicable to all projects eligible to participate in the Competitive Solar Incentive (CSI) Program. These siting rules will be developed in conjunction with the rules governing the conduct of the CSI Program.

Board Staff (Staff), in consultation with staff from the New Jersey Department of Environmental Protection (DEP), the New Jersey Department of Agriculture (NJDA), and the State Agriculture Development Committee (SADC), has drafted the attached Siting Straw Proposal to provide preliminary suggestions for the implementation of Section 6 of the Act.

#### SITING STAKEHOLDER MEETING #1

**DATE:** Tuesday, March 29, 2022

**TIME:** 1:00 PM

**REGISTER:** [https://us06web.zoom.us/webinar/register/WN\\_QgGNufrKRQeAf491x48H8Q](https://us06web.zoom.us/webinar/register/WN_QgGNufrKRQeAf491x48H8Q)

**TOPIC:** This meeting will focus on the Siting Straw Proposal and general stakeholder comments regarding the implementation of Section 6 of the Solar Act of 2021.

#### SITING STAKEHOLDER MEETING #2

**DATE:** Friday, April 8, 2022

**TIME:** 1:00 PM

**REGISTER:** [https://us06web.zoom.us/webinar/register/WN\\_P\\_WvQbUbr2uBPzvZsq99rg](https://us06web.zoom.us/webinar/register/WN_P_WvQbUbr2uBPzvZsq99rg)

**TOPIC:** This meeting will focus on Appendix B of the Siting Straw Proposal, a proposal developed by the NJDA and SADC regarding standards for the construction of grid-scale solar on specific farmlands in Agricultural Development Areas.

**Please note that the meetings will be conducted via Zoom. You must register for the meetings before attending via the link provided above. You must register for the meeting before attending. Please register for any or both of the sessions at least 48 hours prior to the scheduled date.**

<sup>1</sup> Not a paid legal advertisement.

After registering, you will receive a confirmation email containing information on how to join the webinar as well as system requirements. We encourage stakeholders to check their systems ahead of the meeting so they can ensure that they will be properly connected to the meeting.

Any interested party who wishes to speak at either or both of the Stakeholder Meetings listed above, should indicate that they wish to be added to the speakers list at the time they register for each meeting, on the applicable Zoom registration page. Each of these meetings will be recorded, and the recording for each will be made publicly available on the Board's [website](#).

**The deadline for comments on this matter is 5 p.m. on April 22, 2022.** Members of the public may file written comments after any of the meetings, regardless of whether they participate in the meeting process. Please submit comments directly to the specific docket listed above using the "Post Comments" button on the Board's [Public Document Search](#) tool. Comments are considered "public documents" for purposes of the State's Open Public Records Act and any confidential information should be submitted in accordance with the procedures set forth in N.J.A.C. 14:1-12.3. Written comments may also be submitted to:

**Secretary of the Board**

44 South Clinton Avenue, 1<sup>st</sup> Floor  
Post Office Box 350  
Trenton, NJ 08625-0350  
Phone: 609-292-1599  
Email: [board.secretary@bpu.nj.gov](mailto:board.secretary@bpu.nj.gov)

Please direct all questions about this matter to [board.secretary@bpu.nj.gov](mailto:board.secretary@bpu.nj.gov) .

Staff looks forward to receiving and reviewing stakeholder comments. Thank you for your interest in New Jersey's solar program.



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Aida Camacho-Welch  
Secretary

Dated: March 16, 2022

# New Jersey Solar Siting Staff Straw Proposal

Released: March 15, 2022

## Table of Contents

I.	Introduction.....	4
A.	Summary of the Solar Act of 2021.....	4
B.	Summary of the Successor Solar Incentive Program.....	4
II.	Summary of the Siting Criteria Established by the Solar Act of 2021 .....	5
III.	Staff Recommendations: Solar Siting Criteria .....	6
A.	Applicability of the Siting Rules to All Covered Solar Projects and Integration with the Competitive Solar Incentive Program .....	7
B.	Solar Siting Prohibitions and Criteria by Underlying Land-Use .....	8
C.	Waiver Process & Limits on Waiver.....	17
	Appendix A: New Jersey Solar Siting Staff Straw Proposal Geographic Information System (GIS) Data Sources & Analysis Procedure .....	19
	Appendix B: Agriculture’s Proposal for Agricultural Mitigation Guidelines for Grid Scale Solar Construction Projects on Specific Farmlands in Agricultural Development Areas .....	21

## I. Introduction

### A. Summary of the Solar Act of 2021

The New Jersey Board of Public Utilities' ("Board's") solar programs are important contributors to achieving Governor Murphy's goal of 100% clean energy by 2050 and the Global Warming Response Act goal of 80% reduction of carbon dioxide-equivalent ("CO<sub>2</sub>e") emissions by 2050. Additionally, the Board's solar programs are important contributors to jobs and to the high quality of life in New Jersey. The solar industry employs an estimated 5,384 New Jerseyans, supporting both the local and national solar industries.<sup>2</sup> The Solar Act of 2021 ("Act") directs the Board to enact sweeping changes to its programs incentivizing the construction of solar powered generation facilities to serve New Jersey customers.<sup>3</sup> The Act includes the creation of two parallel incentive structures. The first structure incentivizes "net metered" facilities that are 5 megawatts<sup>4</sup> ("MW") or less and "community solar" facilities. The second structure incentivizes net metered facilities over 5 MW and all "grid supply" solar facilities.

The Act specifies that the goal of the new incentive structures is to enable development of at least 3,750 megawatts of new solar power generation by 2026. This target is informed by New Jersey's 2019 Energy Master Plan (EMP) and Governor Murphy's goal of achieving 100% clean energy by 2050.

### B. Summary of the Successor Solar Incentive Program

The Board took a major step forward to implementing the Act with the creation of the Successor Solar Incentive ("SuSI") Program in July 2021.<sup>5</sup> The SuSI Program will set the State on a path to double its solar capacity by 2026 with the installation of 3,750 MW of new capacity. Like the Act itself, the SuSI Program is divided into two components: (1) the Administratively Determined Incentive ("ADI") Program for net metered residential facilities, net metered non-residential facilities of 5 MW or less, and community solar facilities, and (2) the Competitive Solar Incentive ("CSI") Program for grid supply solar projects (i.e., those projects selling electricity into the wholesale markets) and net metered non-residential projects over 5 MW in size. Additionally, the ADI Program included an interim incentive for projects participating in the Board's subsection (t) program, which covers solar projects on brownfields, areas of historic fill, and properly closed sanitary landfills (the "Subsection (t) Program"). The ADI Program is currently in operation and open to new registrations, while the CSI Program is still undergoing stakeholder development.

This Siting Straw Proposal focuses on implementing Section 6 of the Act, which directs the Board, in consultation with the New Jersey Department of Environmental Protection ("DEP") and the Secretary of the New Jersey

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<sup>2</sup> National Solar Jobs Census 2020, available at: <https://irecusa.org/programs/solar-jobs-census/>.

<sup>3</sup> L. 2021, c. 169 (signed July 9, 2021).

<sup>4</sup> All solar capacity numbers are in direct current, or "dc".

<sup>5</sup> See Board Order dated August 28, 2021. Docket Number QO20020184. Referenced herein as "SuSI Order".

Department of Agriculture, to establish solar siting rules that will apply to projects eligible to participate in the CSI Program. The proposed siting rules will be developed in conjunction with the rules governing the conduct of the CSI Program, which will include market segmentation, price setting, eligibility, and other market rules. In addition to applying to projects participating in the CSI Program, the proposed siting rules will also apply to any other grid supply solar facilities and net metered solar facilities over 5 MW commencing operation or interconnecting to the electric distribution or transmission system of a New Jersey public utility after the siting rules become effective.

## **II. Summary of the Siting Criteria Established by the Solar Act of 2021**

Section 6(b) of the Act requires the Board, in consultation with the DEP and the Secretary of Agriculture, to develop rules regarding the siting of solar facilities in New Jersey. The Board's solar siting criteria shall:

- (1) facilitate the State's commitment to affordable, clean, and renewable energy, and the carbon dioxide emissions reduction goals established by [the Global Warming Response Act<sup>6</sup>];
- (2) minimize, as much as is practicable, potential adverse environmental impacts; and
- (3) where appropriate, include consideration of:
  - (a) existing and prior land uses of the property;
  - (b) whether the property contains a contaminated site or landfill;
  - (c) any conservation or agricultural designations associated with the property;
  - (d) the amount of soil disturbance, impervious surface, and tree cover on the property; and
  - (e) other site-specific criteria.

Section 6(c) of the Act lists a series of land uses that are not authorized for solar project siting unless the applicant, in accordance with Section 6(f) of the Act, files a waiver petition with, and receives approval from, the Board to proceed.

Section 6(d)(1) of the Act creates special rules for solar projects "sited on prime agricultural soils or soils of Statewide importance, as identified by the United States Department of Agriculture's Natural Resources Conservation Service, which are located in Agricultural Development Areas certified by the State Agriculture Development Committee" (hereinafter referred to as "Prime Agricultural Soils/Soils of Statewide Importance within ADAs"). Specifically, Section 6(d)(1) of the Act states that:

A grid supply solar facility or a net metered solar facility greater than five megawatts in size sited on prime agricultural soils or soils of Statewide importance, as identified by the United States Department of Agriculture's Natural Resources Conservation Service, which are located in Agricultural Development Areas certified by the State Agriculture Development Committee, shall not require a waiver pursuant to subsection f. of this section until the board determines, pursuant to paragraph (2) of this subsection, that 2.5 percent of such lands in the State have been approved by the board pursuant to P.L.2021, c.169 (C.48:3-114 et al.) to be utilized by a grid supply solar facility or a net metered solar facility greater than five megawatts in size. After the board makes

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<sup>6</sup> P.L. 2007, c.112 (C.26:2C-37 et al.).

this determination, a grid supply solar facility or a net metered solar facility greater than five megawatts in size shall not be sited on prime agricultural soils or soils of Statewide importance, as identified by the United States Department of Agriculture's Natural Resources Conservation Service, which are located in Agricultural Development Areas certified by the State Agriculture Development Committee, unless authorized pursuant to subsection f. of this section.

Section 6(d)(2) of the Act specifies that the Board,

[i]n consultation with the Secretary of Agriculture, shall track and record the Statewide area of prime agricultural soils or soils of Statewide importance, which are located in Agricultural Development Areas certified by the State Agriculture Development Committee, and which are utilized for solar energy production by grid supply solar facilities and net metered solar facilities greater than five megawatts in size, in order to implement the provisions of this section.

Section 6(f) of the Act allows developers to “petition the board for a waiver to site a solar power electric generation facility in an area proscribed by subsection c. of this section” and requires that the “petition shall set out the unique factors that make the project consistent with the character of the specific parcel, including whether the property is a contaminated site or landfill, otherwise marginal land, or whether the project utilizes existing development or existing areas of impervious coverage.” In such cases, the Board is required to consult with the DEP or Secretary of Agriculture, as appropriate, and “may [...] grant a waiver to a project deemed to be in the public interest.” Additionally, Section 6(f) specifies that “in no case shall the projects approved by the board pursuant to this section occupy more than five percent of the unreserved land containing [Prime Agricultural Soils/Soils of Statewide Importance] ... located within any county’s designated Agricultural Development Area, as determined by the State Agriculture Development Committee.”

Finally, Section 6(e) of the Act prohibits siting of solar projects subject to the Act on Preserved Farmland, unless undertaken consistent with the requirements of N.J.S.A. 4:1C-32.4 *et al.*, which governs the construction of solar electric power generation facilities on those lands. Nothing in this Straw proposes to alter the process for siting solar facilities on Preserved Farmland.

### **III. Staff Recommendations: Solar Siting Criteria**

Board Staff (“Staff”) intends that the development of the CSI Program market rules will be addressed in a proceeding that is separate, but runs in parallel with, this proceeding, which is focused on the solar siting criteria. This Siting Straw Proposal is the first step in the Solar Siting stakeholder process and will be the subject of one or more stakeholder meeting(s) to hear from interested stakeholders. In addition, the stakeholder process will offer an opportunity for stakeholders to provide written feedback. Following the stakeholder process, Staff expects to propose that the Board consider rules that would govern the siting criteria established by the Act. Staff anticipates that it will complete work on the CSI Program design by mid-2022, which necessarily includes siting requirements, as the Act directs.

Staff proposes that all projects participating in the CSI Program, as well as any other grid supply and net metered projects over 5 MW in size, located in New Jersey, will be required to meet the siting criteria established pursuant to Section 6 of the Act.

The Act recognizes the need to balance several competing policy interests, including the cost to consumers of CSI Program solar projects, the ability to connect solar projects to the grid in a timely manner to address the existential threat of global climate change, and the need to preserve open and agricultural spaces for New Jersey citizens. Development of solar projects must be achieved in a cost-effective manner. Not all land available for solar development can realistically be developed. Issues such as interconnection costs; size, shape and condition of the land itself; and access to the electric grid, can make solar development cost prohibitive. As a result, to keep project costs reasonable, developers generally need to evaluate a number of potential parcels, and select the most cost effective location. Thus, the universe of land potentially available for development is expected to be greater than the number of acres that will actually be used for solar development.

The siting restrictions addressed in the Siting Straw Proposal are designed to reflect where it is permissible for solar projects to be located. Issues around dividing the market into particular segments, pricing of those segments, or proposals to better achieve other policy objectives, will be addressed in the parallel proceeding on CSI Program design and rules.

A. Applicability of the Siting Rules to All Covered Solar Projects and Integration with the Competitive Solar Incentive Program

Section 6(a) of the Act requires that “the Board shall not authorize a grid supply solar facility or a net metered solar facility greater than five megawatts in size to commence operation, or to interconnect to an electric distribution or transmission system, unless it meets the siting criteria developed pursuant to this section.” Staff notes that the siting provisions of the Act do not differentiate between projects receiving SuSI Program incentives, and solar projects located in New Jersey that, for whatever reason, decide to forgo SuSI Program incentives. Staff interprets this as a deliberate choice by the Legislature to require all grid supply or net metered solar projects over 5 MW to meet the solar siting rules developed in this proceeding, regardless of their decision to seek New Jersey state incentives through the SuSI Program. Had the Legislature intended differently, it could have tied the applicability of the solar siting rules to participation in the SuSI Program. The Legislature did not do so. Staff thus interprets Section 6(a) as requiring the Board to apply the same siting rules for all grid supply solar facilities or net metered solar facilities over 5 MW.

Traditionally, the Board’s oversight of solar projects has been through its management of the State’s solar incentive programs. However, Staff is cognizant that the solar industry is evolving, and that it is possible that solar projects may choose to forgo a New Jersey solar incentive through the SuSI Program. The requirement that the siting requirements in Section 6 apply to all covered solar facilities ensures that the State’s interest in preserving open space and agricultural lands will be applied to all solar projects, on an equal basis.

Staff proposes requiring that all solar facilities, whether or not their owner/operators opt to participate in the CSI Program, be required to register their respective solar projects with the Board so that the Board is able to track and monitor all solar facilities subject to the solar siting provisions in Section 6 of the Act, and to ensure

that New Jersey’s solar siting rules are followed. This requirement will allow the Board to track such projects on a non-discriminatory basis, while also ensuring that non-participating projects intending to utilize the land they have reserved do so in a timely manner and are not hoarding available space or otherwise acting in an anti-competitive manner. The solar project registration process will be included in the design of the CSI Program; however, Staff anticipates that projects registering as non-SuSI participants will be subject to comparable milestone and project maturity requirements applicable to projects participating in the SuSI Program, and subject to tracking to determine progress toward clean energy and emissions goals.

#### B. Solar Siting Prohibitions and Criteria by Underlying Land-Use

The Act requires the Board to, “where appropriate, include consideration” of a variety of land-use factors, including the “existing and prior land uses of the property”; “whether the property contains a contaminated site or landfill”; “any conservation or agricultural designations associated with the property”; “the amount of soil disturbance, impervious surface, and tree cover on the property”; and “other site-specific criteria.” The rules proposed herein are designed to establish these criteria and effectively balance the environmental and affordability concerns, as the Act requires. As discussed in the SuSI Order, the Board intends to consider site-specific review criteria that examine the prior land uses of the real property, in particular whether the solar project is proposed to be erected on the built environment/impervious surfaces, a contaminated site or landfill, a parcel that includes any conservation or agricultural designation, or a parcel with tree cover. The site-specific review will determine whether the solar project meets the siting criteria generally and, if so, which of the CSI Program market segments the solar project is eligible to enter.

In order to facilitate affordable solar projects, Staff views it as critical to have clear and transparent solar project siting criteria that apply across the State and that allow for an expedited, rule-based, site-specific review process. Staff envisions that such a process will generally require the applicant to provide evidence of the land use of the proposed solar project site and, where required, more detailed information necessary to establish qualifications and whether certain benchmarks have been met for more restrictive market segments, such as the contaminated site or landfill segment. Staff proposes that this limited site-specific review process will promote achievement of the statutory goals of both the Act and the Global Warming Response Act.

Programmatic details about assignment of solar projects to a particular market segment in the CSI Program and pricing of solar projects on various land use types, which may result in more favorable pricing for solar projects that take advantage of the built environment or that avoid using open or agricultural space, will be developed as part of the CSI Program stakeholder process. Staff proposes that a solar project meeting the siting criteria will be eligible to participate in the appropriate market segment established pursuant to the SuSI Program. Staff further proposes that these projects will be subject to any pricing or other terms established in the CSI Program proceeding.

#### 1. Siting of Solar Projects on the Built Environment or Impervious Surfaces

Staff expects that a sizable portion of the CSI Program will be dedicated to projects on the built environment or located on impervious surfaces. In its initial Successor Solar Program Straw Proposal issued in April – May 2021, Staff recommended requiring that approximately half of the MWs awarded in the CSI Program be from solar



projects located on these desired land uses.<sup>7</sup> The Board has “a stated preference for solar projects that make use of the built environment and that minimize impacts on open space (e.g. rooftops and similar installations on the built environment).” SuSI Order at p. 20.

Staff proposes that the siting rules reflect the Board’s policy preference of promoting solar on the impervious surfaces and the built environment by providing an expedited path to demonstrate that such projects meet the solar siting criteria established by the Act. Generally, Staff views these projects as highly desirable siting locations, since they do not involve use of open space or farmland, due to their each being situated on previously existing impervious surfaces. The legislature has generally supported promoting solar on the built environment as well, as indicated by the November 8, 2021 law requiring solar-ready roofs on warehouse.<sup>8</sup> To facilitate this statutory and policy preference, Staff proposes to create an expedited siting process for solar projects if they are both (i) sited on areas of impervious land cover or impervious surfaces, such as buildings, warehouses, parking lots, or other similar areas, and (ii) not sited on areas that are specifically restricted by the Solar Act of 2021.<sup>9</sup> Projects that fall into the first category but not the second category, for example projects that are proposed on the built environment or impervious surfaces within a Green Acres encumbered property or a Highlands preservation area, would be required to seek siting approval through the waiver process set forth below.

Staff proposes the use of the modified Anderson Classification system developed by DEP<sup>10</sup> to determine whether potential solar projects would be located on restricted categories of land, such as Pinelands or Highlands preservation areas, forested lands, or wetlands. This classification system is derived from the U.S. Geological Survey’s standardized approach.<sup>8</sup> The stated purpose of this spatial data set is to provide information for regulators, planners, and others interested in land use & land cover changes and allow them to quantify those changes over time using geographic information systems (“GIS”).<sup>11</sup>

The U.S. Geological Survey Anderson Classification system, and the DEP derivative system are hierarchical systems based on four digits. The four digits represent one to four levels of classification which include: Level I, general; Level II, descriptive; Level III, detailed; and Level IV, most detailed.

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<sup>7</sup> Straw Proposal available here:

[https://njcleanenergy.com/files/file/Solar%20Transition/FY21/Solar%20Successor%20Program%20Notice%20and%20Straw%20Proposal\\_revised\\_05-05-2021.pdf](https://njcleanenergy.com/files/file/Solar%20Transition/FY21/Solar%20Successor%20Program%20Notice%20and%20Straw%20Proposal_revised_05-05-2021.pdf)

<sup>8</sup> P.L. 2021, c. 290, C.52:27D-123.19. See, e.g., N.J.S.A. § 52:27D-119, et seq., requiring that certain buildings be “solar ready.”

<sup>9</sup> Other siting restrictions, for example, in certain preserved areas, would continue to apply.

<sup>10</sup> A Land Use and Land Cover Classification System for Use with Remote Sensor Data, U.S. Geological Survey Professional Paper 964, 1976; edited by DEP (New Jersey Department of Environmental Protection), OIRM (Office of Information Resources Management), BGIA (Bureau of Geographic Information and Analysis), 1998, 2000, 2001, 2002, 2007, 2012, 2015.

<sup>11</sup> Land Use Land Cover 2015 Update, Edition 20190128 (Land\_lu\_2015), vector digital data published 01/28/2019, , NJ Department of Environmental Protection (NJDEP), Data Linkage <https://www.nj.gov/dep/gis>, Metadata Linkage Land Use/Land Cover 2015 Update, Edition 20190128 (Land\_lu\_2015) (arcgis.com)

For identification and classification of agricultural lands, forested lands, and wetlands staff proposes the use of Level I category definitions as follows:

1. Agricultural Lands (2000 series): This category includes all lands used primarily for the production of food and fiber and some structures associated with this production.
2. Forested Lands (4000 series): This category contains any lands covered by woody vegetation other than wetlands. These areas are capable of producing timber and other wood products and supporting many kinds of outdoor recreation.
3. Wetlands (6000 series): This category contains areas that are inundated or saturated by surface or ground waters at a frequency and duration sufficient to support vegetation adapted for life in saturated soil conditions.

The most current available data is representative of conditions in New Jersey for 2015 (published in 2019). Future updates of this data are expected to be published by the DEP in 2023 and be representative of land use/land cover conditions of New Jersey in 2020. Retrospective data is also available for 1998, 2000, 2001, 2002, 2007, 2012. The relative low frequency of statewide published land use/land cover data is a result of limited available statewide input imagery and classification processing time. In the event that a developer thinks that the DEP modified Anderson Classification System no longer accurately classifies a specific parcel of land, the waiver process can be used. As part of the waiver application, Staff anticipates that the applicant would need to demonstrate that no inappropriate land use change for the purpose of circumventing siting restrictions has taken place.

Staff proposes that each portion of a larger project that involves construction on both the built environment and open space would be required to meet the siting requirements for the land use on which the portion of the project is to be built.

Staff notes that the underlying structures that host the solar facilities are already subject to land-use and zoning restrictions overseen by other state, regional, and local government entities, and Staff anticipates that those rules will continue to apply.

## 2. Prohibited Solar Siting on Certain Land Uses

Sections 6(c) and 6(e) of the Act list a series of land uses that are not available for solar siting, absent specific permission from the appropriate land use agency following the Waiver Process. Staff proposes to incorporate these restrictions into the Board's rules and prohibit siting of solar development on:

- (1) land preserved under the Green Acres Program;
- (2) land located within the preservation area of the pinelands area; as designated in subsection b. of section 10 of P.L.1979, c.111 6 (C.13:18A-11);
- (3) land designated as forest area in the pinelands comprehensive management plan adopted pursuant to P.L.1979, c.111 (C.13:18A-1 et 9 seq.);

- (4) land designated as freshwater wetlands as defined pursuant to P.L.1987, c.156 (C.13:9B-1 et seq.), or coastal wetlands as defined pursuant to P.L.1970, c.272 (C.13:9A-1 et seq.);
- (5) lands located within the Highlands preservation area as designated in subsection b. of section 7 of P.L.2004, c.120 (C.13:20-7);
- (6) forested lands, as defined by the Board in consultation with the Department of Environmental Protection;
- (7) prime agricultural soils and soils of Statewide importance, as identified by the United States Department of Agriculture's Natural Resources Conservation Service, which are located in Agricultural Development Areas certified by the State Agriculture Development Committee, in excess of the Statewide threshold of 2.5 percent of such soils established by paragraph (1) of subsection d. of the Solar Act of 2021; or

Additionally, Section 6(c)(8) of the Act prohibits siting of solar on preserved farmland, unless affirmatively allowed under N.J.S.A. 4:1C-32.4 *et al.*

Staff believes that the siting restrictions listed under 1, 2, 3, 5 and 8 are self-effectuating definitions, because they refer to fixed boundaries as defined by the appropriate statutes. However, restrictions 4 (wetlands), 6 (forested land), and 7 (certain non-preserved farmland) require additional discussion by the Board. Staff proposes to incorporate the restrictions defined in Section 6c(1), (2), (3), (5), and (8) into its rules verbatim and seeks comment from stakeholders as to whether additional clarity would be advisable. The implementation of Section 6c(4), (6), and (7) is discussed further below. Staff anticipates working with its solar program consultant and sister agencies to develop standardized tools to facilitate the determination as to whether a proposed location for a solar project is suitable, including by making use of GIS software, where useful, to help evaluate compliance with the statutory restrictions. In all cases, and in accordance with the Waiver Policy, a petitioner seeking to locate on an otherwise prohibited parcel may petition the Board for a waiver, following the process discussed below.<sup>12</sup>

### 3. Siting of Solar Projects on Forested Lands

In general, Staff recommends that the Board establish rules that prohibit the siting of solar facilities on forested lands. Forested land acts as a carbon dioxide sink that helps to sequester CO<sub>2</sub> emissions. Destruction of high-quality forested areas for the sole purpose of installing solar projects undermines many of the principal goals encouraging the construction of additional solar facilities, and goes contrary to the desire to ensure that carbon dioxide already sequestered in forests continues to remain sequestered.

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<sup>12</sup> See Act, at Section 6(c).

The DEP defines forested lands as: *Land that has or has had within the past ten years at least 10 percent crown cover by live tally trees<sup>13</sup> of any size or at least 10 percent canopy cover of live tally species, based on the presence of stumps, snags or other evidence. To qualify as forested lands, the area must be at least 1.0 acre in size and 120.0 feet wide. Forest land includes transition zones, such as areas between forest and non-forest lands that meet the minimal tree stocking/cover and forest areas adjacent to urban and built-up lands. Roadside, streamside and shelterbelt<sup>14</sup> strips of trees must have a width of at least 120 feet and continuous length of at least 363 feet to qualify as forest land. Unimproved roads and trails, streams and clearings in forest areas are classified as forest if they are less than 120 feet wide or less than an acre in size.*

Staff proposes to implement a GIS data layer tool as developed by DEP incorporating the DEP modified Anderson code Classification of Forested Lands (4000 series) as a practical tool to determine whether a potential solar project is sited in forested lands. If there is any dispute regarding the classification of forested lands, the DEP text definition of forested lands will rule. This category contains any lands covered by woody vegetation other than wetlands. These areas are capable of producing timber and other wood products and supporting many kinds of outdoor recreation.

Staff proposes that solar projects seeking to be located on forested lands as defined above would be required to file a petition for waiver, pursuant to Section 6(f) of the Solar Act, as discussed in more detail below, that would highlight the site-specific factors that warrant construction of solar on a currently forested location.

#### 4. Siting of Solar Projects on Coastal Wetlands and Freshwater Wetlands

Section 6(c)(f) addresses siting on coastal wetlands and freshwater wetlands, as defined pursuant to the DEP's underlying statutory requirements. Section 6(c) generally lists areas on which solar siting is prohibited, unless the proposed project receives a waiver from the land-use agency. Staff proposes requiring a waiver for all projects seeking to locate on these otherwise prohibited land areas.

#### 5. Siting of Solar Projects on Farmland

The Act evidenced a particular interest in limiting the amount of CSI-eligible projects (i.e. grid supply projects and net metered projects of 5 MW or greater) located on “prime agricultural soils or soils of Statewide importance, as identified by the United States Department of Agriculture's Natural Resources Conservation Service, which are located in Agricultural Development Areas certified by the State Agriculture Development Committee.” See Section 6.

The Act includes several key provisions designed to protect Prime Agricultural Soils/Soils of Statewide Importance within Agricultural Development Areas (“ADAs”), including specification of percentages of such lands that are available for solar development without a site-specific waiver and of lands that cannot be utilized for solar absent such a waiver. Below we address each of these provisions, in turn.

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<sup>13</sup> Tally trees: all live and standing dead trees in accessible forest land condition classes encountered on the subplot the first time a subplot is established, and all trees that grow into a subplot thereafter.

<sup>14</sup> Shelterbelt: a line of trees or shrubs planted to protect an area, especially a farm field, from strong winds and the erosion they cause.

a. Calculation of the Statewide Threshold and County Development Limits

Staff interprets the Act as allowing solar development on the first 2.5% of Prime Agricultural Soils/Soils of Statewide Importance that are in ADAs statewide (“2.5% Statewide Threshold”), subject to the limitations found in Section 6(f) that limit total development within a given county. This first 2.5% would therefore be exempt from the general prohibition on siting on Prime Agricultural Soils/Soils of Statewide Importance contained in Section 6(c). Any development on these farmlands above the 2.5% Statewide Threshold would only be allowed if the solar developer seeks and receives a waiver under Section 6(f), as discussed below.

Staff notes that, if a disproportionate amount of the permitted solar resources statewide within the 2.5% Statewide Threshold were to seek to locate in a single county, this could degrade agricultural viability.<sup>15</sup> Staff views such an outcome as inconsistent with the Act’s requirements that the Board “minimize, as much as is practicable, potential adverse environmental impacts” and reflect “conservation or agricultural designations associated with the property[.]” See Section 6(b) of the Act. Section 6(f) of the Act addresses this concern by including a strict 5% limit on the total amount of qualified farmland that is open to solar projects in any given county (“5% County Development Limit”):

... in no case shall the projects approved by the board pursuant to this section occupy more than five percent of the unreserved land containing [Prime Agricultural Soils/Soils of Statewide Importance] ... located within any county’s designated Agricultural Development Area, as determined by the State Agriculture Development Committee.

The first step in Staff’s proposed analysis is to establish the “universe” of covered farmland on which solar development is allowed. In calculating both the 2.5% Statewide Threshold and the 5% County Development Limit, Staff proposes that the Board, in consultation with the Secretary of Agriculture, perform a spatial analysis using GIS to determine:

1. the total acreage of land within ADAs at both the State and county level;
2. land parcels that are comprised of Prime Agricultural Soils/Soils of Statewide Importance, as identified by the United States Department of Agriculture’s Natural Resources Conservation Service; and
3. Land parcels that are classified as “agricultural” in the most recent Land Use/ Land Cover maps produced by the DEP.<sup>16</sup>

In considering lands that are subject to the 2.5% Statewide Threshold and the 5% County Development Limit set forth in 6(f), Staff notes that there are important differences in how the calculations are set forth in the Act.

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<sup>15</sup> For example, solar development without additional limitations on 2.5% of statewide lands, or approximately 8493 acres, would conceivably allow solar to cover all of the agricultural lands in the ADAs located in several different counties.

<sup>16</sup> See <https://gisdata-njdep.opendata.arcgis.com/documents/6f76b90deda34cc98aec255e2defdb45/about>.

Section 6(f) states that the 5% County Development Limits will be calculated based on 5% of the *unpreserved* Prime Agricultural Soils/Soils of Statewide Importance in each county's ADA. In contrast, Section 6(d)(1) of the Act refers to projects sited on the total amount of covered farmland in each ADA, without regard to whether it is preserved or not.

To conduct these disparate calculations, Staff proposes that:

- For the 2.5% Statewide Threshold, the Board will determine the spatial distribution and acreage values for Prime Soils and Soils of Statewide Importance within each ADA that are assigned an agricultural designation in the most recent land use/land cover maps and aggregate these values state-wide. The sum of these values would then be multiplied by 0.025 to determine the amount of such lands that can be used to host solar statewide in the absence of an approved waiver.
- For determining the county-by-county 5% County Development Limit, the Board will determine the Prime Soils and Soils of Statewide Importance within each ADA that are assigned an agricultural designation in the most recent land use/land cover maps, and then exclude areas designated as Preserved Farmland, Highlands, Pinelands, Green Acres, and State, Local, and Nonprofit Open Space. Staff will then aggregate these designated land areas by county and multiply each county value by 0.05.

Attachment I to this Straw Proposal includes a sample calculation of the 2.5% Statewide Threshold and the 5% County Development Limits.

In all cases, Staff proposes to utilize the United States Department of Agriculture Natural Resource Conservation Service data, as reflected in the GIS, using the appropriate geoprocessing and spatial statistic methods to calculate the information outlined above.

b. Application of the Statewide Threshold and County Development Limits

Staff proposes that the Board enforce the 2.5% Statewide Threshold and the 5% County Development Limits found in Section 6(f) independently. In other words, a project may be allowed under the 2.5% Statewide Threshold at the state level, but still be prohibited by the limits found in Section 6(f) with respect to the 5% County Development Limit in a particular county. The converse is also true, where a solar project may involve development of land that would be allowed under the Section 6(f) 5% County Development Limit but would breach the 2.5% Statewide Threshold. In either case, the solar project would be prohibited by the proposed siting rules, unless the project is granted a waiver pursuant to 6(f).

Several of the inputs to the above calculations can change over time. However, the Land Use / Land Cover data is updated relatively infrequently, which will ensure a certain level of stability in the calculation of Statewide and County Development limits.

c. Tracking of Qualified Agricultural Acreage and Project Registration

Section 6(d)(2) of the Act requires that the Board “in coordination with Secretary of Agriculture, shall track and record” the usage of agricultural lands for solar. Staff proposes to meet this requirement in two parts.

First, Staff proposes that it will, in coordination with the Secretary of Agriculture, maintain a register of the area of lands devoted to solar projects that are, after the adoption of these siting rules, (i) constructed on covered agricultural lands or (ii) reserved for solar on covered agricultural lands, pursuant to the Board’s registration system. Staff proposes to create a public “dashboard” that will reflect the most current calculation, updated quarterly, or more often as the Secretary and the Board shall agree.

Second, the Board will maintain a registration system for projects in the CSI Program, as well as grid supply projects and large net metered projects not participating in the CSI Program, in order to enable solar projects to register their interest in using agricultural lands the Act covers. Staff proposes that on their initial registration forms, solar projects selected for participation in the CSI Program would submit their intention to construct on Prime Soils or Soils of Statewide Importance within ADAs. Such solar projects would then be eligible to participate in the CSI Program for the next registration period, with the exact details of the registration process to be developed as part of the design of the CSI Program.

If the amount of percentage thresholds on the statewide or county levels, respectively, were exceeded within any given solicitation, then Staff proposes to enforce a “siting constraint” in the CSI Program. This siting constraint would accept solar projects into the CSI Program starting with the least expensive solar project, and incrementally moving up the proposed solar projects supply stack until the available agricultural lands were utilized. Solar projects selected for an award in the CSI Program would maintain their position in the siting queue so long as they met all of the requisite solar project milestones associated with their CSI Program award. The amount of land associated with solar projects that either failed to meet their milestones or were otherwise removed from the CSI Program would be returned to the pool of available acreage for allocation in future CSI Program years. Solar projects seeking access to agricultural lands that were not participating in the CSI Program would also be allowed to reserve lands but would be required to meet comparable milestones. Solar projects would not be permitted to toggle between participation in the CSI Program and non-participating status, in order to prevent gaming.

d. Construction Requirements Applicable to Certain Farmlands

Staff notes that solar projects are required to “minimize, as much as is practicable, potential adverse environmental impacts” the solar projects may trigger. These concerns are particularly important for solar projects being located on Prime Agricultural Soils/Soils of Statewide Importance within an ADA. Staff views solar projects on these farmlands as potentially temporary installations and seeks to ensure the opportunity for farmland hosting these solar projects to be restored to its original, pre-project state at the end of the solar project’s economic life. To this end, Staff proposes to adopt rules regarding construction of solar projects on Prime Agricultural Soils/Soils of Statewide Importance located within an ADA, governing construction methods aimed at preventing soil compaction, preservation of topsoil, and prevention of erosion.

The State Agriculture Development Committee (“SADC”) and the New Jersey Department of Agriculture (NJDA), collectively “Agriculture”, has developed an initial recommendation for such construction requirements, which is

included in Appendix B of this Straw Proposal. Staff invites stakeholders to provide feedback and comments on the initial recommendations.

To further develop these rules, the Board intends to involve interested parties, including its sister agencies and industry, about what specific measures could be proposed to ensure that farmland serving as the host site for a solar project has the option of being returned to active farming following the project's decommissioning, as well as to ensure that any proposed requirements are practical and economically feasible. During the stakeholder proceedings, Staff intends to develop recommendations for specific requirements to applicable projects that the Board will consider adopting in its final proposal.

## 6. Siting of Solar Projects on Contaminated Sites and Landfills

New Jersey has a long history of supporting solar projects on landfills and contaminated sites, particularly through the Subsection (t) Program. The Act maintains this preference, specifically stating that the Board should "ensure that the environmental and public health benefits of solar electric power generation facilities on contaminated sites or landfills are recognized."

Historically, the Board has worked closely with the DEP to administer the Subsection (t) Program.<sup>17</sup> Staff recommends taking advantage of the existing processes between both agencies wherever possible. However, there are several substantive changes between the Subsection (t) Program and the Act. For instance, the Act creates a new definition for the term "contaminated site or landfill," as follows:

- (1) any currently contaminated portion of a property on which industrial or commercial operations were conducted and a discharge occurred, and its associated disturbed areas, where "discharge" means the same as the term is defined in section 23 of P.L.1993, c.139 (C.58:10B-1)<sup>18</sup>;
- or (2) a properly closed sanitary landfill facility and its associated disturbed areas.<sup>19</sup>

Overall, Staff anticipates that these changes will increase the number of sites eligible for the CSI Program. For example, military installations were not eligible under the Subsection (t) Program. Many of these and other federal facilities are anticipated to be eligible under the new definition of "contaminated sites." Staff proposes that gravel, sand, other historic mining sites where a discharge as defined under the Act has occurred, and which currently constitute contaminated sites, will also be covered under the new definition. Lands on which discharge under the

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<sup>17</sup> Staff notes that the SuSI Program Order established an interim program for Subsection (t) projects to participate in the Administratively Determined Incentive Program. However, the interim Subsection (t) program is for a limited size and duration will close to new applicants after it expires. All future contaminated lands grid supply projects will participate in the CSI Program.

<sup>18</sup> "Discharge" means an intentional or unintentional action or omission resulting in the releasing, spilling, leaking, pumping, pouring, emitting, emptying, or dumping of a contaminant onto the land or into the waters of the State (C.58:10B-1).

<sup>19</sup> See Solar Act.



Act has occurred as a result of ordinary course farming operations do not generally constitute contaminated lands for the purposes of solar incentive programs.

Finally, Staff notes that the new definition of “contaminated site or landfill” includes “associated disturbed areas,” which recognizes that disturbed areas associated with, but not part of the contaminated site, may not generally be suitable for development, but may be ideal for solar panels, access roads, or other solar-appurtenant uses. In all instances, solar development on any properly closed landfill or contaminated site must be done in accordance with applicable DEP and local regulations and avoid interference with any remedial and/or closure activities or controls. For the purposes of the SuSI program, properly closed landfills may also include those landfills for which a party has agreed to complete all necessary remedial and/or closure activities under DEP oversight as a condition of any approval.

Staff anticipates that specific details of the application process will be discussed as part of the development of the CSI Program. At a high-level, Staff anticipates that projects seeking designation as “contaminated site” or “properly closed landfill” projects will be required to meet with the DEP Office of Permitting and Project Navigation prior to filing an application with the Board on a standard form. Staff’s review of such applications will be conducted in close coordination with the DEP. Staff also takes seriously the exceptional challenges that developers of solar projects on contaminated sites face, including the often-lengthy process to investigate and remediate a site prior to construction of a solar facility and will take this into consideration in the design of the CSI Program.

### C. Waiver Process & Limits on Waiver

Section 6(f) of the Act governs the process by which a developer may seek a waiver of the general siting prohibition of solar facilities on certain sites contained in Section 6(c). The waiver process will apply to the development of solar facilities on any site with a prohibited designation, even when that site may simultaneously also have another non-prohibited Land Use / Land Cover designation(s) (for example, in the case of a forested land that is also a contaminated site, the forested land designation would require a waiver).

Pursuant to the Act, the waiver process requires that the developer submit to the Board a petition that “set(s) out the unique factors that make the project consistent with the character of the specific parcel” and gives examples, such as contaminated sites or landfills, marginal land, existing development, and existing areas of impervious coverage. Staff proposes that the Board and its sister agencies consider any mitigation measures project proponents suggested in determining whether a particular solar project is in the public interest, such as proposals that include preservation of other lands (e.g., donating substantial desirable land into permanent conservation), and or the like. The Board, per the Act, would consider such waiver requests in consultation with the DEP or Secretary of Agriculture, as appropriate.

Staff notes that some projects proposed to be built on a restricted land category may be proposed for the built environment or on an impervious surface. In such cases, the underlying requirement for the project to receive a waiver remains. However, Staff proposes that the Board and its sister agencies develop an expedited process for considering such waivers, given the statutory and policy preference for such projects, and may enter into a Memorandum of Understanding to facilitate such approvals. Either way, the Board and its sister agencies would

consider the proposed location of the solar project on the built environment or an impervious surface as a factor in evaluating whether to provide the project a waiver.

Staff notes that the waiver process will also apply to agricultural lands, as discussed in that section. Finally, Staff proposes to implement Section 6(f) by rejecting any request for waiver of Section 6(c)(7) as denied by operation of law if it would exceed the 5% County Development Limit and result in more than 5% of the unpreserved Prime Agricultural Soils/Soils of Statewide Importance in a given county's ADA being made available for solar siting.

## **Appendix A: New Jersey Solar Siting Staff Straw Proposal Geographic Information System (GIS) Data Sources & Analysis Procedure**

**Required Environment Coordinate System:** NAD\_1983\_StatePlane\_New\_Jersey\_FIPS\_2900\_Feet projected coordinate system

### **Required Spatial Data:**

- County Boundaries of New Jersey
  - [County Boundaries of NJ | County Boundaries of NJ | NJDEP Open Data \(arcgis.com\)](#)
- New Jersey Agricultural Development Areas
  - [New Jersey Agricultural Development Areas - Overview \(arcgis.com\)](#)
- Land Use/Land Cover 2015
  - [Land Use/Land Cover of New Jersey 2015 \(Download\) | NJDEP Open Data \(arcgis.com\)](#)
- Preserved Farmland
  - [Preserved Farmland of New Jersey | Preserved Farmland of New Jersey | NJGIN Open Data \(arcgis.com\)](#)
- NJ Highlands Preserved Lands "
  - Link: : [Preserved Lands | Preserved Lands | NJ Highlands Council Open Data \(arcgis.com\)](#)
- Pinelands PDC SEV Area"
  - Link: [New Jersey Pinelands Commission | Pinelands Interactive Map \(nj.gov\)](#)
- NRCS Soils Data (New Jersey's Important Farmland Soils)
  - [New Jersey Important Farmland Soils - Overview \(arcgis.com\)](#)
- State, Local and Nonprofit Open Space (Contains Green Acres)
  - [State, Local and Nonprofit Open Space of New Jersey | State, Local and Nonprofit Open Space of New Jersey | NJDEP Open Data \(arcgis.com\)](#)

### **Analysis Procedure**

Upon acquiring the input data listed above, the following procedure was used to determine the approximate acreage values shown in the table below. All area calculations must be performed in an environment using the NAD\_1983\_StatePlane\_New\_Jersey\_FIPS\_2900\_Feet projected coordinate system.

#### **1) 2.5% Statewide Threshold:**

- a. Create a new layer derived from the NRCS Soils data that isolates the features representing the Soils of Interest. To do this, select and export the features using the following query: [ClassName = Farmland of Statewide Importance, OR ClassName = Prime Farmland]
- b. Use the clip tool to crop this area to LULC15 designated as Agriculture. Use the clip tool again to crop this new data layer within the ADA boundary layer.
- c. Calculate the Total acreage of prime agricultural soils and soils statewide importance (within the ADA by creating a new field and calculating the geometry using the projected coordinate system listed above.
- d. Calculate the statistics in the Attribute Table to sum the total for statewide acres of the new field. Multiple this sum by 0.025.

#### **2) County-by-county 5% Development Limit**

- a. Merge the exclusion areas (Highlands, Pinelands, Open Space and Green Acres, and Preserved Farmland) data into one layer.
- b. Use this layer and the ADA soils layer created in the Statewide Threshold procedure above in the Pairwise Erase tool to remove the exclusion areas.

<b>Approximate 2.5% Statewide Threshold</b>	
<b>Designations</b>	<b>Approximate Area Calculations</b>
Land Use–Land Cover areas designated as Agriculture that are co-located with Prime Farmland Soils and Soils of Statewide Importance within ADAs	339,700 acres
$0.025 * 339,700$	8,493 acres
Calculations performed using Esri ArcGIS Pro version 2.9	

<b>County-By-County 5% Development Limit</b>	
<b>County</b>	<b>Approximate Area Calculations</b>
SALEM	1,635
HUNTERDON	1,388
CUMBERLAND	1,188
WARREN	904
GLOUCESTER	819
BURLINGTON	724
MONMOUTH	678
SOMERSET	507
ATLANTIC	416
MERCER	267
SUSSEX	260
CAMDEN	199
MIDDLESEX	130
CAPE MAY	85
OCEAN	77
MORRIS	70
BERGEN	4
PASSAIC	2
UNION	0
HUDSON	0
ESSEX	0
Calculations performed using Esri ArcGIS Pro version 2.9	

## **Appendix B: Agriculture’s Proposal for Agricultural Mitigation Guidelines for Grid Scale Solar Construction Projects on Specific Farmlands in Agricultural Development Areas**

### **Introduction**

The following is a proposal developed by the NJDA and SADC for standards to ensure the integrity of specific agricultural land impacted by solar development, so that these lands can be returned to agricultural use at the end of life of the solar installation, if so desired. These standards would apply to solar development on Prime Agricultural Soils and Soils of Statement Importance that are located in ADAs, as defined in section III B.5 of this Straw Proposal. These measures are intended to supplement soil protection measures required pursuant to the N.J. Soil Erosion and Sediment Control Act (N.J.S.A. 4:24-39 et seq.) in addition to any other applicable permit requirements.

Staff is including this proposal as an Appendix to encourage stakeholder comments and feedback.

### **NJDA and SADC Proposed Mitigation Guidelines**

#### **Project Planning**

**a. Project Inspector**

Each project shall have an assigned “environmental inspector”, with experience in solar construction methods on agricultural land and agricultural production methods common to the area. The environmental inspector shall be responsible for ensuring compliance with all applicable mitigation, construction and restoration procedures identified in federal, state and county permits and within this document and the project plan.

**b. Resource Identification**

**i. Agricultural Lands**

Project plans shall identify, and map the extent of, the agricultural land on the property.

**ii. Soils**

The project plan shall clearly identify the soil map units impacted by the project and map the extent of these soils in relation to the project. The following soil attributes shall also be identified:

**1. Important Farmland Soils**

The project plan shall identify all soils by farmland classification as determined by the Natural Resource Conservation Service (NRCS) ([7CFR Section 657.5](#)). Mapping shall identify the extent of these soils in relation to the project and existing land use.

**2. Agricultural Soils Requiring Special Consideration**

The project plan should identify any soils on agricultural land that may be sensitive to disturbance due to slope, relative wetness or shallow depth to bedrock. These soils include, but are not limited to, those identified as

fragipans, lacustrines, dense basal tills, or soils having a seasonally high-water table, less than 5 feet of depth to bedrock or acid producing formations. Project maps shall identify these soils utilizing the following codes:

1. "SE" indicates soils sensitive to erosion to slope and/or the texture of exposed soil.
2. "SW" indicates soils susceptible to wetness of the soil horizon.
3. "SR" indicates shallow depth to bedrock
4. "SO" indicates organic mucklands

**3. Soil Compaction Baseline**

On agricultural land, bulk density testing shall be performed on each identified soil type to determine pre-construction compaction levels. Testing shall be performed at intervals not to exceed 250 feet using penetrometers or other appropriate devices. Field penetration resistance measurements shall be recorded within the project plan.

**iii. Organic Operations**

The operator shall identify certified organic farms, or farms that are actively seeking certification, in proximity to the project. Project plans shall specify additional site-specific practices to ensure the unique management and certification requirements of these farms is not compromised.

**c. Location of Existing and Proposed Infrastructure aka "Occupied Area"**

All infrastructure associated with the project site, existing and proposed and within and outside of the proposed occupied area, shall be identified on the project plan.

**d. Temporary Access Roads**

Where possible, all access shall be made to use existing improved access roads. Temporary roads shall be designed to not impede proper drainage, cause soil erosion or impede agricultural adjacent operations. Where agricultural land cannot be avoided every effort should be taken to minimize impacts to the agricultural operation by locating infrastructure along field edges and not crossing farm fields on a diagonal.

Recommended practices for access roads and pads are outlined at IV.B.

Upon project completion, access roads may be left intact if requested by the landowner. If not retained, temporary roads shall be restored to their prior condition following measures outlined in Section IV. E. below and returned to their previous use.

e. **Clearing of Vegetation**

If removal of trees is required, the operator shall consult with the landowner to determine if the trees are of commercial or agricultural value. If so, the landowner shall be permitted to retain ownership of felled trees, as negotiated, prior to clearance.

The operator shall honor landowner requests regarding vegetation removal and disposal unless otherwise restricted by law.

The use of herbicides, both for initial clearance and on-going maintenance, shall be detailed in the project plan and discussed with the landowner prior project commencement.

Black Cherry and Black Walnut trees may be toxic to livestock. The presence of Black Cherry and Black Walnut trees should be identified, and the project plan should note that disposal of cut vegetation should not be stockpiled where it can be accessed by livestock.

The project plan shall also outline ongoing vegetative maintenance requirements.

**Construction and Restoration**

f. **Soil Protection**

To minimize adverse impacts on the productivity of the soil, solar photovoltaic panels shall be installed by a screw, piling or similar system that does not require a concrete footing or other permanent mounting. In the event these methods of mounting are not practicable, written justification shall be required by the licensed professional engineer responsible for designing the installation that permanent ground mounting is necessary to conform with Federal or State laws, rules or regulations and that the permanent mounting requires footings, concrete or other permanent methods.

The use of concrete or asphalt is prohibited from the occupied area, except for the mounting of inverters, transformers, power conditioning units, control boxes, pumps and other such system components, or as justified by the licensed professional engineer pursuant to the paragraph above.

The use of timber matting or the removal, storage and replacement of topsoil shall be required on all temporary and permanent work areas over the entire occupied area. This includes construction work and traffic areas, equipment storage areas and soil storage areas. Topsoil removal shall include all of the "A" horizon, or a minimum of 12", whichever is greater.

Where topsoil is to be removed, depth of topsoil shall be determined by a properly qualified soil scientist or licensed geologist. Stakes or flags identifying topsoil depth shall be set every 250' within agricultural land. Prior to topsoil removal, concurrent bulk density sampling shall occur to establish the soil compaction baseline.

All topsoil shall be stockpiled separately from other excavated materials.

Cut-and-fill which causes subsoil disturbance shall not be permitted on Prime Farmland and Farmland of Statewide Importance. Where cut-and-fill is permitted subsoil shall be placed in a separate stockpile to prevent mixing with topsoil.

Work shall only occur when soil moisture is at or below field capacity to avoid excessive rutting, mixing of topsoil and subsoil and to minimize compaction. The environmental inspector shall be responsible for advising when to restrict construction activities.

Movement of topsoil shall be minimized to limit compaction and the destruction of aggregates.

Segregated topsoil shall not be removed from the stockpile, by either the operator or landowner, for uses other than restoration of the surface layer of the disturbed area unless approved by the soil conservation district.

Topsoil and subsoil stockpiles shall be stabilized with approved temporary control measures to prevent loss due to wind and water erosion. Stockpiles shall also be monitored for noxious weed growth and managed as necessary. No equipment shall be allowed access to the stockpiles unless required to stabilize the stockpile or replace the stockpiled soil to the disturbed area.

When rocky terrain is encountered precautions shall be taken to minimize the potential for oversize rocks to become interspersed with stockpiled soil.

Existing gully erosion within the project area should be identified and remediated in accordance with (h) below.

**g. Temporary Roads and Access Ramps**

Where access roads and ramps are required, the use of timber matting to protect farmland soils shall be required. Alternatively, topsoil should be removed and stockpiled as noted above and an underlayment of geotextile matting should be placed over the exposed subsoil prior to placement of gravel fill material. All material should be removed upon completion of the project and before topsoil is replaced.

**h. Backfilling, Decomposition, Rock Removal and Land Leveling**

Where cut and fill is permitted, backfilling should be performed according to the order in which the soil was removed to restore the original soil profile. Subsoil is to be replaced first ensuring that material is not compacted such that water infiltration is restricted but firm enough that subsidence of material post-reclamation is prevented.

Excavations shall not be backfilled above the existing bedrock profile with soil containing rock fragments of greater concentration or size than existed prior to pipeline excavation. At no time shall topsoil be used as backfill. No backfilling shall occur in when standing water is present.



Compaction of subsoil must be alleviated prior to topsoil replacement and final subsoil shattering. Deep tillage of subsoil by devices such as a deep-ripper, paraplow or heavy-duty chisel plow shall occur on all impacted agricultural areas to a depth of 16 inches.

Following deep ripping and chiseling of subsoil all rock fragments greater than 3” in size brought to the surface shall be collected and disposed of off-site.

Topsoil shall be spread uniformly across the stripped portion of the occupied area. Topsoil shall be prepared such that a firm, relatively uniform seedbed is achieved. Loose soil may result in seed planted too deeply, while compaction will result in shallow rooting and poor vegetative success. Topsoil shall be replaced so that after settling occurs the original depth and contour will be achieved.

Once topsoil is replaced, and where project infrastructure is not proposed, an additional deep subsoil shattering utilizing a subsoiler with angled legs shall be performed. Any resultant rock fragments shall be removed such that the size, density and distribution of rock on the construction work area shall be similar to adjacent areas undisturbed by construction. The entire area shall then be disked. Three passes shall be made across any agricultural land that is ripped.

Topsoil spreading shall only occur during periods of low to moderate soil moisture and not during periods when the ground is either saturated or frozen. Subsoil decompaction and replacement of topsoil shall only occur under suitable weather conditions where soils are at or below field capacity. These activities during wet conditions could cause the activity itself to damage the future production capacity of the land.

Where excavated materials are insufficient to meet backfill requirements the soil of adjacent agricultural land shall not be utilized as backfill or surface cover material. Where imported soil is necessary it should be of a similar texture and quality.

Any surplus subsoil or rock not needed as backfill shall be considered construction debris and removed from the property or disposed of on the property at a location acceptable to the landowner.

All agricultural soil conservation practices damaged due to construction shall be restored to either their prior condition or, with landowner consent, replaced with comparable NRCS recommended practices.

If there is dispute between the landowner and the operator about any of the practices described above the appropriate soil conservation district’s opinion shall be sought and recommendations considered.

**i. Debris Removal**

The operator shall ensure regular collection, containment and disposal of excess construction material and debris. Following construction all debris, construction material and litter will be

removed. Any spilled oil, grease, fuel, or other petroleum or chemical product and any contaminated soil shall be treated or removed.

**j. Revegetation and Weed Control**

All disturbed areas shall be seeded and mulched within 7 days according to the Soil Erosion and Sediment Control Plan or as negotiated with the landowner. Reseeding/replanting shall be repeated if initial cover is insufficiently established after the first growing season.

If appropriate, applications of fertilizers and pH modifiers shall be made in accordance with the Standards for Soil Erosion and Sediment Control or as negotiated with the landowner.

Weed control shall be provided on all properties whose use is controlled by the operator to prevent the spread of weeds onto adjacent agricultural lands.

**Monitoring and Remediation**

Following restoration, a period of monitoring and remediation lasting a total of at least 6 years with evaluations occurring every other year shall be required. Areas utilized for the project shall be monitored for adequate topsoil thickness, soil bulk density, content of rock consistent with adjacent unaffected areas, settling of cut and fill areas, erosion and drainage issues, crop production or seeding success.

Monitoring shall occur at least following project completion. Disturbed areas should be compared with adjacent, similar reference areas to document whether revegetation has been successful and soil structure and function has been restored.

Bulk density testing shall be performed on each identified soil type to determine post-construction compaction levels. Testing shall be performed at intervals not to exceed 250 feet using penetrometers or other appropriate devices. Field penetration resistance measurements shall be recorded.

If subsoil density due to compaction is found to be an issue additional shattering will be required.

Where uneven settling or other surface drainage issues develop as a result construction the operator shall be notified and land leveling services provided within 45 days of notification. Topsoil deficiency shall be addressed with imported topsoil of similar quality as the affected site.

If surface seeps or excessive soil moisture is found on disturbed areas or adjoining agricultural areas as a result of alterations to the natural drainage patterns or soil horizons subsurface intercept drains may be required. It will be presumed that excessive soil moisture within permanent and temporary easement areas was caused by the construction unless it can be proven that these conditions existed prior to site disturbance. All drain lines shall be installed according to NRCS specifications.

Agricultural lands subject to erosion shall be regularly checked through the life of the project to ensure adequate cover is maintained.

If there is dispute between the landowner and the operator about any of the remediation practices described above it shall be the operator's responsibility to disprove that additional measures are warranted.

### Record Keeping

Records shall be kept that identify the following,

- Type of fertilizer, pH modifying agent and seed used, method of application, application rate, acreage treated and date(s)
- Depth of topsoil
- Pre- and Post- construction soil compaction data
- Dates of backfilling/land leveling
- Landowner specific treatment requests, actions taken and follow-up