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## VILLAGE OF SUGAR GROVE BOARD REPORT

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**TO:** VILLAGE PRESIDENT & BOARD OF TRUSTEES

**FROM:** WALTER MAGDZIARZ, COMMUNITY DEVELOPMENT DIRECTOR  
DANIELLE MARION, PLANNING & ZONING ADMINISTRATOR

**SUBJECT:** ORDINANCE: SPECIAL USE PERMIT FOR SOLAR GARDEN ENERGY SYSTEM, COMMUNITY SOLAR 1 (AURORA AIRPORT)

**AGENDA:** MARCH 19, 2024 VILLAGE BOARD MEETING

**DATE:** MARCH 14, 2024

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### ISSUE

Shall the Village Board grant a Special Use Permit for a solar garden energy system on a portion of the Aurora Airport property, hereinafter referred to as Community Solar-1.

### DISCUSSION

The Village Board discussed the matter at its March 5<sup>th</sup> meeting and heard comments from the public as well as the SunCode, LLC ("Applicant"). The Village Board engaged in further discussion on a number of topics that were raised during this comment period. Substantive topics included concerns about glare, questions pertaining to whether or not there would be changes to the existing electric distribution system, the security fence materials, the burial of utilities (both on and off-site), the proposed service drive, and the Applicant's decommissioning plan. In addition, the Village Board considered a number of procedural concerns that were raised by members of the public, including whether the application was properly completed and whether adequate notice was provided.

A summary of those discussions and the requested staff follow-up is provided below:

#### **I. Substantive Considerations.**

- a. **Glare.** The public, specifically pilots using the Aurora Airport, expressed concerns about glare that may be created by the solar panels. The Village's Zoning Ordinance requires that a glare study be conducted in accordance with FAA requirements. This study has been completed by the Applicant. The findings indicate that there are expected to be intermittent periods of glare, however, not to the level that would cause the FAA to modify or reject the proposed project. The Applicant still must submit its application to the FAA, who will approve or deny the glare study.

In addition to FAA requirements, the Village's Zoning Ordinance also requires the use of anti-reflective materials on solar panels located in the vicinity of the airport. The Applicant's application material indicate that the panels are non-reflective. Moreover, the tracking feature of the solar panels also serves to reduce glare by reducing the angle of incidence from the sun's rays. That is, the more perpendicular the panels are to the sun's rays the less opportunities for glare are created.

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In light of the foregoing, it is staff's opinion that the Applicant has properly mitigated any glare concerns, pending final FAA approval.

- b. **Security fence.** The Applicant proposes an eight-foot-tall chain link security fence in accordance with the Village's Zoning Ordinance. The Zoning Ordinance does not specify the design or materials for the security fence. Accordingly, staff finds that the proposed fence is in compliance with current Village requirements.
- c. **Utility burial.** The applicant agreed to bury all on-site electric lines as required. The existing utility poles along Dugan Road will remain. Overhead utilities, including those along property lines and roadways, are required to be buried. But this requirement applies to subdivision of property. The subject property is not being subdivided.
- d. **Service drive.** The Applicant revised the site development plans to indicate the proposed service drive to serve the solar garden energy system will be paved.
- e. **Decommissioning plan.** The Applicant provided a decommissioning plan as required by the Village's Zoning Ordinance. It describes what the operator will be expected to do with the solar panels (recycled), the support structures (recycled), electrical wiring (recycled), security fence (recycled), and the restoration of the ground, including soil and erosion control practices during the decommissioning activities. The decommissioning plan is backed by a financial guarantee in a form and amount approved by the Village Board prior to issuing the building permit for construction of the solar facility.

The Village Board questioned how it would determine when the Applicant's decommissioning obligations are triggered. While the Village will be, in part, dependent upon obtaining this information from the City of Aurora, an additional condition has been added to the Special Use Permit obligating the owner/operator to inform the Village if its operations cease for a period of more than twelve (12) months. In addition, should the owner/operator fail to respond to an inquiry by the Village within the specified timeframe regarding the status of its operations, the Village will be authorized to draw upon the security and to commence decommissioning.

In addition, language was added requiring written notice to the Village upon the solar garden energy system's transfer to a new owner/operator and establishing that any successor owner/operator must post new security before the prior owner/operator's security is released.

## II. Procedural Considerations.

- a. **The process.** A number of questions were raised concerning the process for constructing the solar garden energy system. The approval of the Special Use Permit is the first step in the process. If the Special Use Permit is granted, the Applicant then must obtain FAA approval of the development and the glare study. Once approvals are received (and prior to the issuance of a building permit) the Applicant would then be required to perform a drain tile investigation, provide geotechnical information for footing and foundations, and provide the Village with a financial guarantee to cover the future decommissioning costs (as determined

by the Village). Zoning approval by the Village is necessary for the Applicant to submit the project to the State for approval of the solar energy credits.

- b. ***Completeness of the application.*** All the required information for submitting an application for a Special Use Permit for a solar garden energy system has been provided. The application has been reviewed by Village staff and is deemed complete.
- c. ***Notification process.*** All the required notifications were satisfactorily completed in accordance with state statute and the Zoning Ordinance: sign(s) were posted, the public hearing notice was published in a newspaper of general circulation, and written notice was mailed to all property owners within 250-feet of the Subject Property. The Subject Property is a lot of record within the boundaries of the Aurora Municipal Airport. State statutes do not require the owner of property adjacent the Airport but more than 250-feet from the Subject Property to receive written notice.
- d. ***Applicant identity.*** Sun Code, LLC is the Applicant. As is common with many developments, Sun Code has formed or will be forming additional LLCs for this project. The public also raised questions regarding the different names in contract documents between the applicant and the City of Aurora. Those arrangements are not in the Village's purview. The City of Aurora is the land owner and provided consent to the Applicant to make the application for a Special Use Permit. The Village attorney reviewed the applicant information and determined there is no procedural defect.
- e. ***Applicant licensure status.*** While some professions, such as barbers, engineers, plumbers, mortgage brokers, architects, and roofers, are required to be licensed to do business in the State of Illinois, solar energy providers are not one of them.

There was additional discussion about requiring sidewalks or bike paths across the frontage of the Subject Property. Ordinarily those improvements are associated with subdivision of property. The applicant is not subdividing the property, so the Village cannot invoke the subdivision requirements in this instance.

The Planning Commission/ Zoning Board of Appeals held the requisite public hearing and all interested persons were provided the opportunity to be heard. The proposed solar garden energy system complies with all of the Village's zoning requirements. The Planning Commission/Zoning Board of Appeals recommended approval of the PUD amendment, subject to certain conditions and restrictions which are incorporated in the attached Ordinance. Village staff recommends adding development of the site in accordance with the approved site development plans and material and equipment specifications, and, prohibiting battery storage facilities on the site, as additional conditions of approval.

#### **ATTACHMENTS**

- Ordinance Granting a Special Use Permit for a Solar Garden Energy System (Aurora Airport, Community Solar-1), exhibits are attached separately

#### **RECOMMENDATION**

That the Village Board approve the Ordinance Granting a Special Use Permit for a Solar Garden Energy System (Aurora Airport, Community Solar-1).

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**VILLAGE OF SUGAR GROVE  
KANE COUNTY, ILLINOIS**

**ORDINANCE NO. 2024-0319\_\_**

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**An Ordinance Granting a Special Use Permit for a Solar Garden Energy System  
(Aurora Airport, Community Solar-1)**

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Adopted by the Board of Trustees and President of the Village of Sugar Grove  
this 19<sup>th</sup> day of March 2024

Published in pamphlet form by authority of the Board of Trustees of the Village of Sugar Grove  
this 19<sup>th</sup> day of March 2024



**VILLAGE OF SUGAR GROVE**

**ORDINANCE NO. 2024-0319CD1**

**An Ordinance Granting a Special Use Permit for a Solar Garden Energy System  
(Aurora Airport, Community Solar-1)**

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**WHEREAS**, the Village of Sugar Grove is not a home rule municipality within Article VII, Section 6A of the Illinois Constitution and accordingly, acts pursuant to the powers granted to it under 65 ILCS 5/1-1 *et seq.*; and,

**WHEREAS**, SunCode, LLC (“Applicant”) is duly authorized to make application for a Special Use Permit for a solar garden energy system on the property generally located on the west side of Dugan Road between Scott Road and Wheeler Road and legally described in **Exhibit A**, attached hereto and incorporated herein by reference (“Subject Property”); and,

**WHEREAS**, the Applicant has made application to request to grant a Special Use Permit for a solar garden energy system on the Subject Property; and,

**WHEREAS**, the proposed solar garden energy system will occupy 28.1 acres of the Subject Property and consists of 10,052 solar panels that will track the sun across the sky and a small shed-like building constructed to house the inverter and other necessary equipment which will be surrounded by an eight-foot-tall security fence; and,

**WHEREAS**, after due notice, the Planning Commission/Zoning Board of Appeals held a public hearing on February 21, 2024, to consider the request to grant a Special Use Permit for a ground-mounted solar energy system and objectors were present and heard; and,

**WHEREAS**, the Planning Commission/Zoning Board of Appeals made its findings and recommendation in Planning Commission Recommendation PC24-02 that the Village Board grant the Special Use Permit, subject to certain conditions; and,

**WHEREAS**, the Village Board has found that the requested Special Use Permit is in compliance with the standards as set forth in the Zoning Ordinance and concurs with the Planning Commission’s Recommendation.

**NOW, THEREFORE, BE IT ORDAINED** by the President and Board of Trustees of the Village of Sugar Grove, Kane County, Illinois, as follows:

**SECTION ONE: RECITALS**

The foregoing recitals shall be and are hereby incorporated as findings of fact as if recitals were fully set forth herein.

**SECTION TWO: SPECIAL USE PERMIT**

That a Special Use Permit for a solar garden energy system is hereby granted on the Subject Property generally located on the west side of Dugan Road between Scott Road and Wheeler Road and

legally described in **Exhibit A**, attached hereto and made a part hereof by this reference, subject to the following conditions:

1. Applicant must obtain FAA approval for the solar garden energy system, including satisfying glare requirements.
2. The owner/operator of the solar facility shall notify the Village, in writing, of any changes of ownership during the life of the project. Following any such transfer and as a condition of the release of any existing security, the new owner/operator must post replacement security in accordance with Village Code Section B.1.a.
3. The owner/operator of the solar facility shall notify the Village if its operations on the Subject Property cease. In addition, should the owner/operator fail to respond to an inquiry by the Village regarding the status of its operations within 30 days of the date of said inquiry, the Village shall be authorized, but not obligated, to draw upon the security deposit and to commence decommissioning.
4. Applicant shall prepare and provide a drain tile investigation, which must be approved by the Village prior to issuing the building permit.
5. Applicant shall perform a soil and water analysis within the solar field at five (5) and ten (10) years after facility is placed on-line to determine whether any undesirable substances from the solar panels are collecting on the Subject Property.
6. Battery storage shall not be permitted on the Subject Property.
7. Applicant may substitute ornamental trees for shade trees required in the landscape berm along Dugan Road at the rate required by Section 11-4-21-C-1-c.
8. The service drive shown on the site development plan shall be paved, as required, prior to the facility being placed on-line.
9. The Electric Utility may be required to add new public electric infrastructure to serve the solar garden and such new infrastructure is required to be buried where above ground infrastructure does not currently exist. Where above ground electric infrastructure does exist, then any new electric infrastructure upgrades should be buried except in the case of environmental constraints such as wetland/ hydrology crossings. Also, the point of interconnection is required to be buried; all on-site private and public electric infrastructure (except the Solar Garden) shall be buried as required by Section 11-4-21-C-1-i.
10. That the Subject Property shall be developed in accordance with the site development plans attached hereto as **Exhibit B** and incorporated herein by reference. Minor changes in the location of solar panels, service road, equipment building resulting from soil or subsurface drainage features shall be permitted provided such changes do not increase the area of the solar garden energy system.
11. That the facility shall be constructed using the materials and equipment specified and attached hereto as **Exhibit C**. Substitution of materials and equipment shall require approval by the Village Board.
12. That the solar panels shall have an anti-reflective surface, as required.
13. That the decommissioning plan attached hereto as **Exhibit D**, is hereby approved and made part of this Special Use Permit.

## **SECTION TWO: GENERAL PROVISIONS**

**LAPSE OF APPROVAL.** The Special Use Permit approval will lapse and have no further effect twelve (12) months following the date of this Ordinance, unless: (1) a building permit has been issued (if required); or, (2) the use or structure has been lawfully established. A Special Use Permit also lapses upon revocation of a building permit or a certificate of occupancy for violations of conditions of approval or upon expiration of a building permit to carry out the work authorized by the Special Use.

**REPEALER:** All ordinances or portions thereof in conflict with this ordinance are hereby repealed.

**SEVERABILITY:** Should any provision of this ordinance be declared invalid by a court of competent jurisdiction, the remaining provisions will remain in full force and effect the same as if the invalid provision had not been a part of this ordinance.

**EFFECTIVE DATE:** This ordinance shall be in full force and effect from and after its passage, approval and publication in pamphlet form as provided by law.

**PASSED AND APPROVED** by the President and Board of Trustees of the Village of Sugar Grove, Kane County, Illinois this 19<sup>th</sup> day of March 2024.

ATTEST:

\_\_\_\_\_  
Jennifer Konen,  
President of the Board of Trustees

\_\_\_\_\_  
Tracey Conti,  
Village Clerk

|                         | Aye | Nay | Absent | Abstain |
|-------------------------|-----|-----|--------|---------|
| Trustee Matthew Bonnie  | ___ | ___ | ___    | ___     |
| Trustee Sean Herron     | ___ | ___ | ___    | ___     |
| Trustee Heidi Lendi     | ___ | ___ | ___    | ___     |
| Trustee Sean Michels    | ___ | ___ | ___    | ___     |
| Trustee Michael Schomas | ___ | ___ | ___    | ___     |
| Trustee James White     | ___ | ___ | ___    | ___     |

### **Exhibit A**

*(Legal Description)*

The East 1/2 of Section 12, Township 38 North, Range 6 East of the Third Principal Meridian (excepting therefrom the North 1856.25 feet, also excepting therefrom the South 1237.5 feet and also except that part described as follows: Beginning at the Northeast corner of the South East 1/4 of said Section; thence Southerly along the East line of said Quarter, 848.0 feet; thence Westerly, at right angles to said East line 597.0 feet; thence Northerly, at right angles to the last described course, parallel with the East line of said South East 1/4, 1095.0 feet; thence Easterly, at right angles to the last described course, 596.96 feet to the East line of said Section; thence Southerly, along said East line, 247.0 feet to the Point of Beginning), in the Village of Sugar Grove, Kane County, Illinois.

PIN: 13-12-200-004

### **Exhibit B**

*(Site Development Plan)*

### **Exhibit C**

*(Material and Equipment Specifications)*

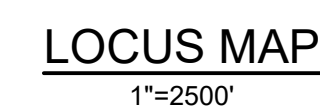
### **Exhibit D**

*(Decommissioning Plan)*



**6.48 MW DC GROUND-MOUNT SOLAR PV DEVELOPMENT  
AURORA MUNICIPAL AIRPORT  
SUGAR GROVE, ILLINOIS  
MARCH 12, 2024**

**DRAFT**



| SHEET<br>NUMBER | DRAWING TITLE   | DRAWING<br>NUMBER |
|-----------------|---|-------------------|
|                 | COVER SHEET   |                   |
| 1               | CONSTRUCTION, EROSION AND SEDIMENTATION CONTROL NOTES | G-001             |
| 2               | EXISTING CONDITIONS PLAN                              | V-101             |
| 3               | PROPOSED SITE PLAN                                    | C-101             |
| 4               | PROPOSED VIEWSHEDS                                    | C-301             |
| 5               | DETAILS   | C-501             |

DEVELOPED BY  
SUNCODE LLC



PREPARED BY



**WSP USA ENVIRONMENT &  
INFRASTRUCTURE, INC.**

100 APOLLO DRIVE SUITE 302  
CHELMSFORD, MASSACHUSETTS 01824



**EROSION AND SEDIMENTATION CONTROL PLAN:**

THIS PLAN HAS BEEN DEVELOPED TO PROVIDE A STRATEGY FOR CONTROLLING SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION OF THE PROPOSED PROJECT.

THIS PLAN IS BASED ON STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION IN DEVELOPING AREAS AS CONTAINED IN ILLINOIS URBAN MANUAL: AN EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MANUAL, 2013.

**GENERAL EROSION AND SEDIMENTATION CONSTRUCTION DETAIL NOTES:**

DURING CONSTRUCTION, THE CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO SCHEDULE EARTHWORK OPERATIONS SUCH THAT THE AREA OF EXPOSED AND DISTURBED SOIL IS MINIMIZED. CONSTRUCTION SHALL BE PHASED TO MINIMIZE THE AREA OF DISTURBED SOIL THAT IS EXPOSED AT ANY ONE TIME. UPGRADIENT STORM WATER DIVERSION AND DISPERSION MEASURES SHALL BE INSTALLED WHERE APPROPRIATE. ALL CUT AND FILL SLOPES SHALL BE STABILIZED UPON COMPLETION. THE FOLLOWING MEASURES WILL BE UNDERTAKEN TO PROVIDE MAXIMUM PROTECTION TO THE SOIL, WATER, AND ABUTTING LANDS:

PRIOR TO GRUBBING OR ANY EARTH MOVING OPERATION, SEDIMENT BARRIERS, OR OTHER APPROPRIATE PERIMETER CONTROL BEST MANAGEMENT PRACTICES (BMPs) SHALL BE INSTALLED ACROSS THE SLOPE ON THE CONTOUR AT THE DOWNHILL LIMIT OF THE WORK AS PROTECTION AGAINST CONSTRUCTION RELATED EROSION. INSTALL ALL NECESSARY STORMWATER DIVERSIONS AND DISPERSION MEASURES. NO TOPSOIL SHALL BE REMOVED FROM THE PROPERTY DURING CONSTRUCTION.

1. PERMANENT SOIL STABILIZATION MEASURES FOR ALL SLOPES, OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN FOURTEEN CALENDAR DAYS AFTER FINAL GRADING HAS BEEN COMPLETED. WHEN IT IS NOT POSSIBLE OR PRACTICAL TO PERMANENTLY STABILIZE DISTURBED LAND, TEMPORARY EROSION CONTROL MEASURES SHALL BE IMPLEMENTED ON DISTURBED AREAS (INCLUDING STOCKPILES) WITHIN FOURTEEN CALENDAR DAYS OF EXPOSURE OF SOIL OR FORMATION OF PILES. UNLESS THESE AREAS ARE TO BE SUBSEQUENTLY SURFACED WITH PERMANENT STRUCTURES, ALL DISTURBED AREAS SHALL BE MULCHED FOR EROSION CONTROL UPON COMPLETION OF ROUGH GRADING.
2. ANY EXPOSED SLOPES 20% OR GREATER SHALL BE STABILIZED WITH EROSION CONTROL BLANKETS (ERONET C125 BY NORTH AMERICAN GREEN, OR APPROVED EQUIV.) TO PREVENT EROSION DURING CONSTRUCTION AND TO FACILITATE REVEGETATION AFTER TOPSOILING AND SEEDING.
3. EXISTING TOPSOIL SHALL BE SAVED, STOCKPILED, AND REUSED AS MUCH AS POSSIBLE ON-SITE. SEDIMENT BARRIER SHALL BE INSTALLED AT THE BASE OF STOCKPILES AT THE DOWNHILL LIMIT TO PROTECT AGAINST EROSION. STOCKPILES ANTICIPATED TO REMAIN FOR MORE THAN 14 CALENDAR DAYS SHALL BE STABILIZED BY SEEDING AND MULCHING UPON FORMATION OF THE PILES. UPGRADEMENT OF THE STOCKPILES, STABILIZED DITCHES AND/OR BERMS SHALL BE CONSTRUCTED TO DIVERT STORMWATER RUNOFF AWAY FROM THE PILES.
4. INTERCEPTED SEDIMENT SHALL BE REMOVED WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SEDIMENT BARRIER, OR AS DIRECTED IN THE DRAWING DETAILS FOR OTHER BMPs, AND SHALL BE DEPOSITED IN AN AREA THAT SHALL NOT CONTRIBUTE TO SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED. ALL DAMAGED EROSION CONTROL DEVICES SHALL BE REPAIRED AND/OR REPLACED IMMEDIATELY. DEVICES NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION SHALL ALSO BE REPAIRED AND/OR REPLACED AS REQUIRED.
5. SOIL CUTTINGS GENERATED DURING THE DRILLING OF PILOT HOLES FOR GROUND SCREWS SHALL BE REMOVED AND COLLECTED. SOIL CUTTINGS MAY BE STOCKED PILE TEMPORARILY, BUT ULTIMATELY SHALL BE DISPOSED AND SPREAD IN AN AREA THAT SHALL NOT CONTRIBUTE TO OFF-SITE SEDIMENTATION, AND PERMANENTLY STABILIZED.
6. ADDITIONAL EROSION CONTROL METHODS SHALL BE IMPLEMENTED IF CONSTRUCTION OCCURS AFTER DECEMBER 15TH. ALL DISTURBED AREAS SHALL BE MINIMIZED TO THE EXTENT POSSIBLE. PRIOR TO FREEZING, ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED WHERE APPROPRIATE. INSPECTION OF THESE EROSION CONTROL ITEMS SHALL BE FREQUENT, WITH PARTICULAR ATTENTION PAID TO WEATHER PREDICTIONS TO ENSURE THAT THESE MEASURES ARE PROPERLY IN PLACE TO HANDLE LARGE QUANTITIES OF RUNOFF RESULTING FROM HEAVY RAINS OR EXCESSIVE THAWS.
7. GENERAL EROSION AND SEDIMENTATION CONTROL ACTIONS SHALL INCLUDE THE FOLLOWING:
  - MARK SOIL DISTURBANCE LIMITS
  - INSTALL SEDIMENT BARRIERS BEFORE DISTURBING ANY SOILS
  - DIVERT AND DISPERSE STORM WATER RUNOFF TO UNDISTURBED AREAS WHEREVER POSSIBLE
  - MULCH DISTURBED AREAS
  - PROTECT STEEP SLOPES
  - INSPECT AND REPAIR EROSION CONTROLS AND SEDIMENT BARRIERS

**DUST CONTROL:**

1. CONSTRUCTION ACTIVITIES SHALL BE SCHEDULED TO MINIMIZE THE AREA OF DISTURBED SOIL THAT IS EXPOSED AT ONE TIME.
2. DUST CONTROL SHALL BE USED ON CONSTRUCTION ROUTES AND OTHER DISTURBED AREAS SUBJECT TO SURFACE DUST MOVEMENT AND DUST BLOWING.
3. MAINTAIN DUST CONTROL MEASURES PROPERLY THROUGH DRY WEATHER PERIODS UNTIL ALL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
4. DUST CONTROL METHODS SHALL BE APPROVED BY THE ENGINEER AND MAY INCLUDE VEGETATIVE COVER, MULCH (INCLUDING GRAVEL MULCH), SPRINKLING, STONE, AND BARRIERS.
5. VEGETATIVE COVER - FOR DISTURBED AREAS NOT SUBJECT TO TRAFFIC, VEGETATION PROVIDES THE MOST PRACTICAL METHOD OF DUST CONTROL.
6. MULCH (INCLUDING GRAVEL MULCH) - WHEN PROPERLY APPLIED, MULCH OFFERS A FAST, EFFECTIVE MEANS OF CONTROLLING DUST. SEE MANUFACTURER'S RECOMMENDATIONS OR THE ILLINOIS URBAN MANUAL - AN EROSION AND SEDIMENT CONTROL BEST PRACTICES MANUAL, 2013 FOR APPLICATION RATES.
7. SPRINKLING - EXPOSED SOILS MAY BE SPRINKLED UNTIL THE SURFACE IS WET. SPRINKLING IS ESPECIALLY EFFECTIVE FOR DUST CONTROL ON HAUL ROADS AND OTHER TRAFFIC ROUTES.
8. STONE - USED TO STABILIZE CONSTRUCTION ROUTES; CAN ALSO BE EFFECTIVE FOR DUST CONTROL.
9. BARRIERS - A BOARD FENCE, WIND FENCE, SEDIMENT FENCE, OR SIMILAR BARRIER CAN CONTROL AIR CURRENTS AND BLOWING SOIL. ALL OF THESE FENCES ARE NORMALLY CONSTRUCTED OF WOOD AND THEY PREVENT EROSION BY OBSTRUCTING THE WIND NEAR THE GROUND AND PREVENTING THE SOIL FROM BLOWING OFFSITE.

**INFILTRATION AREAS:**

TO ENSURE THE LONG-TERM FUNCTION AND VALUE OF ANY AREA PROPOSED FOR INFILTRATION, INCLUDING BUT NOT LIMITED TO INFILTRATION BASINS, THE CONTRACTOR SHALL EXERCISE THE FOLLOWING BEST MANAGEMENT PRACTICES THROUGHOUT CONSTRUCTION.

1. THESE AREAS SHALL NOT BE USED FOR TEMPORARY CONSTRUCTION SEDIMENTATION CONTROL, SEDIMENTATION BASINS, OR DEWATERING AREAS.
2. THESE AREAS SHALL REMAIN OFF-LINE UNTIL THE ENTIRE CONSTRUCTION AREA CONTRIBUTING TO THESE AREAS HAS BEEN STABILIZED WITH BUILDINGS, BUILDING FOUNDATIONS, PAVEMENT, OR VEGETATION, AS APPLICABLE.
3. STORMWATER RUNOFF DURING CONSTRUCTION SHALL BE DIRECTED AWAY FROM THESE AREAS TO THE GREATEST EXTENT PRACTICABLE. WHERE NOT FEASIBLE, THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION CONTROLS UP-GRADIENT OF THESE AREAS TO PREVENT SEDIMENTATION OF THESE AREAS DURING CONSTRUCTION.
4. THE SUBGRADE BELOW THESE AREAS SHALL NOT BE COMPACTED; THEREFORE, THE CONTRACTOR SHALL RESTRICT ACCESS TO THESE AREAS BY HEAVY EQUIPMENT AND SHALL NOT USE THESE AREAS FOR MATERIAL S STOCKPILES.
5. EXCAVATION AND CONSTRUCTION OF THESE AREAS SHALL BE PERFORMED USING HAND OR HYDRAULIC EQUIPMENT TO ENSURE THAT THE NATURAL FILTRATION EARTH MATERIAL IS NOT DISTURBED OR OTHERWISE COMPACTED.
6. UPON COMPLETION OF CONSTRUCTION OF ANY OF THESE AREAS, THE CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES TO PREVENT SILTATION OF THE FILTER MATERIALS.

## MATERIAL AND SUBMITTAL

1. CONTRACTOR TO SUBMIT CONTENT, ANALYSIS, AND SAMPLE OF COMPOST AND MATERIAL TEST REPORTS FOR IMPORTED TOPSOIL USED IN SOIL MIX.
2. AS-BUILT DRAWINGS SHALL BE COMPLETED AND SHALL INDICATE THE TRUE MEASUREMENT AND LOCATION, HORIZONTAL AND VERTICAL, OF ALL ENTIRETY OF THE INFILTRATION BASINS, SEDIMENT FOREBAYS, AND GRASS SWALE. AS-BUILT DRAWINGS SHALL BE STAMPED WITH THE SEAL OF AN ILLINOIS LICENSED LAND SURVEYOR. SUBMIT ELECTRONIC COPIES OF AS-BUILT DRAWINGS UPON COMPLETION AND ACCEPTANCE OF WORK.

**MONITORING PROGRAM:**

1. EROSION AND SEDIMENTATION CONTROLS SHALL BE INSPECTED AT LEAST ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 0.25 INCHES OR GREATER. DAILY RAINFALL SHALL BE MONITORED AND RECORDED/NOTED BY THE CONTRACTOR. ALL STRUCTURES DAMAGED BY CONSTRUCTION EQUIPMENT, VANDALS, OR THE ELEMENTS SHALL BE REPAIRED OR REPLACED IMMEDIATELY, PRIOR TO CONTINUING THE CONSTRUCTION.
2. FOLLOWING THE FINAL SEEDING, THE SITE SHALL BE INSPECTED IN ACCORDANCE WITH THE SCHEDULE OUTLINED IN #1 ABOVE TO ENSURE THAT THE VEGETATION HAS BEEN ESTABLISHED (70% COVER ACHIEVED). IN THE EVENT OF ANY UNSATISFACTORY GROWTH, RESEEDING WILL BE CARRIED OUT, WITH FOLLOW-UP INSPECTION.
3. AFTER THE CONSTRUCTION INSPECTOR HAS DETERMINED THAT THE PROJECT AREA HAS BEEN PERMANENTLY STABILIZED (70% COVER HAS BEEN ACHIEVED OR NON-VEGETATED MEASURES HAVE BEEN IMPLEMENTED), THE CONTRACTOR SHALL REMOVE ALL SEDIMENT BARRIERS, TEMPORARY SEDIMENTATION CONTROL RISERS AND ANY OTHER TEMPORARY EROSION CONTROL MEASURES.

**SEEDING AND REVEGETATION PLAN:**

IMMEDIATELY FOLLOWING THE COMPLETION OF TREE CLEARING, ALL DISTURBED AREAS SHALL BE TREATED AS STATED BELOW IN ORDER TO MINIMIZE CONSTRUCTION-PERIOD EROSION. THE SITE, INCLUDING UNDER AND AROUND THE SOLAR ARRAYS, SHALL BE SEEDED AND MAINTAINED WITH DROUGHT TOLERANT, PERENNIAL VEGETATIVE GROUND COVER. THE SITE SHALL BE SEEDED AND MAINTAINED TO PREVENT SOIL EROSION AND MANAGE STORMWATER RUNOFF.

UPON COMPLETION OF SITE CONSTRUCTION, ALL AREAS PREVIOUSLY DISTURBED SHALL BE SEEDED TO ESTABLISH POLLINATOR FRIENDLY HABITAT WHEREVER FEASIBLE. THESE AREAS WILL BE CLOSELY MONITORED BY THE CONTRACTOR UNTIL SUCH TIME AS A SATISFACTORY GROWTH OF VEGETATION IS ESTABLISHED. SATISFACTORY GROWTH SHALL MEAN A MINIMUM OF 70% OF THE AREA IS VEGETATED WITH VIGOROUS GROWTH.

1. SEEDING METHODS MAY BE DRILL SEEDINGS, BROADCASTS AND ROLLED, CULTIPACKED, OR TRACKED WITH A SMALL TRACK PEEDE OF CONSTRUCTION EQUIPMENT, OR HYDRO-SEEDING, WITH SUBSEQUENT TRACKING.
2. WATERING MAY BE REQUIRED DURING DRY PERIODS CONSULT SEED MANUFACTURER'S INSTRUCTIONS.
3. INSPECT SEEDED AREAS FOR FAILURE AND MAKE NECESSARY REPAIRS AND RESEED IMMEDIATELY. CONDUCT A FOLLOW-UP SURVEY AFTER ONE YEAR AND RESEED WHERE NECESSARY.
4. ALL SEEDMENT CONTROL STRUCTURES LOCATED DOWN GRADIENT OF SOILS STABILIZED BY VEGETATIVE MEASURES SHALL REMAIN IN PLACE UNTIL VEGETATION IS ESTABLISHED. ESTABLISHED MEANS A MINIMUM OF 70% OF THE AREA IS VEGETATED WITH VIGOROUS GROWTH.



GENERAL NOTES:

- 1) THIS PLAN IS THE RESULT OF A FIELD SURVEY CONDUCTED BY SGC ENGINEERING, LLC IN DECEMBER OF 2023.
- 2) WSP ENVIRONMENT & INFRASTRUCTURE, INC. HAS NOT INDEPENDENTLY VERIFIED THE LOCATION, EXISTENCE, AND SERVICEABILITY OF ANY UTILITIES AND MAKES NO GUARANTEE TO THE COMPLETENESS OR THE ACCURACY OF ANY UTILITIES SHOWN. ADDITIONAL UTILITIES MAY EXIST IN THE FIELD, WHICH ARE NOT SHOWN ON THIS PLAN. ACTUAL LOCATIONS MUST BE DETERMINED IN THE FIELD PRIOR TO EXCAVATION OR OTHER CONSTRUCTION ACTIVITIES. CALL "JULIE, INC." AT 1-800-892-0123 OR DIAL 811. WSP ENVIRONMENT & INFRASTRUCTURE, INC. ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN.
- 3) THIS PROPERTY WAS PREPARED FOR THE EXCLUSIVE USE OF THE PERSON, PERSONS, OR ENTITY NAMED IN THE CERTIFICATION AND TITLE BLOCK OF THIS PLAN. THIS SURVEY DOES NOT EXTEND TO ANY UNNAMED PERSON, PERSONS, OR ENTITY WITHOUT HAVING SGC'S CONSENT IN WRITING.
- 4) WETLAND AND WATERBODY DELINEATION WAS PERFORMED BY WSP ON OCTOBER 19, 2023. THE WETLANDS WERE DETERMINED TO BE BE PALUSTRINE EMERGENT (PEM) OR PALUSTRINE SHRUB-SCRUB (PSS).
- 5) FEMA FLOOD HAZARD ZONES OBTAINED FROM FEMA'S NATIONAL FLOOD HAZARD LAYER (NFHL). THE PROJECT IS WITHIN FIRM PANEL 17089C0315J EFFECTIVE JULY 16, 2012.

SHARON L. NICKELS TRUST  
DOC. NO. 2022K001357  
PARCEL NO. 13-12-200-002

CITY OF AURORA  
DOC. NO. 2002K171324  
PARCEL NO. 13-12-200-004

CITY OF AURORA  
DOC. NO. 2002K171324  
PARCEL NO. 13-12-400-005

HERRMANN'S SUBDIVISION  
DOC. NO. 93K102108  
PLAT ENVELOPE 818-B

CITY OF AURORA  
DOC. NO. 2003K5151356  
PARCEL NO. 13-12-434-001

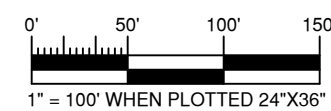
CITY OF AURORA  
DOC. NO. 2003K111363  
PARCEL NO. 13-12-296-001

CITY OF AURORA  
DOC. NO. 2003K111363  
PARCEL NO. 13-12-296-002

CITY OF AURORA  
DOC. NO. 2003K111363  
PARCEL NO. 13-12-434-003

CITY OF AURORA  
DOC. NO. 2003K111363  
PARCEL NO. 13-12-434-002

- LEGEND:
- EXISTING:
- 710 MAJOR CONTOUR
  - 713 MINOR CONTOUR
  - PROPERTY LINE
  - ABUTTER'S PROPERTY LINE
  - ZO PROPERTY LINE SETBACK
  - BUILDING
  - RIGHT OF WAY
  - EDGE OF ASPHALT
  - X METAL FENCE
  - OHW OVERHEAD WIRE
  - EDGE OF WETLAND
  - WETLAND AREA
  - 15' WETLAND BUFFER
  - 25' WETLAND BUFFER
  - DRAIN LINE
  - FEMA FLOOD HAZARD ZONE
  - RUNWAY PROTECTION ZONE
  - DEPARTURE ZONE
  - LOW PROPOSED LIMIT OF WORK
  - BOUNDARY EVIDENCE
  - UTILITY POLE



WSP USA ENVIRONMENT &  
INFRASTRUCTURE, INC.  
100 APOLLO DRIVE, SUITE 302  
CHELMSFORD MASSACHUSETTS 01824  
TELEPHONE: (978) 662-2090  
FAX: (978) 662-6633  
WEB: WWW.WSP.COM

| REVISION | DATE       | ISSUE / REVISION DESCRIPTION               | ISSUED | APPROVED |
|----------|------------|--|--------|----------|
| 0        | 03/12/2024 | ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION | MRM    | NWZ      |

PROJECT: 6.48 MW DC GROUND-MOUNT SOLAR PV  
DEVELOPMENT  
DUGAN ROAD  
SUGAR GROVE, IL 60554

EXISTING CONDITIONS PLAN

SUNCODE LLC

DRAFT

|                               |                    |
|-------------------------------|--------------------|
| DESIGNED BY:<br>MRM           | DRAWN BY:<br>MRM   |
| CHECKED BY:<br>APV            | SCALE:<br>AS SHOWN |
| PROJECT NUMBER:<br>3652230432 |                    |
| DRAWING NUMBER:<br>V-101      |                    |
| SHEET NUMBER:<br>2            | OF 5               |

ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION



GENERAL NOTES:

- 1) SOLAR PV ARRAY AND ELECTRICAL DESIGN, INCLUDING UTILITY POLES, PERFORMED BY OTHERS. ELECTRICAL EQUIPMENT AND COMPONENTS SHOWN TO ILLUSTRATE LOCATIONS ONLY. REFER TO ELECTRICAL DRAWINGS FOR DETAILED ELECTRICAL SYSTEM INFORMATION.

SHARON L. NICKELS TRUST  
DOC. NO. 2022K001357  
PARCEL NO. 13-12-200-002

LEGEND:

EXISTING:

- 710 MAJOR CONTOUR  
713 MINOR CONTOUR  
PROPERTY LINE  
ABUTTER'S PROPERTY LINE  
ZO PROPERTY LINE SETBACK  
BUILDING  
RIGHT OF WAY  
EDGE OF ASPHALT  
METAL FENCE  
X OVERHEAD WIRE  
OHW EDGE OF WETLAND  
WETLAND AREA  
15' WETLAND BUFFER  
25' WETLAND BUFFER  
DRAIN LINE  
FEMA FLOOD HAZARD ZONE  
RUNWAY PROTECTION ZONE  
DEPARTURE ZONE  
PROPOSED LIMIT OF WORK  
BOUNDARY EVIDENCE  
UTILITY POLE

PROPOSED:

- 715 MAJOR CONTOUR  
712.0 MINOR CONTOUR  
X SPOT ELEVATION  
X FENCE  
SB-SB SEDIMENT BARRIER  
EC UNDERGROUND ELECTRIC CONDUIT  
EDGE OF PAVEMENT  
PAVED ACCESS ROAD  
SOLAR PV ARRAY  
TREE OR SHRUB



WSP USA ENVIRONMENT &  
INFRASTRUCTURE, INC.  
100 APOLLO DRIVE, SUITE 302  
CHELMSFORD MASSACHUSETTS 01824  
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| REVISION | DATE       | ISSUE / REVISION DESCRIPTION               | ISSUED | APPROVED |
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| 0        | 03/12/2024 | ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION | MRM    | NWZ      |

PROJECT: 6.48 MW DC GROUND-MOUNT SOLAR PV  
DEVELOPMENT  
DUGAN ROAD  
SUGAR GROVE, IL 60554

PROPOSED SITE PLAN



CLIENT:

SEAL:

DESIGNED BY:  
MRM

CHECKED BY:  
APV

PROJECT NUMBER:  
3652230432

DRAWING NUMBER:  
C-101

SHEET NUMBER:  
3 OF 5

DRAWN BY:  
MRM

SCALE:  
AS SHOWN

PROJECT NUMBER:  
3652230432

DRAWING NUMBER:  
C-101

SHEET NUMBER:  
3 OF 5



ISSUED FOR PERMITTING/NOT FOR CONSTRUCTION









1. DESIGN FOR FOUNDATIONS, RACKING, AND MODULES BY OTHERS. DETAILS SHOWN FOR ILLUSTRATION PURPOSES ONLY.

NOT TO SCALE



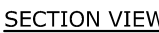
1. ACCESS ROAD TO BE CONSTRUCTED AT A MINIMUM THICKNESS OF 10" COMPACTED CRUSHED CA-6 AGGREGATE BASE (SUBBASE GRANULAR MATERIAL TYPE B), AND SURFACED WITH A MINIMUM THICKNESS OF 2.5" HOT MIX ASPHALT BINDER COURSE IL-19.0, N50 AND A MINIMUM THICKNESS OF 2" HOT MIX ASPHALT SURFACE COURSE, MIX D, N50.

NOT TO SCALE



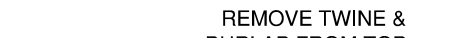
1. CONCRETE PAD SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. DESIGN TO BE FINALIZED AT LATER DATE.

NOT TO SCALE



1. STONE TO BE 1'-3" STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FT.
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TEN (10) FT. MIN, BUT NOT LESS THAN THE FULL TRAVELED WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. FILTER CLOTH - SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCE SHALL BE PIPED ACROSS OR BENEATH THE ENTRANCE.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. IF WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

NOT TO SCALE



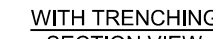
1. STAKE ALL TREES OVER 6 FEET TALL.
2. TREE SHALL BEAR SAME LOCATION TO FINISHED GRADE AS IT BORE TO PREVIOUS GRADE (OR SLIGHTLY ABOVE).
3. NEVER CUT LEADERS.
4. PRUNE ONLY TO REMOVE DAMAGED OR BROKEN BRANCHES.
5. REMOVE ALL WIRE BRACKETS FROM ROOTBALL.
6. REMOVE ALL STAKES 1 YEAR AFTER PLANTING.
7. VEGETATION SHALL BE PLANTED ON TOP OF SCREENING BERM.
8. TREE HEIGHT AND LOCATION TO BE FINALIZED AT A LATER DATE PENDING FAA APPROVAL. LANDSCAPE MATERIALS TYPICALLY PLANTED AT THE FOLLOWING RATE:
  - 8.1. ONE SHADE TREE PER 50 LINEAR FEET
  - 8.2. ONE EVERGREEN TREE PER 50 LINEAR FEET
  - 8.3. THREE DECIDUOUS SHRUBS PER 50 LINEAR FEET
  - 8.4. THREE EVERGREEN SHRUBS PER 50 LINEAR FEET
  - 8.5. THREE ORNAMENTAL TREES MAY REPLACE EACH ONE SHADE TREE
  - 8.6. ORNAMENTAL GRASS MAY REPLACE THE DECIDUOUS SHRUBS AT A RATE APPROVED BY THE SUGAR GROVE ZONING OFFICIAL.

NOT TO SCALE

NOT TO SCALE



FLOW



1. PREFABRICATED SILT FENCE MUST BE INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2. THE FENCE SHALL BE ANCHORED TO RESIST PULL-OUT, AND BE STRETCHED TIGHTLY BETWEEN STAKES TO PREVENT SAGGING.
3. A 6-INCH WIDE AND 6-INCH DEEP TRENCH SHALL BE EXCAVATED UPGRADIENT OF THE FENCE LINE TO KEY THE "FLAP" OF THE FABRIC. THE TRENCH SHALL BE BACKFILLED AND COMPACTED.
4. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED BY WRAPPING END STAKES TOGETHER.
5. IN AREAS WHERE THE FLAP CANNOT BE KEPT PROPERLY (DUE TO FROZEN GROUND, BEDROCK, STONY SOIL, ROOTS NEAR A PROTECTED NATURAL RESOURCE, ETC) THE SILT FENCE SHALL BE ANCHORED TO A CRUSHED STONE, EROSION CONTROL, MIX, OR OTHER MATERIAL.

NOT TO SCALE



TEL: (XXX) XXX-XXXX

TEL: (XXX) XXX-XXXX

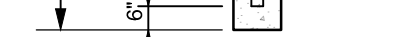
1. A "KNOX BOX" SHALL BE PROVIDED AT EVERY GATE LOCATION FOR EMERGENCY ACCESS.

NOT TO SCALE



24-HOUR EMERGENCY  
CONTACT NUMBER  
1-949-389-6313

NOT TO SCALE



1. TYPICAL FENCE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY  
DESIGN TO BE FINALIZED AT LATER DATE.

NOT TO SCALE



## DETAILS



WINTER

APV

100

1

SHEET NUMBER

5 OF 5





ASTRONERGY

A CHNT COMPANY

# ASTRO 6 Twins

Create Sustainable and Efficient Green Energy

CHSM66M(DG)/F-BH  
Bifacial Series (210)

## 645~660W

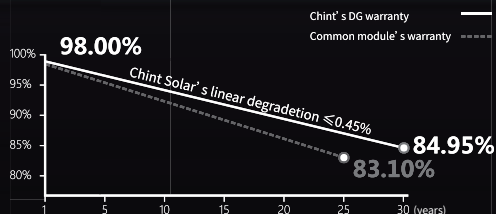
PERC+ / Multi-busbar / Half-cut

Non-destructive cutting

PID resistance

Bifacial gain

Lower BOS cost & LCOE



12-year Product Warranty

30-year Linear Power Warranty



ISO 9001:2015:ISO Quality Management System  
ISO 14001:2015:ISO Environment Management System  
ISO 45001:Occupational Health and Safety  
The first solar company which passed the Nord IEC/TS 62941 certification audit.



Tier 1  
BloombergNEF



**645~660W**

POWER RANGE

**0~+5W**POWER  
TOLERANCE**21.2%**MAX MODULE  
EFFICIENCY**≤ 2.0%**FIRST YEAR  
POWER DEGRADATION**≤ 0.45%**YEAR 2-30  
POWER DEGRADATION

## Electrical Specifications

**STC:** Irradiance 1000W/m<sup>2</sup>, Cell Temperature 25° C, AM=1.5

|   |       |       |       |       |
|---|-------|-------|-------|-------|
| Rated output (P <sub>mpp</sub> / Wp)        | 645   | 650   | 655   | 660   |
| Rated voltage (V <sub>mpp</sub> / V)        | 37.48 | 37.68 | 37.88 | 38.08 |
| Rated current (I <sub>mpp</sub> / A)        | 17.21 | 17.26 | 17.30 | 17.34 |
| Open circuit voltage (V <sub>oc</sub> / V)  | 45.29 | 45.49 | 45.69 | 45.89 |
| Short circuit current (I <sub>sc</sub> / A) | 18.27 | 18.32 | 18.37 | 18.42 |
| Module efficiency                           | 20.8% | 20.9% | 21.1% | 21.2% |

**NMOT:** Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20° C, AM=1.5, Wind Speed 1m/s

|   |       |       |       |       |
|---|-------|-------|-------|-------|
| Rated output (P <sub>mpp</sub> / Wp)        | 485.8 | 489.5 | 493.3 | 497.1 |
| Rated voltage (V <sub>mpp</sub> / V)        | 35.03 | 35.19 | 35.34 | 35.47 |
| Rated current (I <sub>mpp</sub> / A)        | 13.87 | 13.92 | 13.97 | 14.02 |
| Open circuit voltage (V <sub>oc</sub> / V)  | 42.43 | 42.63 | 42.83 | 43.03 |
| Short circuit current (I <sub>sc</sub> / A) | 14.72 | 14.77 | 14.82 | 14.87 |

## Electrical Specifications (Integrated power)

| P <sub>mpp</sub> gain | P <sub>mpp</sub> / Wp | V <sub>mpp</sub> / V | I <sub>mpp</sub> / A | V <sub>oc</sub> / V | I <sub>sc</sub> / A |
|-----------------------|-----------------------|----------------------|----------------------|---------------------|---------------------|
| 5%                    | 687                   | 37.88                | 18.17                | 45.69               | 19.29               |
| 10%                   | 720                   | 37.88                | 19.03                | 45.69               | 20.21               |
| 15%                   | 753                   | 37.89                | 19.90                | 45.70               | 21.13               |
| 20%                   | 786                   | 37.89                | 20.76                | 45.70               | 22.04               |
| 25%                   | 818                   | 37.89                | 21.63                | 45.70               | 22.96               |

Electrical characteristics with different rear power gain (reference to 655W)

## Temperature Ratings (STC)

|   |           |                              |                     |
|---|-----------|------------------------------|---------------------|
| Temperature coefficient (P <sub>mpp</sub> ) | -0.34%/°C | No. of diodes                | 3                   |
| Temperature coefficient (I <sub>sc</sub> )  | +0.04%/°C | Junction box IP rating       | IP 68               |
| Temperature coefficient (V <sub>oc</sub> )  | -0.25%/°C | Max. series fuse rating      | 35 A                |
| Nominal module operating temperature (NMOT) | 41±2°C    | Max. system voltage (IEC/UL) | 1500V <sub>DC</sub> |

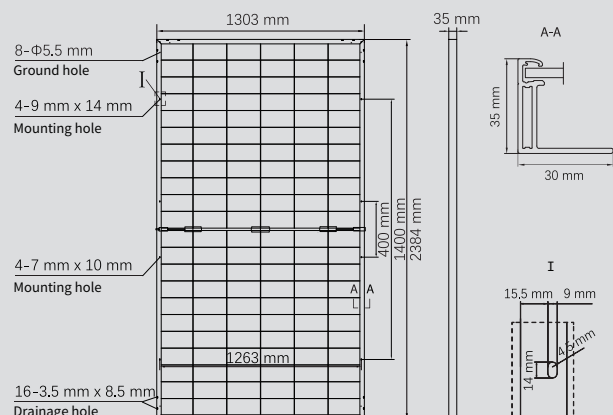
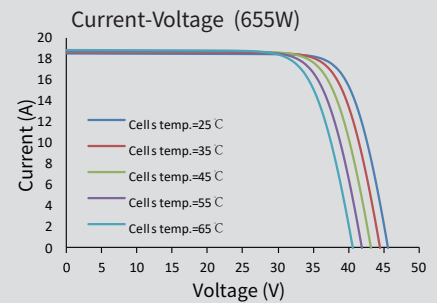
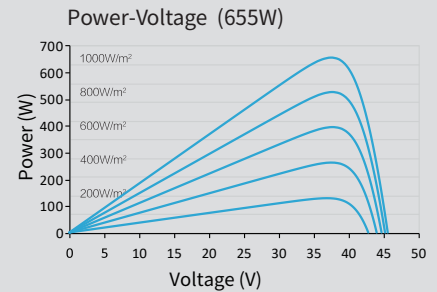
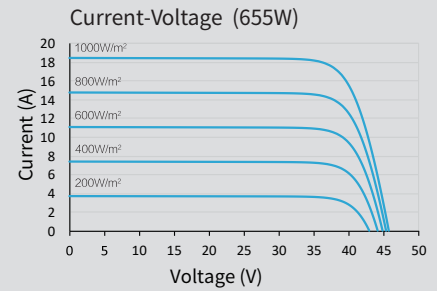
## Operating Parameters

## Mechanical Specifications

|  |  |
|--|--|
| Outer dimensions (L x W x H)                 | 2384 x 1303 x 35 mm                      |
| Cell Type                                    | P type Mono-crystalline                  |
| No. of cells                                 | 132 (6*22)                               |
| Frame technology                             | Aluminum, silver anodized                |
| Front glass thickness                        | 2.0 mm                                   |
| Cable length (IEC/UL)                        | Portrait: 350 mm; Landscape: 1400 mm     |
| Cable diameter (IEC/UL)                      | 4 mm <sup>2</sup> / 12 AWG               |
| ① Maximum mechanical test load               | 5400 Pa (front) / 2400 Pa (back)         |
| Connector type (IEC/UL)                      | HCB40 / MC4-EVO2 (optional)              |
| Module weight                                | 38.2 kg                                  |
| Packing unit                                 | 31 pcs / box (Subject to sales contract) |
| Weight of packing unit (for 40'HQ container) | 1230 kg                                  |
| Modules per 40' HQ container                 | 527 pcs                                  |

① Refer to Astronergy crystalline installation manual or contact technical department.  
Maximum Mechanical Test Load=1.5×Maximum Mechanical Design Load.

## Curve







nextracker™

**NX Horizon™**





NX Horizon™ is the world's most chosen solar tracker system for utility-scale power plants, deployed and contracted on over 75 gigawatts of solar power plants globally as of March 2023. NX Horizon's unrivaled combination of integrated hardware and software has become the gold standard for the utility-scale solar industry, thanks to its robust design, ease of installation, field-proven weather durability, and LCOE-optimized performance.

## Pioneering independent-row technology

NX Horizon's patented independent row, self-powered tracking system provides reliable performance across the widest possible range of site conditions. Simple, robust hardware, including self-aligning module rails and vibration-proof fasteners, enables rapid installation and long life without maintenance. Mechanically balanced rows minimize tracking power

requirements and pair with a time-proven, rugged drive & control system for maximum durability and uptime. NX Horizon's decentralized architecture with intelligent communications supports maximum layout adaptability, flexible construction and commissioning sequencing, advanced tracker functionality, and over-the-air updates.

## Proven resilience

NX Horizon is designed to withstand extreme weather events, proven season after season across hundreds of systems around the world. Through Nextracker's in-house project-engineering services, NX Horizon is configured and optimized to suit the unique combination of severe weather hazards and climate for each project site. Based on the industry's most comprehensive wind analysis and field testing, NX Horizon is hardened against wind-related failures by robust structural design, an optimized damping system, and advanced stowing functionality. Furthermore, the combination of balanced, independent self-powered rows with integrated UPS, 60° stowing angle, and available smart software enables rapid hail-stow protection to maximize panel survivability, even in the event of a grid outage. NX Horizon is inherently tolerant of flooding with drive and control components 4-5' above grade and available flood stowing functions to protect panels.



## Features and Benefits

**7 years** in a row

Global Market Share Leader

**75 GW**

Delivered on 6 Continents

**Best-in Class**

Software Ecosystem and  
Global Services

**Up to 6%** more energy

Using TrueCapture™  
Smart Control System

## Optimized for the lowest LCOE

Compared with conventional tracking systems, NX Horizon delivers Levelized Cost of Energy (LCOE) reductions of up to 7% by maximizing energy generation and solving for the lowest possible project CAPEX and OPEX. With pre-assembled components, no drive linkages, no AC wiring, self-aligning rails, and available XTR terrain following upgrades, NX Horizon is fundamentally faster to install, requiring less construction labor, less grading, and less total project capital cost. Projects using NX Horizon enjoy open-row access for maximum vegetation management and panel cleaning efficiency. Compared with linked row systems, NX Horizon cuts mowing costs by up to 55% and cleaning costs by up to 73%, reducing total project operations costs.

Lastly, but crucially for project returns, NX Horizon boosts project energy generation and revenue with its unique bifacial-optimized design as standard, and available IE-validated, 38GW proven TrueCapture Smart Control System with diffuse mode and row to row optimization functions.



**GENERAL AND MECHANICAL**

|                             |  |
|-----------------------------|--|
| Architecture                | Horizontal single-axis, independent row, independently balanced  |
| Configuration               | 1x module in portrait  |
| Tracking range of motion    | Options for $\pm 60^\circ$ or $\pm 50^\circ$   |
| Row Size                    | Configurable per module type, string length and site layout  |
| Array Height                | Rotation axis elevation, 1.3 to 1.8 m / 4'3" to 5'10"  |
| Drive type                  | High accuracy slew gear  |
| Modules supported           | All utility-scale crystalline and thin-film modules  |
| Bifacial optimization       | High-rise mounting rails, bearing & driveline gaps, round torque tube  |
| Structural connections      | Engineered fastening system, vibration-proof   |
| Materials                   | Galvanized steel; other coatings available   |
| Foundations                 | Complete range of foundation solutions available   |
| Slope                       | Up to 15% N-S and 15% E-W  |
| Ground coverage ratio (GCR) | No specific limit<br>Typical range 25–45%  |
| Operating temperature range | SELF POWERED: $-30^\circ\text{C}$ to $55^\circ\text{C}$ ( $-22^\circ\text{F}$ to $131^\circ\text{F}$ )<br>AC POWERED: $-40^\circ\text{C}$ to $55^\circ\text{C}$ ( $-40^\circ\text{F}$ to $131^\circ\text{F}$ ) |
| Wind speed                  | Configurable up to 240 kph (150 mph) 10m, 3-second gust  |
| Wind protection             | Intelligent wind stowing with symmetric damping system   |

**ELECTRONICS AND CONTROLS**

|                             |   |
|-----------------------------|---|
| Solar tracking method       | Astronomical algorithm with backtracking standard. TrueCapture™ upgrades available for enhanced energy yield  |
| Tracker controller          | Self-Powered Controller (SPC) with integrated inclinometer and UPS  |
| Motor                       | Brushless DC  |
| Power supply                | SELF POWERED: Standalone smart solar power<br>AC POWERED: Customer-provided 120–277 VAC circuit   |
| Communications              | Network control units (NCUs) at inverter pads/skids, self-powered weather stations, centralized data hub, encrypted Zigbee wireless mesh communications |
| Defensive stowing functions | Wind, hail, hurricane, snow, flood, loss of grid power  |
| Operator interface          | NX Navigator advanced HMI available, with SCADA integration   |

**SERVICE, WARRANTY, AND STANDARDS**

|   |   |
|---|---|
| Tracker engineering & PE stamped design package     | Standard  |
| Foundation engineering & PE stamped design package  | Available   |
| Onsite construction support & commissioning service | Available   |
| Warranty  | 10-year structural, 5-year drive and controls standard; extended warranty available |
| Certifications                                      | UL 2703, UL 3703, IEC 62817, CSA  |
| Codes and standards                                 | UL 3703 / UL 2703 / IEC 62817 / CSA   |

