

WABASHA PLANNING COMMISSION

September 12, 2023 6:00 PM

MEETING AGENDA

- 1) Call to Order
- 2) Approval of Minutes-
 - a) PC Minutes 8-8-2023
- 3) Changes or Additions to Agenda
- 4) Public Comment
- 5) Public Hearings
 - a) IUP - SVCSG Wabasha LLC Solar Garden
 - b) IUP - DIVOCSG 13 LLC Solar Garden
- 6) Old Business
- 7) New Business
- 8) Board of Adjustment Business
- 9) Other Business
- 10) Next Regular Meeting Date - October 10, 2023
- 11) Adjourn

Planning Commission

2) a)

Meeting Date: 09/12/2023

SUBJECT: PC Minutes 8-8-2023

DEPARTMENT: Administration

TITLE:

PC Minutes 8-8-2023

PURPOSE:

Attachments

Minutes 8-8-2023

DRAFT

WABASHA PLANNING COMMISSION

August 8, 2023 6:00 PM

MEETING MINUTES

Commission Members: Tim Wallerich, Chair Sara Carrels, Vice Chair
 Scott Durand Sharon Burke
 Ozzie Goodman Jeff Sulla
 Richard Heffner

Present: Scott Durand; Jeff Sulla; Sharon Burke; Sara Carrels; Chair Tim Wallerich; Ozzie Goodman;
 Richard Heffner

Also Kristi Trisko, Contracted City Planner; Wendy Busch, City Clerk
Present:

- 1) Call to Order
The meeting was called to order by Chair Wallerich at 6:00 p.m. Commissioner Heffner introduced himself and was welcomed to the Planning Commission.
- 2) Approval of Minutes
 - a) Approval of Minutes 4-11-2023

Motion made by Scott Durand, seconded by Sara Carrels to approve the meeting minutes, as corrected.
Vote: 7 - 0 Adopted - Unanimously
- 3) Changes or Additions to Agenda
There were no changes or additions to the agenda.
- 4) Public Comment
There were no public comments regarding items not listed on the agenda.
- 5) Public Hearings

- a) 106 Market Street East - Guest Cottage Zimmerman / Penz
Contracted City Planner Kristi Trisko provided background information and referenced the accessory building setback requirements. She described the detached structure and reviewed the intended use for the structure. She noted that the front yard for this home is defined as fronting Market Street. She discussed access to the structure from the alley. She discussed the site visibility triangle for the proposed structure and noted that the City currently does not have site visibility requirements for accessory structures. She summarized discussions with Public Works Director Tony Johnson and Waste Water Treatment Plant Operator Pat Mueller. She stated that Mr. Mueller suggested installing a floor drain with an oil trap separator. Planning Commission members discussed this suggestion. City Planner Trisko discussed the zoning of this area. She reviewed the public hearing notification process. The site plan was referenced, and plumbing plans were clarified.

Chair Wallerich opened the public hearing at 6:10 p.m. The applicants offered to answer any questions. No one spoke during the public hearing. The purpose of the public hearing was discussed. Chair Wallerich closed the public hearing at 6:12 p.m.

The floor drain and oil trap separator were further discussed, and it was clarified that this is not a Code requirement. City Planner Trisko referenced suggested Findings of Fact in support of the project.

Motion made by Scott Durand, seconded by Jeff Sulla to approve the CUP application as submitted, striking the oil trap separator condition.

Vote: 7 - 0 Adopted - Unanimously

- 6) Old Business
There was no old business.
- 7) New Business
Chair Wallerich recessed the Planning Commission meeting at 6:15 p.m.
- 8) Board of Adjustment Business
BOA Chair Durand convened the Board of Adjustment meeting at 6:15 p.m.

Following the vote regarding the meeting minutes, City Planner Trisko discussed upcoming topics of discussion by the Planning Commission and the Board of Adjustment. Chair Durand referenced a proposed variance for the Jewson garage project and suggested researching Shoreland Overlay ordinances in other communities.

- a) BOA Minutes 6-13-2023
BOA Chair Durand referenced the June 13 meeting minutes. A correction was requested.

Motion made by Sara Carrels, seconded by Ozzie Goodman to approve the meeting minutes, as corrected.

Vote: 4 - 0 Adopted - Unanimously

Motion made by Sara Carrels, seconded by Sharon Burke to adjourn the Board of Adjustment meeting. The meeting adjourned at 6:20 p.m.

Vote: 4 - 0 Adopted - Unanimously

- 9) Other Business
Chair Wallerich reconvened the Planning Commission meeting at 6:20 p.m.

- 10) Next Regular Meeting Date - September 12, 2023

- 11) Adjourn

Motion made by Scott Durand, seconded by Sharon Burke to adjourn the meeting. The meeting adjourned at 6:21 p.m.

Vote: 7 - 0 Adopted - Unanimously

Respectfully submitted by: _____
Wendy Busch, City Clerk

Adopted Date

Planning Commission

5) a)

Meeting Date: 09/12/2023

SUBJECT: IUP - SVCSG Wabasha LLC Solar Garden

DEPARTMENT: Administration

TITLE:

IUP - SVCSG Wabasha LLC Solar Garden

PURPOSE:

Attachments

Staff Report

Exhibits



Memorandum

Office of the City Planner

To: Wabasha Planning Commission
From: Kristi Trisko, Consultant Planner
Date: September 5, 2023
Subject: IUP Application – 1 MW Solar Farm Solar Garden

MEETING DATE: September 12, 2023

I. REQUEST:

Applicant: CV CSG Wabasha 1 LLC. (Sunvest Solar)
Owner: Lawrence and Deborah Stegemann
Location: 1712 Hiawatha Drive, R27.00082.00 and R27.00105.00

II. Staff Report

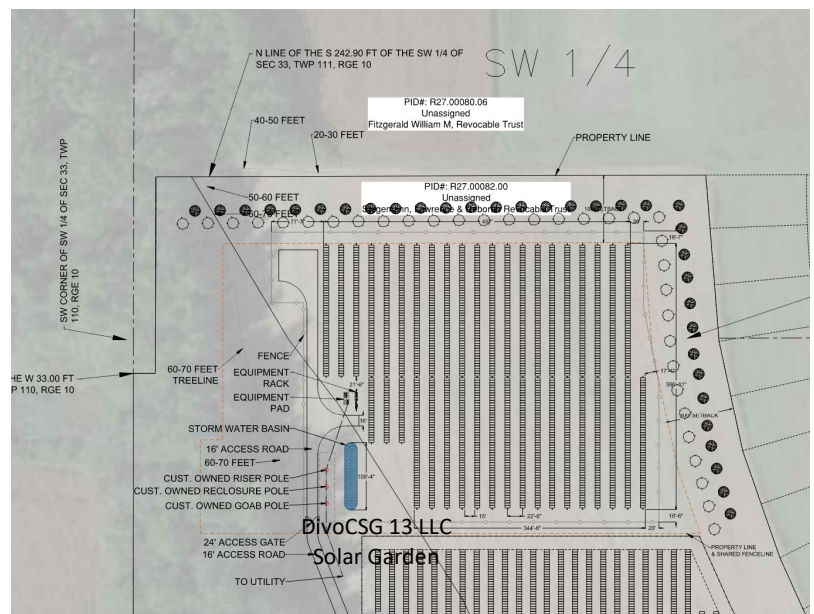
An application for an interim use permit (solar garden) has been submitted by CV CSG Wabasha 1 LLC. (Sunvest) to locate a 1-Megawatt Solar Garden Farm on the northern end of Mr. Stegemann's farm. Sunvest's leased space is approximately 7.6 acres. This solar garden meets the requirements for XCEL's Community Solar Garden program.

Zoning: R-2 (Medium Density Residential – eastern half) RC (Residential Conservancy – western half)

Land Use: Low Density Residential

Setbacks: 100' from residentially zoned parcels and property lines as shown on the east and north property lines on the site plan.

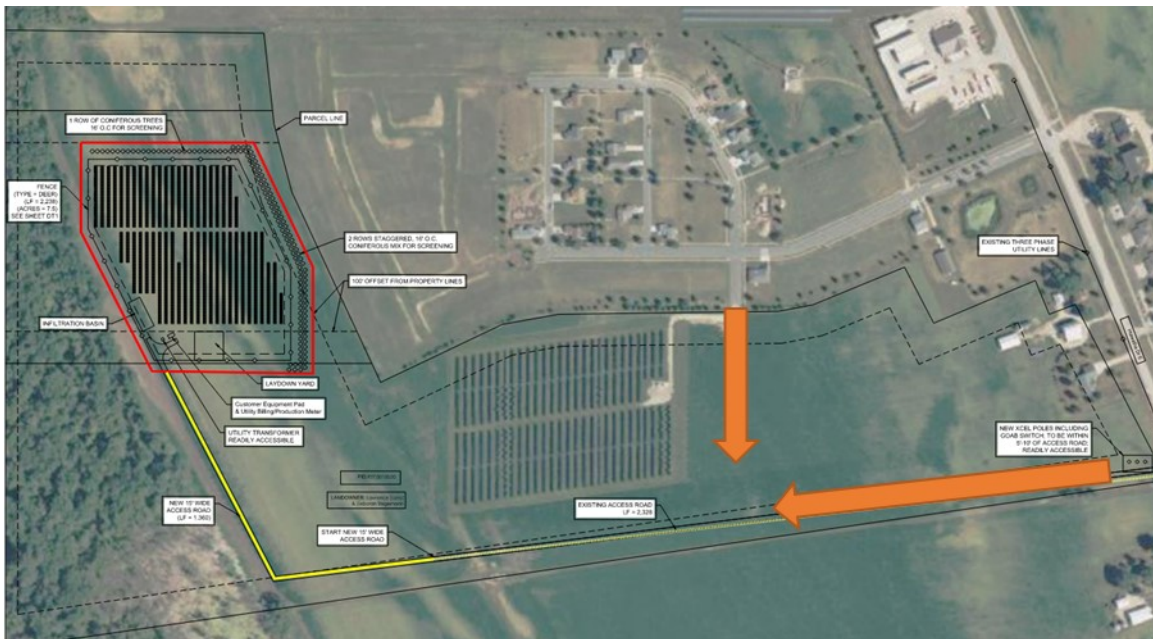
Applicant Request: To allow two (2) years to apply for a building permit due to the complexity of the submittal and additional time to work with XCEL.



Mr. Stegemann's farm was replatted in August 2023 to combine his three lots into one lot, eliminating the lot lines between the existing solar garden south of the site. By eliminating these lot lines, the Gordian and Sunvest sites can be next to each other. See the site plan showing the combined Sunvest and Gordian Solar Farms at the western end of Mr. Stegemann's parcel.

Project Scope:

- The solar garden will consist of solar modules, inverters, steel racking, fencing, access road, one weather station, and interconnection poles. To limit reflection, solar PV panels are constructed of dark and light absorbing materials.
- **Utilities:** All on-site utilities will be buried underground. All electrical equipment is shown on the site plan.
- **Fencing:** The site will include an 8' perimeter fence with a 16' double swing access gate that is 7' in height at the entrance of the site. See the narrative for photos.
- **Timeline:** If approved, the construction would begin fall 2023 or spring 2024 and is intended to be completed by fall 2024.
- **Hours:** Construction hours will be between 7:00 am and 8:00 pm. Large flatbed delivery trucks will be predominantly needed in the first few weeks.
- **Access to the Site:** Access to the site will be from an extension of an existing 15' wide gravel road that is used to access current uses of the site (see attached site plan). An easement will be granted to the applicant for use of these roads.



- **Future Development Note:** While there is no need for public roads at the current time, should the property owner wish to further develop portions of this site, there will be need for public infrastructure. It is anticipated that a local road connection to CR30 (Hiawatha Ave.) would be necessary to support this future development. The alignment of this road is likely to follow the existing access road and intersect with the extension of Majestic Street. Given the long-term nature of the lease arrangement (35-years), staff has communicated the future road network needs to the applicant and owner to ensure easements would not preclude construction.
- **Landscaping:** Two (2) rows of evergreens will be planted along the eastern and northern side of the site. A mixture of Cedar and Pine will be planted and will be 3-4' in height at the time of planning with a maturity height of 30-40'. All species are native to Minnesota.
- **Surrounding Property Uses and Zoning:** The developed properties surrounding the Stegemann Solar Garden are zoned R-2 including the Eagles Basin Residential Subdivision and PUD located just east of the project. Eagles Basin is a single-family home subdivision. The remainder of the Stegemann farm (approximately 64.35 acres) is located to the south and west of the site.
- **Land Use:** The site has a Low-Density Residential land use designation. The adjacent Eagles Basin property has a Medium Density Residential land use designation.
- **Neighborhood Notification:** All property owners within 350' feet of this property were notified more than ten days prior to the public hearing and published in the paper on Tuesday, August 29 2023 stating that a public hearing would be held on September 12, 2023 for this amended interim use permit request.
- **Shoreland and Floodplain:** The property is within the S1 and S2 shoreland overlay zones and along the western edge, within the 100-year floodplain. S1 and S2 allows accessory structures as permitted by the zone. Grading, filling, and excavation are to be minimized, if possible, in these areas. The use of solar gardens/farms in this area will be less impactful to the area than residential development as very little impervious surface coverage will be created.
- **Decommissioning and Restoration Plan:** The project lifetime is estimated at 25-35 years. When the solar garden use is discontinued the panels and all accessory equipment will be removed including all underground cables, fencing, and roads. The area will be re-graded and reseeded. (The Decommissioning Plan is included in the submitted report for full details)
- **Project/IUP Timeline:** The solar garden use ends when the arrays have finished their lifecycle in 25-35 years.

Solar Garden Performance Standards: Zoning District (R1/RC) and Solar Gardens/Farms

1. The maximum height solar arrays per the solar array exhibit is 8'. Given that the site has a vertical elevation change of approximately 33 feet from 675 to 700, allowing each array row to be 8' will be the best way to eliminate 22-foot-tall arrays. The proposed arrays will be screened by the double row of evergreen trees, proposed to be 30-40' in height at maturity.
 - i. *If the Planning Commission agrees with this modified standard, all standards are met.*
2. Solar Structures minimum setback = 100' from property lines; *Standards are met.*
3. Solar structures must be sun-tracking and be placed at the same elevation (per row) to each other.
 - i. *Per the narrative, the tracking system will be installed at X' elevation and will be installed at the same elevation per row of solar panels.*
4. Minimum is 5 acres with a maximum of 30 acres – *Standards are met.*
5. Screening: Solar Garden/Farm shall be screened from view of adjacent residential zoning districts and public roads with native evergreen trees planted in a double staggered row and must be well maintained by the owner
 - i. *A double staggered row of mixed evergreens are shown on the plan on the east and north side of the site and will be planted at 20' on center. Conditions will be placed on the approval for a landscape and maintenance plan to assure that the trees are planted as shown and well maintained.*
 - ii. *In addition, a 8' high perimeter fence will be installed on the site surrounding all solar arrays and equipment with a 7' high security gate.*
6. Abandonment: Any solar garden/farm which is inoperable for 12 months shall be a public nuisance and shall be removed at the owner's expense. A plan outlining the removal of all structures and electrical components as well as financial guarantees will be required as part of the IUP.
 - i. *A Decommissioning and Reconstruction Plan is attached to the narrative and will be included as a condition for approval on this IUP.*
7. Power and Communication Lines: All on-site power and communication lines shall be buried underground on site.
 - i. *All utilities are proposed to be buried. (See attached site plan and narrative)*
8. Jurisdiction: Solar Farms at 50 megawatts or more will be under the jurisdiction of the MN Public Utility Commission.
 - i. *This is a 1-megawatt site.*

Recommended Conditions:

1. All on-site power and communication lines running between solar panels and buildings shall be buried underground on the site.
2. All solar structures must be constructed at least 2' above the BFE (Base Flood Elevation)
3. A construction stormwater permit must be acquired from the MPCA and proof of coverage submitted to the city prior to the start of construction.
4. Documents that must be submitted and approved by the city prior to obtaining a building permit:
 - a. Landscape and Maintenance Plan, including any tree removal
 - b. Grading Plan must be approved by the City Engineer. If the grading plan changes the site plan, an amended site plan must be approved by the Planning Commission.
 - c. Construction SWPPP and Stormwater Management Plan if the project disturbs more than 1-acre
 - d. Certified lease agreements for the site and roadway access
 - e. Financial security to cover the cost of decommissioning and restoration
 - f. Decommission and Restoration Plan (approval only)

III. PLANNING COMMISSION ACTION:

Following are sample resolutions for both approval and denial which may be used by the Planning Commission in their decision.

Sample resolution for approval

Resolution _____
IUP for a Solar Farm at 1712 Hiawatha Drive

WHEREAS, the property addressed 1712 Hiawatha Drive is zoned R2 and RC which allows solar garden/farms as an interim use permit; and

WHEREAS, the proposed property has a land use designation of Low Density Residential; and

WHEREAS, the solar garden/farm use will end when the solar arrays have completed their life cycle in 25-35 years at which time the IUP will end; and

WHEREAS, The Planning Commission provides the following findings:

- a) The zoning and land use allow the construction of a 7-acre Solar Farm
- b) Allowing this IUP will not impact the health, safety & general welfare of the community and neighbors use and enjoyment of property and their property values
- c) All performance standards for a solar garden/farm are met
- d) The proposed use is consistent with the City's Comprehensive Plan
- e) The site the not use city water or sewer
- f) The use will be secured with a perimeter fence
- g) The use will be screened with a double row of evergreen trees along the east and north side of the project
- h) Solar energy is a clean, efficient means of power production that creates no noise, dust, runoff, or nuisance factors, with no moving parts and little maintenance while directly reducing the power needed from other more harmful sources of energy.

NOW THEREFORE, IT IS HEREBY RESOLVED, the Planning Commission approves the Interim Use Permit.

Sample resolution for denial

Resolution _____
IUP for a Solar Farm at 1712 Hiawatha Drive

WHEREAS, the property addressed 1712 Hiawatha Drive zoned Medium Density Residential (R2); and

WHEREAS, an Interim Use Permit is required for a Solar Farm; and

WHEREAS, The Planning Commission provides the following findings: **[insert findings as deemed appropriate]**

- _____

NOW THEREFORE, IT IS HEREBY RESOLVED, the *Planning* Commission denies the Interim Use Permit for a Solar Farm as requested by the applicant, CV CSG Wabasha 1 LLC. (Sunvest Solar)

Project Summary

SV CSG Wabasha 1, LLC ("The Project" or "Wabasha 1 CSG") respectively submits this application for a Interim Use Permit ("IUP") to the Wabasha Planning Commission. Wabasha 1 CSG requests that the Wabasha Planning Commission, upon review, approves for the Project to be permitted, constructed, own and operated by Wabasha 1 CSG. Wabasha 1 CSG is requesting a two-year time period to pull a building permit and establish the Interim Use. For review, the Project's detailed legal description, site plan and other specifications will follow.

The Project will be located west of the intersection of Hiawatha Drive E and 21st Street. Please see site plan later in the document for a location map of the project. The Project will be adjacent to a recently approved 1 MW solar project owned by Gordian Energy Systems. The Project is working on an agreement with Gordian Energy Systems and NEE to use the access road onto Hiawatha Drive E. The Project plans to interconnect to Xcel Energy's local distribution system that is being extended to both other solar projects.

The Project will be marketed as a host for a community solar project under the Minnesota Solar Rewards Program. Under the Program, utility customers may subscribe to a solar project and receive a credit on the monthly electric bill based on the production of the project subscription.

Project Specifications

LOCATION

The Project will be located on the east side of the newly formed parcel legally described as:

A tract of land in Section 4, Township 110 North, Range 10 West, containing 74.7 acres completely enclosed by the following boundaries:

The Westerly boundary extending North to South thereof, being the West line of said Section 4. The easterly boundary extending from North to South thereof, being the center of the Wabasha-Kellogg public highway. The Northerly boundary extending from East to West thereof, being the North line of the land conveyed by Deed of Edward Drury and wife to James E. Brown, recorded in the office of the Register of Deeds for said County in Book 58, Page 287, and the Southerly boundary thereof, being a line extending from the Westerly to the Easterly boundary thereof parallel to said Northerly boundary thereof and distant there from Southerly a sufficient distance to include a tract of land within said boundaries containing said amount of 74.7 acres, all of which said tract of land being more particularly described as follows: Beginning at a point in the West line of said Section No 4, 779 feet South of the Northwest corner of said Section No.4; thence running North 81 degrees East 3,428 feet to the center of the Wabasha-Kellogg road; thence South 22 degrees 30 minutes East along the center of said road, 928 feet; thence South 81 degrees 45 minutes West, 3,778 feet to the West line of said Section; thence North along the West line, 890 feet more or less to the place of beginning, all thereof being in Section 4, Township 110, North of Range 10 West.

Also the following: Beginning at a point in the South line of Section 33 in Township 111 North of Range 10 West, 33 feet East of the Southwest corner of said Section and running thence East along said South line 3,158.6 feet to the center line of the Wabasha-Kellogg road; thence North 24 degrees 13 minutes West along the center of the road, 266.4 feet; thence West 3,081 feet; thence South 242.9 feet to the place of beginning, being a part of the South 242.9 feet of the South Half of the South Half of said Section lying West of the Wabasha-Kellogg road, containing 17.5 acres.

Also beginning at a point in the North, line of said Section 4, 33 feet East of the Northwest corner of said Section; thence East on said North line, 3,191.6 feet to the center of the Wabasha-Kellogg road; thence South 24 degrees and 13 minutes East 343.1 feet; thence South 82 degrees and 21 minutes West, 3,402 feet to the West line of said Section; thence North 0 degrees 22 minutes East along said West line, 738.7 feet; thence East 33 feet; thence North 0 degrees 22 minutes East 49.5 feet to the place of beginning,

being that part of the North Half of the North Half of said Section 4 lying West of the Wabasha-Kellogg road and containing 42.5 acres.

EXCEPT that portion of the above described legal description which lies within the right of way boundary of County Aid Highway No. 30 as delineated and platted in Wabasha County Right of Way Plat No. 10 according to the recorded plat thereof, filed in the Wabasha County Recorder's Office.

The property acquired herein is designated as parcel No, 13 on said Wabasha County Right of Way Plat No. 10. The area of said parcel 13 except existing right of way previously acquired by written instrument or by prescription, is 0.28 acres, more or less as found in Quit Claim Deed dated May 2, 1991 filed April 7, 1992 as Document No. 198045 executed by Douglas W. Stegeman, single, Lawrence W. Stegeman and Deborah Stegeman, husband and wife, to Wabasha County.

ALSO EXCEPT That part of the Northwest Quarter of the Northeast Quarter of Section 4, Township 110 North, Range 10 West, Wabasha, Minnesota, described as follows: Commencing at the northwest corner of said Northwest Quarter of the Northeast Quarter of Section 4: thence North 89 degrees 48 minutes 17 seconds East assumed bearing along the north line of the Northeast Quarter of said Section 4, a distance of 617.11 feet; thence South 00 degrees 11 minutes 43 seconds East, a distance of 520.76 feet to the point of beginning of the land to be described; thence South 18 degrees 44 minutes 21 seconds East, a distance of 163.74 feet; thence North 71 degrees 26 minutes 28 seconds East, a distance of 148.87 feet to the southwesterly right of way boundary line of County Road No. 30, as plotted and designated on WABASHA COUNTY RIGHT OF WAY PLAT NO. 10, according to the recorded plot thereof; thence North 22 degrees 00 minutes 19 seconds West, along said southwesterly right of way boundary line, a distance of 172.67 feet to the intersection with a line bearing North 67 degrees 53 minutes 42 seconds East from the point of beginning; thence South 67 degrees 53 minutes 42 seconds West, a distance of 139.28 feet to the point of beginning. Containing 0.56 acres, more or less.

ALSO EXCEPT That part of the Northwest Quarter and that part of the Northeast Quarter all in Section 4, Township 110 North, Range 10 West, and that part of Southwest Quarter all in Section 33, Township 111 North, Range 10 West, Wabasha County, Minnesota, described as follows:

Commencing at the northwest corner of the Northeast Quarter of said Section 4; thence North 89 degrees, 48 minutes ,17 seconds East, assumed bearing, along the north line of the Northeast Quarter of said Section 4, a distance of 617.11 feet; thence South 0 degrees 11 minutes, 43 seconds East, a distance of 520.76 feet to the point of the beginning of the land to be described; thence South 67

degrees, 53 minutes, 42 seconds West, a distance of 226.21 feet; thence North 24 degrees, 37 minutes, 31 seconds West, a distance of 199.44 feet; thence South 65 degrees, 22 minutes, 29 seconds West, a distance of 375.00 feet; thence South 70 degrees, 08 minutes, 04 seconds West, a distance of 92.94 feet; thence South 80 degrees, 24 minutes, 03 seconds West, a distance of 104.72 feet; thence South 89 degrees, 48 minutes, 45 seconds West, a distance of 643.11 feet; thence South 83 degrees, 18 minutes, 58 seconds West, a distance of 138.52 feet; thence South 72 degrees, 02 minutes, 06 seconds West, a distance of 138.72 feet; thence South 63 degrees, 32 minutes, 12 seconds West, a distance of 360.00 feet; thence North 26 degrees, 27 minutes, 48 seconds West, a distance of 490.81 feet; thence North 24 degrees, 12 minutes, 52 seconds West, a distance of 83.95 feet; thence North 19 degrees, 13 minutes, 47 seconds West, a distance of 168.37 feet; thence North 12 degrees, 05 minutes, 22 seconds West, a distance of 167.60 feet; thence North 4 degrees, 33 minutes, 06 seconds West, a distance of 248.19 feet to the north line of the south 242.9 feet of said Section 33; thence North 89 degrees, 48 minutes, 45 seconds East, along the north line of the south 242.9 feet of said Section 33, a distance of 1377.98 feet; thence South 30 degrees, 11 minutes, 43 seconds East, a distance of 463.28 feet; thence North 65 degrees, 22 minutes, 29 seconds East, a distance of 345.79 feet to the southwesterly line of the Reinhardt property, as described in Wabasha County document number 184686, recorded in book 168 of deeds, page 448; thence South 24 degrees, 37 minutes, 31 seconds East, along the southwesterly line of said Reinhardt property, a distance of 202.81 feet to the most southerly corner of said Reinhardt property; thence North 65 degrees, 22 minutes, 29 seconds East, along the southeasterly line of said Reinhardt property, a distance of 383.02 feet to the southwesterly right of way boundary line of County Road Number 30, as platted and designated in WABASHA COUNTY RIGHT OF WAY PLAT NO. 10, according to the recorded plat thereof; thence South 24 degrees, 41 minutes, 13 seconds East, along said southwesterly right of way boundary line, a distance of 94.58 feet; thence southeasterly a distance of 265.82 feet along said southwesterly right of way boundary line, being a tangential curve concave to the southwest having a radius of 5679.58 feet and a central angle of 2 degrees, 40 minutes, 54 seconds; thence South 22 degrees, 00 minutes, 19 seconds East, along said southwesterly right of way boundary line and tangent to the last described curve, a distance of 108.31 feet to the intersection with a line bearing North 67 degrees, 53 minutes, 42 seconds East from the point of beginning; thence South 67 degrees, 53 minutes, 42 seconds West, a distance of 139.28 feet to the point of beginning. Containing 39.51 acres, more or less.

ALSO EXCEPT Lot 1, Kuk Addition to the City of Wabasha according to the plat thereof on file and of record as Document No. 333406 Public Records, in the Office of the Wabasha County Recorder in and for said Wabasha County, Minnesota.

ALSO EXCEPT all the Tract or Parcel of land located in the County of Wabasha and State of Minnesota, described as follows, to-wit:

Located in part of the Northwest Quarter of the Northeast Quarter (NW1/4 NE1/4) of Section 4, Township 110 N and part of the Southwest Quarter of the Southeast Quarter (SW1/4 SE1/4) of Section 33, Township 111 N, all in Range 10 West in the City and County of Wabasha, Minnesota, described as: Beginning at a point at the intersection of the centerline of CSAH No. 30 (formerly U.S. Hwy. No. 61) and the South line of Section 33, Township 111 N, R 10 W, City of Wabasha; thence go North 24 degrees 13 minutes West, 266.4 feet along said center line to a point; thence North 89 degrees 47 minutes, 12 seconds West, 475.56 feet to an iron stake; thence South 24 degrees 13 minutes 00 seconds East, 481.86 feet to an iron stake; thence North 65 degrees 47 minutes 00 seconds East, 433.0 feet to a point and said center line of CSAH No. 30; thence North 24 degrees 13 minutes 00 seconds West, 18.77 feet along said centerline to the point of beginning. Being a part of the land described in Book 132, Page 237. Containing 3.59 acres excluding highway.

OWNERSHIP

Wabasha 1 CSG, LLC will be the Applicant, developer, owner and operator of the Project and has a long-term lease with the landowner to operate the project.

PROJECT FACILITIES

The Project facilities will include: Solar modules, inverters, steel racking, fencing, access road, one weather station, and interconnection poles. The project footprint is approximately 7.6 acres. Wabasha 1 CSG selected the specific development area based on available land use guidance, significant landowner interest, interconnection suitability and optimal solar resource.

SETBACKS

	City Requirements	Proposed Setback
Solar Structures Setback	100 feet	100 feet

CONSTRUCTION

It is anticipated that construction of the Project will begin in the Fall of 2023 or the Spring of 2024 with intended completion of Q3 2024. Traffic during construction is estimated to a total of 25-35 trucks on the on-set of construction and tapering off thereafter. Traffic will include employees, pickup trucks, semi-trailers for delivery of equipment and other machinery. No overweight or over-sized loads are

anticipated for the Project. The power lines running between the solar panels will be underground.

LANDSCAPING

Two rows of ever green trees spaced 20 feet apart will run along the east and north side of the array to screen from residential neighborhood. The trees will be a mix of Eastern Red Cedar and Eastern White Pine. The Eastern Red Cedar will be 3 to 4 feet tall planted using a 5 to 7 gallon size pot, and the mature height is 30 to 40 feet. The White Pine will be 3 to 4 feet tall using a 3 to 5 gallon pot. Both trees are native to Minnesota.

STORMWATER

The Project will adhere to the Minnesota Environmental Protection Agency Construction Stormwater Permit requirements, including obtaining a SWPPP permit and following the state's national pollutant discharge elimination system (NPDES) and the state disposal system (SDS) standards for sediment control. The MPCA solar panel calculator sheet was used to determine the size of the proposed drainage basin, and is projected to be the only grading on the site.

PROJECT COMPONENTS

Panel Type

- Photovoltaic Panels

Panel Size

- Approximately 4 feet x 3 feet

Panel Height

- Approximately 8 feet

Panel Material

- Glass covering
- Aluminum frame
- Weatherized plastic backing

Racking

- Galvanized steel for pipes & frame

Inverter & Transformers

- Enclosed cabinets approximately 8 feet tall

Access Roads

- Short gravel roads to get to inverter/transformer just inside the fenced area

Safety

- Tempered glass solar panel covers, security fence, security camera

STEEL PIERS



TRACKING SYSTEM SCHEMATIC



AESTHETICS

To limit reflection, solar PV panels are constructed of dark, light-absorbing materials. Today's panels reflect as little as two percent of the incoming sunlight depending on the angle of the sun and assuming use of anti-reflective coatings.

The use of a tracking system will limit the height of the project to less than 10 feet. The Project will establish a native grass turf inside the fence, along with a pollinator friendly seed mix around the perimeter of the project. Additionally, landscaping will be provided along the eastern perimeter of the Project.

LIGHTING

The Project does not anticipate having any lighting on-site. In the event security conditions arise that would require lighting, each light would be directed downward.

OPERATIONS AND MAINTENANCE

The Project will be operated and maintained by Wabasha 1 CSG. It is anticipated there will be monthly and quarterly inspections of all equipment, vegetation management as well as snow removal as necessary. Seed mixes for the native and pollinator-friendly grasses will be finalized prior to start of construction. Pending final stormwater design, a third seed mix could be in play should a wetland be delineated on-site.

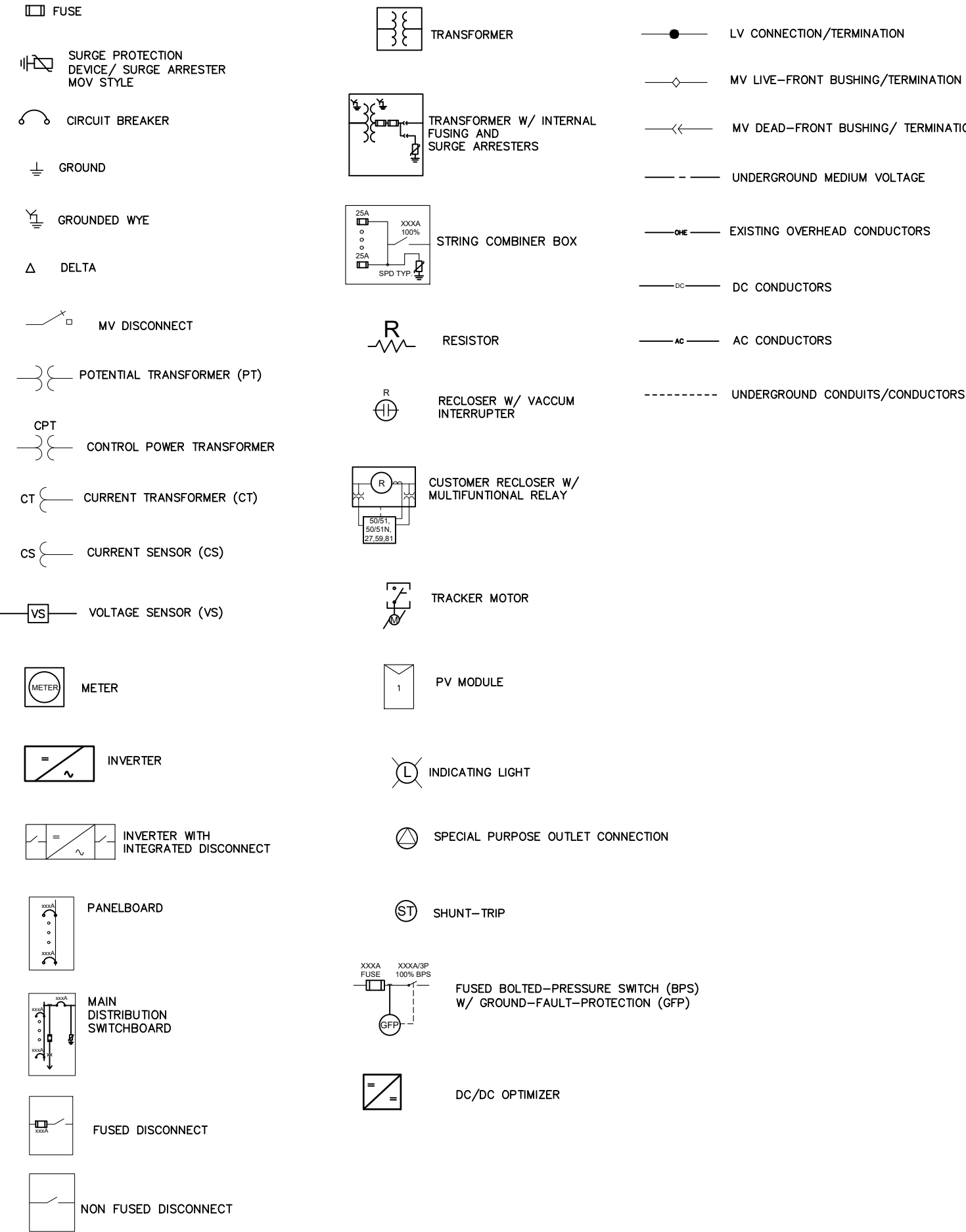
DECOMMISSIONING PLAN

A financial guarantee in the form of a bond, letter of credit or cash escrow to ensure equipment removal at the end of the project life will be attained as part of the building permit application. The decommissioning plan details are further down in the application.

CONCLUSION

The Project as designed and planned complies with the City of Wabasha Code and Interim Use Permit application process. The Project will work closely with the landowner and engage with the surrounding neighbors as necessary as the project progresses towards construction. The project respectfully requests the City of Wabasha Planning Commission approve the Interim Use Permit with a two-year window to pull a building permit and to establish the use.

SYMBOL LEGEND:



GENERAL NOTES:

1. GENERAL REQUIREMENTS:

- 1.1 THE WORK TO BE DONE UNDER THIS PROJECT INCLUDES PROVIDING ALL EQUIPMENT, MATERIALS, LABOR AND SERVICES NOT INCLUDED IN THE B.O.M. AND PERFORMING ALL OPERATIONS FOR COMPLETE AND OPERATING SYSTEMS. ANY WORK NOT SPECIFICALLY COVERED BUT NECESSARY TO COMPLETE THIS INSTALLATION, SHALL BE PROVIDED. ALL EQUIPMENT AND WIRING TO BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS OTHERWISE NOTED.

1.2 ENTIRE INSTALLATION, INCLUDING MATERIALS, EQUIPMENT AND WORKMANSHIP, SHALL CONFORM TO THE CURRENT EDITION OF THE NATIONAL ELECTRIC CODE (NEC) AS WELL AS ALL APPLICABLE LAWS AND REGULATIONS AND REGULATORY BODIES HAVING JURISDICTION OVER THIS WORK:

1.3 THE TERM "FURNISH" SHALL MEAN TO OBTAIN AND SUPPLY TO THE JOB SITE. THE TERM "INSTALL" SHALL MEAN TO FIX IN POSITION AND CONNECT FOR USE. THE TERM "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL. THE TERM "CONTRACTOR" SHALL MEAN ELECTRICAL CONTRACTOR.

1.4 ONLY WRITTEN CHANGES AND/OR MODIFICATIONS APPROVED BY THE ENGINEER, CONSULTING ENGINEER OR OWNER'S REPRESENTATIVE WILL BE RECOGNIZED.

1.5 THE ELECTRICAL CONTRACTOR SHALL SUBMIT, FOR THE ENGINEER'S APPROVAL, DETAILED SHOP DRAWINGS OF ALL EQUIPMENT SPECIFIED.

1.6 CONTRACTOR SHALL COORDINATE WITH SPECIFICATIONS PROVIDED BY OTHER TRADES.

1.7 PROVIDE OPERATING AND MAINTENANCE MANUALS, PER SPECIFICATIONS, AND GIVE INSTRUCTIONS TO USER FOR ALL EQUIPMENT AND SYSTEMS PROVIDED UNDER THIS CONTRACT AFTER ALL ARE CLEANED AND OPERATING.

1.8 KEEP PREMISES FREE FROM RUBBISH. REMOVE ALL ELECTRICAL RUBBISH FROM SITE.

1.9 ALL WORK SHALL BE INSTALLED CONCEALED UNLESS OTHERWISE NOTED.

1.10 THE WORK SHALL INCLUDE ALL PANELS, DEVICES, FEEDERS AND BRANCH CIRCUIT WIRING AS REQUIRED FOR THE DISTRIBUTION SYSTEM INDICATED AND CALLED FOR ON THE DRAWINGS, REQUIRED BY SPECIFICATIONS AND AS NECESSARY FOR COMPLETE FUNCTIONAL SYSTEMS PRESENTED AND INTENDED.

1.11 THE CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR, TOOLS, EQUIPMENT, CONSUMABLES AND SERVICES REQUIRED FOR OBTAINING, DELIVERY, INSTALLATION, CONNECTION, DISCONNECTION, REMOVAL, RELOCATION, REPAIR, REPLACEMENT, TESTING AND COMMISSIONING OF ALL EQUIPMENT AND DEVICES INCLUDED IN OR NECESSARY FOR THE WORK, AS APPLICABLE. THIS INCLUDES SCAFFOLDING, LADDERS, RIGGING, HOISTING, ETC.

1.12 ELECTRICAL WORK SHALL INCLUDE ALL REQUIRED CUTTING, PATCHING AND THE FULL RESTORATION OF WALL AND FLOOR STRUCTURE AND SURFACES. ALL EQUIPMENT, WALLS, FLOORS, ETC., DISTURBED OR DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER, AT THE CONTRACTORS EXPENSE.

1.13 BEFORE SUBMITTING HIS BID, THE CONTRACTOR SHALL FULLY AQUAINT HIMSELF/HERSELF WITH THE JOB CONDITIONS AND DIFFICULTIES THAT WILL PERTAIN TO THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED, WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.

1.14 THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING UTILITIES.

1.15 UPON COMPLETION OF THE ELECTRICAL WORK, THE CONTRACTOR SHALL TEST THE COMPLETE ELECTRICAL SYSTEM FOR SHORTS, GROUNDS, AND PROPER OPERATION, IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE.

1.16 UPON COMPLETION OF WORK, THE CONTRACTOR SHALL CLEAN AND ADJUST ALL EQUIPMENT AND LIGHTING AND TEST SYSTEMS TO THE SATISFACTION OF OWNER AND ENGINEER. RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

1.17 THE CONTRACTOR SHALL FIELD VERIFY DIMENSIONS OF FINISHED CONSTRUCTION PRIOR TO FABRICATION AND INSTALLATION OF FIXTURES AND EQUIPMENT.

1.18 EXACT ROUTING OF CONDUITS AND "MC" CABLES SHALL BE DETERMINED IN THE FIELD.

1.19 IF THE OWNER AND/OR HIS REPRESENTATIVE CONSIDERS ANY WORK TO BE INFERIOR, THE RESPECTIVE CONTRACTOR SHALL REPLACE SAME WITH CONTRACT STANDARD WORK WITHOUT ADDITIONAL CHARGE. ALL WORK SHALL BE DONE IN A NEAT, WORKMANLIKE MANNER, LEFT CLEAN AND FREE FROM DEFECTS, AND COMPLETELY OPERABLE.

1.20 THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AS SHOWN ON THE DRAWINGS AND/OR AS SPECIFIED. ALL MATERIALS SHALL BE NEW, AND BEAR THE UL LABEL. ALL WORK SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.

1.21 DRAWINGS ARE TO BE CONSIDERED DIAGRAMMATIC, AND SHALL BE FOLLOWED AS CLOSELY AS CONDITIONS ALLOW TO COMPLETE THE INTENT OF THE CONTRACT. THE DRAWINGS AND SPECIFICATIONS COMPLIMENT ONE ANOTHER, AND WHAT IS SHOWN ON THE DRAWINGS AND NOT MENTIONED IN THE SPECIFICATIONS, AND VICE VERSA, IS TO BE INCLUDED IN THE SCOPE OF WORK.

1.22 ALL EQUIPMENT CONNECTIONS SHALL BE INSTALLED PER APPLICABLE SEISMIC REQUIRMENTS.

1.23 ENGINEER WILL MAKE A FINAL INSPECTION WITH THE OWNER AND CONTRACTOR AND WILL NOTIFY THE CONTRACTOR IN WRITING OF ALL PARTICULARS IN WHICH THIS INSPECTION REVEALS THAT THE WORK IS INCOMPLETE OR DEFECTIVE. THE CONTRACTOR SHALL IMMEDIATELY TAKE SUCH MEASURES AS ARE NECESSARY TO COMPLETE SUCH WORK OR REMEDY SUCH DEFICIENCIES.

1.24 THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, TRENCHING AND BACKFILL REQUIRED FOR ELECTRICAL WORK. BACKFILL SHALL BE SUITABLE MATERIAL PROPERLY COMPACTED TO 95% DENSITY IN EACH LAYER OF SIX (6) INCH DEPTH. CONDUIT SHALL BE MINIMUM 30" BELOW FINISHED GRADE.

4181' TO HIAWATHA DR E
CASE #:04190856
SITE LAT: 44.365853
SITE LONG: –92.027339
POI LAT: 44.362358
POI LONG: –92.015181
SUBSTATION: WABASHA

UTILITY CUSTOMER OF RECORD:
SV CSG WABASHA I LLC

GARDEN NAME:
BENEKE SOLAR

LICENSED ELECTRICAL ENGINEER certifies that they prepared all the electrical "E" sheets in this drawing set.
LICENSED STRUCTURAL ENGINEER certifies that they prepared all of the structural "S" sheets in this drawing set.
LICENSED CIVIL ENGINEER certifies that they prepared all of the civil "C" sheets in this drawing set.
It should be noted that any plan sheets not identified above have been prepared and certified by others and have been included herein for informational purposes only.

F	5/18/23	L	
E	5/15/23	K	
D	5/2/23	J	
C	3/7/23	I	
B	1/31/23	H	
A	1/16/23	G	8/25/23
REV	DATE	REV	DATE
DRAWN BY: TG		CHECKED BY: CHKR	
SCALE: AS NOTED		JOB NO: 01388	

SV CSG WABASHA I LLC

WABASHA COUNTY
(44.365853, –92.027339)

SHEET TITLE

GENERAL NOTES

DWG. NO.

12
G-1.00

GENERAL NOTES:

2. PROJECT COORDINATION:

- 2.1 THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS AT THE SITE AND NOTIFY THE OWNER OF ANY DISCREPANCIES, PRIOR TO COMMENCING WITH THE WORK.
- 2.2 THE CONTRACTOR SHALL REVIEW AND COORDINATE WITH THE DOCUMENTS OF ALL TRADES.
- 2.3 THE CONTRACTOR SHALL FURNISH A SCHEDULE INDICATING HIS PORTION OF TIME, WITHIN THE OVERALL SCHEDULE, REQUIRED TO COMPLETE THE WORK, IN CONJUNCTION WITH ALL TRADES. ALL WORK THAT MAY AFFECT OPERATION OF BUILDING SYSTEMS SHALL BE COORDINATED WITH THE OWNER’S REPRESENTATIVE.
- 2.4 SHUT DOWN OF POWER SHALL BE COORDINATED WITH THE OWNER, ARCHITECT AND PROJECT MANAGER AT LEAST 14 WORKING DAYS PRIOR TO SHUT DOWN. SHUT DOWNS LONGER THAN 2 DAYS SHALL BE COORDINATED WITH THE ABOVE PERSONNEL AT LEAST ONE MONTH IN ADVANCE. TEMPORARY POWER FOR CONSTRUCTION SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR FOR SHUT DOWNS OVER 2 DAYS.
- 2.5 ALL CONDUITS AND DEVICE BOXES SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR, INCLUDING ALL TECHNOLOGY CONDUITS AND BOXES.
- 2.6 EXACT LOCATIONS OF OUTLETS AND EQUIPMENT SHALL BE COORDINATED WITH ARCHITECTURAL AND MILLWORK PLANS. ALL OUTLET AND EQUIPMENT LAYOUTS SHALL BE VERIFIED AND COORDINATED WITH WORK OF OTHER TRADES.
- 2.7 PROVIDE TEMPORARY LIGHTING AND POWER IN ACCORDANCE WITH ARTICLE 305 OF THE NEC. TEMPORARY LIGHTING FIXTURES IN UNFINISHED AREAS SHALL REMAIN CONNECTED UNTIL REMOVAL IS REQUESTED BY THE CONTRACTOR.
- 2.8 THE CONTRACTOR SHALL CONTACT THE BUILDING MANAGER TO OBTAIN A COPY OF THE GENERAL REQUIREMENTS AND/OR CONDITIONS TO BE USED FOR THIS PROJECT.

3. CONNECTORS:

- 3.1 DO NOT CROSS MATE CONNECTORS ON ANY SYSTEM. ENSURE THAT CONNECTOR SELECTION MEETS THE LEGAL BASIS THE EXCLUDE CROSS–CONNECTIONS OF:
- PRODUCT NORMS ((IEC 62852 (EN62852)) AND UL 6703 PRODUCT NORM RESP. UL 1703 MODULE NORM
 - INSTALLATION NORMS AND LOCAL REGULATIONS
 - ASSEMBLY INSTRUCTIONS OF THE MANUFACTURER
- VALID PV STANDARDS (IEC 60364–7–712:2017; E343181) STATE THAT "MALE AND FEMALE CONNECTORS [...] SHALL BE OF THE SAME TYPE FROM THE SAME MANUFACTURER" AND THAT UL CERTIFICATION FOR CONNECTORS ONLY APPLIES IF PRODUCTS FROM THE SAME PRODUCT FAMILY HAVE BEEN MATED

4. WARRANTIES:

- 4.1 ALL MATERIALS AND EQUIPMENT SHALL BE GUARANTEED IN WRITING FOR A MINIMUM OF ONE YEAR AFTER FINAL ACCEPTANCE BY OWNER.
- 4.2 WORKMANSHIP SHALL BE GUARANTEED IN WRITING FOR A MINIMUM OF 5 YEARS AFTER FINAL ACCEPTANCE BY OWNER
- 4.3 OBTAIN AND DELIVER TO THE OWNER’S REPRESENTATIVE ALL GUARANTEES AND CERTIFICATES OF COMPLIANCE.

5. PERMITS:

- 5.1 CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTION FEES FOR ELECTRICAL WORK.

6. RACEWAYS:

- 6.1 ALL CONDUIT SHALL BE MINIMUM SIZE OF 1/2” FOR POWER CIRCUITS AND CONTROL CIRCUITS EXCEPT WHERE FLEXIBLE CONDUIT IS CALLED FOR ON PROJECT DOCUMENTS. ALL EXTERIOR EXPOSED CONDUIT SHALL BE PVC. ALL UNDERGROUND, IN SLAB OR UNDER SLAB SHALL BE SCH. 40 PVC. CHANGE TO SCH. 80 PVC CONDUIT BEFORE EXITING OUT OF UNDERGROUND SECTIONS. EMT IS ALLOWED IN INTERIOR DRY LOCATIONS WHERE NOT SUBJECT TO DAMAGE.
- 6.2 ALL FLEXIBLE CONDUIT IN WET OR DRY AREAS SHALL BE LIQUID TIGHT CONDUIT. NONMETALLIC FLEXIBLE CONDUIT IS SPECIFICALLY PROHIBITED.
- 6.3 CONDUIT SHALL BE RUN AT RIGHT ANGLES AND PARALLEL TO BUILDING LINES, SHALL BE NEATLY RACKED AND SECURELY FASTENED. JUNCTION BOXES SHALL BE PROVIDED WHERE REQUIRED TO FACILITATE INSTALLATION OF WIRES.
- 6.4 ALL CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN AN APPROVED MANNER.
- 6.5 ALL EMPTY RACEWAYS SHALL BE FURNISHED WITH A 200 LB. TEST NYLON DRAG LINE.
- 6.6 ARRANGEMENT OF CONDUIT AND EQUIPMENT SHALL BE AS INDICATED, UNLESS MODIFICATION IS REQUIRED TO AVOID INTERFERENCES.
- 6.7 ALL RACEWAY AND WIRING SHALL BE CONCEALED IN FINISHED AREAS. RACEWAY IN MECHANICAL ROOMS, BASEMENTS AND CRAWL SPACES MAY BE SURFACE MOUNTED.
- 6.8 FOR CONDUITS CROSSING EXPANSION JOINTS, PROVIDE EXPANSION FITTINGS FOR SIZE 1–1/4”, AND LARGER. PROVIDE SECTIONS OF FLEXIBLE CONDUIT WITH GROUNDING JUMPERS FOR SIZES 1” AND SMALLER.
- 6.9 THE CONTRACTOR SHALL SEAL ALL PENETRATIONS THROUGH FIRE RATED WALLS AND FLOORS WITH APPROVED FIRE RATED SEALANT. ALL PENETRATIONS THROUGH ALL WALLS AND FLOORS SHALL BE SEALED. FOR ALL SLAB PENETRATIONS THE METHOD, DEPTHS AND LOCATIONS SHALL BE PRE–APPROVED BY THE BUILDING ENGINEER PRIOR TO THE START OF WORK.
- 6.10 THE CONTRACTOR SHALL INSTALL DETECTABLE UNDERGROUND TAPES FOR THE PROTECTION, LOCATION AND IDENTIFICATION OF UNDERGROUND CONDUIT INSTALLATION.
- 6.11 EXACT ROUTING OF CONDUITS AND CABLES SHALL BE DETERMINED IN FIELD.
- 6.12 ALL PENETRATIONS THROUGH FLOORS SHALL BE FIRE STOPPED AND SEALED WITH APPROVED SEALANT.
- 6.13 ELECTRICAL RACEWAY CONNECTIONS TO VIBRATING EQUIPMENT AND MACHINERY, SHALL BE MADE WITH FLEXIBLE LIQUID TIGHT METALLIC CONDUIT.
- 6.14 SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS IN HOLLOW MASONRY, EXPANSION SHIELDS OR INSERTS IN CONCRETE AND BRICK. MACHINE SCREWS IN METAL, BEAM CLAMPS IN FRAMEWORK AND WOOD SCREWS IN WOOD. NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO BUILDING LINES.
- 6.15 DO NOT RUN RACEWAYS CLOSER THAN 6 INCHES WHEN PARALLEL TO HOT WATER OR STEAM PIPES. WHEN CROSSING WATER OR STEAM PIPES CROSS A MINIMUM OF 3 INCHES ABOVE. IF CROSSING BELOW IS UNAVOIDABLE, PROVIDE DRIP SHIELDS EXTENDING 6 INCHES BEYOND THE WATER OR STEAMPIPE. BOXES INSTALLED IN PROXIMITY TO WATER OR STEAM PIPE SHALL BE RATED NEMA 4X.

7. BOXES:

- 7.1 INTERIOR JUNCTION BOXES SHALL BE SHEET STEEL. EXTERIOR JUNCTION BOXES SHALL BE NONMETALLIC, WITH SCREW COVERS. BOXES SHALL BE SUPPORTED INDEPENDENTLY OF CONDUITS.

8. WIRING:

- 8.1 ALL WIRE SHALL BE MADE OF COPPER WITH INSOLATION SUITABLE FOR THE APPLICABLE ENVIROMENT AND VOLTAGE. CONTRACTOR SHALL GET APPROVAL FOR ANY OTHER WIRE TYPE.
- 8.2 UNDER NO CIRCUMSTANCES SHALL FEEDERS BE SPLICED.
- 8.3 ALL ELECTRICAL TERMINAL TEMPERATURE RATINGS ASSUMED TO BE 75° C UNLESS SITE CONDITIONS REQUIRE OTHERWISE.
- 8.4 WIRE SIZES SHALL BE INCREASED WHERE NECESSARY TO LIMIT AC VOLTAGE DROP TO 1.5% TOTAL FROM INVERTER TO POINT OF COMMON COUPLING

9. GROUNDING:

- 9.1 PROVIDE A COMPLETE EQUIPMENT GROUND SYSTEM FOR THE ELECTRICAL SYSTEM AS REQUIRED BY ARTICLE 250 AND 690, OF THE NEC, AND AS SPECIFIED HEREIN.
- 9.2 ALL BRANCH CIRCUITS AND FEEDERS FOR POWER WIRING SHALL CONTAIN A COPPER GROUND WIRE. NO FLEXIBLE METAL CONDUIT OF ANY KIND OR LENGTH SHALL BE USED AS THE EQUIPMENT GROUNDING CONDUCTOR.

10. MECHANICAL SYSTEMS POWER:

- 10.1 DISCONNECT SWITCHES SHALL BE HEAVY DUTY, QUICK MAKE, QUICK BREAK TYPE, ENCLOSED IN A HEAVY SHEET METAL ENCLOSURE WITH HINGED INTERLOCKING COVER, IN PROPER NEMA RATED ENCLOSURES. FUSED OR NON–FUSED AS REQUIRED. DISCONNECT SWITCHES SHALL BE PROVIDED BY CONTRACTOR, EXCEPT AS NOTED ON DRAWINGS.
- 10.2 THE RATING FOR DISCONNECT SWITCHES SHALL BE THE SAME AS, OR GREATER THAN, THE PROTECTIVE DEVICE SERVING THE EQUIPMENT.
- 10.3 A STRUT FRAME SHALL BE PROVIDED AT ALL LOCATIONS WHERE STRUCTURE WILL NOT ADEQUATELY SUPPORT EQUIPMENT, OR FOR FREESTANDING EQUIPMENT.

11. PANEL BOARDS:

- 11.1 PANELBOARDS: SWITCHING UNITS SHALL BE 3 PHASE, 4 WIRE CIRCUIT BREAKER TYPE UNLESS OTHERWISE NOTED. BUS BARS SHALL BE HARD DRAWN COPPER, MINIMUM 98% CONDUCTIVITY, AND SILVER OR TIN–PLATED JOINTS. CABINETS SHALL BE GALVANIZED SHEET STEEL BACK BOX, WITH DOOR AND TRIM AND LAPPED AND WELDED CORNERS. HARDWARE SHALL BE CHROME–PLATED WITH FLUSH LOCK/LATCH HANDLE ASSEMBLY (UP TO 48 IN. HIGH DOORS) OR VAULT HANDLE, LOCK AND 3–POINT CATCH (LARGER THAN 48 IN. HIGH DOORS). HINGES SHALL BE SEMI–CONCEALED, 5–KNUCKLE STEEL WITH NONFERREROUS PINS, 180–DEG OPENING, LOCATED A MAXIMUM 26 IN. ON CENTERS. PROVIDE DOOR–IN–DOOR CONSTRUCTION. MINIMUM GUTTER SPACES FOR LIGHTING PANELS SHALL BE 5– BOTTOM. DIRECTORY HOLDER SHALL BE METAL FRAME WITH CLEAR PLASTIC, TRANSPARENT COVER.
- 11.2 PROVIDE A NEW TYPE WRITTEN CIRCUIT DIRECTORY FOR EACH PANEL AFFECTED BY THIS PROJECT.
- 11.3 WHEREVER POSSIBLE, PANELBOARDS SHALL BE RECESSED IN WALL. SURFACE MOUNTED PANELBOARDS SHALL BE MOUNTED ON A PLYWOOD BACKBOARD. PLYWOOD SHALL BE MOUNTED ON TOP OF GYPSUM BOARD. PLYWOOD SHALL BE PAINTED ON ALL SIDES AND EDGES. COORDINATE WITH OWNER FOR COLOR.
- 11.4 PROVIDE LIGHTNING SURGE PROTECTION FOR MAIN SWITCHBOARD OR MAIN SERVICE PANEL BOARD. PROVIDE GROUNDING OF SURGE DEVICE PER THE NEC.
- 11.5 CONTRACTOR IS RESPONSIBLE FOR BALANCING LOADS ON ALL PHASES AND MAY ALTER ASSIGNMENT OF CIRCUITS FOR BALANCING PHASES.
- 11.6 CIRCUIT SCHEDULES ARE INTENDED TO REPRESENT THE GENERAL WIRING NEEDS OF THE EQUIPMENT SERVICED FROM THE PANEL. THE EXACT CIRCUIT ARRANGEMENT WILL BE DETERMINED BY PANEL SHOP DRAWING AND ARRANGEMENT WILL BE DETERMINED BY PANEL SHOP DRAWING AND PANELS ACTUALLY FURNISHED.

12. IDENTIFICATION:

- 12.1 REFER TO NEC LABELS DRAWING FOR LABELING REQUIREMENTS
- 12.2 INSTALL NAMEPLATES ON ALL MAJOR EQUIPMENT, INCLUDE STARTERS, TRANSFORMERS, PANELBOARDS, DISCONNECT SWITCHES AND OTHER ELECTRICAL BOXES AND CABINETS INSTALLED UNDER THIS CONTRACT.
- 12.3 APPLY CABLE/CONDUCTOR IDENTIFICATION MARKERS ON EACH CABLE AND CONDUCTOR IN EACH BOX, ENCLOSURE OR CABINET.

13. RECORD DRAWINGS:

- 13.1 THE CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF SHOP DRAWINGS. THE APPROVAL OF SHOP DRAWINGS SHALL ONLY BE CONSTRUED TO APPLY TO THE GENERAL LAYOUT AND CONFORMANCE TO THE DESIGN CONCEPT OF THE PROJECT AND FOR THE COMPLIANCE WITH THE GENERAL REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL RETAIN THE RESPONSIBILITY FOR ANY DEVIATIONS FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
- 13.2 PROVIDE SHOP DRAWINGS FOR THE LIGHTING FIXTURES, PANEL BOARDS, CIRCUIT BREAKERS, WIRING DEVICES, FIRE ALARM DEVICES AND SEALS FOR FIRE AND WATER STOPPING.
- 13.3 DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A RECORD SET OF INSTALLATION PRINTS. HE SHALL NEATLY AND CLEARLY RECORD ON THESE PRINTS ALL DEVIATIONS FROM THE CONTRACT DRAWINGS IN SIZES, LOCATIONS AND DETAILS.
- 13.4 UPON PROJECT COMPLETION, THE CONTRACTOR SHALL COMPLETE THE MARK UP OF ALL PROJECT DRAWINGS TO RECORD INSTALLED CONDITIONS.
- 13.5 REPRODUCIBLE "RECORD" DRAWINGS PREPARED IN CAD FORMAT SHALL BE PROVIDED AS INSTALLED CONDITIONS OF THE WORK. A FULL SIZE PRINT OUT OF THE "RECORD" DRAWING FILE SHALL BE PROVIDED AFTER COMPLETION OF THE INSTALLATION.
- 13.6 UPON COMPLETION AND ACCEPTANCE OF WORK, THE CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE THE PROPER OPERATIONS AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

14. PROTECTION OF WORK:

- 14.1 EFFECTIVELY PROTECT ALL MATERIALS AND EQUIPMENT FROM ENVIRONMENTAL AND PHYSICAL DAMAGE UNTIL FINAL ACCEPTANCE. CLOSE AND PROTECT ALL OPENINGS DURING CONSTRUCTION. PROVIDE NEW MATERIALS AND EQUIPMENT TO REPLACE ITEMS DAMAGED.



Developing • Renewable • High-Performance
EPC • O&M • www.sunvest.com

N27 W24025 PAUL CT. SUITE 100
PEWAUKEE, WI 53072
PHONE: (262)–547–1200
WWW.SUNVEST.COM

4181’ TO HIAWATHA DR E
CASE #:04190856
SITE LAT: 44.365853
SITE LONG: –92.027339
POI LAT: 44.362358
POI LONG: –92.015181
SUBSTATION: WABASHA

UTILITY CUSTOMER OF RECORD:
SV CSG WABASHA I LLC

GARDEN NAME:
BENEKE SOLAR

LICENSED ELECTRICAL ENGINEER certifies that they prepared all the electrical "E" sheets in this drawing set.
LICENSED STRUCTURAL ENGINEER certifies that they prepared all of the structural "S" sheets in this drawing set.
LICENSED CIVIL ENGINEER certifies that they prepared all of the civil "C" sheets in this drawing set.
It should be noted that any plan sheets not identified above have been prepared and certified by others and have been included herein for informational purposes only.

F	5/18/23	L	
E	5/15/23	K	
D	5/2/23	J	
C	3/7/23	I	
B	1/31/23	H	
A	1/16/23	G	8/25/23
REV	DATE	REV	DATE
DRAWN BY: TG		CHECKED BY: CHKR	
SCALE: AS NOTED		JOB NO: 01388	

SV CSG WABASHA I LLC

WABASHA COUNTY
(44.365853, –92.027339)

SHEET TITLE

GENERAL NOTES

DWG. NO.

13
G-2.00

4181' TO HIAWATHA DR E
CASE #: 04190856
SITE LAT: 44.365853
SITE LONG: -92.027339
POI LAT: 44.362358
POI LONG: -92.015181
SUBSTATION: WABASHA

UTILITY CUSTOMER OF RECORD:
SV CSG WABASHA I LLC

GARDEN NAME:
BENEKE SOLAR

LICENSED ELECTRICAL ENGINEER certifies that they prepared all the electrical "E" sheets in this drawing set.
LICENSED STRUCTURAL ENGINEER certifies that they prepared all of the structural "S" sheets in this drawing set.
LICENSED CIVIL ENGINEER certifies that they prepared all of the civil "C" sheets in this drawing set.
It should be noted that any plan sheets not identified above have been prepared and certified by others and have been included herein for informational purposes only.

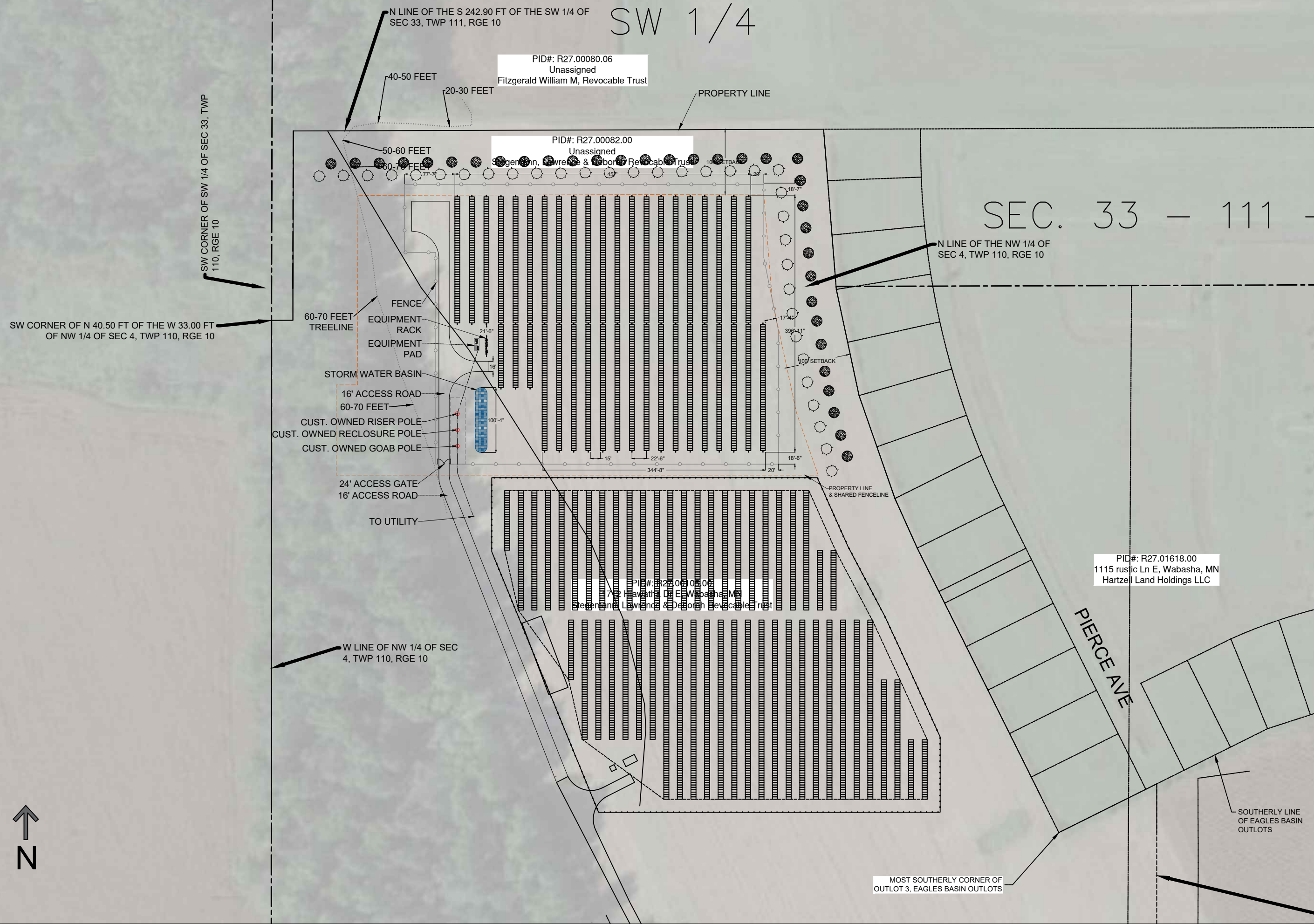
F	5/18/23	L	
E	5/15/23	K	
D	5/2/23	J	
C	3/7/23	I	
B	1/31/23	H	
A	1/16/23	G	8/25/23
REV	DATE	REV	DATE
DRAWN BY:	TG	CHECKED BY:	CHKR
SCALE:	AS NOTED	JOB NO:	01388

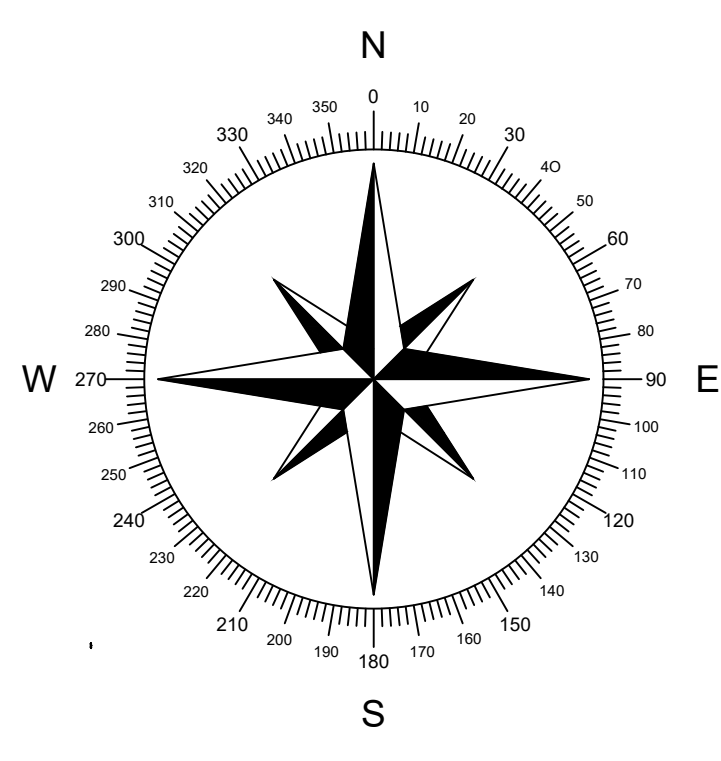
SV CSG WABASHA I LLC

WABASHA COUNTY
(44.365853, -92.027339)

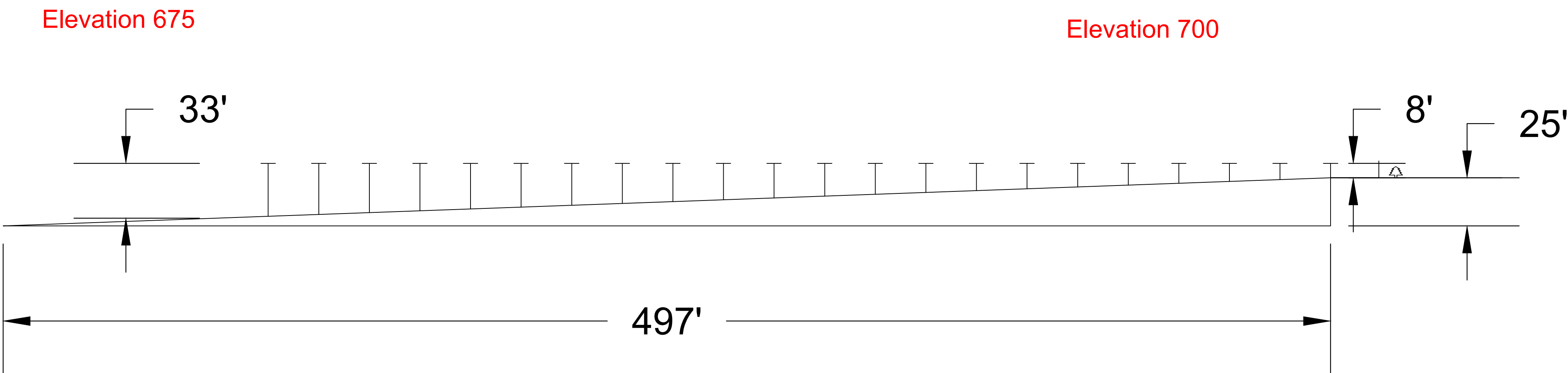
SHEET TITLE
ARRAY LAYOUT

DWG. NO.
15
PV-1.01

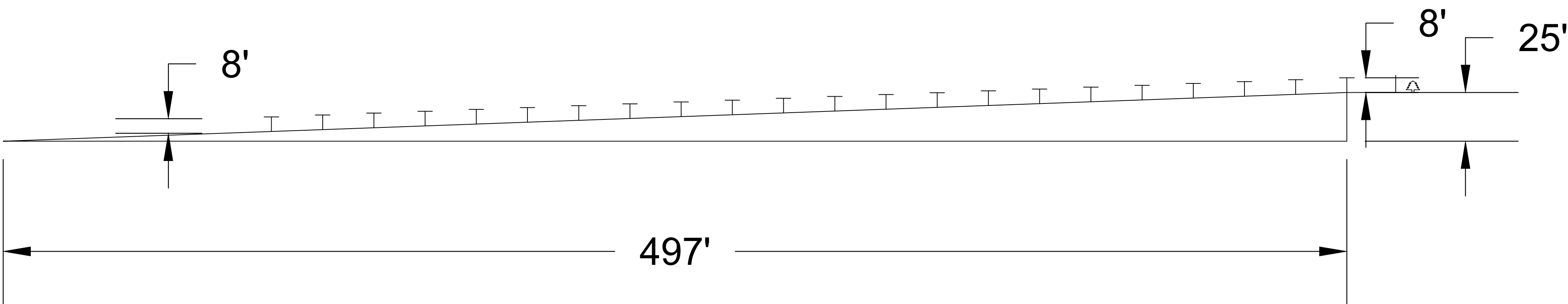




PROJECT ADDRESS
1740 Hiawatha Drive E,
Wabasha, MN 55981



Example A - All solar modules at the same height



Example B - All solar modules at the same height above grade

REVISIONS			
#	DESCRIPTION	BY	DATE
0	PRELIMINARY DESIGN	CO	8/14/2023
1			
2			
3			
4			
5			
6			
7			

CUSTOMER NAME
SV CSG Wabasha I, LLC

PROJECT NAME
SV CSG Wabasha I, LLC

DRAWN BY
MICHAEL LUBKE

DRAWING TITLE
MODULE HEIGHT DEMO

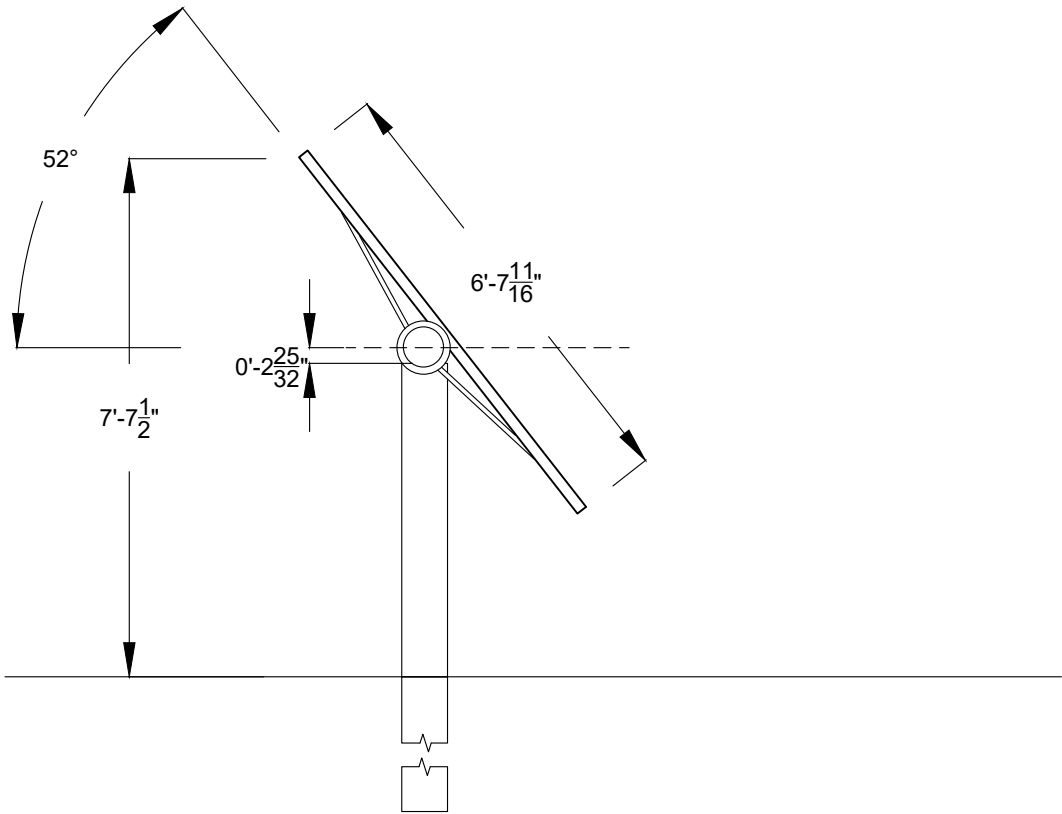
SCALE ¹/_{TBD}
0 1" 2"

SHEET
PV

4181' TO HIAWATHA DR E
CASE #: 04190856
SITE LAT: 44.365853
SITE LONG: -92.027339
POI LAT: 44.362358
POI LONG: -92.015181
SUBSTATION: WABASHA

UTILITY CUSTOMER OF RECORD:
SV CSG WABASHA I LLC

GARDEN NAME:
BENEKE SOLAR



1 RACKING PROFILE

D-1.00

NOT TO SCALE

LICENSED ELECTRICAL ENGINEER certifies that they prepared all the electrical "E" sheets in this drawing set.
LICENSED STRUCTURAL ENGINEER certifies that they prepared all of the structural "S" sheets in this drawing set.
LICENSED CIVIL ENGINEER certifies that they prepared all of the civil "C" sheets in this drawing set.
It should be noted that any plan sheets not identified above have been prepared and certified by others and have been included herein for informational purposes only.

F	5/18/23	L	
E	5/15/23	K	
D	5/2/23	J	
C	3/7/23	I	
B	1/31/23	H	
A	1/16/23	G	8/25/23
REV	DATE	REV	DATE
DRAWN BY: TG		CHECKED BY: CHKR	
SCALE: AS NOTED		JOB NO: 01388	

SV CSG WABASHA I LLC

WABASHA COUNTY
(44.365853, -92.027339)

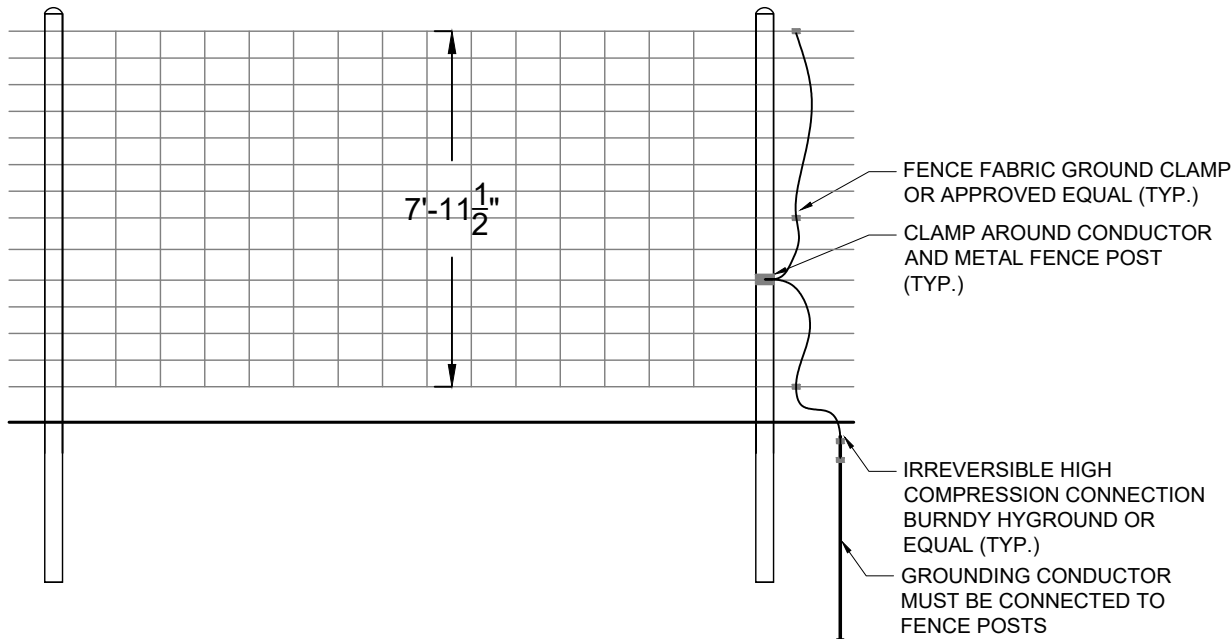
SHEET TITLE

DETAILS

DWG. NO.

16

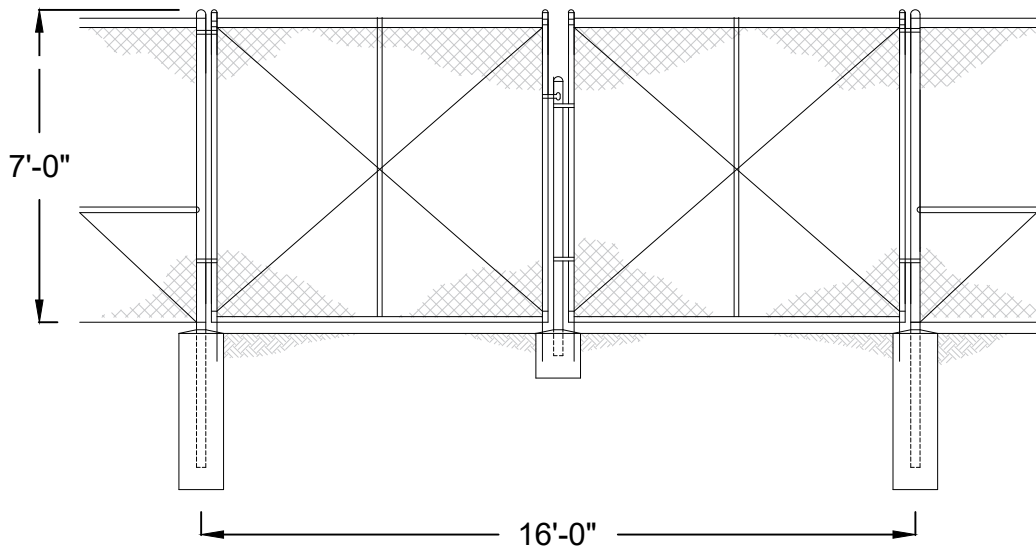
D-1.00



3 FENCE

D-1.00

NOT TO SCALE



2 ACCESS GATE

D-1.00

NOT TO SCALE

HELIONE

HELIONE

144HC M10 SL Bifacial Module

144 Half-Cut Monocrystalline 520W – 540W

21%

Utilizes the latest M10 size super high efficiency Monocrystalline PERC cells. Half cut design further reduces cell to module (CTM) losses.

Stability & Looks

Rugged, double webbed frame design withstands wind, snow, and other mechanical stresses. Framed Glass-Backsheet aesthetic is ideal for high visibility installation.

Anti-Reflective

Premium solar glass with anti reflective coating delivers more energy throughout the day

High Reliability

Proven resistance to PID and reliable in high temperature and humidity environments.

No Compromise Guarantee

15 Year Workmanship Warranty
25 Year Linear Performance Guarantee

Manufactured Using International Quality System Standards: ISO9001

Half-Cut Design with Split Junction Box Technology

Bifacial Technology Enabling Additional Energy Harvest from Rear Side

1500V System Voltage Rating

World-class Quality

Local Sales, Service, and Support

HELIONE

HELIONE

144HC M10 SL Bifacial Module

Dimensions for 144HC M10 SL Bifacial Series Modules

I-V Curves for 144HC M10 SL Bifacial Series Modules

Certifications

Electrical Data (STC)

Peak Rated Power	P _{max} (W)	540	535	530	525	520
Maximum Power Voltage	V _{mp} (V)	42.32	42.13	41.94	41.75	41.56
Maximum Power Current	I _{mp} (A)	12.77	12.70	12.64	12.58	12.52
Open Circuit Voltage	V _{oc} (V)	50.22	49.97	49.72	49.23	48.73
Short Circuit Current	I _{sc} (A)	13.50	13.44	13.37	13.32	13.28
Module Efficiency *	Eff (%)	20.9	20.7	20.5	20.3	20.1
Maximum Series Fuse Rating	MF (A)	30	30	30	30	30
Power Output Tolerance		[- 0/+3%]				
Bifaciality Factor		70%				

STC - Standard Test Conditions: Irradiation 1000 W/m², Air mass AM 1.5 - Cell temperature 25 °C

Electrical Data (NMOT)

Maximum Power	P _{max} (W)	400	395	390	385	380
Maximum Power Voltage	V _{mp} (V)	39.19	38.58	38.58	37.97	37.96
Maximum Power Current	I _{mp} (A)	10.21	10.24	10.11	10.14	10.01
Open Circuit Voltage	V _{oc} (V)	47.13	46.89	46.66	46.20	45.73
Short Circuit Current	I _{sc} (A)	10.87	10.82	10.77	10.72	10.70

NMOT - Nominal Module Operating Temperature:
Irradiance at 800W/m², Ambient Temperature 20°C, Wind speed 1m/s

Mechanical Data

Solar Cells	144 Half Cut, M10, 182mm, PERC Cells
Module Construction	Framed Glass-Backsheet
Dimensions (L x W x D)	2279 x 1134 x 35 mm (89.72 x 44.65 x 1.38 inch)
Weight	29.2 kg (64.3 lbs)
Frame	Double Webbed 15-Micron Anodized Aluminum Alloy
Glass	3.2mm Low-Iron Content, High-Transmission, PV Solar Glass with Anti Reflective Coating
Junction Box	IP-68 rated with 3 bypass diodes
Output Cables	0.3-meter Symmetrical Cables
Connectors	Multi-Contact/ Stäubli MC4

Certifications

UL Certification	UL61215, UL61730
------------------	------------------

Temperature Ratings

Nominal Operating Cell Temperature (NOCT) (±2°C)	+45°C
Temperature Coefficient of P _{max}	-0.36%/°C
Temperature Coefficient of V _{oc}	-0.28%/°C
Temperature Coefficient of I _{sc}	0.034%/°C

Warranty

15 Year Workmanship Warranty	
25 Year Linear Power Guarantee	

Maximum Ratings

Operational Temperature	-40°C to +85°C
Max System Voltage	1500V
Mech. Load Test (Front)	113 psf / 5400 Pa
Mech. Load Test (Back)	50 psf / 2400 Pa
Fire Type	Type I

Packaging Configuration

Modules per box:	31 pieces
Modules per 40' Container:	620 pieces
Modules per 53' Trailer:	806 pieces

SG125HV

String Inverter for 1500 Vdc System

HIGH YIELD

EASY O&M

SAVED INVESTMENT

GRID SUPPORT

CIRCUIT DIAGRAM

EFFICIENCY CURVE

© 2021 Sungrow Power Supply Co., Ltd. All rights reserved. Subject to change without notice. Version 11

- 28 -

HELIONE

HELIONE

144HC M10 SL Bifacial Module

Dimensions for 144HC M10 SL Bifacial Series Modules

I-V Curves for 144HC M10 SL Bifacial Series Modules

Certifications

Electrical Data (STC)

Peak Rated Power	P _{max} (W)	540	535	530	525	520
Maximum Power Voltage	V _{mp} (V)	42.32	42.13	41.94	41.75	41.56
Maximum Power Current	I _{mp} (A)	12.77	12.70	12.64	12.58	12.52
Open Circuit Voltage	V _{oc} (V)	50.22	49.97	49.72	49.23	48.73
Short Circuit Current	I _{sc} (A)	13.50	13.44	13.37	13.32	13.28
Module Efficiency *	Eff (%)	20.9	20.7	20.5	20.3	20.1
Maximum Series Fuse Rating	MF (A)	30	30	30	30	30
Power Output Tolerance		[- 0/+3%]				
Bifaciality Factor		70%				

STC - Standard Test Conditions: Irradiation 1000 W/m², Air mass AM 1.5 - Cell temperature 25 °C

Electrical Data (NMOT)

Maximum Power	P _{max} (W)	400	395	390	385	380
Maximum Power Voltage	V _{mp} (V)	39.19	38.58	38.58	37.97	37.96
Maximum Power Current	I _{mp} (A)	10.21	10.24	10.11	10.14	10.01
Open Circuit Voltage	V _{oc} (V)	47.13	46.89	46.66	46.20	45.73
Short Circuit Current	I _{sc} (A)	10.87	10.82	10.77	10.72	10.70

NMOT - Nominal Module Operating Temperature:
Irradiance at 800W/m², Ambient Temperature 20°C, Wind speed 1m/s

Mechanical Data

Solar Cells	144 Half Cut, M10, 182mm, PERC Cells
Module Construction	Framed Glass-Backsheet
Dimensions (L x W x D)	2279 x 1134 x 35 mm (89.72 x 44.65 x 1.38 inch)
Weight	29.2 kg (64.3 lbs)
Frame	Double Webbed 15-Micron Anodized Aluminum Alloy
Glass	3.2mm Low-Iron Content, High-Transmission, PV Solar Glass with Anti Reflective Coating
Junction Box	IP-68 rated with 3 bypass diodes
Output Cables	0.3-meter Symmetrical Cables
Connectors	Multi-Contact/ Stäubli MC4

Certifications

UL Certification	UL61215, UL61730
------------------	------------------

Temperature Ratings

Nominal Operating Cell Temperature (NOCT) (±2°C)	+45°C
Temperature Coefficient of P _{max}	-0.36%/°C
Temperature Coefficient of V _{oc}	-0.28%/°C
Temperature Coefficient of I _{sc}	0.034%/°C

Warranty

15 Year Workmanship Warranty	
25 Year Linear Power Guarantee	

Maximum Ratings

Operational Temperature	-40°C to +85°C
Max System Voltage	1500V
Mech. Load Test (Front)	113 psf / 5400 Pa
Mech. Load Test (Back)	50 psf / 2400 Pa
Fire Type	Type I

Packaging Configuration

Modules per box:	31 pieces
Modules per 40' Container:	620 pieces
Modules per 53' Trailer:	806 pieces

SG125HV

String Inverter for 1500 Vdc System

HIGH YIELD

EASY O&M

SAVED INVESTMENT

GRID SUPPORT

CIRCUIT DIAGRAM

EFFICIENCY CURVE

© 2021 Sungrow Power Supply Co., Ltd. All rights reserved. Subject to change without notice. Version 11

- 28 -

SUNVEST

SOLAR LLC

Developing • Renewable • High-tech

DESIGN • 547-1200 • www.sunvest.com

N27 W24025 PAUL CT. SUITE 100

PEWAUKEE, WI 53072

PHONE: (262)–547–1200

WWW.SUNVEST.COM

4181' TO HIAWATHA DR E
CASE #: 04190856
SITE LAT: 44.365853
SITE LONG: -92.027339
POI LAT: 44.362358
POI LONG: -92.015181
SUBSTATION: WABASHA

UTILITY CUSTOMER OF RECORD:
SV CSG WABASHA I LLC

GARDEN NAME:
BENEKE SOLAR

LICENSED ELECTRICAL ENGINEER certifies that they prepared all the electrical "E" sheets in this drawing set.
LICENSED STRUCTURAL ENGINEER certifies that they prepared all of the structural "S" sheets in this drawing set.
LICENSED CIVIL ENGINEER certifies that they prepared all of the civil "C" sheets in this drawing set.
It should be noted that any plan sheets not identified above have been prepared and certified by others and have been included herein for informational purposes only.

F	5/18/23	L	
E	5/15/23	K	
D	5/2/23	J	
C	3/7/23	I	
B	1/31/23	H	
A	1/16/23	G	8/25/23
REV	DATE	REV	DATE
DRAWN BY: TG		CHECKED BY: CHKR	
SCALE: AS NOTED		JOB NO: 01388	

SV CSG WABASHA I LLC

WABASHA COUNTY
(44.365853, -92.027339)

SHEET TITLE
SPEC SHEETS

DWG. NO.
17
E-2.00

© 2021 Sungrow Power Supply Co., Ltd. All rights reserved. Subject to change without notice. Version 11

- 29 -

⚠️

WARNING

THIS PANEL HAS SECONDARY POWER SOURCE FROM PHOTOVOLTAIC SYSTEM
TURN-OFF PHOTOVOLTAIC SYSTEM BREAKER PRIOR TO SERVICING PANEL.

MAX AC OUTPUT CURRENT: AMPS

MAX AC OUTPUT VOLTAGE: VOLTS

LABEL #1

PLACE AT POINT OF INTERCONNECTION

⚠️

WARNING

DUAL POWER SUPPLY

SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

LABEL #2

PLACE AT POINT OF INTERCONNECTION

⚠️

WARNING

SOLAR GENERATOR UTILITY LOCKABLE AC DISCONNECT SWITCH

AUTHORIZED PERSONNEL ONLY
HIGH VOLTAGE- KEEP AWAY

LABEL #3

PLACE AT UTILITY LOCKABLE DISCONNECT

⚠️

WARNING

POTENTIAL ARC FLASH HAZARD

LABEL #4

PLACE AT PV SWITCHBOARD

⚠️

WARNING

TURN OFF AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

AUTHORIZED PERSONNEL ONLY
HIGH VOLTAGE- KEEP AWAY

LABEL #5

PLACE AT AC COMBINER PANEL

⚠️

WARNING

POWER METER AND AC DISCONNECT
TURN OFF INVERTER PRIOR TO OPERATING AC DISCONNECT

AUTHORIZED PERSONNEL ONLY
HIGH VOLTAGE-KEEP AWAY

LABEL #6

PLACE AT AC DISCONNECT

⚠️

WARNING

ELECTRIC SHOCK HAZARD

IF GROUND FAULT IS INDICATED ALL NORMALLY GROUNDED CONDUCTORS MAY BE UNGROUNDED AND ENERGIZED

LABEL #7

PLACE AT INVERTERS

CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED

LABEL #8

PLACE ON DC DISCONNECTS AND INVERTERS

CAUTION: SOLAR CIRCUIT

LABEL #9

PLACE ON CONDUIT, JUNCTION BOXES AND COMBINER BOXES AT EVERY 10'

⚠️

WARNING

DC JUNCTION BOX

LABEL #10

PLACE ON DC JUNCTION BOXES

⚠️

WARNING

PV ARRAY DC DISCONNECT

-ELECTRICAL SHOCK HAZARD-
-DO NOT TOUCH TERMINALS-

TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

MAXIMUM CURRENT: A
OPERATING VOLTAGE: Vdc

LABEL #11

PLACE ON DC DISCONNECTS

⚠️

WARNING

ELECTRIC SHOCK HAZARD

DO NOT TOUCH TERMINALS
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL #12

PLACE ON DC DISCONNECTS AND AC DISCONNECTS

⚠️

WARNING

PULL BOX

AUTHORIZED PERSONNEL ONLY
HIGH VOLTAGE- KEEP AWAY

LABEL #13

PLACE AT PULL BOXES

INV-01

LABEL #14

PLACE AT INVERTERS

ACB-01

LABEL #15

PLACE AT INVERTERS

D-01

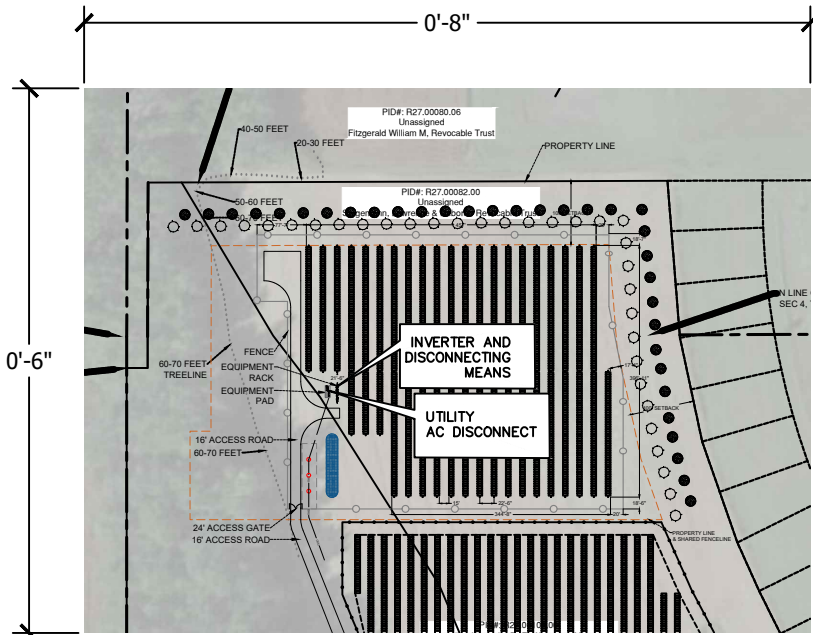
LABEL #16

PLACE AT SYSTEM DISCONNECT

M-01

LABEL #17

PLACE AT SYSTEM METER CABINET



LABEL #18

SITE DISCONNECT LOCATION PLACECARD PLACE AT METER

PLACE AT METER

⚠️

WARNING

GENERATION SYSTEM CONNECTED

LABEL #19

PLACE AT METER

- NOTES:
1. DESIGN SHALL MEET NATIONAL ELECTRIC CODE (NEC CODES) REQUIREMENTS
2. LABELS SHALL BE COMPLIANT WITH NEC 690
- SHEET NOTES:
1. SYSTEM LABELS SHALL BE PERMANENTLY ATTACHED BY MECHANICAL MEANS OR SECURED WITH UV-RESISTANT ADHESIVE.
2. MATERIALS USED IN THE CONSTRUCTION OF THE LABELS SHALL BE UV RESISTANT.
- 3.) ELECTRICAL EQUIPMENT, SUCH AS SWITCHBOARDS, PANELBOARDS, INDUSTRIAL CONTROL PANELS, METER SOCKET ENCLOSURES, AND MOTOR CONTROL CENTERS, THAT ARE IN OTHER THAN SWELLING OCCUPANCIES, AND ARE LIKELY TO REQUIRE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE WHILE ENERGIZED SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS. THE MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT. (CEC 110.16)
4. ALL INTERACTIVE SYSTEM(S) POINTS OF INTERCONNECTION WITH OTHER SOURCES SHALL BE MARKED AT AN ACCESSIBLE LOCATION AT THE DISCONNECTING MEANS AS A POWER SOURCE AND WITH THE RATED AC OUTPUT CURRENT AND THE NOMINAL OPERATING AC VOLTAGE. (CEC 690.54)

- KEYED NOTES:
1. PROVIDE 9"X3" ENGLISH/SPANISH ELECTRICAL WARNING SIGN AT EACH OF THE SITE ENTRANCES AND EVERY 200' ALONG THE FENCE.
2. PROVIDE SITE DISCONNECT LOCATION PLACECARD AT EACH OF THE SITE ENTRANCES. MARK "YOU ARE HERE" AT EACH OF THE LOCATIONS ON THE MAP

4181' TO HIAWATHA DR E
CASE #:04190856
SITE LAT: 44.365853
SITE LONG: –92.027339
POI LAT: 44.362358
POI LONG: –92.015181
SUBSTATION: WABASHA

UTILITY CUSTOMER OF RECORD:
SV CSG WABASHA I LLC

GARDEN NAME:
BENEKE SOLAR

LICENSED ELECTRICAL ENGINEER certifies that they prepared all the electrical "E" sheets in this drawing set.
LICENSED STRUCTURAL ENGINEER certifies that they prepared all of the structural "S" sheets in this drawing set.
LICENSED CIVIL ENGINEER certifies that they prepared all of the civil "C" sheets in this drawing set.
It should be noted that any plan sheets not identified above have been prepared and certified by others and have been included herein for informational purposes only.

F	5/18/23	L	
E	5/15/23	K	
D	5/2/23	J	
C	3/7/23	I	
B	1/31/23	H	
A	1/16/23	G	8/25/23
REV	DATE	REV	DATE
DRAWN BY: TG		CHECKED BY: CHKR	
SCALE: AS NOTED		JOB NO: 01388	

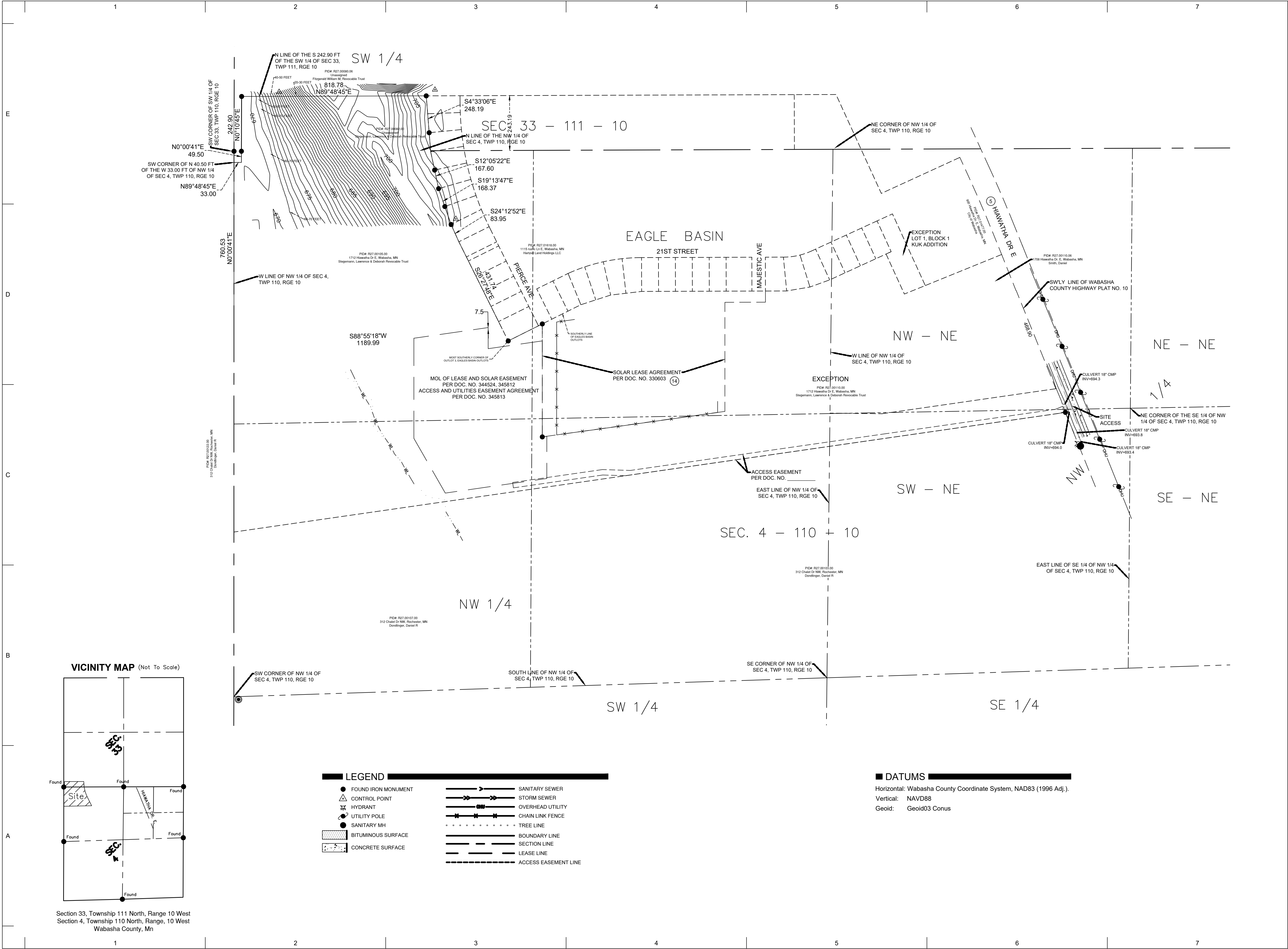
SV CSG WABASHA I LLC

WABASHA COUNTY
(44.365853, –92.027339)

SHEET TITLE

NEC LABELS

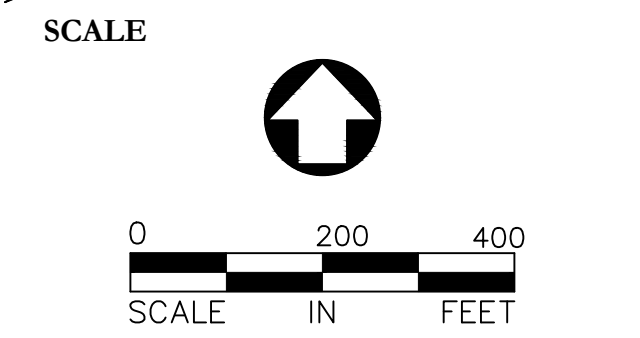
C:\Users\slentlau_rachalwa\Dropbox (Sun/Vest Solar)\SunVest Solar Team\Folder1\Projects2\Active\Minnesota\PROJ-01388_Wabasha (Stepgemann)\Design and Engineering\Civil\ALTATopography\ACAD-2022-232_WABASHA.dwg
© 2022 EVS, INC.



. \Sunvest LLC.png

PROJECT
SVC CSG WABASHA

LOCATION
**1712 HIAWATHA DR E
WABASHA, MN**



#	DATE	DESCRIPTION

I HEREBY CERTIFY THAT THIS PLAN OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL SURVEYOR UNDER THE LAWS OF THE STATE OF MINNESOTA.

CHRISTINA M. HOPP
DATE: 02 / 14 / 2023
LICENSE NUMBER: 46173

DRAWN BY
CMH

CHECKED BY
SCA

DATE
02.14.2023

PROJECT #
2022-232

SHEET NAME
**ALTA/NSPS
LAND TITLE SURVEY**

SHEET NUMBER
2 OF 2

C:\Users\enrique.veglio\Dropbox (SunVest Solar)\SunVest Solar Team Folder\1 Projects\2 Active\Minnesota\PROJ-01388 Wabasha 1 (Stegmann)\Design And Engineering\CUP\WABASHA_Site Hydrology\Plan_CUP Rev1_20230824_.dwg
Plotted: 8/24/2023 12:57 PM, By: Enrique Veglio



ENGINEER		
CONTRACTOR		
OWNER/DEVELOPER		
REVISIONS		
NO.	DATE	DESCRIPTION
0	07/31/2023	CONDITIONAL USE PERMIT SITE PLANS
PROJECT		
SVC CSG WABASHA LLC 1712 HIAWATHA DR E WABASHA, MN 55981 WABASHA COUNTY, MINNESOTA (44.364899° , -92.027140°)		
SHEET NAME		
SITE HYDROLOGY		
NOT FOR CONSTRUCTION		
SHEET NUMBER		
C.102		
SHEET SIZE	REVISION	
	0	

Decommissioning Plan

SV CSG Wabasha I, LLC

Table of Contents

1 - Introduction.....	1
2 - Summary Statement of Expected Residual Value	1
3 - Basis of Plan Narrative	1
4 - Schedule of Removal and Restoration Costs	3
5 - Schedule of Salvage Values.....	4

1.0 Introduction

The purpose of this report is to describe the decommissioning process for the SV CSG Wabasha I solar photovoltaic generation facility (“the project”) located at 1712 Hiawatha Dr E, Wabasha, MN 55981, MN. The project consists of 2,002 solar modules mounted to a driven pile, Single Axis Tracker system. After final circuit consolidation at the equipment pad mounted switchboard, the system’s voltage will be stepped-up to distribution level at a transformer and interconnected, onto an existing utility distribution circuit.

The project converts approximately 8 acres of agricultural land into a power generation facility. Construction includes solar modules mounted on driven steel piles, inverters, concrete transformer and equipment pads, and gravel access roads.

2.0 Summary Statement of Expected Decommissioning Cost

The expected residual value of the solar facility is the difference between the removal/restoration cost and the salvage value. The decommissioning cost to remove the solar PV facility and reestablish the property back to a grassy field is not expected to exceed a net expenditure of \$55,465.33.

3.0 Basis of Plan Narrative

The following is a list of assumptions and clarifications to further define the methodology used to establish the scope and values of the removal costs and salvage values.

3.1 General

- The intent of the decommissioning work will be to fully remove the solar facility, dispose of any components, and restore the site to a permanently stabilized grassed field.
- The service life of the facility is assumed to be 35 years. Because of this there is inherent uncertainty with pricing estimates that far into the future. All dollar amounts are in net present value (NPV). It is assumed that all values will inflate/deflate consistent with inflation, therefore, the NPV comparison of removal cost to salvage value will remain relevant at the end of the service life.
- Costs associated with this plan represent a “turn key” operation for a general contractor to be hired for this work, including permits, mobilization, contingency, etc.
- Haul costs assume a maximum distance of 60 miles between the project and nearest disposal or recycling facility.
- No maximum duration has been assigned for this work. It has been assumed that this work would be handled by a single crew without full time site personnel.

3.2 Civil Infrastructure

- Topsoil used to backfill excavations will be borrowed from onsite locations. No topsoil import is included.
- Removal of rip rap at stormwater basins is included.
- Aggregate removal will be the full depth of the aggregate section for roads, equipment pads, and other areas utilizing aggregate. No aggregate will be buried. Includes subgrade scarification prior to backfilling with topsoil.
- Turf establishment includes mulch, fertilizer, and water as necessary to achieve 70% ground cover as required to satisfy the NPDES Construction General Permit.
- Sediment control cost consists of silt fence but could also be fiber logs. Location of sediment control will be downslope from exposed soils only in areas where sedimentation offsite or into onsite water bodies can reasonably be expected.
- Trees and shrubs shall be protected and shall remain in place.

3.3 Structural Infrastructure

- Steel pile foundation removal is estimated at 25% the effort and cost as pile installation.
- Steel racking removal is estimated at 50% the effort and cost of racking installation.

3.4 Electrical Infrastructure

- PV modules to be recycled. Assumption is that the module value will be based off the module wattage. i.e. a higher wattage module will be worth more than a lower one.
- Switchgear including transformers will be removed from their respective concrete pads and recycled or returned to the manufacturer.
- Copper wiring will be dug up (if required) and recycled.
- Aluminum wiring will be dug up (if required) and recycled.
- Customer owned site riser or interconnection poles shall be removed.
- A two-person crew can dismantle a string inverter and recycle the components.
- Transformers are pad mounted and weigh approximately 8,500 pounds. These are dry type transformers, so there is no need for any oil disposal.
- Underground power and communication cables can be removed by excavating with a power trencher or excavator.

3.5 Recycling PV Modules

- Recycling solar modules have environmental benefits such as
 - o Creating a useful and sustainable method of disposal
 - o Providing raw materials for repurposing and reprocessing
 - o Recovering up to 90% of the photovoltaic glass and up to 95% of the semiconductor material necessary for further production
 - o Recycling of rare earth metals.

4.0 Schedule of Removal and Restoration Costs

Removal and Restoration Costs						
CIVIL INFRASTRUCTURE						
		QUANTITY	UNITS	\$/UNIT	COST	NOTES
1	Road Aggregate, Rip Rap, and Geotextile Removal	1312.5	ft³	\$ 1.00	\$ 1,312.50	Remove full section of aggregate road, rip rap, and geotextile fabrics
2	Road Aggregate, Rip Rap, and Geotextile Haul and Offsite Disposal	1312.5	ft³	\$ 3.66	\$ 4,800.00	Hauling offsite
3	Topsoil Backfill	7500	ft³	\$ 1.00	\$ 7,500.00	Onsite relocation of topsoil to backfill road and equipment pad excavations
4	Fence Removal	3,200	ft	\$ 1.00	\$ 3,200.00	Includes fence mesh, post framing, concrete foundations, gates, etc.
5	Fence Haul and Offsite Disposal	16,000	lbs	\$ 0.05	\$ 800.00	
6	Concrete Equipment Pad Removal	1	EA	\$ 5,000.00	\$ 5,000.00	
7	Concrete Waste Haul and Offsite Disposal	1	EA	\$ 2,500.00	\$ 2,500.00	
8	Site Grading	1	Acres	\$ 5,000.00	\$ 5,000.00	Grading smooth all areas disturbed by removals, excavations, etc, assumed (0.1 x project area) + Road Area + Equipment Pad Area
9	Turf Establishment	8	Acres	\$ 1,500.00	\$ 12,000.00	Hydroseed all areas disturbed by removals, excavations, etc
10	Sediment Control	1067	ft	\$ 10.00	\$ 10,666.67	Silt fence installation
Structural Infrastructure						
11	Foundation Removal	666	EA	\$ 18.71	\$ 12,461.56	~25% of Install cost
12	Foundation Haul and Offsite Disposal	666	EA	\$ 5.96	\$ 3,971.50	
13	Racking Removal	93744	lbs	\$ 0.33	\$ 30,883.81	~50% of Install cost
14	Racking Haul and Offsite Disposal	93744	lbs	\$ 0.03	\$ 2,863.18	
Electrical Infrastructure						
15	Removal of Solar Modules	2,002	EA	\$ 5.00	\$ 10,010.00	
16	Removal of String Inverters	8	EA	\$ 1,000.00	\$ 8,000.00	
17	Removal of Switchgear	1	EA	\$ 5,000.00	\$ 5,000.00	
18	Removal of Riser and Interconnection Poles	4	EA	\$ 1,000.00	\$ 4,000.00	
19	Removal of SCADA/Aux Panel/Weather Station	1	EA	\$ 200.00	\$ 200.00	
20	Removal of DC Copper Wire	1,754	lbs	\$ 2.00	\$ 3,508.00	
21	Removal of AC Aluminum Wires	1,800	lbs	\$ 2.00	\$ 3,600.00	
	Total Cost				\$ 137,277.22	

5.0 Schedule of Salvage Values

Salvage Values					
Structural Infrastructure					
		QUANTITY	UNITS	\$/UNIT	VALUE
1	Steel Pile	130032	lbs	\$ 0.10	\$ 12,678.12
2	Steel Racking	93744	lbs	\$ 0.10	\$ 9,140.04
3	Fence	3,200	ft	\$ 0.49	\$ 1,560.00
Electrical Infrastructure					
		QUANTITY	UNITS	\$/UNIT	VALUE
4	PV Modules	2,002	\$/Panel	\$ 29.00	\$ 58,058.00
5	Equipment Switchgear in Xfmrs	1	EA	\$ 1,200.00	\$ 1,200.00
6	DC Copper Wires	1,754	lbs	\$ 1.10	\$ 1,929.40
7	AC Aluminum Wires	1,800	lbs	\$ 0.62	\$ 1,116.00
	Total				\$ 85,681.56

6.0 Schedule of Summary

Summary		
Description	Cost	Units
Decommissioning Estimate (DE)	\$ 137,277.22	\$
Salvage Estimate (SE)	\$ 85,681.56	\$
Total Cost (DE-SE)	\$ 51,595.66	\$
Factor of Safety (FoS)	1.075	
Total Cost with FoS	\$ 55,465.33	\$
Average Inflation rate	2.50%	%
Time Period	35	Years
Total Cost with FoS and Inflation after Time Period	\$ 128,420.10	\$

Planning Commission

5) b)

Meeting Date: 09/12/2023

SUBJECT: IUP - DIVOCSG 13 LLC Solar Garden

DEPARTMENT: Administration

TITLE:

IUP - DIVOCSG 13 LLC Solar Garden

PURPOSE:

Attachments

Staff Report



Memorandum

Office of the City Planner

To: Wabasha Planning Commission
From: Kristi Trisko, Consultant Planner
Date: September 1, 2023
Subject: IUP Amendment application – 1 MW Solar Farm Solar Garden

MEETING DATE: September 12, 2023

I. REQUEST:

Applicant: DIVOCSG 13 LLC.
Owner: Lawrence and Deborah Stegemann
Location: 1712 Hiawatha Dr. E, # R27.00105.00

II. Staff Report

An amendment to DIVOCSG 13 LLC Interim Use Permit has been submitted to relocate the approved 1-Megawatt Solar Garden Farm 100' south of the approved location. This solar garden meets the requirements for XCEL's Community Solar Garden program.

Zoning: R-2 (Medium Density Residential – eastern half) RC (Residential Conservancy – western half)

Land Use: Low Density Residential
Setbacks: 100' from residentially zoned parcels and property lines.

Mr. Stegemann's farm was replatted in August 2023 to combine his three lots into one lot, eliminating the lot lines between the existing solar garden east of the Gordian site. By eliminating these lot lines, the site can now be moved 100' feet south of the previously approved area.

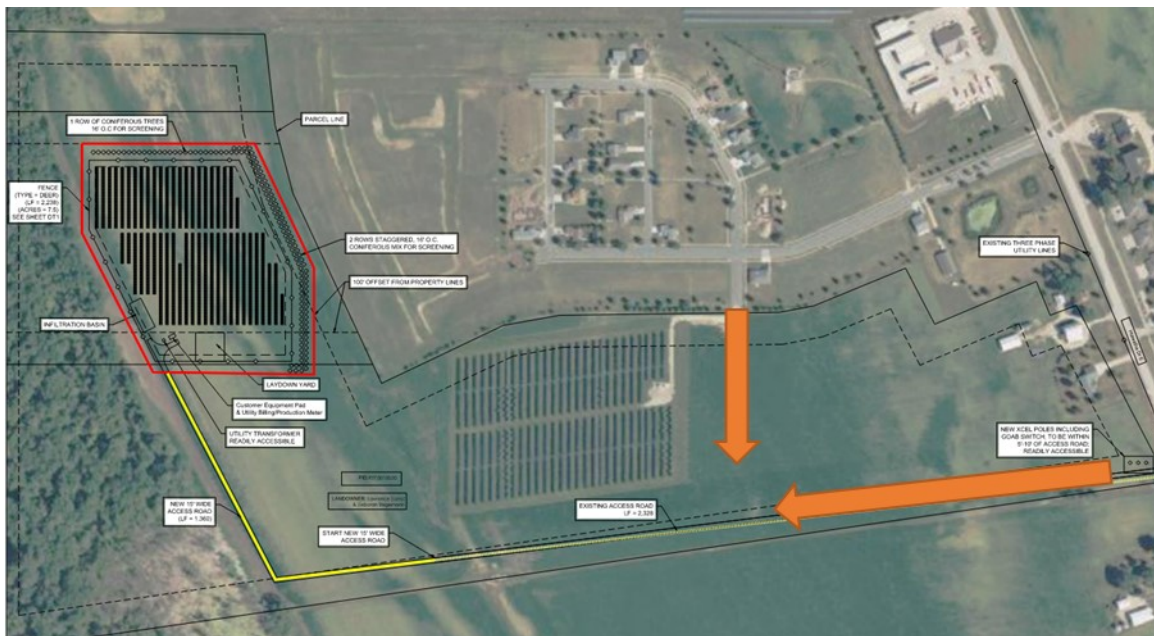


Project Scope: (Unchanged)

- The solar garden will consist of approximately 3240 solar panels mounted on a tracking racking system arranged in rows and constructed of steel beams that will ensure that all

structure will be on an even plane across the entire solar garden site. See the submitted narrative for a more detailed account of the arrays and tracking system.

- **Utilities: (Unchanged)** All on-site utilities will be buried underground. All electrical equipment is shown on the site plan.
- **Fencing: (Unchanged)** The site will include a 7' perimeter fence with a 20' double swing access gate at the entrance of the site. See the narrative for photos.
- **Timeline:** If approved, the **construction would begin in 2024** and be completed approximately 7 months later in November – with a targeted 2–3-month construction phase.
- **Hours: (Unchanged)** Construction hours will be 8 am to 6pm. Large flatbed delivery trucks will be predominantly needed in the first few weeks.
- **Access to the Site: (Unchanged)** Access to the site will be from an extension of an existing 15' wide gravel road that is used to access current uses of the site (see attached site plan). An easement will be granted to the applicant for use of these roads.



- **Future Development Note:** While there is no need for public roads at the current time, should the property owner wish to further develop portions of this site, there will be need for public infrastructure. It is anticipated that a local road connection to CR30 (Hiawatha Ave.) would be necessary to support this future development. The alignment of this road is likely to follow the existing access road and intersect with the extension of Majestic Street. Given the long-term nature of the lease arrangement (35-years), staff has communicated the future road network needs to the applicant and owner to ensure easements would not preclude construction.

Surrounding Property Uses and Zoning: The developed properties surrounding the Stegemann Solar Garden are zoned R-2 including the Eagles Basin Residential Subdivision and PUD located just east of the project. Eagles Basin is a single-family home subdivision. The remainder of the Stegemann farm (approximately 64.35 acres) is located to the south and west of the site.

Land Use: (Unchanged) The site has a Low-Density Residential land use designation. The adjacent Eagles Basin property has a Medium Density Residential land use designation.

Neighborhood Notification: All property owners within 350' feet of this property were notified more than ten days prior to the public hearing and published in the [paper on Tuesday, August 29 2023 stating that a public hearing would be held on September 12, 2023 for this amended](#) interim use permit request.

Shoreland and Floodplain: (Unchanged) The property is within the S2 and S3 shoreland overlay zones and within the 500-year floodplain. S2 and S3 allows accessory structures as permitted by the zone. Grading, filling, and excavation are to be minimized, if possible, in these areas. The use of solar gardens/farms in this area will be less impactful to the area than residential development as very little impervious surface coverage will be created.

Decommissioning and Restoration Plan: (Updated) The project lifetime is estimated at 25-35 years. When the solar garden use is discontinued the panels and all accessory equipment will be removed including all underground cables, fencing, and roads. The area will be re-graded and reseeded. (The Decommissioning Plan is included in the submitted report for full details)

Project/IUP Timeline: (Unchanged) The solar garden use ends when the arrays have finished their lifecycle in 25-35 years.

Solar Garden Performance Standards: Zoning District (R1/RC) and Solar Gardens/Farms

1. Maximum height solar arrays as agreed to during the Planning Commission on February 13, 2023 as follows:
 - “solar arrays can be a consistent 6’ in height as the site has a varying elevation of (+-) 22 feet. However, all arrays within the same row must be the same height”
 - i. Given this previously approved modification in standards, all standards are met.*
2. Solar Structures minimum setback = 100’ from property lines; *Standards are met.*
3. Solar structures must be sun-tracking and be placed at the same elevation (per row) to each other.
 - i. Per the narrative, the racking system manufacturer’s engineer will provide certification that the design of the foundations and panels will be constructed to be at the same elevation per row of the solar panels.*
4. Minimum is 5 acres with a maximum of 30 acres – *Standards are met.*
5. Screening: Solar Garden/Farm shall be screened from view of adjacent residential zoning districts and public roads with native evergreen trees planted in a double staggered row and must be well maintained by the owner
 - i. A double staggered row of mixed evergreens are shown on the plan and will be planted at 16’ on center. Conditions will be placed on the approval for a landscape and maintenance plan to assure that the trees are planted as shown and well maintained.*
 - ii. In addition, a 7’ high perimeter fence will be installed on the site surrounding all solar arrays and equipment with a 20’ high security gate.*

6. Abandonment: Any solar garden/farm which is inoperable for 12 months shall be a public nuisance and shall be removed at the owner's expense. A plan outlining the removal of all structures and electrical components as well as financial guarantees will be required as part of the IUP.
 - i. *A Decommissioning and Reconstruction Plan is attached to the narrative and will be included as a condition for approval on this IUP.*
7. Power and Communication Lines: All on-site power and communication lines shall be buried underground on the premise.
 - i. *All utilities are proposed to be buried. (See attached site plan and narrative)*
8. Jurisdiction: Solar Farms at 50 megawatts or more will be under the jurisdiction of the MN Public Utility Commission.
 - i. *This is a 1-megawatt site*

Recommended Conditions:

1. All on-site power and communication lines running between solar panels and buildings shall be buried underground on the site.
2. All solar structures must be constructed at least 2' above the BFE (Base Flood Elevation)
3. A construction stormwater permit must be acquired from the MPCA and proof of coverage submitted to the city prior to the start of construction.
4. Documents that must be submitted and approved by the city prior to obtaining a building permit:
 - a. Landscape and Maintenance Plan, including any tree removal
 - b. Grading Plan must be approved by the City Engineer. If the grading plan changes the site plan, an amended site plan must be approved by the Planning Commission.
 - c. Construction SWPPP and Stormwater Management Plan if the project disturbs more than 1-acre
 - d. Certified lease agreements for the site and roadway access
 - e. Financial security to cover the cost of decommissioning and restoration
 - f. Decommission and Restoration Plan (approval only)

III. PLANNING COMMISSION ACTION:

Following are sample resolutions for both approval and denial which may be used by the Planning Commission in their decision.

Sample resolution for approval

Resolution _____
IUP for a Solar Farm at 1712 Hiawatha Drive

WHEREAS, the property addressed 1712 Hiawatha Drive is zoned R2 and RC which allows solar garden/farms as an interim use permit; and

WHEREAS, the proposed property has a land use designation of Low Density Residential; and

WHEREAS, the solar garden/farm use will end when the solar arrays have completed their life cycle in 25-35 years at which time the IUP will end; and

WHEREAS, The Planning Commission provides the following findings:

- a) The zoning and land use allow the construction of a 7-acre Solar Farm
- b) Allowing this IUP will not impact the health, safety & general welfare of the community and neighbors use and enjoyment of property and their property values
- c) All performance standards for a solar garden/farm are met
- d) The proposed use is consistent with the City's Comprehensive Plan
- e) The site the not use city water or sewer
- f) The use will be secured with a perimeter fence
- g) The use will be screened with a double row of evergreen trees along the east side of the project
- h) Solar energy is a clean, efficient means of power production that creates no noise, dust, runoff, or nuisance factors, with no moving parts and little maintenance while directly reducing the power needed from other more harmful sources of energy.

NOW THEREFORE, IT IS HEREBY RESOLVED, the Planning Commission approves the Conditional Use Permit.

Sample resolution for denial

Resolution _____
IUP for a Solar Farm at 1712 Hiawatha Drive

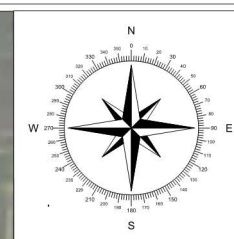
WHEREAS, the property addressed 1712 Hiawatha Drive zoned Medium Density Residential (R2); and

WHEREAS, an Interim Use Permit is required for a Solar Farm; and

WHEREAS, The Planning Commission provides the following findings: **[insert findings as deemed appropriate]**

- _____

NOW THEREFORE, IT IS HEREBY RESOLVED, the *Planning* Commission denies the Interim Use Permit for a Solar Farm as requested by the applicant, DIVOCSG 13 LLC. (Gordian Solar)



GORDIAN AXE DEVELOPMENT LLC
3915 COOLIDGE AVENUE,
BALTIMORE, MD 21229
410-242-2449

PROJECT ADDRESS
1712 Howarth Drive E,
Wabasha, MN 55981

LAT: 44°21'53.3"N
LONG: 92°01'36.7"W

SYSTEM SPECIFICATIONS	
SYSTEM SIZE DC	1593.72 kW
SYSTEM SIZE AC	1000 kW
DC/AC RATIO	1.593
ADJUTH	180
TILT	-54 to 54
MIDDLE COUNT	2796
MIDDLE TYPE	SEG SOLAR
MODULE STC RATING	570W
INVERTER COUNT	9
INVERTER TYPE	CP6 SCH125KTL-DO-US600
INVERTER POWER	125 kW
RACKING	1BD
MONITORING	ALSO ENERGY
FENCE TYPE	DEER AGRICULTURAL

DESIGN CRITERIA	
MIN/MAX TEMP.	-28°C / 31°C
WIND SPEED (ASCE 7-10)	105 MPH
BUILDING CATEGORY	I
EXPOSURE CATEGORY	C
GROUND SNOW LOAD	50 PSF

OTHER NOTES

NO POSITION, DISTANCE, OR CLEARANCE ISSUES
WITH OVERHEAD ELECTRIC SERVICE LINES OR
OTHER UTILITIES IN RELATION TO THE PV PANELS.

24/7 UNESCORTED KEYLESS ACCESS PROVIDED FOR
THE METERS AND AC DISCONNECT.

INTERCONNECTION TYPE
SECONDARY

REVISIONS			
#	DESCRIPTION	BY	DATE
0	ORIGINAL DESIGN	DL	9/28/2020
1	MODULE CHANGE	CO	4/25/2022
2	SHIFT INTO SOUTH SETBACK	CO	5/17/2023
3	MODULE CHANGE SEG	CO	8/15/2023
4			
5			
6			
7			

PROJECT NAME
DIVOCSG 13 LLC

CASE NUMBER: 04194697

DRAWN BY
COURTNEY O'CONNOR

DRAWING TITLE

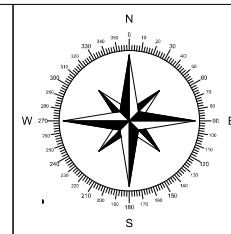
SITE PLAN

SCALE¹
1" = 80'

A horizontal graphic scale bar with alternating black and white segments. It is marked with '0' at the left end, '1"' in the middle, and '2"' at the right end.

SHEET

PV1

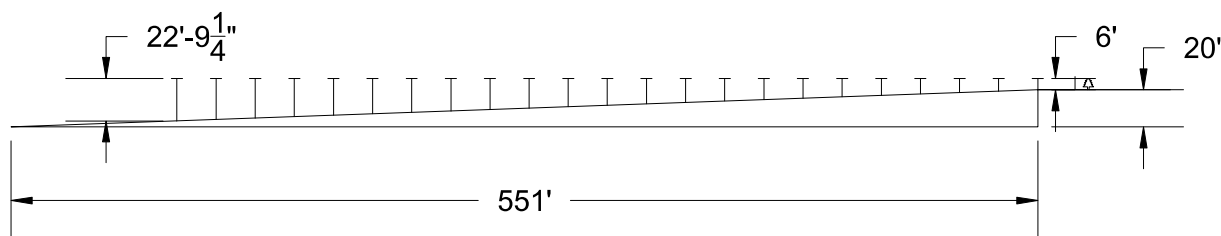


GORDIAN ENERGY SYSTEMS LLC
3815 COOLIDGE AVENUE
BALTIMORE, MD 21226
GORDIANENERGYSYSTEMS.COM
410-242-2449

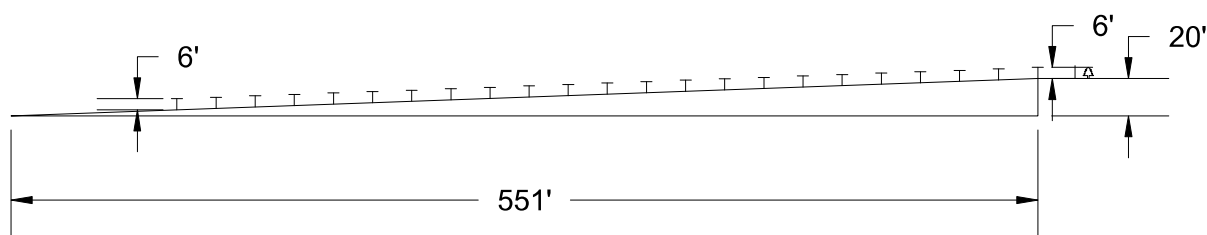
PROJECT ADDRESS
1712 Neworia Drive E
Wabasha, MN 55981

Elevation 670

Elevation 700



Example A - All solar modules at the same height



Example B - All solar modules at the same height above grade
(6' used as example, but modules would be between 4-10' above grade)

REVISIONS

#	DESCRIPTION	BY	DATE
0	PRELIMINARY DESIGN	CO	1/19/2023
1			
2			
3			
4			
5			
6			
7			

CUSTOMER NAME
DIVOC SG 13 LLC

PROJECT NAME
DIVOC SG 13

DRAWN BY
COURTNEY O'CONNOR

DRAWING TITLE
MODULE HEIGHT

SCALE¹
TBD 0 1" 2"

SHEET
PV1

DIVOCSG 17 LLC – Decommissioning Plan

General

- The intent of the decommissioning work will be to fully remove the solar facility and restore the site to a stabilized natural condition. Even if the intent is to resume farming, the site will first be fully restored and stabilized.
- The service life of the facility is assumed to be 25 years. All dollar amounts are in present day value, and it is assumed that all values will inflate at a similar rate, therefore, the net comparison of removal cost to salvage value at the end of the service life will remain accurate.
- Costs associated with this plan represent a “turn key” operation for a general contractor to be hired for this work, including permits, mobilization, contingency, etc.
- Unit costs for each line item have been provided by local contractors familiar with this type of work.
- Haul costs assume a maximum distance of 60 miles between the project and nearest disposal or recycling facility.
- No maximum duration has been assigned for this work. It has been assumed that this work would be handled by a single crew without full time site personnel.

Civil Infrastructure

- Topsoil used to backfill excavations will be borrowed from adjacent onsite locations. No topsoil import is included.
- Stormwater features such as retention berms or shallow basins with drain tile under drains may remain in place as they do not negatively impact future agricultural land uses and they will continue to provide an environmental benefit to the quality and quantity of offsite runoff.
- Aggregate removal will be the full depth of the aggregate section for roads, equipment pads, and other areas utilizing aggregate. No aggregate will be buried. Includes subgrade scarification prior to backfilling with topsoil.
- Turf establishment includes mulch, fertilizer, and water as necessary to achieve 70% ground cover as required to satisfy the NPDES Construction General Permit.
- Sediment control is priced as silt fence but could also be fiber logs. Location of sediment control will be downslope from exposed soils only in areas where sedimentation offsite or into onsite water bodies can reasonably be expected.

Structural Infrastructure

- Steel pile foundation removal is assumed to be similar in effort and price to pile installation.
- Steel racking removal is assumed to be similar in effort and price to racking installation.

Electrical Infrastructure

- Switchgear including transformers will be removed from their respective concrete pads and recycled/returned to the manufacturer.
- DC copper wiring will be dismantled and recycled.
- AC AL wiring, where underground will be dug up, retrieved and recycled.
- On site riser or interconnection poles shall be removed.
- String inverters/combiner boxes are no more than 130 lbs. in weight and not more than 40" X 25" X 12" in dimension. A two-person crew can dismantle a string inverter.
- Transformers are pad mounted and weigh approximately 6500 pounds. These are dry type transformers, so there is no need for any oil disposal.
- Switchgear and the transformer sit on the same concrete pad
- Underground medium voltage wires are generally aluminum and are placed in trenches, in some cases direct buried or in PVC conduits. They can be removed by trenching with a ditch witch

DIVOCSG 13 LLC – Decommissioning Plan

DIVOCSG 13 LLC									
8/25/2023									
Cost to Remove and Restore The Project Area									
		QUANTITY	UNITS	\$/UNIT	COST	NOTES			
Civil Related Items Work									
1	Aggregate Removal	1625	TONS	\$14.00	\$22,743.00	0.75 tons/LF	2166	LF	
2	Topsoil Backfill	60	CY	\$30.00	\$1,800.00				
3	Fence Removal	2,166	LF	\$1.50	\$3,249.00	Includes fence mesh, post framing, concrete foundations, gates, etc. Assumes min 20' clearance from energized			
4	Rip Rap Removal, Haul and Disposal	120	CY	\$20.00	\$2,400.00	Remove CMP of approximate 30' length with no greater than 2' of cover			
5	Reinforced Concrete Equipment Pad	1	EA	\$500.00	\$500.00				
6	Concrete Waste Haul and Offsite Disposal	1	EA	\$500.00	\$500.00				
7	Site Grading	1	AC	\$2,000.00	\$2,000.00	Grading smooth all areas disturbed by removals, excavations, etc, assumed (0.1x project area) + Road Area + Equipment Pad Area			
8	Turf Establishment	1	AC	\$1,500.00	\$1,500.00	Hydroseed all areas disturbed by removals, excavations, etc			
9	Sediment Control	2710	LF	\$1.50	\$4,065.00	Silt fence, assumed 2 x the project area N-S length			
Structural/Racking Equipment									
10	Foundation Removal, Hauling and Disposal	650	EA	\$6.00	\$3,900.00	Assumed [20] posts for 100 mod tables and [15] posts for 75 mod tables			
11	Steel Racking Removal, Hauling and Disposal	1.6	MW	\$3,500.00	\$5,600.00				
Electrical Material/Equipment									
12	Removal of Solar Modules	2,800	EA	\$3.00	\$8,400.00				
13	Removal of String Inverters	9	EA	\$40.00	\$360.00				
14	Removal of Switchgear/Xfmr	2	EA	\$1,200.00	\$2,400.00				
15	Removal of Riser and Interconnection Poles	3	EA	\$800.00	\$2,400.00				
16	Removal of SCADA/Aux Panel/Weather	1	EA	\$350.00	\$350.00				
17	Removal of Medium Voltage AL Cables	1	MW	\$1,200.00	\$1,200.00				
25	Removal of Fiber Optic Cables	1	MW	\$250.00	\$250.00				
	Total Cost				\$44,215.10				

Total Cost = \$44,215.10

Contingency Factor = 1.25

Total Decommissioning Bond Amount = \$55,268.88