Permittee:	Aurora Distributed Solar, LLC
Permit Type:	Solar Energy Project
Project Location (Facility)[1]:	Chisago
Docket No:	IP6928/GS-14-515
Permit Section:	Site Permit Section 6.1 – Site Plan
Date of Submission:	**REVISED March 31, 2016**

Aurora Distributed Solar, LLC ("Aurora") respectfully submits this filing in compliance with Section 6.1 of the Site Permit.

"At least fourteen (14) days prior to the pre-construction meeting for each Facility, the Permittee shall submit to the Commission:

(a) a ready-for-construction site plan for each solar site Facility to include the solar panel layouts, access roads, electrical equipment, collector and feeder lines, and other associated facilities to be constructed;

(b) engineering drawings for site preparation and construction of each of the Facilities;

(c) a landscaping plan that describes adjacent land uses and identifies any site-specific strategies to minimize the visual impact of the Facility to adjacent land uses; and

(d) plans for restoration of the Facility following construction.

Construction is defined under Minnesota Statutes, section 216E.01, subdivision 3. The Permittee may submit a site plan and engineering drawings for one or more Facilities if the Permittee intends to commence construction on certain Facilities before completing the site plan and engineering drawings for other Facilities. The Permittee shall document, through GIS mapping, compliance with the setbacks and site layout restrictions required by this permit, including compliance with the noise standards pursuant to

[1] The Facilities listed in the Project Location (Facility) category above are those that are affected by this filing. Facility names correspond to Facility names as presented in the Site Permit issued to Aurora Distributed Solar, LLC on June 30, 2015.

Minnesota Rules, chapter 7030. The Permittee shall describe its considerations in determining the location of any fencing."

Aurora efiled an Overall Site Plan, engineering drawings, a Constraints Map, and a site plan narrative in compliance with Section 6.1 on February 25, 2016 (eDocket ID 20162-118668-01). Aurora has since revised the site plan narrative to respond to comments from the Minnesota Department of Commerce Environmental Review and Analysis department. Specifically, Aurora has made revisions to the landscaping and constraints plans to address comments received from Chisago County, including the addition of landscaping along the western boundary of the facility and limited tree clearing outside of the fenced area along the northeastern corner of the facility. All trees above shrub level will be cut and all undergrowth will remain in-place in the area denoted in the Constraints Plan as the tree trimming area.

Aurora submits with this cover sheet:

- A Revised Overall Site Plan for the solar panel layouts, access roads, electrical equipment, collector and feeder lines and other associated facilities to be constructed at the above-mentioned facility;
- Revised Engineering drawings for the above-mentioned facility;
- A Revised Constraints Map demonstrating compliance with the setbacks and site layout restrictions required by the Site Permit, including compliance with the noise standards pursuant to Minnesota Rules, Chapter 7030.
- A revised site plan narrative demonstrating full compliance with the requirements of the Site Permit as to this facility.

SITE PLAN NARRATIVE

1 Context

On June 30, 2015, the Minnesota Public Utilities Commission (the Commission) issued Aurora Distributed Solar, LLC (Aurora) a Site Permit to construct a distributed solar energy project. Since the issuance of the Site Permit, Aurora has continued to refine its plans, including the selection of equipment and design of the facilities. The Chisago Facility will be operated and maintained by Aurora through Aurora's wholly owned subsidiary Chisago Solar, LLC. Aurora has provided maps, diagrams, and this memorandum in compliance with the Commission's Site Permit Sections 6.1 (a) through (d) for the Chisago Facility; the maps and diagrams are referenced throughout this document. Aurora provides this memorandum to discuss the Chisago Facility's final design, the final design's overall human and environmental impacts, and the construction methods. Additional plans addressing restoration of the facility are provided in the compliance filings associated with Sections 6.4, 6.5, and 8.14 of the Site Permit. This memorandum takes into account the impacts evaluated by Aurora in application for a Site Permit, the Minnesota Department of Commerce in their Environmental Assessment (EA), and the Commission's Site Permit and associated Findings of Fact supporting its permit decision.

The Chisago Facility has not changed its location, facility land control[2] or size[3] from what was evaluated in Aurora's Site Permit Application, EA and in the Commission's Permit. The facility development area[4] has been reduced slightly as a result of progression of the site design since the issuance of the site permit. These refinements are further discussed below. Table 1 summarizes facility acreage and size.

Table 1. Area and Capacity of the Chisago Facility

Chisago Facility	Facility Land Control	Development Area	MW-AC
Evaluated for Environmental Impacts	62 acres	60.6 acres	6.5
Current Design	62 acres	53.01 acres	6.5

[2] Facility Land Control is defined as the total area of land either owned or leased by Aurora for the facility

[3] Facility size is defined as the facility nameplate capacity in megawatts (MW) alternating current (AC).

[4] Development Area is defined as the total area of land disturbed by the facility construction including any grading, tree removal or trimming, access improvements, etc.

2 Summary of Final Design Refinements

Selected Equipment
The Chisago Facility's Constraint Site Plan offers a visual depiction of the facility's design refinements. The Construction Details provide technical drawings for the equipment. Aurora plans to install a single axis tracking system at the site with three inverter skids, a collection system, and a small metering and switching system.

Solar Arrays
The solar array consists of photovoltaic modules mounted upon a tracker racking system. The specifications of the solar array comply with the Site Permit and are consistent with the environmental review.

Modules
The modules will be polycrystalline with a silver border and a dark, sun absorbing surface with an antireflective coating. They will be 6.4 feet by 3.1 feet and designed to be installed in a landscape orientation. The array will follow the sun path in a single, horizontal axis from 45 degrees east in the morning to 45 degrees west in the evening with the maximum height of approximately 10 feet at a 45 degree tilt.

Racking
Aurora selected a tracker racking system with individual motors for each tracker row allowing more flexibility. The racking will allow for 3 panels in a column resulting in the rotational plane of panels being just less than 10 feet in length. The racking system will have 24 rows of panels on the north south axis (the non-tracking axis) resulting in a total length of approximately 155 feet per rack or row. Each rack or row will have a drive shaft with a motor located central to the row that will slowly turn the three panel plane from east to west. The racking system will be mounted to the ground through piles driven approximately 12 feet into the ground, the piles will have a 6 ½ foot reveal upon which the mounting bracket and drive shaft will be installed. Rows of tracking panel racks will typically be installed at 15 ½ foot intervals east to west and 10 feet north to south with some variations to accommodate topography, landscape features or other project components.

Inverters
Inverters will be installed on a cement pad or cement pier foundation system that will be determined based on the observations of the hydrological conditions at the inverter location. The inverters will be contained within a neutral earth tone low gloss or semi-matte painted metal enclosure with a standard service door. The inverters will be 30 feet long, 11 feet wide and 12 feet tall. They will have an external cooling fan that will generate a maximum of 85 dB(A) at a distance of 1 meter. A motion-activated, downward facing exterior light will be mounted on the inverter housing. The exterior light will be mounted approximately two feet above the inverter housing's entrance door. The inverter housing, because of its enclosed nature, will also serve as the operations and maintenance area for the facility. Depending on final installation and site grade there may be a set of stairs to access the service door to the enclosure. In addition to the inverters, a SCADA System Enclosure will be installed between the inverter closest to the Point

of Interconnection and the Point of Interconnection itself. The enclosure will be a neutral earth tone low gloss or semi-matte painted metal enclosure with a standard service door. The enclosure will be approximately ten feet wide by ten feet long and ten feet in height. The final height of the SCADA enclosure, including foundation, will not exceed 12 feet. The enclosure will house the project's communication equipment, a heating and cooling system and other basic equipment required for the SCADA system. The sound emitted from the enclosure will be limited to that which will be produced by the standard, small heating and cooling system.

Electrical Collection and Feeder System

The electrical collection and feeder system will be predominantly underground connecting module rows to each other and to the inverters. There will be an underground feeder line running from the inverters to the point of interconnection where Aurora will mount electrical switching and metering equipment needed to meet Xcel Energy's interconnection requirements.

Fence

The security fence surrounding the facility will consist of up to seven feet of chain link, agricultural fence attached to wooden posts topped by a one to two foot extension of monofilament cable tilted 45 degrees outward from the vertical plane of the agricultural fence portion. The agricultural fence will consist of a square or rectangular grid of woven wire. A gap, approximately 7" in height, will be left open between the ground and the agricultural fence sections to allow for movement of smaller animal species into and out of the site[5]. There will be 2 gates; one gate (approximately sixteen to twenty feet wide) designed to allow vehicle entrance to the site and 1 gate (approximately three feet wide) allowing pedestrian entrance and exit. Though not intended for regular use, the pedestrian gates will also provide emergency access in the event that the vehicle gate is inaccessible or nonfunctional. One downward facing security light mounted on a ten foot pole will be located near the vehicle entrance gate. The lighting will be used on a minimal basis for maintenance activities and security reasons. The lighting will have the ability to be activated manually or automatically by the security system.

Layout

The final design at the Chisago Facility is a more efficient solar energy facility than the design shown in the map accompanying the Site Permit. Since the submittal of the site permit application, Aurora has procured more proficient panels and trackers that hold more panels per row. With the selection of a more improved inverter only 3 inverters will be needed for the facility compared to the 6 shown in the site application drawings. With this decrease in the number of inverters the length of the access road is reduced lessening the amount of impervious road surface impacts.

The final design refinements allowed Aurora to reduce the impacts to the human and natural environment. Utilizing a more efficient panel and tracker system, fewer panels will be utilized allowing more of a setback along the southeastern and northwestern corners of the facility. As depicted in the Overall Site Plan, the closest residence will be 195 feet from the solar array with other nearby residences located more than 200 feet from the solar array, due in part to the

[5] MN DNR comment letter submitted on 11/18/2015

reduction in solar panels in the aforementioned portions of the facility. Noise impacts will be reduced as the number of inverters for the final design (3) is less than what is in the preliminary design attached to the Site Permit (6).

Also considered in the redesign was the recommendation from Chisago County and Lent Township to move the facility's access point from the intersection of Lincoln Road (CSAH 14) and Kost Trail (CSAH 11) to a road with less traffic volume. As a result, the facility's access point is now off of Kable Avenue. Moreover, the new internal roadway layout has resulted in a significant reduction in length as compared to that proposed in the site permit application.

Finally, the redesign allowed for the inclusion of a laydown area within the development area. The laydown area within the facility boundary will allow for a more efficient construction process and will obviate the need for an off-site laydown area.

The layout of the Chisago Facility was reviewed for compliance with local shore land ordinances[6] and minimum shore land standards established by the Minnesota Department of Natural Resources[7]. The Chisago Facility is located to the northeast of Peterson Slough, classified as a natural environment lake by Chisago County, and south of an unnamed tributary stream to the Sunrise River, classified as a tributary stream by Chisago County (See the attached Constraints Site Plan). The infrastructure for the Chisago Facility is proposed outside of the shoreland area for Peterson Slough and is therefore well outside of the 150-foot structure setback required by the Chisago County ordinance. A small portion of the facility's fence and several panels will be slightly within the shoreland area for the unnamed tributary stream. However, all structures will be well outside of the 50-foot structure setback required by the Chisago County Ordinance. Therefore, the Chisago Facility complies with both the Chisago County shoreland ordinance and the State's and the minimum shoreland standards.

3 Landscaping

Adjacent Land Uses and Existing Topography

The facility is located on a cultivated parcel in a rural area with scattered residences south of Lincoln Road, to the west, south, and east of the facility. Agricultural areas are north of Lincoln Road. Existing land cover within the Chisago Facility is dominated by cultivated crops (83 percent) with areas of deciduous forest (9 percent), developed open space (5 percent) and grassland (3 percent). The facility is located approximately one mile south of the City of North Branch.

[6] Chisago County's Shore Land Ordinance can be access at the following website:

http://www.co.chisago.mn.us/DocumentCenter/View/4204 , page 16 dated February 3, 2016

[7] Statewide Shore land Management Standards can be accessed at the following website:
http://www.dnr.state.mn.us/shorelandmgmt/guide/standards_tables.html (accessed on October 21, 2015)

Planned Landscaping
The seeding plan for the facility includes planting a no mow turf with forbs under the array and between rows of panels. Open areas inside the fenced portion of the facility will be seeded with a mixture of grasses and forbs (Prairie Seed) for soil stabilization. Maintenance will include intermittent haying (or mowing provided minimum blade heights are established and the cut biomass is bagged). The seed mixes have been selected through ongoing collaboration with the Minnesota Department of Natural Resources. Aurora will also plant a row of serviceberry trees along the western boundary of the facility to screen the facility from residences to the west. Aurora will also selectively trim trees to the northeast of the facility outside of the fenced boundary so as to maintain existing undergrowth and shrubs for screening the facility to the residences and road to the northeast of the facility.

4 Consistency with Environmental Review

The information that follows documents consistency with and changes to the environmental information provided in the EA, the Commission's Site Permit process, and the Commission's Findings of Fact supporting its permit decision for the Chisago Facility. If a category is not addressed herein, it can be assumed there is no change to the impact discussed in the record developed for the Site Permit. The equipment-associated footprint of the Chisago Facility has been refined than what was proposed in the initial design. As a result, the impacts are generally equal to or less than those discussed in the Site Permit Application and the EA.

The following topics are of note when considering the design refinements at the Chisago Facility:

- The distance to the nearest residence remains consistent with the review in the Environmental Assessment.

- The Chisago Facility complies with both the Chisago County shoreland ordinance and the State's minimum shoreland standards. All facility infrastructure is proposed outside of the shoreland area for Peterson Slough and is therefore well outside of the 150-foot structure setback required by the Chisago County ordinance. A small portion of the facility's fence and a limited number of panels will be slightly within the shoreland area for the unnamed tributary stream, but will be well outside of the 50-foot structure setback required by the Chisago County Ordinance.

- An Agricultural Impact Mitigation Plan has been developed in cooperation with the Department of Agriculture and will be carried out during the life of the project to minimize impacts on soil for future agricultural use.

- The facility requires some grading to provide a level surface for the solar arrays. The preliminary design for the facility anticipated grading of approximately 7.8 acres of the site. Based on the current layout, the total amount of grading required for the facility is expected to be approximately 8.8 acres. The slight increase in grading was required due to a tree line

and berm in the center portion of the facility that required additional grading than previously expected after additional field reconnaissance of the site was conducted. Nevertheless, the proposed grading is consistent with that which was assessed in the EA.

- As depicted on the seeding plan, Aurora will utilize a mix of low growing grass and flowering plant species under the array and in between panel rows. Any remaining open areas, primarily around the periphery of the site, will be planted with a pollinator friendly, prairie seed mix which will contain a higher ratio of flowering plants than the no-mow turf. Aurora will also plant a row of serviceberry trees along the western boundary of the facility to provide screening to homes to the west of the facility.

- Consistent with the initial amounts expected at the time of the permit application, approximately 10.4 acres of tree removal will occur within the facility to reduce the shading impacts those trees would otherwise have on the productivity of the facility. Aurora will complete selective tree trimming above shrub-level in the area northeast of the fenced area of the property to maintain existing low-growing shrub vegetation for screening purposes. Aurora will execute tree trimming and removal outside the summer roosting season (April 1 to September 30th) of the Northern Long Eared Bat as per the Agricultural Impact and Vegetation Management Plan as well as the guidelines of the United States Fish Wildlife Service stated in the Environmental Assessment.

- The facility is within an area of statewide importance to the Blanding's Turtle, a state-listed species. As per the Environmental Assessment all site personnel will be provided the "Blanding's Turtle Fact-Sheet" as provided by the Department of Natural Resources. All Site Personnel will be instructed on proper protocol if a turtle is encountered on site.

- As recommended in the Environmental Assessment, wildlife friendly net-less wood fiber blankets will be used for erosion control at the facility to minimize the potential for reptiles becoming entangled. Site personnel will be instructed to inspect open trenches and cover those areas when not in use to minimize impacts to trapped turtles.

- Noise impacts are reduced from that which was previously contemplated in the Environmental Assessment due to a reduction in the number of inverters. The preliminary design anticipated 6 inverters for the facility with final equipment selection a more efficient type of inverter has been selected and only 3 inverters will be needed for the facility.

- With the reduction in inverters, the length of the access road has been reduced thereby minimizing soil impacts and reducing the total amount of impervious area associated with road construction.

- In the site permit application, access to the facility was proposed from Lincoln Road. As recommended in the Environmental Assessment and by local governments, access to the facility will instead be accomplished through a newly constructed access road off of Kable Avenue.

Chisago Solar, LLC

Solar Array Project
Chisago County, Minnesota
Issued For Construction

Project Contact Information

No.	Company	Name	Contact #
OWNER	AURORA DISTRIBUTED SOLAR, LLC SPV: CHISAGO SOLAR, LLC	STEVE ROUSSEAU	775-453-8868
CONTRACTOR	BIOSAR AMERICA LLC	JONMARK PIERCE	760-908-0672
CIVIL ENGINEER OF RECORD	WESTWOOD	AUGUST CHRISTENSEN	952-906-7430

Data Set Information

Base File	File Name	Provider	Date
PV ARRAY	Layout_Chisago_3x24_01_to_WW	BIOSAR AMERICA LLC	01/07/2016
ALTA	0003557.18SURV.dwg	WESTWOOD	10/01/2015
TOPO	0003557-18DTM.dwg	WESTWOOD	08/26/2015
CIVIL	0006690-04SITE.dwg	WESTWOOD	01/12/2016

Site Preparation Quantities

Item	Quantity
Site Preparation Area	53.01 acres
Tree Removal Area	9.8 acres
Tree Trimming Area	0.6 acres

Site Disturbance Quantities

Item	Quantity
Proposed Grading Area	8.8 acres
Proposed Road Area	0.8 acres
Proposed Site Disturbance Area	43.41 acres

Project Quantities

Item	Quantity
Project Access Road Centerline Length	50 LF
Internal Road Centerline Length	3,140 LF
Permanent Security Fence Length	7,070 LF
16' Gate	1 EA.
36" Man-Gate for Emergency Excess	1 EA.
Silt Fence Length	3,210 LF
Perimeter Light Poles	1 EA.
Aggregate Road Base	895 CY

Earthwork

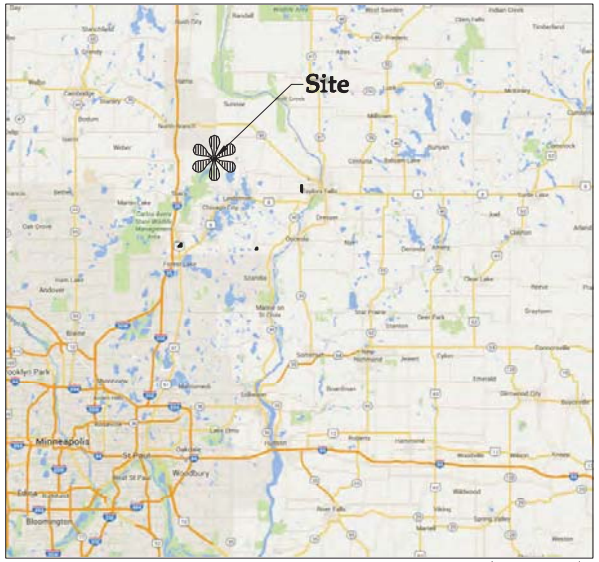
Item	Cut	Fill
Site Grading	2,745 CY	3,620 CY
Road Subcut (8")	895 CY	0 CY
Inverter Skid Fill*	0 CY	20 CY
Total	3,640 CY	3,640 CY

EXCESS = 0 CY
QUANTITIES SHOWN ARE IN-PLACE ESTIMATES
NO SHRINK OR SWELL IS ASSUMED
NO GROUND LOSS IS INCLUDED
NO TRENCH SPOILS ARE INCLUDED
NO TOPSOIL STRIPPING INCLUDED
*ONSITE SOILS MAY NOT BE DEEMED AS SUITABLE INVERTER FILL MATERIAL

Sheet List Table

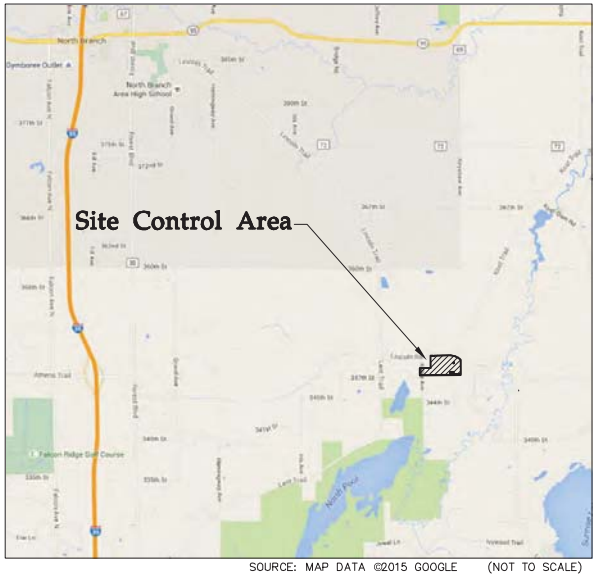
Sheet Number	Sheet Title
T.100	COVER
C.100	OVERALL SITE PLAN
C.200	GRADING PLAN 1
C.201	GRADING PLAN 2
C.202	GRADING PLAN 3
C.203	GRADING PLAN 4
C.204	GRADING PLAN 5
C.300	CONSTRUCTION DETAILS
C.301	CONSTRUCTION DETAILS
C.302	CONSTRUCTION DETAILS
C.303	EROSION CONTROL DETAILS

Regional Map



SOURCE: MAP DATA ©2015 GOOGLE (NOT TO SCALE)

Vicinity Map



SOURCE: MAP DATA ©2015 GOOGLE (NOT TO SCALE)

Issued For Construction

biosar AMERICA LLC
Biosar America, LLC
3962 La Fi Ct #220
Carlsbad, CA 92008

AURORA SOLAR
Aurora Distributed Solar, LLC
One Tech Drive, Suite 220
Andover, MA 01810

Westwood
Phone (952) 937-5150 7699 Anagram Drive
Fax (952) 937-5822 Eden Prairie, MN 55344
TollFree (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly licensed PROFESSIONAL ENGINEER under the laws of the State of Minnesota.

Print Name August Dean Christensen

Signature

Date 03/22/2016

License No. 47173

REVISIONE REVISION	DATA DATE	DESCRIZIONE DESCRIPTION	PREPARATO PREPARED	CONTROLLATO CHECKED	VALIDATO VALIDATED
X	X	X	x	x	

VALIDO PER APPROVO ISSUED FOR PLANT: Chisago Solar, LLC

PROGETTO PROJECT: Chisago Solar, LLC
Chisago County, Minnesota

SITO PRESSO PLACE: 35002 Lincoln Road, North Branch, MN 55056

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DATA DATE	PREPARATO PREPARED	CONTROLLATO CHECKED	APPROVATO APPROVED
03/22/2016			

DISEGNO FILE FILE NAME

PROGETTO PROJECTION: Stereo North American Datum

FORMATO FORMAT: ANSI D

SCALA SCALE: SEE LEFT

CLASSIFIC. CLASSIFICATION

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SCALA PLOT. PLOT SCALE

FOGLIO SHEET: 1.100

Enel Green Power

TITOLO TITLE: Cover

Area / Area FT^2
Unità / Unit FT

CODICE CODE

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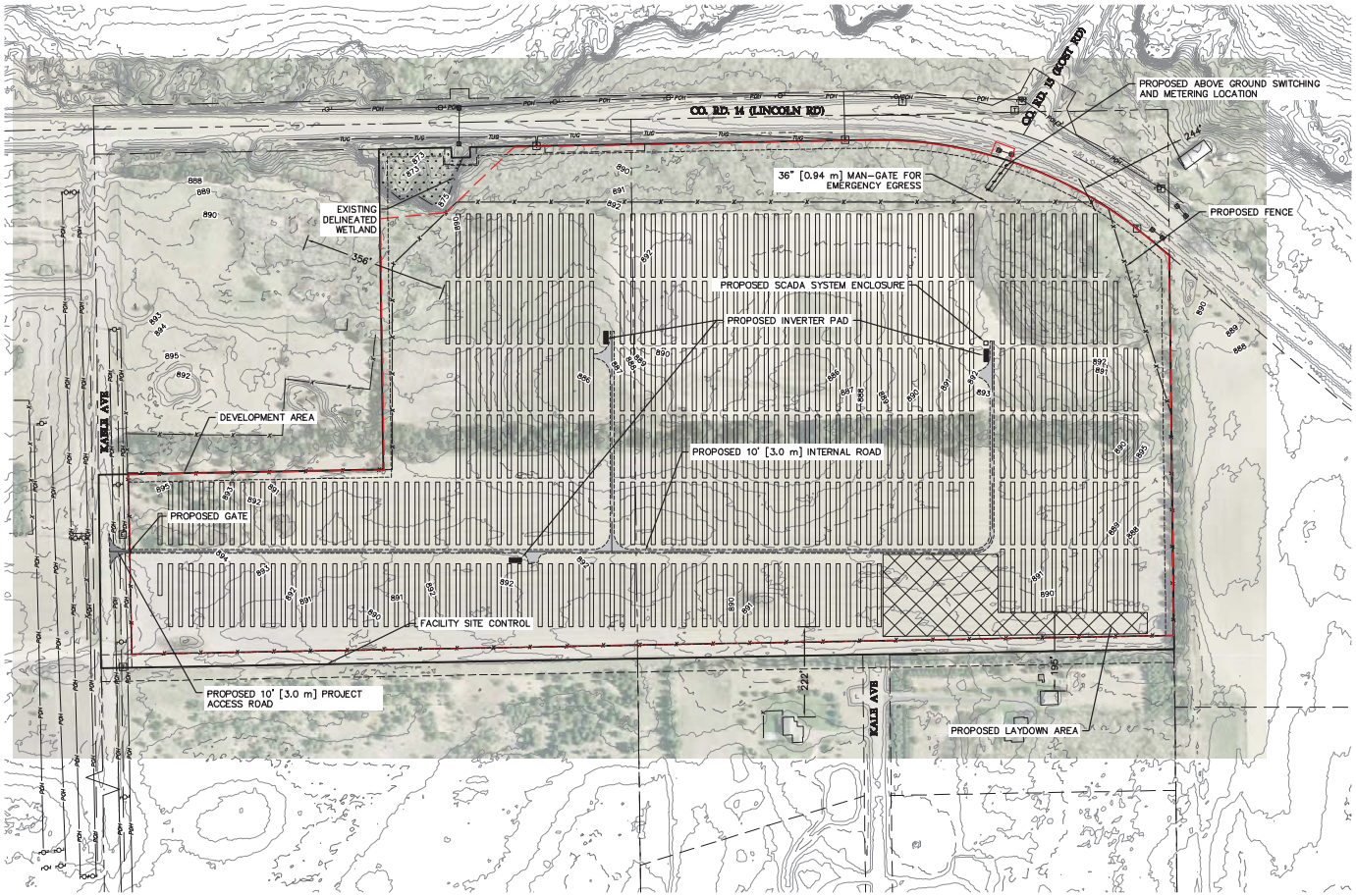


LEGEND:

- FACILITY SITE CONTROL
- DEVELOPMENT AREA
- PROPOSED SOLAR ARRAY
- PROPOSED PROJECT ACCESS ROAD
- PROPOSED INTERNAL ROAD
- PROPOSED INVERTER PAD
- PROPOSED FENCE LINE
- PROPOSED LAYDOWN AREA
- PROPOSED STRUCTURE SETBACK LINE
- EXISTING 5' CONTOURS (1000)
- EXISTING 1' CONTOURS
- EXISTING RIGHT OF WAY LINE
- EASEMENT LINES
- EXISTING OVERHEAD POWER
- EXISTING SECTION/ QUARTER SECTION LINE
- FIELD DELINEATED WETLAND

N

0' 150' 300' 450'

Issued For Construction

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed PROFESSIONAL ENGINEER under the laws of the State of Minnesota.

Print Name: August Dean Christensen

Signature:

Date: 02/11/2016

License No.: 47173

biosar SERVICES LLC
Biosar Services, LLC
5962 La Pl Ct #220
Carlsbad, CA 92008

AURORA SOLAR
Aurora Distributed Solar, LLC
One Tech Drive, Suite 220
Andover, MA 01810

Westwood
Phone (952) 937-5150 7699 Anagram Drive
Fax (952) 937-5822 Eden Prairie, MN 55344
TollFree (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

REVISIONE REVISION	DATA DATE	DESCRIZIONE DESCRIPTION	PREPARATO PREPARED	CONTROLLATO CHECKED	VALIDATO VALIDATED
X	X	X	x	x	

VALIDO PER IMPRESE ISSUED FOR PLANT: Chisago Solar, LLC

PROGETTO PROJECT: Chisago Solar, LLC
Chisago County, Minnesota

SITO PROGETTO SITE ADDRESS: 35002 Lincoln Road, North Branch, MN 55056

REVISIONE EMISSIONE REVISION EMISSIONE

DATA DATE	PREPARATO PREPARED	CONTROLLATO CHECKED	APPROVATO APPROVED
02/11/2016			

DISEGNO FILE FILE NAME:

PROGETTO PROJECTION: Chisago County Coordinate System

FORMATO FORMAT: ANSI D

SCALA SCALE: SEE LEFT

CLASSIFIC. CLASSIFICATION:

RIFERIMENTO ARCHIVE ID:

SCALA PLOT. PLOT SCALE:

FOGLIO SHEET: C.100

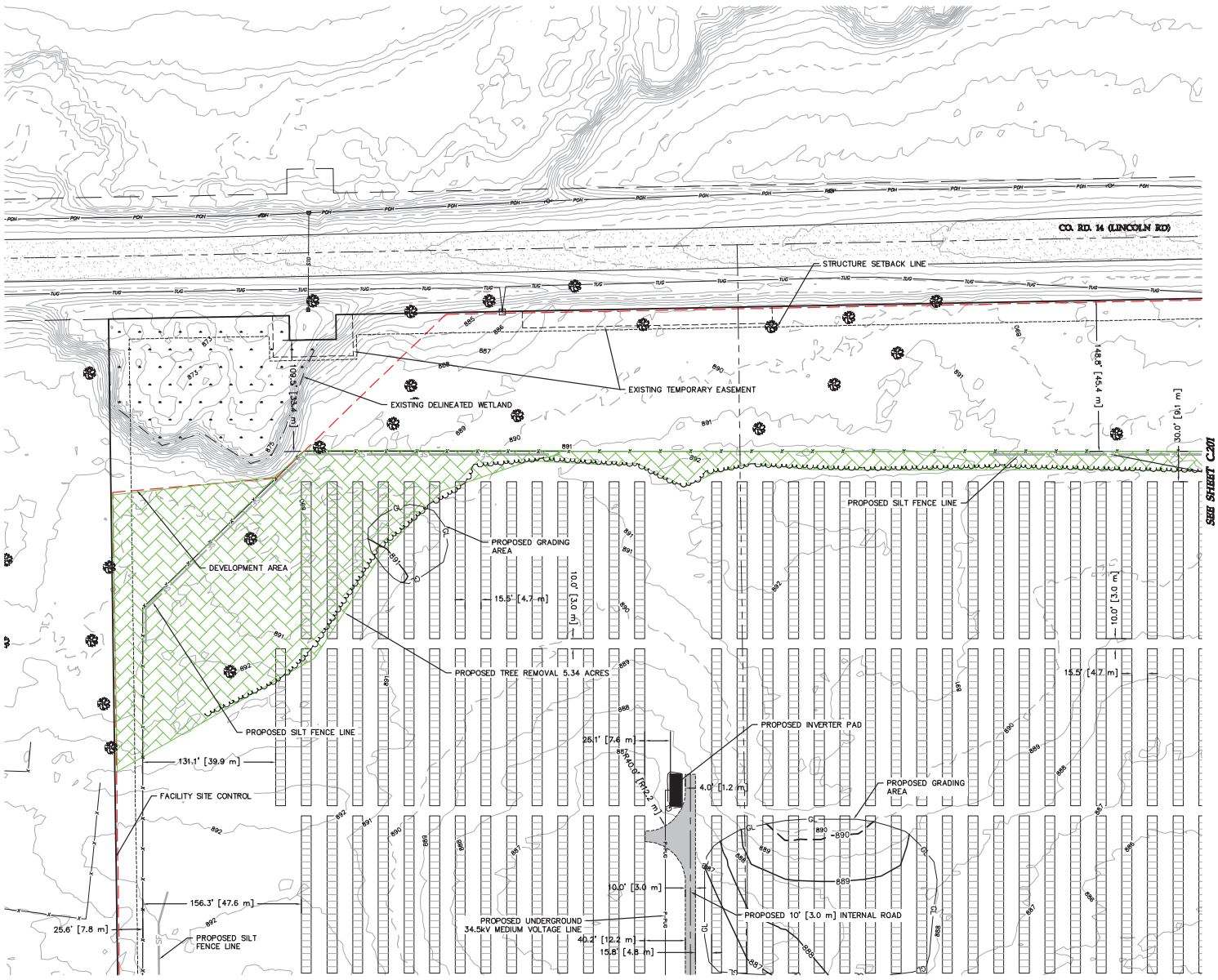
Enel Green Power

TITOLO TITLE: **Overall Site Plan**

CODICE CODE

Area / Area FT^2
Unità / Unit FT

| TIPO TYPE | SISTEMA SYSTEM | AREA AREA | N. N. | PROGR. PROGR. | | |



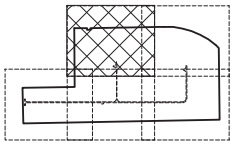
LEGEND:

- FACILITY SITE CONTROL AREA
- DEVELOPMENT AREA
- PROPOSED SOLAR ARRAY
- PROPOSED PROJECT ACCESS ROAD
- PROPOSED INTERNAL ROAD
- PROPOSED INVERTER PAD
- PROPOSED FENCE LINE
- PROPOSED UNDERGROUND MEDIUM VOLTAGE LINE
- PROPOSED ENTRANCE LIGHTING
- PROPOSED SILT FENCE LINE
- PROPOSED GRADING LIMIT LINE
- PROPOSED 5' CONTOURS
- PROPOSED 1' CONTOURS
- PROPOSED LAYDOWN AREA
- PROPOSED TREE REMOVAL
- PROPOSED STRUCTURE SETBACK LINE
- EXISTING BITUMINOUS ROAD
- EXISTING 5' CONTOURS
- EXISTING 1' CONTOURS
- EXISTING RIGHT OF WAY LINE
- EASEMENT LINES
- EXISTING UNDERGROUND TELEPHONE LINE
- EXISTING STORM SEWER LINE
- EXISTING SECTION/ QUARTER SECTION LINE
- EXISTING OVERHEAD POWER
- FIELD DELINEATED WETLAND
- EXISTING TREE
- EXISTING VEGETATION LINE

GENERAL NOTES:

1. TOPSOIL SHALL BE SEGREGATED FROM ALL EARTHWORK ACTIVITIES THAT REQUIRE SUB-SOIL EXCAVATION. TOPSOIL SHALL BE STOCK PILED IN ACCORDANCE WITH THE AGRICULTURE MITIGATION PLAN.
2. MINOR SURFACE SMOOTHING OUTSIDE OF THE WETLAND AREA MAY OCCUR FOR TRACKER INSTALLATION.
3. INTERNAL ROADS WILL BE CONSTRUCTED TO MATCH THE SURROUNDING EXISTING GROUND ELEVATIONS TO ALLOW EXISTING DRAINAGE PATTERNS TO PERSIST.

Key Map



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0' 50' 100' 150'

Issued For Construction

Biosar America, LLC
5962 La Pl Ct #220
Carlsbad, CA 92008

Aurora Distributed Solar, LLC
One Tech Drive, Suite 220
Andover, MA 01810

Westwood
Phone (952) 937-5150 7699 Anagram Drive
Fax (952) 937-5822 Eden Prairie, MN 55344
Toll Free (888) 937-5150 westwoodps.com
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I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed PROFESSIONAL ENGINEER under the laws of the State of Minnesota.

Print Name August Dean Christensen

Signature

Date 02/11/2016

License No. 47173

REVISIONE REVISION	DATA DATE	DESCRIZIONE DESCRIPTION	PREPARATO PREPARED	CONTROLLATO CHECKED	VALIDATO VALIDATED
X	X	X	x	x	

VALIDO PER IMPRESE ISSUED FOR PLANT: Chisago Solar, LLC

PROGETTO PROJECT: Chisago Solar, LLC, Chisago County, Minnesota

SITO SITE: 35002 Lincoln Road, North Branch, MN 55056

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DATA DATE	PREPARATO PREPARED	CONTROLLATO CHECKED	APPROVATO APPROVED
02/11/2016			

FILE NAME | PROGETTO PROJECTION | FORMATO FORMAT: ANSI D | SCALA SCALE: SEE LEFT

CLASSIFIC. CLASSIFICATION | REFERENCE ARCHIVE ID | SCALA PLOT. PLOT SCALE | TAVOLA SHEET: C.200

Enel Green Power

TITOLO TITLE: **Grading Plan 1**

CODICE CODE

Area / Area FT^2	DA	ACUS	XXXX	XXXX	XXXX	00
Unità / Unit FT						

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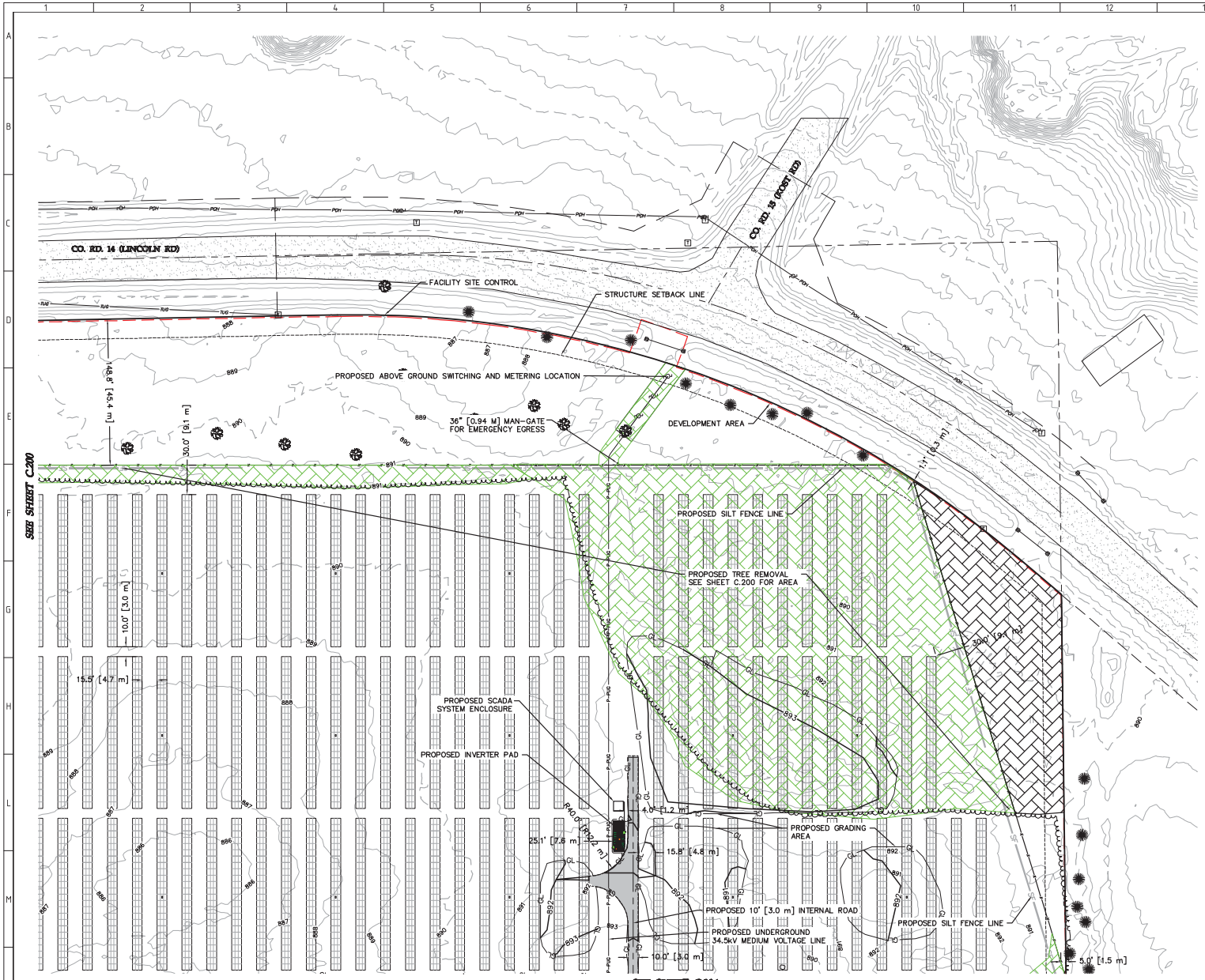
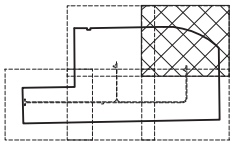


LEGEND:

- FACILITY SITE CONTROL AREA
- DEVELOPMENT AREA
- PROPOSED SOLAR ARRAY
- PROPOSED PROJECT ACCESS ROAD
- PROPOSED INTERNAL ROAD
- PROPOSED INVERTER PAD
- PROPOSED FENCE LINE
- PROPOSED UNDERGROUND MEDIUM VOLTAGE LINE
- PROPOSED ENTRANCE LIGHTING
- SF — PROPOSED SILT FENCE LINE
- GL — PROPOSED GRADING LIMIT LINE
- 1000 — PROPOSED 5' CONTOURS
- PROPOSED 1' CONTOURS
- PROPOSED LAYDOWN AREA
- PROPOSED TREE REMOVAL
- PROPOSED STRUCTURE SETBACK LINE
- EXISTING BITUMINOUS ROAD
- 1000 — EXISTING 5' CONTOURS
- EXISTING 1' CONTOURS
- EXISTING RIGHT OF WAY LINE
- EASEMENT LINES
- TUG — EXISTING UNDERGROUND TELEPHONE LINE
- STO — EXISTING STORM SEWER LINE
- EXISTING SECTION/ QUARTER SECTION LINE
- PGN — EXISTING OVERHEAD POWER
- FIELD DELINEATED WETLAND
- EXISTING TREE
- EXISTING VEGETATION LINE

Key Map



GENERAL NOTES:

1. TOPSOIL SHALL BE SEGREGATED FROM ALL EARTHWORK ACTIVITIES THAT REQUIRE SUB-SOIL EXCAVATION. TOPSOIL SHALL BE STOCK PILED IN ACCORDANCE WITH THE AGRICULTURE MITIGATION PLAN.
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3. INTERNAL ROADS WILL BE CONSTRUCTED TO MATCH THE SURROUNDING EXISTING GROUND ELEVATIONS TO ALLOW EXISTING DRAINAGE PATTERNS TO PERSIST.

0' 50' 100' 150'

Issued For Construction

Biosar Services, LLC
5962 La Pl Ct #220
Carlsbad, CA 92008

Aurora Distributed Solar, LLC
One Tech Drive, Suite 220
Andover, MA 01810

Westwood
Phone (952) 937-5150 7699 Anagram Drive
Fax (952) 937-5822 Eden Prairie, MN 55344
Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly licensed PROFESSIONAL ENGINEER under the laws of the State of Minnesota.

Print Name: August Dean Christensen

Signature:

Date: 03/22/2016

License No.: 47173

REVISIONE REVISION	DATA DATE	DESCRIZIONE DESCRIPTION	PREPARATO PREPARED	CONTROLLATO CHECKED	VALIDATO VALIDATED
X	X	X	x	x	

VALIDO PER IMPRESA ISSUED FOR PLANT: Chisago Solar, LLC

PROGETTO PROJECT: Chisago Solar, LLC
Chisago County, Minnesota

BY1 MERCED BY1 ADMEDO: 35002 Lincoln Road, North Branch, MN 55056

REVISIONE DIMENSIONE REVISION DIMENSION			
DATA DATE	PREPARATO PREPARED	CONTROLLATO CHECKED	APPROVATO APPROVED
03/22/2016			

DWG FILE FILE NAME:

PROGETTO PROJECTION: Chisago County Coordinate System

FORMATO FORMAT: ANSI D

SCALA SCALE: SEE LEFT

CLASSIFIC. CLASSIFICATION:

RIFERIMENTO ARCHIVE ID:

SCALA PLOT. PLOT SCALE:

TAVOLA SHEET: C.201

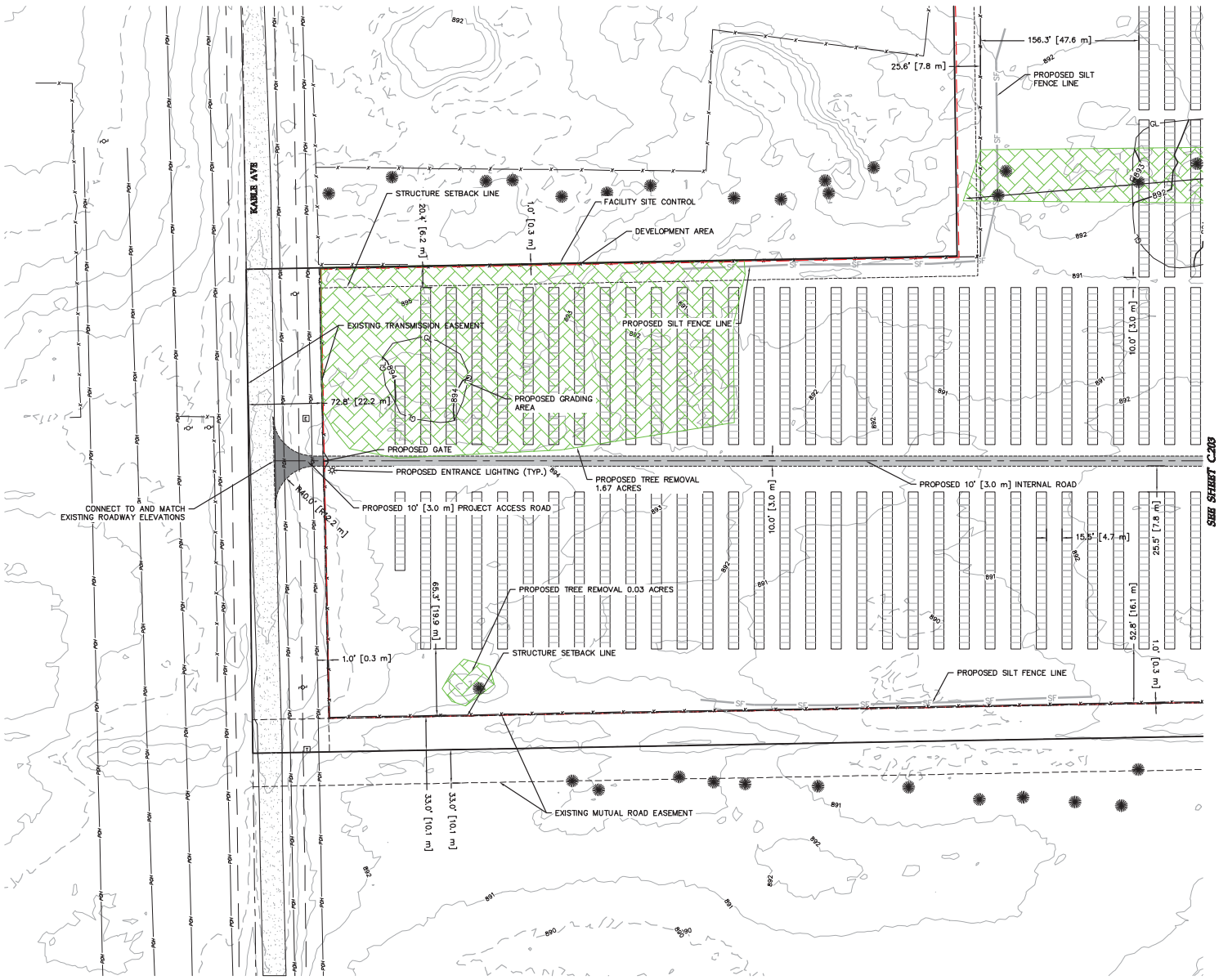
Enel Green Power

TITOLO TITLE: **Grading Plan 2**

Area / Area FT^2
Unità / Unit FT

CODICE CODE

| DA CO | PROGRAM PROG | ZONA ZONE | TIPO TY | PROGR PROG | | |



LEGEND:

- FACILITY SITE CONTROL AREA
- DEVELOPMENT AREA
- PROPOSED SOLAR ARRAY
- PROPOSED PROJECT ACCESS ROAD
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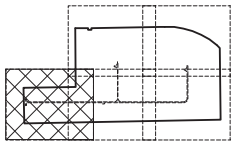
Key Map



N

0' 50' 100' 150'

Issued For Construction

Biosar America, LLC
5962 La Pl Ct #220
Carlsbad, CA 92008

Aurora Distributed Solar, LLC
One Tech Drive, Suite 220
Andover, MA 01810

Westwood
Phone (952) 937-5150 7699 Anagram Drive
Fax (952) 937-5822 Eden Prairie, MN 55344
Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Print Name: August Dean Christensen

Signature

Date 02/11/2016

License No. 47173

REVISIONE REVISION	DATA DATE	DESCRIZIONE DESCRIPTION	PREPARATO PREPARED	CONTROLLATO CHECKED	VALIDATO VALIDATED
X	X	X	x	x	

VALIDO PER IMPRESA ISSUED FOR PLANT: Chisago Solar, LLC

PROGETTO PROJECT: Chisago Solar, LLC
Chisago County, Minnesota

DIS. REDIGEO DIS. AGREED: 35002 Lincoln Road, North Branch, MN 55056

REVISIONE DIMENSIONE REVISION DIMENSION			
DATA DATE	PREPARATO PREPARED	CONTROLLATO CHECKED	APPROVATO APPROVED
02/11/2016			

DISEGNO FILE FILE NAME

CLASSIFIC. CLASSIFICATION

PROGETTO PROJECTION: Chisago County Coordinate System

DISEGNO FORMAT ANSI D

SCALA SCALE SEE LEFT

DISEGNO FORMAT FORMAT

SCALA PLOT. PLOT SCALE

TAVOLA SHEET C.202

TITOLO TITLE: **Grading Plan 3**

Enel Green Power

CODICE CODE

Area / Area FT^2															
Unità / Unit FT	D	A	C	U	S	X	X	X	X	X	X	X	X	X	0	0

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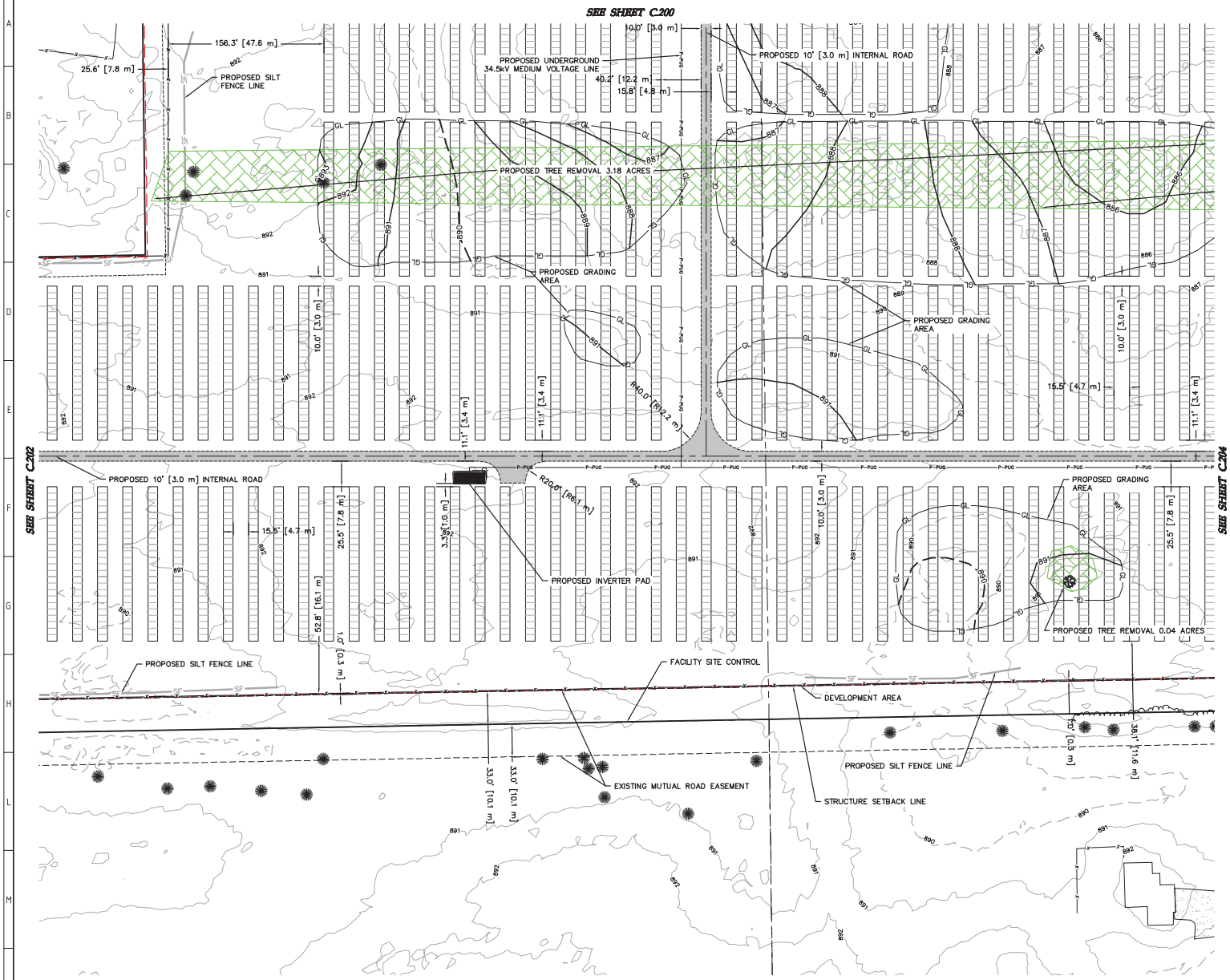

LEGEND:

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- DEVELOPMENT AREA
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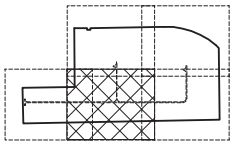
Key Map



0' 50' 100' 150'

Issued For Construction

biosar SERVICES LLC
Biosar Services, LLC
5962 La Pl Ct #220
Carlsbad, CA 92008

AURORA SOLAR
Aurora Distributed Solar, LLC
One Tech Drive, Suite 220
Andover, MA 01810

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed PROFESSIONAL ENGINEER under the laws of the State of Minnesota.

Print Name: August Dean Christensen

Signature:

Date: 02/11/2016

License No.: 47173

Westwood

Phone (952) 937-5150 — 7699 Anagram Drive
Fax (952) 937-5822 — Eden Prairie, MN 55344
Toll Free (888) 937-5150 — westwoodps.com

Westwood Professional Services, Inc.

REVISIONE REVISION	DATA DATE	DESCRIZIONE DESCRIPTION	PREPARATO PREPARED	CONTROLLATO CHECKED	VALIDATO VALIDATED
X	X	X	x	x	

VALIDO PER IMPRESE ISSUED FOR PLANT: Chisago Solar, LLC

PROGETTO PROJECT: Chisago Solar, LLC
Chisago County, Minnesota

DIS. MERCEDES DIT. ADDRESS: 35002 Lincoln Road, North Branch, MN 55056

REVISIONE EMISSIONE REVISION EMISSION			
DATA DATE	PREPARATO PREPARED	CONTROLLATO CHECKED	APPROVATO APPROVED
02/11/2016			

DISEGNO FILE / FILE NAME: CLASSIFICAZIONE CLASSIFICATION

PROGETTISTA PROJECTING: Chisago Solar Generation Station

DISEGNO ORIGINALE DI ORIGINAL DRAWING OF

FORMATO FORMAT: ANSI D

SCALA SCALE: SEE LEFT

SCALA PLOT. PLOT SCALE

TAVOLA SHEET: C.203

Enel Green Power

TITOLO TITLE: **Grading Plan 4**

Area / Area FT^2
Unità / Unit FT

CODICE CODE

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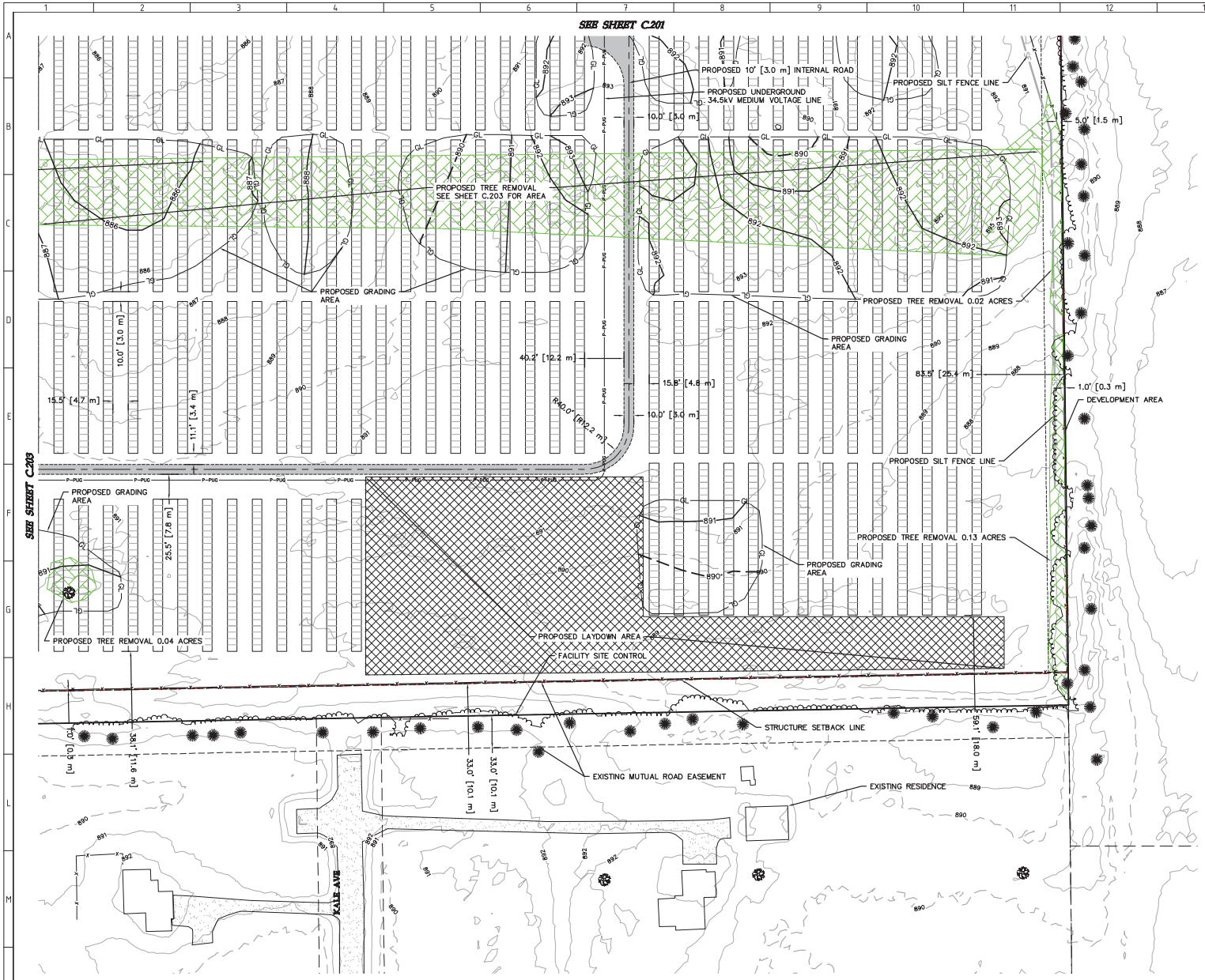

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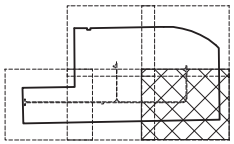

0' 50' 100' 150'

Issued For Construction

Biosar Services, LLC
5962 La Pl Ct #220
Carlsbad, CA 92008

Aurora Distributed Solar, LLC
One Tech Drive, Suite 220
Andover, MA 01810

Westwood
Phone (952) 937-5150 7699 Anagram Drive
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Westwood Professional Services, Inc.

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed PROFESSIONAL ENGINEER under the laws of the State of Minnesota.

Print Name: August Dean Christensen

Signature:

Date: 02/11/2016

License No.: 47173

REVISIONE REVISION	DATA DATE	DESCRIZIONE DESCRIPTION	PREPARATO PREPARED	CONTROLLATO CHECKED	VALIDATO VALIDATED
X	X	X	x	x	

VALIDO PER IMPRESE ISSUED FOR PLANT: Chisago Solar, LLC

PROGETTO PROJECT: Chisago Solar, LLC
Chisago County, Minnesota

DIS. REDIGEO DIS. APPROVED: 35002 Lincoln Road, North Branch, MN 55056

REVISIONE DIMENSIONE REVISION DIMENSIONE

DATA DATE	PREPARATO PREPARED	CONTROLLATO CHECKED	APPROVATO APPROVED
02/11/2016			

NOME FILE FILE NAME | PROGETTO PROJECTION Chisago County Coordinate System | FORMATO FORMAT ANSI D | SCALA SCALE SEE LEFT

CLASSIFIC. CLASSIFICATION | RIFERIMENTO ARCHIVE ID | SCALA PLOT. PLOT SCALE | TAVOLA SHEET C.204

Enel Green Power

TITOLO TITLE: **Grading Plan 5**

CODICE CODE

Area / Area FT^2	DA	ACUS	X	X	X	X	X	X	X	X	X	X	0	0
Unità / Unit FT														

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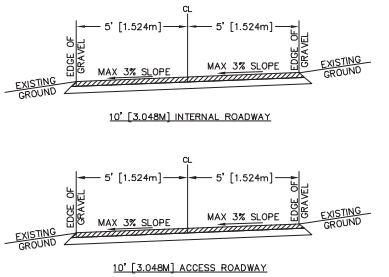
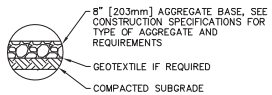


NOTES:

1. CONTRACTOR SHALL CONSTRUCT CROSS-SLOPE ROAD SECTION WHERE ACCESS ROADS ARE CONSTRUCTED ON A SIDE SLOPE, AND WHERE OTHERWISE NOTED ON PLANS, TO ENSURE THAT ROADS AND SHOULDERS REMAIN WELL DRAINED AT ALL TIMES.

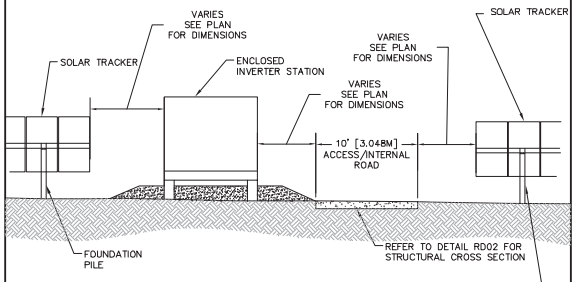
Westwood	TYPICAL ACCESS/ INTERAL ROAD	LAST REVISED: 09/29/2015 RD01



10' ACCESS ROAD CROSS SECTION

NOTE:
STRUCTURAL SECTIONS SHOWN ARE THE MINIMUM THICKNESS REQUIREMENTS DURING NORMAL FIELD CONDITIONS. THE SECTIONS MAY NEED TO BE INCREASED BASED ON ACTUAL FIELD CONDITIONS AT THE TIME OF CONSTRUCTION. CONDITIONS INCLUDE BUT ARE NOT LIMITED TO CONSTRUCTION DURING UNUSUALLY WET PERIODS, OR IN LOW/WET AREAS.

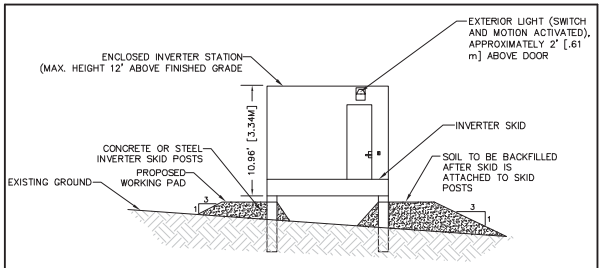
Westwood	TYPICAL STRUCTURAL CROSS SECTIONS	LAST REVISED: 09/29/2015 RD02



NOTES:

1. ACTUAL WIDTHS OF OPEN SPACES VARY SEE PLAN FOR DIMENSIONS

Westwood	TYPICAL 10' INVERTER ACCESS ROAD AND INVERTER ORIENTATION (NOT TO SCALE)	LAST REVISED: 09/30/2015 RD04

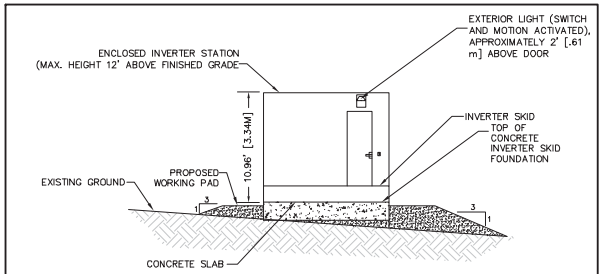


SECTION VIEW

NOTES:

1. STRUCTURAL FOUNDATION TO BE PROVIDED BY STRUCTURAL ENGINEER

Westwood	TYPICAL SOLAR INVERTER ON PILES	LAST REVISED: 08/20/15 INV01

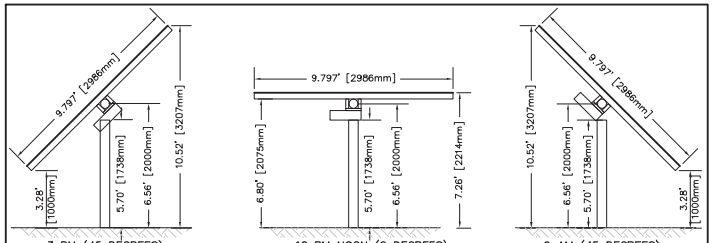


SECTION VIEW

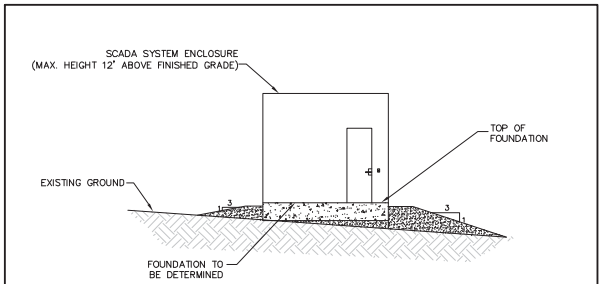
NOTES:

1. STRUCTURAL FOUNDATION TO BE PROVIDED BY STRUCTURAL ENGINEER

Westwood	TYPICAL SOLAR INVERTER PAD ON CONCRETE SLAB	LAST REVISED: 08/20/15 INV02



Westwood	TYPICAL SOLAR TRACKER PROFILE VIEWS (9 A.M., 12 P.M., 3 P.M.)	LAST REVISED: 09/29/15 TRK01



SECTION VIEW

NOTES:

1. STRUCTURAL FOUNDATION TO BE PROVIDED BY STRUCTURAL ENGINEER

Westwood	TYPICAL SCADA SYSTEM ENCLOSURE	LAST REVISED: 08/20/15 SC01

Issued For Construction

biosar SERVICES LLC
Biosar Services, LLC
3962 La Pi Ct #220
Carlsbad, CA 92008

AURORA SOLAR
Aurora Distributed Solar, LLC
One Tech Drive, Suite 220
Andover, MA 01810

Westwood
Phone (952) 937-5150 7699 Anagram Drive
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Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed PROFESSIONAL ENGINEER under the laws of the State of Minnesota.

Print Name August Dean Christensen

Signature

Date 02/11/2016

License No. 47173

REVISIONE REVISION	DATA DATE	DESCRIZIONE DESCRIPTION	PREPARATO PREPARED	CONTROLLATO CHECKED	VALIDATO VALIDATED
X	X	X	x	x	

VALIDO PER IMPRESA ISSUED FOR PLANT: Chisago Solar, LLC

PROGETTO PROJECT: Chisago Solar, LLC, Chisago County, Minnesota

SITO PROGETTO SITE ADDRESS: 35002 Lincoln Road, North Branch, MN 55056

REVISIONE EMISSIONE REVISION EMISSIONE			
DATA DATE	PREPARATO PREPARED	CONTROLLATO CHECKED	APPROVATO APPROVED
02/11/2016			

DISEGNO FILE FILE NAME

CLASSIFIC. CLASSIFICATION

PROGETTISTA PROFESSIONAL ENGINEER

Chisago County Solar Company

REFERENCE DRAWING ID

FORMATO FORMAT: ANSI D

SCALA SCALE: SEE LEFT

SCALA PLOTT. PLOT SCALE

TAVOLA SHEET: C.300

Enel Green Power

TITOLO TITLE: **Construction Details**

CODICE CODE

Area / Area FT^2	PAESE COUNTRY	PROGETTO PROJECT	ANNO YEAR	TIPO TYPE	NUMERO NUMBER	SUBNUMERO SUBNUMBER	REVISIONE REVISION
Unità / Unit FT	D	ACUS	X	X	XXXXXX	XXXXX	00

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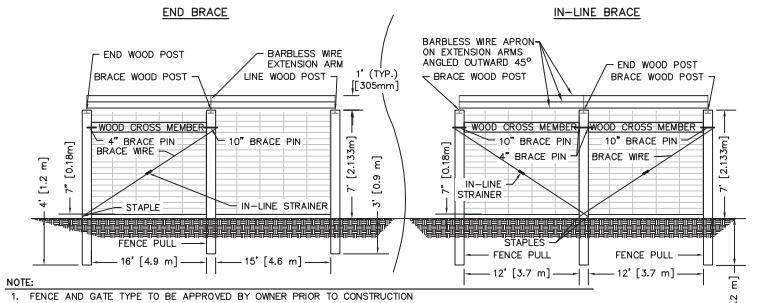
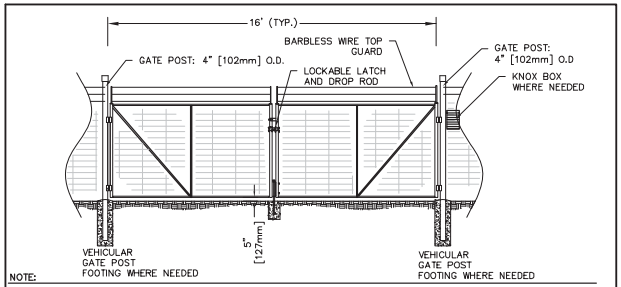


NOTE:

1. FENCE AND GATE TYPE TO BE APPROVED BY OWNER PRIOR TO CONSTRUCTION
2. STRUCTURAL DESIGN TO BE PROVIDED BY FENCE SUPPLIER
3. DIMENSIONS AND INFORMATION SHOWN ABOVE ARE FOR REFERENCE ONLY. ACTUAL DIMENSIONS AND INFORMATION TO BE PROVIDED BY MANUFACTURER/SUPPLIER
4. METAL POSTS CAN BE USED IF NECESSARY

TYPICAL AGRICULTURAL SECURITY FENCE DETAIL (NOT TO SCALE) — LAST REVISED: 10/22/15 — WF01



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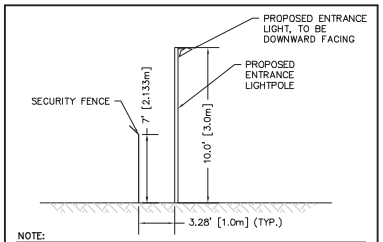
3. DIMENSIONS AND INFORMATION SHOWN ABOVE ARE FOR REFERENCE ONLY. ACTUAL DIMENSIONS AND INFORMATION TO BE PROVIDED BY MANUFACTURER/SUPPLIER

TYPICAL CHAIN-LINK SECURITY SWING GATE — LAST REVISED: 12/19/14 — FN05



NOTE:

1. TYPICAL HEIGHT OF POLE WILL BE 10.0' [3.0 m]
2. BRIGHTNESS OF LIGHT SHALL BE BETWEEN 1500 AND 3000 LUMENS
3. LIGHT ACTIVATION SHALL BE MANUAL AND AUTOMATIC BY THE SECURITY SYSTEM IN CASE OF AN INTRUSION (NON-MOTION ACTIVATED)
4. LIGHT POLE SHALL BE PLACE APPROXIMATELY 3.28' [1.0 m] INSIDE OF FENCE

TYPICAL ENTRANCE LIGHTING — LAST REVISED: 10/22/15 — LP01

Issued For Construction

biosar Services LLC
Biosar America, LLC
5962 La Pl Ct #220
Carlsbad, CA 92008

AURORA SOLAR
Aurora Distributed Solar, LLC
One Tech Drive, Suite 220
Andover, MA 01810

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly licensed PROFESSIONAL ENGINEER under the laws of the State of Minnesota.

Print Name: August Dean Christensen

Signature:

Date: 02/11/2016

License No.: 47173

Westwood
Phone (952) 937-5150 — 7699 Anagram Drive
Fax (952) 937-5822 — Eden Prairie, MN 55344
Toll Free (888) 937-5150 — westwoodps.com
Westwood Professional Services, Inc.

REVISIONE REVISION	DATA DATE	DESCRIZIONE DESCRIPTION	PREPARATO PREPARED	CONTROLLATO CHECKED	VALIDATO VALIDATED
X	X	X	x	x	

VALIDO PER APPROVAZIONE ISSUED FOR PLANT: Chisago Solar, LLC

PROGETTO PROJECT: Chisago Solar, LLC — Chisago County, Minnesota

SITO PROGETTO SITE LOCATION: 35002 Lincoln Road, North Branch, MN 55056

REVISIONE EMISSIONE REVISION EMISSIONE

DATA DATE	PREPARATO PREPARED	CONTROLLATO CHECKED	APPROVATO APPROVED
02/11/2016			

DISEGNO FILE FILE NAME | CLASSIFICAZIONE CLASSIFICATION | PROGETTISTA PROFESSIONAL ENGINEER | REFERENZA DRAWING CODE | FORMATO FORMAT: ANSI D | SCALA PLOT. PLOT SCALE | SCALA SCALE: SEE LEFT | SHEET: C.301

Enel Green Power

TITOLO TITLE: **Construction Details**

CODICE CODE

Area / Area FT^2
Unità / Unit FT

PAESE COUNTRY	SITO SITE	ANNO YEAR	TIPO TYPE	SEZIONE SECTION	NUMERO NUMBER	SUBNUMERO SUBNUMBER	REVISIONE REVISION
D	A	C	U	S	X X X	X X X	0 0

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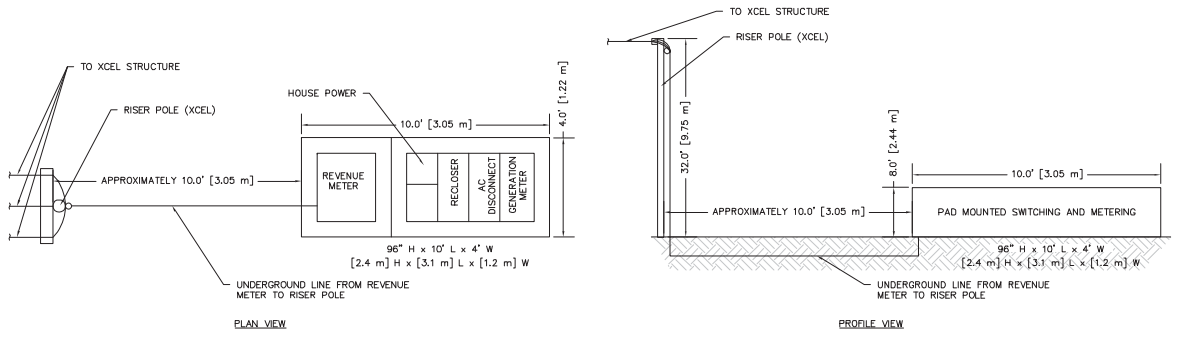

TYPICAL POINT OF INTERCONNECTION

LAST REVISED: 09/29/15

POI01

Issued For Construction

Biosar America, LLC
3962 La Pi Ct #220
Carlsbad, CA 92008

Aurora Distributed Solar, LLC
One Tech Drive, Suite 220
Andover, MA 01810

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7699 Anagram Drive
Eden Prairie, MN 55344
westwoodps.com

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REVISIONE REVISION	DATA DATE	DESCRIZIONE DESCRIPTION	PREPARATO PREPARED	CONTROLLATO CHECKED	VALIDATO VALIDATED
X	X	X	x	x	

VALIDO PER IMPRESE ISSUED FOR PLANT: Chisago Solar, LLC

PROGETTO PROJECT: Chisago Solar, LLC
Chisago County, Minnesota

EDIFICIO ADDRESS: 35002 Lincoln Road, North Branch, MN 55056

REVISIONE EMISSIONE REVISION EMISSIONE			
DATA DATE	PREPARATO PREPARED	CONTROLLATO CHECKED	APPROVATO APPROVED
02/11/2016			

DISEGNO FILE FILE NAME

CLASSIFIC. CLASSIFICATION

PROGETTISTA PROJECTOR: Chisago Solar Construction Systems

FORMATO FORMAT: ANSI D

SCALA SCALE: SEE LEFT

REFERENZA DISEGNO DRAWING REFERENCE

SCALA PLOT. PLOT SCALE

TAVOLA SHEET: C.302

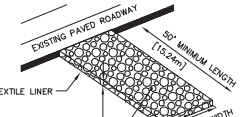
Enel Green Power

TITOLO TITLE: **Construction Details**

Area / *Area FT^2*
Unità / *Unit FT*

CODICE CODE

| PAESE COUNTRY | SOCIETÀ COMPANY | AREA AREA | TIPO TYPE | ANNO YEAR | | |

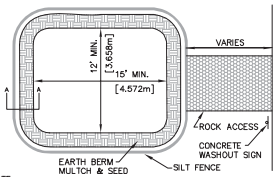


NOTE:

ROCK CONSTRUCTION ENTRANCE SHOULD BE A MINIMUM THICKNESS OF 1.0' AND CONTAIN MAXIMUM SIDE SLOPES OF 4:1. ROCK ENTRANCE SHOULD BE INSPECTED AND MAINTAINED REGULARLY. ROCK ENTRANCE LENGTH MAY NEED TO BE EXTENDED IN CLAY SOILS.

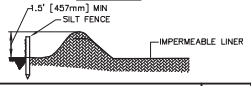
ROCK CONSTRUCTION ENTRANCE — LAST REVISED: 09/09/13 — GD05

"AN APPROVED ALTERNATE MAY BE USED"
"USE AS NEEDED"



NOTE:
CONCRETE WASHOUT AREAS WILL HAVE AN IMPERMEABLE LINER TO PREVENT CONCRETE WASHOUT WATER FROM INFILTRATING/CONTACTING WITH SOIL. IMPERMEABLE LINER INCLUDES 10 MIL POLYLINER OR COMPACTED CLAY LINER. WASHOUT SYSTEMS CAN BE USED AS ALTERNATE WASHOUT AREAS.

SECTION A-A

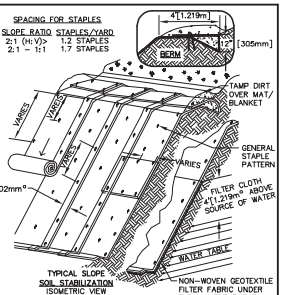


CONCRETE WASHOUT AREA — LAST REVISED: 10/14/14

CATEGORY OF BLANKET	STAPLE LENGTH
00	5"[127mm]*
0	5"[127mm]*
1	4"[102mm]*
2	4"[102mm]*
3	6"[152mm]*
4	6"[152mm]*
5	5"[127mm]*
6	5"[127mm]*
7	5"[127mm]*

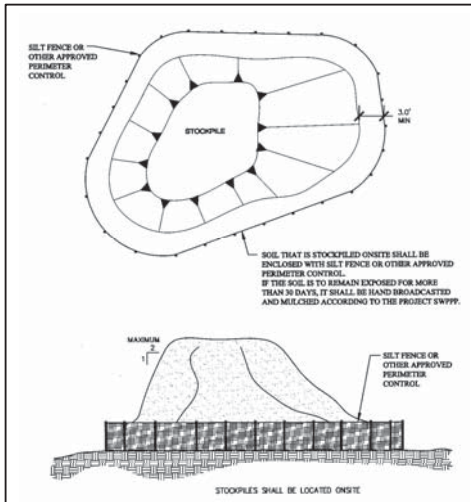
SPACING FOR STAPLES

SLOPE RATIO	STAPLES/YARD
2:1 (H:V)>	1.2 STAPLES
2:1 - 1:1	1.7 STAPLES



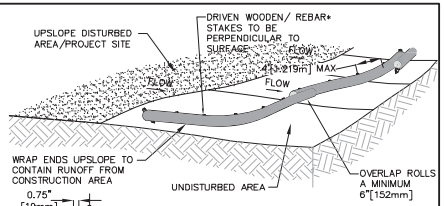
NOTE:
1. MATS/BLANKETS SHOULD BE INSTALLED VERTICALLY DOWNSLOPE.
2. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICK AND GRASS.
3. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
4. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL.
5. DO NOT STRETCH.

TEMPORARY EROSION BLANKETS
TURF REINFORCEMENT MATS FOR SLOPES — LAST REVISED: 09/09/13 — GD21



TYPICAL SOIL STOCKPILE PROTECTION — NOT TO SCALE — LAST REVISED: 09/09/13 — SS01

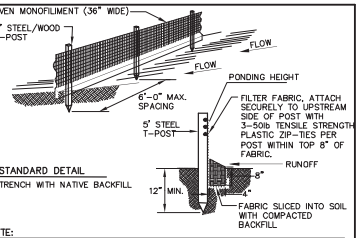
NOTES:
1. FIBER ROLLS SHALL BE INSTALLED PRIOR TO UPSLOPE DISTURBANCE ACTIVITIES COMMENCE.
2. FIBER ROLLS SHALL BE PREFABRICATED AND MADE FROM WEED FREE RICE STRAW, FLAX, OR A SIMILAR AGRICULTURAL MATERIAL BOUND INTO A TIGHT TUBULAR ROLL BY NETTING. USE A 6" [152mm] OR 12" [305mm] DIA. ROLL.
3. TRENCHES SHALL BE CREATED ALONG THE SLOPE OF THE PERIMETER. THE TRENCH DEPTH SHOULD BE 1/4 TO 1/3 OF THE THICKNESS OF THE ROLL, AND THE WIDTH SHOULD EQUAL THE ROLL DIAMETER, IN ORDER TO PROVIDE AREA TO BACKFILL THE TRENCH.
4. STAKE FIBER ROLLS INTO THE TRENCH. DRIVE STAKES AT THE END OF EACH FIBER ROLL AND SPACED 4 FEET [1.219m] MAXIMUM ON CENTER. USE WOOD STAKES WITH NOMINAL CLASSIFICATION OF 0.75 IN. [19mm] BY 0.75 IN. [19mm] AND A MINIMUM LENGTH OF 24 IN. [610mm].
5. ROLLS SHALL BE INSTALLED PERPENDICULAR TO WATER MOVEMENT, AND PARALLEL TO THE SLOPE CONTOUR.
6. TURN THE ENDS OF THE FIBER ROLLS UP SLOPE TO PREVENT RUNOFF FROM GOING AROUND THE ROLL. THE UPSLOPE POINT SHOULD BE A MINIMUM 6" HIGHER IN ELEVATION THAN THE LOW POINT.
7. IF MORE THAN ONE FIBER ROLL IS PLACED IN A ROW, THE ROLLS SHOULD BE OVERLAPPED A MINIMUM OF 6 INCHES [152mm], NOT ABUTTED.
8. FIBER ROLLS ENCASED WITH PLASTIC NETTING ARE USED FOR A TEMPORARY APPLICATION ONLY AND SHOULD BE REMOVED FOLLOWING STABILIZATION. FIBER ROLLS USED IN A PERMANENT APPLICATION SHALL BE ENCASED WITH A BIODEGRADABLE MATERIAL AND MAY BE LEFT IN.
9. TEMPORARY INSTALLATIONS SHOULD ONLY BE REMOVED WHEN UP GRADIENT AREAS ARE STABILIZED PER GENERAL PERMIT REQUIREMENTS, AND/OR POLLUTANT SOURCES NO LONGER PRESENT A HAZARD. BUT, THEY SHOULD ALSO BE REMOVED BEFORE VEGETATION BECOMES TOO MATURE SO THAT THE REMOVAL PROCESS DOES NOT DISTURB MORE SOIL AND VEGETATION THAN IS NECESSARY.
10. FIBER ROLLS MUST BE INSPECTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS FOR THE ASSOCIATED PROJECT TYPE AND RISK LEVEL. IT IS RECOMMENDED THAT AT A MINIMUM, THE BMPS BE INSPECTED WEEKLY, PRIOR TO FORECASTED RAIN EVENTS, DAILY DURING EXTENDED RAIN EVENTS, AND AFTER THE CONCLUSION OF RAIN EVENTS.



* IF EXISTING SOILD DO NOT ALLOW WOOD STAKES OR REBAR STAKES TO BE INSTALLED ROCK, CONCRETE CINDER BLOCKS CAN BE USED TO ANCHOR FIBER ROLLS. ROCKS SHOULD BE 10"[254mm]-14"[356mm] IN DIAMETER. SPACING SHOULD BE SET EVERY 2'[0.610m]-4'[1.219m].

12. REPAIR OR REPLACE SPLIT, TORN, UNRAVELING, OR SLUMPING FIBER ROLLS.
13. SEDIMENT THAT ACCUMULATES UPSLOPE OF THE BMP SHOULD BE PERIODICALLY REMOVED IN ORDER TO MAINTAIN BMP EFFECTIVENESS. SEDIMENT SHOULD BE REMOVED WHEN SEDIMENT ACCUMULATION REACHES ONE-THIRD THE DESIGNATED SEDIMENT STORAGE DEPTH.
14. RILLS OR GULLIES MAY BEGIN TO FORM FOLLOWING MAJOR STORM EVENTS WHERE RUNOFF HAS OVERTOPPED THE FIBER ROLLS. THESE RILLS OR GULLIES SHOULD BE PROMPTLY REPAIRED.

TYPICAL FIBER ROLLS FOR PERIMETER CONTROL OF CONSTRUCTION AREA LIMIT — NOT TO SCALE — LAST REVISED: 09/09/13 — GD42



STANDARD DETAIL
TRENCH WITH NATIVE BACKFILL

NOTE:
1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN ACCUMULATED TO 1/3 THE HEIGHT OF THE FABRIC OR MORE.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
4. ALL ENDS OF THE SILT FENCE SHALL BE WRAPPED UPSLOPE SO THE ELEVATION OF THE BOTTOM OF FABRIC IS HIGHER THAN "PONDING HEIGHT".

SILT FENCE — LAST REVISED: 11/24/14

Issued For Construction

Biosar America, LLC
5962 La Pl Ct #220
Carlsbad, CA 92008

Aurora Distributed Solar, LLC
One Tech Drive, Suite 220
Andover, MA 01810

Westwood
Phone (952) 937-5150 — 7699 Anagram Drive
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I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly licensed PROFESSIONAL ENGINEER under the laws of the State of Minnesota.

Print Name: August Dean Christensen

Signature

Date 02/11/2016

License No. 47173

REVISIONE REVISION	DATA DATE	DESCRIZIONE DESCRIPTION	PREPARATO PREPARED	CONTROLLATO CHECKED	VALIDATO VALIDATED
X	X	X	x	x	

VALIDO PER IMPIANTO / ISSUED FOR PLANT: Chisago Solar, LLC

PROGETTO / PROJECT: Chisago Solar, LLC
Chisago County, Minnesota

SITO / PROCESSO / SITE / PROCESS: 35002 Lincoln Road, North Branch, MN 55056

REVISIONE EMISSIONE / REVISION EMISSION

DATA DATE	PREPARATO PREPARED	CONTROLLATO CHECKED	APPROVATO APPROVED
02/11/2016			

NOME FILE / FILE NAME

PROGETTO PROJECTION: Chisago County Coordinate System

FORMATO / FORMAT: ANSI D

SCALA / SCALE: SEE LEFT

CLASSIFICAZIONE / CLASSIFICATION

RIFERIMENTO ARCHIVIO / ARCHIVE REF.

SCALA PLOTT. / PLOT SCALE

TAVOLA / SHEET: C.303

Enel Green Power

TITOLO / TITLE: **Erosion Control Details**

CODICE / CODE

	PAESE COUNTRY	PROGETTO PROJECT	ANNO YEAR	TIPO DOCUMENTO DOCUMENT TYPE	NUMERO DOCUMENTO DOCUMENT NUMBER	REVISIONE REVISION
Area / Area FT^2	D	ACUS	X	XXXXXX	XXXXXX	00
Unità / Unit FT						

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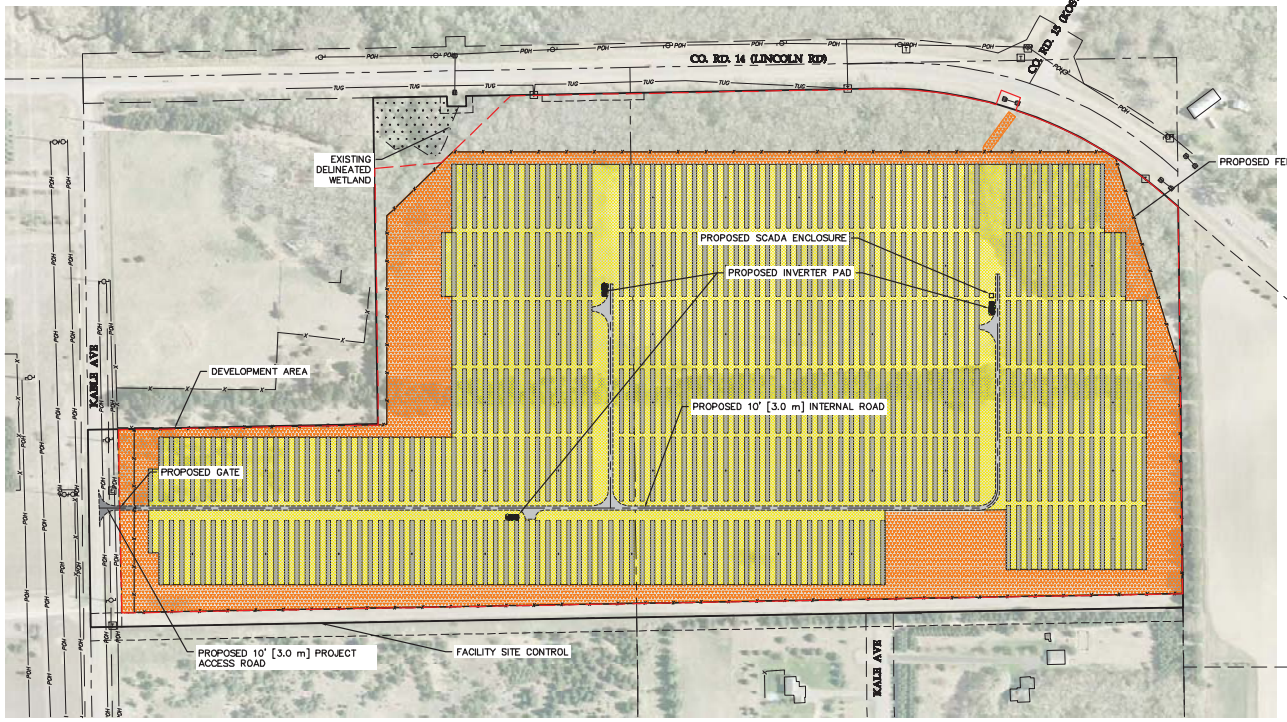

Legend

- DENOTES FACILITY SITE CONTROL
- DENOTES PROPOSED SECURITY FENCE
- DENOTES PRAIRIE SEED MIX (10.00 AC)
- DENOTES NO MOW TURF (43.00 AC)
- FIELD DELINEATED WETLAND

NOTES:
1. SEEDING TO BE COMPLETED USING A DRILL SEED METHOD WHERE FEASIBLE. WHERE DRILL SEEDING IS NOT FEASIBLE THE APPLICATION OF SEED VIA ALTERNATE METHODS INCLUDING BUT NOT LIMITED TO, BROADCAST OR HYDROSEEDING.
2. BROADCAST SEEDING SHALL BE COMPLETED IF AMBIENT SOIL TEMPERATURE IS CONSISTENTLY 60 DEGREES F OR LOWER
3. IF NOT FROST SEEDING, DRILLING SHOULD OCCUR BETWEEN APRIL 1ST AND JUNE 1ST
4. THE CONTRACTOR SHALL NOT TILL OR FERTILIZE THE FIELDS, IF THE GROUND NEEDS TO TO BE TILLED, CONTRACTOR SHALL USE A VERTICAL PLOW

0' 150' 300' 450'

No Mow Turf with Forbs

GRASSES SPECIES	OUNCES PLS/AC. DRILL
AVENA SATIVA (OATS)	20.0 LB/AC
BOUTELOUA CURTIPENDULA (SIDE OATS GRAMA) PLS	8.00
BOUTELOUA GRACILIS (BLUE GRAMA) PLS	4.00
BUCHLOE DACTYLOIDES (BUFFALO GRASS--BOWIE CULTIVAR) PLS	128.00
CAREX BICKNELLI (COPPER SHOULDERED OVAL SEDGE) PLS	2.00
KOELERIA MACRANTHA (JUNEGRASS) PLS	4.00
SPOROBOLUS HETEROLEPIS (PRAIRIE DROPSEED PLS)	4.00
TOTAL-OUNCES PLS DRILL SEEDING	150.00
TOTAL-OUNCES PLS BROADCAST SEEDING	225.00

FORBS SPECIES	OUNCES PLS/AC. DRILL
ALLIUM CANADENSE (WILD GARLIC)	8.00
ALLIUM STELLATUM (PRAIRIE ONION)	1.00
ANEMONE CANADENSIS (CANADA ANEMONE)	1.00
ANEMONE PATENS (PASQUEFLOWER)	1.00
ASCLEPIAS TUBEROSA (BUTTERFLY-WEED)	2.00
ECHINACAEA ANGUSTIFOLIA (NAROW LEAVED PURPLE CONEFLOWER)	2.00
SISYRINCHIUM CAMPESTRE (PRAIRIE BLUE-EYED GRASS)	1.00
SOLIDAGO NEMORALIS (GRAY GOLDENROD)	0.50
TOTAL-OUNCES PLS DRILL SEEDING	16.50
TOTAL-OUNCES PLS BROADCAST SEEDING	24.75

*NOTES
- ACTUAL SEEDS PER SQUARE FOOT SHALL BE WITHIN THE RANGE SPECIFIED IN PLANNED CONDITION

Prairie Seed Mix

FORBS SPECIES	OUNCES PLS/AC. DRILL
ALLIUM CANADENCE (WILD GARLIC)	1.00
AMORPHA CANESCENS	2.00
ANEMONE CANADENSIS	1.00
ASCLEPIAS TUBEROSA (BUTTERFLY-WEED)	3.00
COREOPSIS PALMATA (PRAIRIE COREOPSIS)	2.00
DALEA CANDIDA (WHITE PRAIRIE CLOVER)	4.00
CALEA PURPUREA (PURPLE PRAIRE CLOVER)	6.00
ECHINACAEA ANGUSTIFOLIA (NAROW LEAVED PURPLE CONEFLOWER)	2.00
EUTHAMIA GRAMINIFOLIA (GRASS-LEAVED GOLDENROD)	0.10
GALIUM BOREALE (NORTHERN BEDSTRAW)	0.15
LIATRIS ASPERA (ROUGH BLAZINGSTAR)	2.00
LOBELIA SPICATA (PALE-SPIKE LOBELIA)	0.10
MONARDA FISTULOASE (WILD BERGAMOT)	0.25
PHLOX PILOSA (PRAIRE PHLOX)	0.20
POTENTILLA ARGUTA (PRAIRIE BLUE-EYED GRASS)	0.50
PYCNANTHEMUM VIRGINIANUM (MOUNTAIN MINT)	0.20
RATIBIDA COLUMNIFERA (UPRIGHT PRAIRIE CONEFLOWER)	1.00
RUDBECKIA HIRTA (BLACK-EYED GRASS)	0.50
SISYRINCHIUM CAMPESTRE (PRAIRE BLUE-EYED GRASS)	0.50
SOLIDAGO RIGIDA (STIFF GOLDENROD)	0.25
SOLIDAGO SPECIOSA (SHOWY GOLDENROD)	0.25
SYMPHYOTRICHUM ERICOIDES (HEATH ASTER)	1.00
SYMPHHYOTRICHUM NOVAE-ANGLIAE (NEW ENGLAND ASTER)	1.00
ZIZIA APTERA (HEART-LEAVED ALEXANDERS)	0.50
TOTAL-OUNCES PLS DRILL SEEDING	29.50
TOTAL-OUNCES PLS BROADCAST SEEDING	44.25

GRASS SPECIES	OUNCES PLS/AC. DRILL
AVENA SATIVA (OATS)	20.0 LB/AC
CAREX BICKNELLIE (COPPER SHOULDERED OVAL SEDGE)	2.00
BOUTELOUA CURTIPENDULA (SIDE OATS GRAMA)	24.0
SCHIZACHYRIUM SCOPARIUM (LITTLE BLUESTEM PLS)	32.0
SPOROBOLUS HETEROLEPIS (PRAIRIE ROPSEED PLS)	8.0
TOTAL-OUNCES PLS DRILL SEEDING	66.00
TOTAL-OUNCES PLS BROADCAST SEEDING	99.00

*NOTES
- ACTUAL SEEDS PER SQUARE FOOT SHALL BE WITHIN THE RANGE SPECIFIED IN PLANNED CONDITION
- INDIVIDUAL SPECIES NOT TO EXCEED 20% BY SEEDS/FT

Issued For Construction

biosar Services LLC
Biosar America, LLC
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Carlsbad, CA 92008

AURORA SOLAR
Aurora Distributed Solar, LLC
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Andover, MA 01810

Westwood
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Westwood Professional Services, Inc.

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Print Name: August Dean Christensen
Signature
Date 03/22/2016
License No. 47173

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X	X	X	x	x	

VALIDO PER IMPRESE / ISSUED FOR PLANT: Chisago Solar, LLC
PROGETTO / PROJECT: Chisago Solar, LLC
Chisago County, Minnesota
SITO / SITE: 35002 Lincoln Road, North Branch, MN 55056

REVISIONE EMISSIONE / REVISION EMISSIONE

DATA DATE	PREPARATO PREPARED	CONTROLLATO CHECKED	APPROVATO APPROVED
03/22/2016			

DISEGNO FILE / FILE NAME
PROGETTO PROJECTION: Stereo Polar Equatorial Sphere
FORMATO / FORMAT: ANSI D
SCALA / SCALE: SEE LEFT
CLASSIFIC. CLASSIFICATION
RIFERIMENTO ARCHIVE ID
SCALA PLOT. PLOT SCALE
TAVOLA / SHEET: C.400

Enel Green Power

TITOLO / TITLE: **Seeding Plan**

CODICE / CODE

Area / Area FT^2
Unità / Unit FT

CODICE CODE															
D	A	C	U	S	X	X	X	X	X	X	X	X	X	0	0

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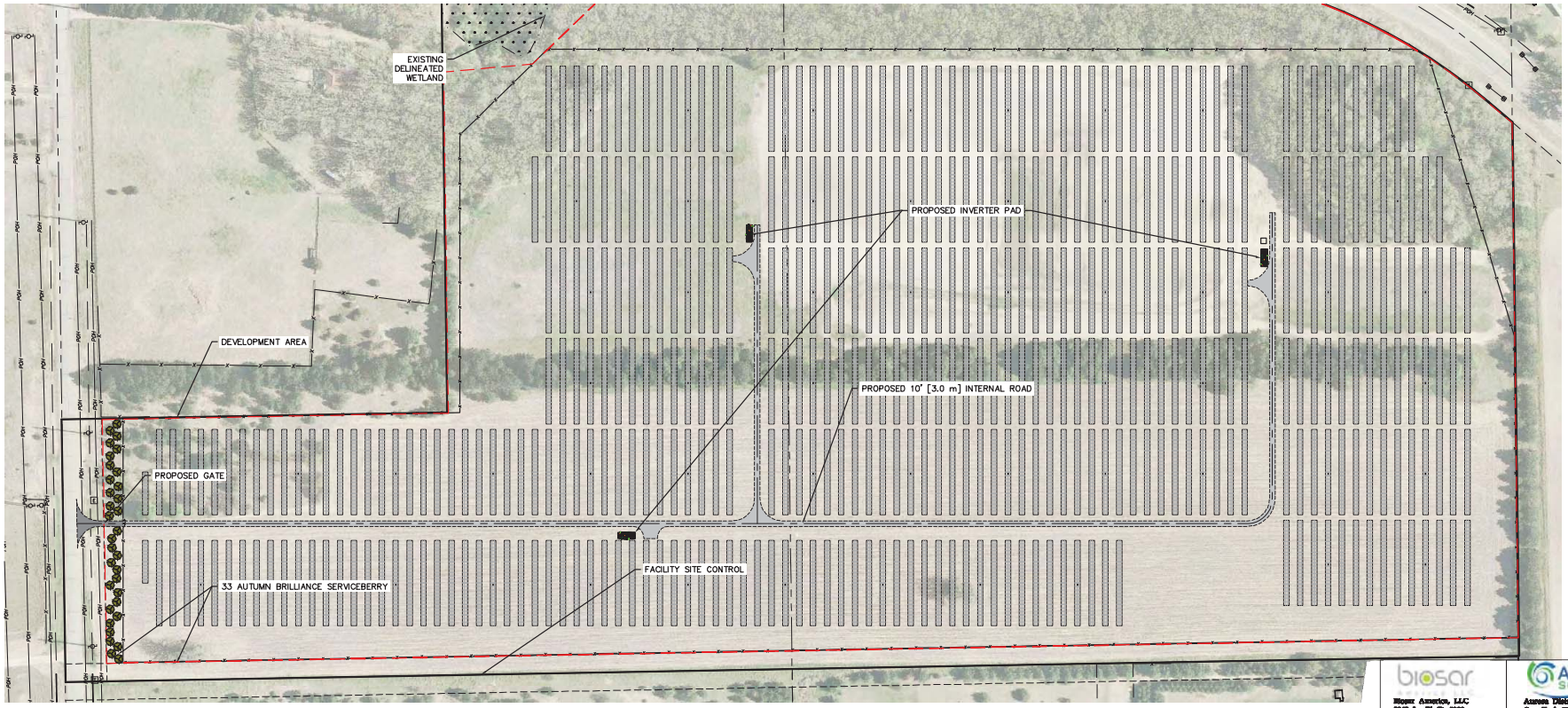

0' 100' 200' 300'

Issued For Construction

Plant Schedule

QTY.	COMMON/BOTANICAL NAME	SIZE	SPACING O.C.
33	Autumn Brilliance Serviceberry / Amelanchier x grandiflora 'Autumn Brilliance'	1.5" BB (CLUMP)	AS SHOWN

NOTE: QUANTITIES ON PLAN SUPERSEDE LIST QUANTITIES IN THE EVENT OF A DISCREPANCY.

AUTUMN BRILLIANCE SERVICEBERRY

Legend

—x— DENOTES PROPOSED SECURITY FENCE

DENOTES PROPOSED SERVICEBERRY

PROJECT GOAL:
- TO SCREEN RESIDENTS WEST OF THE PROJECT BOUNDARY FROM THE SOLAR ARRAY

Biosar America, LLC
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Aurora Distributed Solar, LLC
One Tech Drive, Suite 220
Andover, MA 01810

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Phone (952) 937-5150 7699 Anagram Drive
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Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed PROFESSIONAL ENGINEER under the laws of the State of Minnesota.

Print Name August Dean Christensen

Signature

Date 03/22/2016

License No. 47173

REVISIONE REVISION	DATA DATE	DESCRIZIONE DESCRIPTION	PREPARATO PREPARED	CONTROLLATO CHECKED	VALIDATO VALIDATED
X	X	X	x	x	

VALIDO PER IMPRESE ISSUED FOR PLANT: Chisago Solar, LLC

PROGETTO PROJECT: Chisago Solar, LLC, Chisago County, Minnesota

DIS. INGEGNERIA DIV. ENGINEERING: 35002 Lincoln Road, North Branch, MN 55056

REVISIONE EMISSIONE REVISION EMISSIONE			
DATA DATE	PREPARATO PREPARED	CONTROLLATO CHECKED	APPROVATO APPROVED
03/22/2016			

NOME FILE FILE NAME

PROGETTO PROJECTION: Chisago County Coordinate System

FORMATO FORMAT: ANSI D

SCALA SCALE: SEE LEFT

CLASSIFIC. CLASSIFICATION

RIFERIMENTO ORDINE DI

SCALA PLOT. PLOT SCALE

FOGLIO SHEET: CH-C.401

TITOLO TITLE: **Landscaping Plan**

Enel Green Power

CODICE CODE

Area / Area FT^2	D	A	C	U	S	X	X	X	X	X	X	X	X	X	X	0	0
Unità / Unit FT																	

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confidential
Kristen Swenson
Mar 31, 2016 11:30

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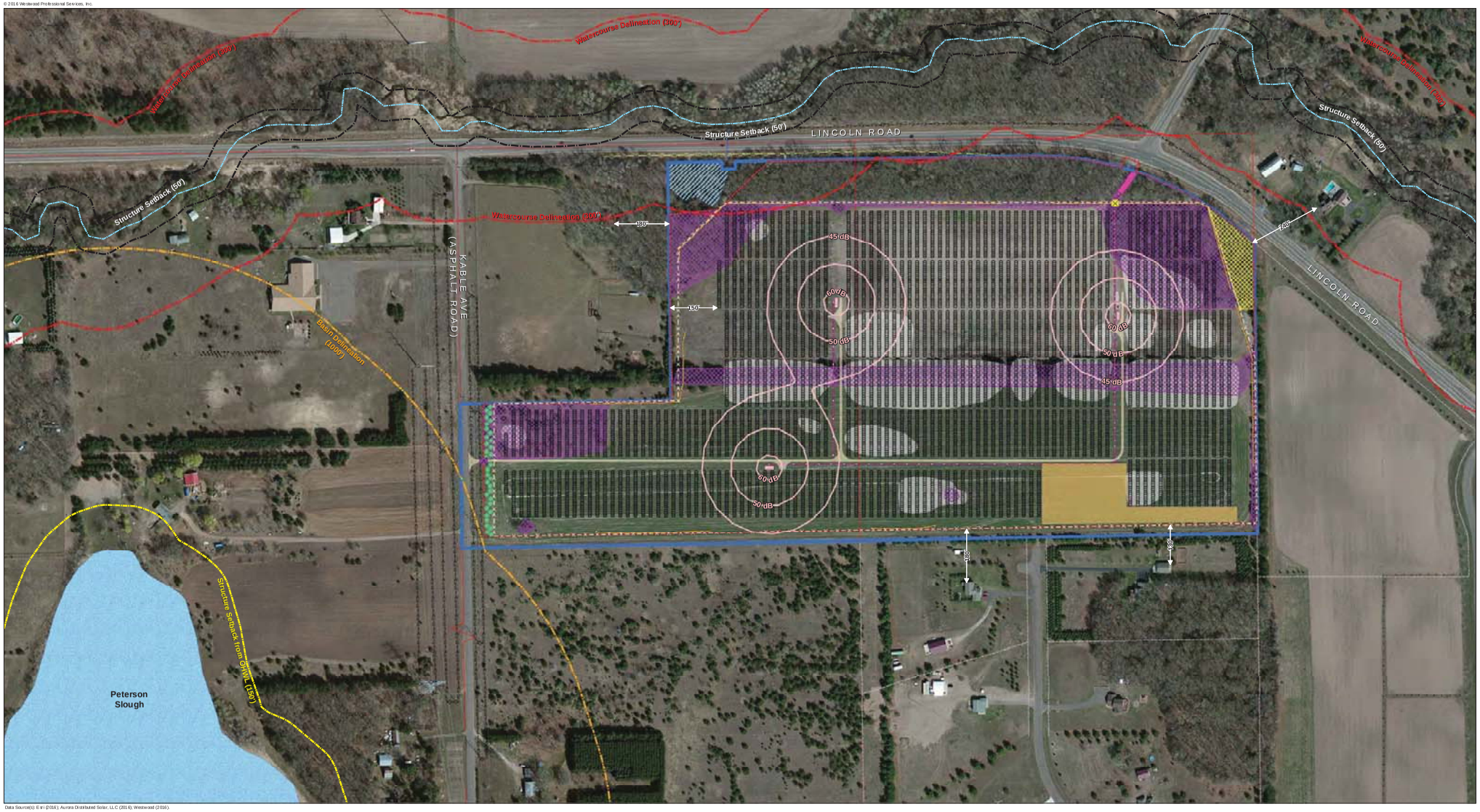

Data Source(s): Esri (2016); Aurora Distributed Solar, LLC (2016); Westwood (2016).

AURORA SOLAR
biosar AMERICA LLC
Westwood
Toll Free (888) 937-5150 www.westwoodps.com
Westwood Professional Services, Inc.

SITE NOTES:
1. PV FACILITY IS 6.5 MWac.
2. PV FACILITY LOCATED IN CHISAGO COUNTY, MINNESOTA.
3. PV FACILITY IS 52.96 ACRES WITHIN PERIMETER FENCE.
4. TRACKER: PV FACILITY SHALL USE SINGLE-AXIS HORIZONTAL TRACKER WITH BACKTRACKING.
5. TREE TRIMMING AND TREE REMOVED WILL OCCUR ON DATES OTHER THAN APRIL 1ST THROUGH SEPTEMBER 30TH.
6. DEVELOPMENT AREA IS THE SAME AS THE PRELIMINARY DEVELOPMENT AREA SHOWN IN THE SITE PLANS APPROVED BY THE PUC.
7. PRELIMINARY DRAWING. NOT TO BE USED FOR CONSTRUCTION.

Project Structure Setback	
Location	**Setback**
Front Yard	Minimum 20' from fence line
East Side Yard	Minimize tree impact
West Side Yard	Minimum 10' from fence line
Rear Yard	Minimum 20' from property line
North Fence Line	Set 1' off property line
East Fence Line	Set 1' off property line
South Fence Line	Set outside of road easement
West Fence Line	Set outside of road right of way to Kable Ave

Legend

- Facility Site Control
- Development Area
- Proposed Fence
- Proposed Bio Roll
- Proposed Silt Fence
- Proposed Access Road
- Proposed Laydown
- Proposed Temporary Stormwater Pond
- Proposed Scada System Enclosure
- Proposed Tree
- Proposed Medium Voltage Line
- Proposed Solar Array
- Proposed Inverter Station
- Above Ground Switching and Metering
- Proposed Grading Area
- Proposed Tree Removal
- Proposed Tree Trimming
- Permitted Wetland Impact
- Noise Level from Inverter
- Proposed Main Gate
- Emergency Access Man-Gate
- Existing Archaeological Resources
- Existing Delineated Wetland
- Existing Right of Way
- Lot Line
- Easement
- Existing Easement
- Section Line
- Existing Gas Line
- Existing Overhead Power
- Existing Overhead Power
- Existing Culvert
- Existing Telephone
- Watercourse Delineation (PWI)
- Basin Delineation - Lake
- Structure Setback from OHWL (150')
- Structure Setback (50')
- Watercourse Delineation (300')
- Basin Delineation (10.000')

Chisago Solar, LLC

35002 Lincoln Road, North Branch, Chisago, MN 55056
LAT: 45.4524
LON: -92.9024

Constraints Site Plan

N

0 20 150 Feet

March 22, 2016

Map Document: K:\2016\0000\-\0000\GIS\ACAD Components_Cut_Chisago_140\22-mxd, LSAmount: 2/22/2016, 6:09:49 PM

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Kristen Swenson
Mar 31, 2016 11:30