

March 31, 2025

**Special Use Permit Request for
Ground Mounted Solar PV at
501 Caton Farm Road
Crest Hill, IL 60441**

To Whom It May Concern,

Verde Solutions is partnering with Hendrickson USA to develop a 4.8-acre ground mounted solar PV system at their facility located at 501 Caton Farm Road. The 12-acre field is owned by Hendrickson. Verde Solutions has over 10 years of experience in the solar industry, specializing in Illinois with our office located in Chicago.



Nearmap Imagery Taken October 10, 2024

Design and Intent

The system consists of (1,992) solar modules, equating to 1.185 MW DC capacity, and is intended to offset approximately 100% of Hendrickson's annual electric consumption. The panels are fixed at a 30-degree tilt to the south and arranged into nine rows. The array is enclosed with a fence and is setback approximately 180 feet south of Caton Farm Road. The solar system interconnects to Hendrickson's electrical infrastructure to supply their electrical needs behind the utility meter. The project received ComEd's interconnection and net metering approval

March 7, 2025. All proposed solar equipment complies with the 2020 National Electric Code and City of Crest Hill ordinances. The inverters and utility AC disconnect are to be fenced in and located near their existing utility transformer on the west side of the main building.

Site Improvements

The proposed developed area of 4.8 acres will comply with the City's Building Ordinance Chapter 15. The landscaping plan includes (216) new trees and shrubs. Much of the proposed landscaping will screen the array from Caton Farm Road. The ground under the array will be covered with a native seed mix and include an erosion control blanket. The stormwater report describes how the ground mounted solar will affect the current drainage plan. It was determined that site runoff storage is not required for this project.

The fence is 6 feet tall chain link style with 1 foot of barbed wire. There is a 16-foot-wide vehicle access gate located at the northeast corner of the array.

Upon discussion with the City and Lockport Fire Protection District (LFPD), a gravel access path will be provided around the perimeter of the array within the fence to be used for emergency access. The gravel will be ¾" limestone loosely compacted. A variance is requested to accommodate this, as the path will be used for emergencies. Adequate turn clearance is provided per the Pierce Turning Performance Analysis provided by LFPD.

Operations and Maintenance

Once the solar system is installed, there is very little maintenance required. The solar system is fully static and rarely requires hands-on troubleshooting after energization. We offer maintenance packages custom to the client but a small percentage of our clients choose to do so. We recommend it is not necessary in the first five years of operation because adequate IL rainfall and the tilt of the modules naturally minimize dust and debris accumulation.

Maintenance and operations are primarily supported by the remote monitoring system, which alerts us and the client of any potential system faults. Most of these faults occur during system testing and commissioning, so our installers are still on site to address them. If a fault arises after we leave the site, we will first detect it remotely and work to resolve it. Should the issue require on-site attention, we will send 1-2 team members to troubleshoot. It usually takes a few hours to half a day.

The equipment has long warranties: Modules - 30 year performance, inverters - 20 year extended, and racking - 20 years.

If the client opts for our standard Verde Maintenance & Operations plan, we will perform a site visit once a year for one day, typically involving a visual inspection and documentation (1-2 people). If the plan is not selected, the system will remain hands-off.

Decommissioning Plan

While a decommissioning plan is not included in the active and current EPC contract with Hendrickson, we will offer to do so at the client's request when the time comes. As an industry standard, the expected useful life of the solar system is 30 years. The solar panels are warrantied against a 0.5% production degradation each year. By year

30, the solar panels will be producing 85% of their original output. The solar system will continue to produce long after that, and it would be up to the client to decide to leave the system as is, upgrade to newer technology, or explore system removal.

During system removal, Verde would remove all of the tangible property relating to the solar system. The land would be restored to its original condition with the exception of buried conduits.

Verde Solutions would use Com2 Recycling Solutions for the Removal and Decommissioning of the dated solar panels. Com2 Recycling Solutions is an R2 Certified recycling company located in Chicagoland which complies with all rules and regulations relative to the recycling of solar panels and inverters. The Certificate of Recycling (COR) would be issued once fully recycled.

About Verde Solutions

Verde Solutions, founded in 2012 by Christopher Gersch, is a leader in energy efficiency and sustainability solutions. With over 2,600 completed projects across 48 states, we bring proven expertise in energy reduction and generation solutions for commercial, industrial, educational, and municipal projects. We have consistently demonstrated growth and leadership, earning recognition on the INC 5000 list multiple times and inclusion in Solar Power World's top commercial solar contractors in 2024. Our extensive experience with educational institutions and municipalities ensures that we are well-equipped to deliver a successful project. Notable similar projects that we have completed include a 777kW-DC ground mount for the Minooka Wastewater Treatment plant, a 1.2 MW ground mount at a gravel pit in Lakemoor, a combo rooftop and ground mount for a commercial client in St. Charles, and a 2MW rooftop and ground mount for the College of Lake County.

Further Discussion

The City identified a wetland on the neighboring parcel to the south (ComEd, 11-04-33-100-006-0000). The wetland firm is unable to complete a full delineation until ground conditions are favorable in May. Due to the IL Shines solar incentive block closing on June 1, 2025, which requires Special Use Permit approval, it was mutually agreed with the City that, following the wetland delineation results, the solar array will be adjusted if necessary to avoid negatively impacting the current drainage to the wetland. However, given the wetland is not in close proximity to the array, Verde does not anticipate the array moving much, if at all. The official wetland delineation will be promptly shared with the City and the impact to the array will be identified. The IL Shines solar incentive is lucrative and essential to the progress of this project.

Given our vast experience with solar ground mounts and Greater Chicagoland municipalities, we consider the landscaping and fire protection requirements to be above and beyond what other municipalities have required for parcels without neighboring residential zones. However, we fully understand that this project is subject to Crest Hill's approval and are eager to coordinate a successful solar system with the City.



Go Green Get Ahead

We thank you for your consideration of this project and look forward to continuing discussions.

Regards,

Grace Rasmussen, Verde Solutions

Project Engineer

grasmussen@verdesolutions.com

312-268-2025

Site Plan Documents included in submission:

1. *ALTA Survey*
2. *Electrical Construction Set – Site Plan, Equipment Elevations, Single Line Diagram, NEC Labels*
3. *Racking Construction Set*
4. *Racking Structural Calculations*
5. *Landscaping Plan*
6. *Stormwater Report*

Solar Ground Mount System at Hendrickson USA

Crest Hill, Will County, Illinois
Stormwater Management Permit

Hey Project No. 25-0072

Prepared For:
Verde Solutions

Prepared by:
Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

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Volo, Illinois 60073
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Illinois Professional Design Firm 184.002429 / Wisconsin Architectural and Engineering License # 2340-11
Staff licensed to practice in Illinois, Wisconsin, Indiana, Michigan and Oregon
IDOT and WisDOT Prequalified

April 15, 2025

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Site Runoff and Site Runoff Storage	2
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Exhibits

Exhibit 1 - Location Map

Exhibit 2 - Drainage Plan

Exhibit 3 – FEMA FIRMETTE

Appendices

Appendix A – Planset

INTRODUCTION

Hey and Associates, Inc. (Hey) was retained by Verde Solutions to prepare permit documentation as part of the Solar Ground Mount System at Hendrickson USA project (Project). The site is located in the City of Crest Hill, Will County, Illinois. The project is further located in Section 33 of Township 36 North, Range 10 East in Lockport Township. See Exhibit 1 for an overall project location map.

The project includes the installation of solar panels on a grass field to provide energy for the manufacturing facility on site. Some existing trees will be removed to avoid interference with the solar panel performance. The area under the solar panels will be seeded with a pollinator habitat seed mix, and a variety trees and shrubs will be planted as well.

SITE RUNOFF AND SITE RUNOFF STORAGE

The site generally drains towards the southeast. After leaving the site boundaries, the drainage pattern continues towards the southwest into a swale along the north of the railroad. The swale then joins with a channel that flows towards the east and eventually empties into the Des Plaines River. This drainage pattern will be maintained in the proposed conditions. The drainage plan for the site is included as Exhibit 2.

According to section 55.020.C.3 of the Will County Code of Ordinances, solar farm developments are exempt from site runoff storage provided the following criteria are met:

- a) Groundcover vegetation is maintained in good condition
- b) The total proposed impervious area is less than 25,000 square feet
- c) The open space between the panels are equal or greater than the panel width
- d) The runoff will sheet flow through the site with a slope of less than 5 percent

These criteria are met, as described in the sections below, and therefore site runoff storage is not required for this project. Additionally, the following sections illustrate compliance with sections 15.20.030 and 15.20.070 from the Crest Hill Code of Ordinances.

GROUNDCOVER VEGETATION

The entire area under the proposed solar panels will be seeded with a native seed mix. The seed mix and location is described in the landscaping plan sheets, which are included in Appendix A. The proposed groundcover vegetation will be maintained in good condition by the owner.

IMPERVIOUS AREAS

No impervious area is proposed on the site. An access road constructed of loosely compacted 3/4" gravel is proposed around the solar panels. However, loosely compacted gravel is not considered impervious by the City of Crest Hill and so is not counted as proposed impervious area.

SOLAR PANEL SPACING AND SHEET FLOW

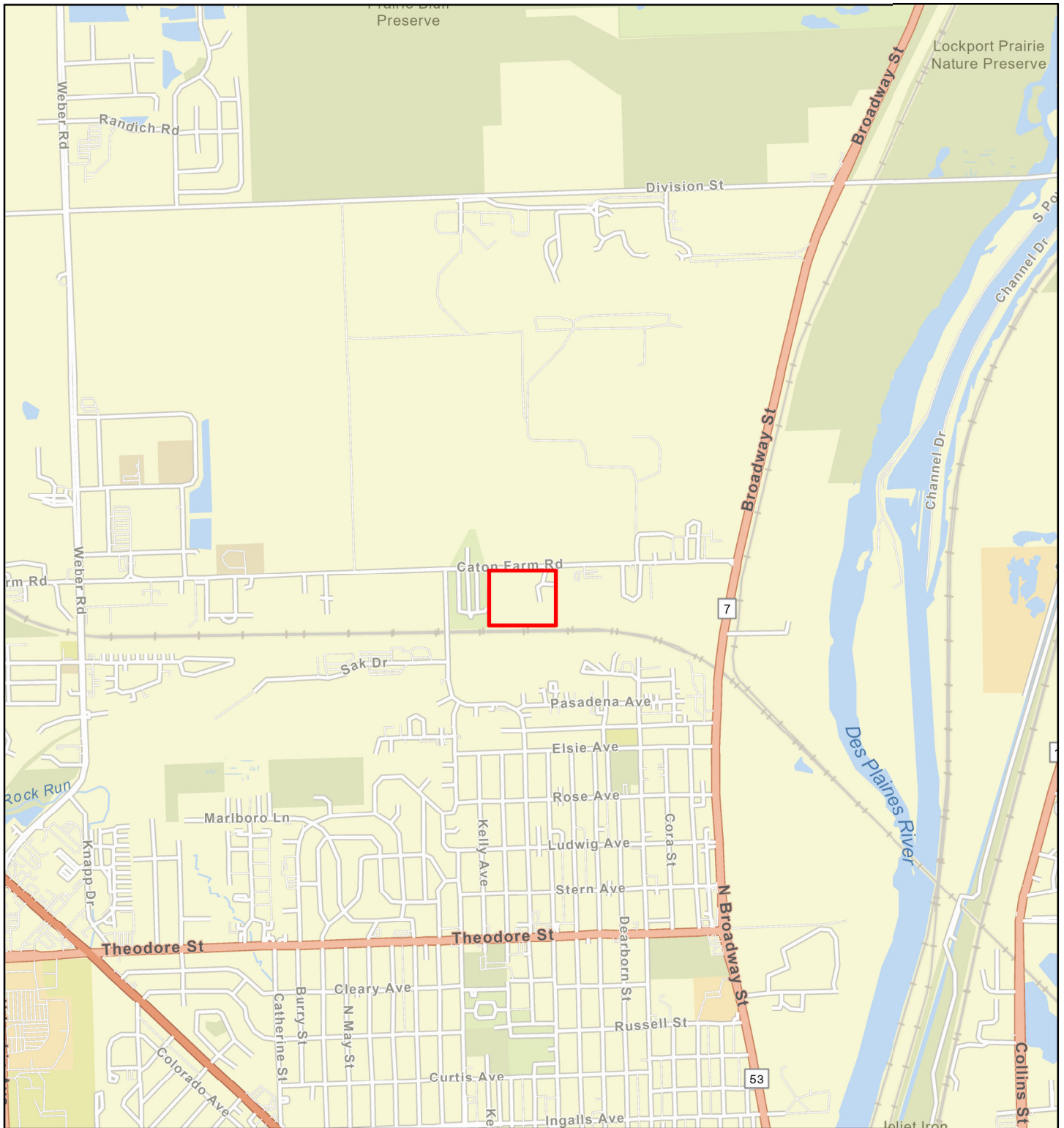
The solar panels have a width of 12.97 feet, and each row of panels will be installed with a 19.17 foot space between them, meeting the requirement that the open space must be wider than the solar panels. The panels will be at a 30-degree angle, so runoff will sheet flow onto the ground. The slope of the ground underneath the panels varies, with the northwestern area containing a generally steeper slope that becomes more gradual at the southeast corner. The average ground slope is approximately 2.15% underneath the panels, which is within the ordinance guidelines.

SEDIMENT AND EROSION CONTROL

The seeding mix proposed for the solar panel area will be installed with erosion control blanket to protect against erosion and promote seed establishment and growth. Additionally, a total of 216 trees and shrubs are to be planted on site in accordance with section 15.04.040 of the Crest Hill Ordinance. These plantings will provide further permanent erosion control on site.

SPECIAL MANAGEMENT AREAS

There is no floodway or floodplain on site, as shown in Exhibit 3. There are also no wetlands on site.



Scale: 1 inch = 2000 feet

Orientation:

Legend:

Project Name:



 Project Site

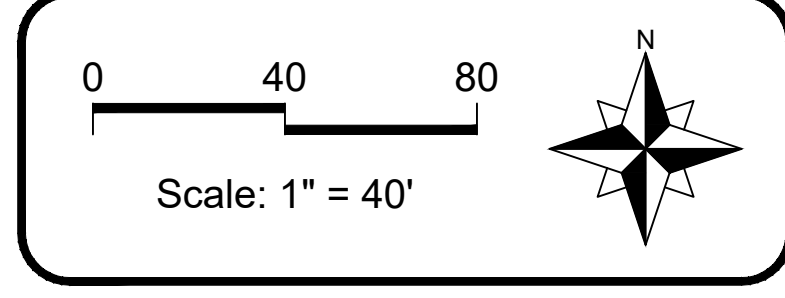
Solar Ground Mount at
Hendrickson USA

Project Number: 25-0072

Date: 3/13/2025

Prepared for:

Verde Solutions



LEGEND		
	Overland Flow Direction	
No.	Revision/Issue	Date

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 Engineering, Ecology and Landscape Architecture
 26575 WEST COMMERCE DRIVE, SUITE 601
 VOLO, ILLINOIS 60073
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 VOLO@HEYASSOC.COM
 PROFESSIONAL DESIGN FIRM
 LICENSE NO. 184-002429

Solar Ground Mount System at
 Hendrickson USA
 Crest Hill, IL

Drainage Plan

PROJECT NO:	25-0072	SHEET NO:	
DESIGNED BY:	CER	EX2	
DRAWN BY:	CER		
CHECKED BY:	AMC	PAGE NO:	
APPROVED BY:	AMC		
ISSUE DATE:	04/15/2025		1 of 1

Permit

File: P:\25000\25-0072_Veris Solutions_Crest Hill_Caton Farm Rd05 CAD\25-0072 Stormwater Drainage Exhibit.dwg Plot Date: April 15, 2025 Plotted by: Claire Randall

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National Flood Hazard Layer FIRMeTte



Exhibit 3 - FEMA FIRMeTTE

88°6'14"W 41°34'11"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D

OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall

OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
OTHER FEATURES		Profile Baseline
		Hydrographic Feature

MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

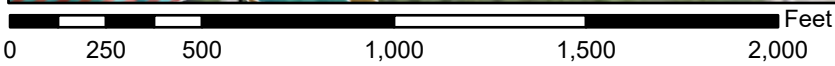


The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/13/2025 at 9:32 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



1:6,000

88°5'37"W 41°33'44"N

Basemap Imagery Source: USGS National Map 2023

Appendix A

Plan Set

ALTA / NSPS LAND TITLE SURVEY

THAT PART OF THE NORTHWEST QUARTER OF SECTION 33, IN TOWNSHIP 36 NORTH, RANGE 10, EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: BOUNDED ON THE NORTH BY THE NORTH LINE OF SAID SECTION 33, ON THE SOUTH BY THE NORTHERLY LINE AND ON SAID LINE EXTENDED WESTERLY OF LAND CONVEYED BY FLORENCE O. WINSHIP AND S.W. WINSHIP, ET AL, TO THE PUBLIC SERVICE COMPANY OF NORTHERN ILLINOIS BY WARRANTY DEED DATED APRIL 14, 1928 AND RECORDED JUNE 7, 1928 IN BOOK 661, PAGE 564, AS DOCUMENT 419036, ON THE WEST BY LAND CONVEYED BY FLORENCE O. WINSHIP, ET AL, TO THE CATHOLIC BISHOP OF CHICAGO BY WARRANTY DEED DATED FEBRUARY 10, 1928 AND RECORDED JUNE 5, 1928 IN BOOK 661, PAGE 554, AS DOCUMENT 418951, AND ON THE EAST LINE BY A LINE 1498.84 FEET EAST OF AND PARALLEL WITH THE WEST LINE OF SAID NORTHWEST QUARTER AND EXCEPT THAT PROPERTY CONVEYED BY LAVELIA BUILDING CORPORATION TO MARTIN D. MCNAMARA, TRUSTEE, BY DEED RECORDED MAY31, 1955AS DOCUMENT 774760, IN WILL COUNTY, ILLINOIS.

SURVEY NOTES:

- SITE BENCHMARK #1 - SE FLANGE BOLT ON HYDRANT ON THE SOUTH SIDE OF CATON FARM ROAD, 592' WEST OF ENTRANCE AS SHOWN ON SHEET SUR-2. ELEVATION-614.65' (NAVD88).
- SITE BENCHMARK #2 - SE FLANGE BOLT ON HYDRANT ON THE SOUTH SIDE OF CATON FARM ROAD, 600.65' WEST OF ENTRANCE AS SHOWN ON SHEET SUR-2. ELEVATION-600.65' (NAVD88)
- PERMANENT INDEX NUMBER (P.I.N. #): 11-04-33-100-003 & 11-04-33-100-002
- FIELD WORK COMPLETED ON 12/4/2024.
- SURVEY PREPARED FOR: VERDE SOLUTIONS, LLC.
- THE SURVEYOR FOUND NO EVIDENCE OF FLAGGED WETLANDS ON THE SURVEYED PROPERTY
- THE LOCATION OF UNDERGROUND UTILITIES WAS DETERMINED BY FIELD OBSERVATION AND VISIBLE MARKINGS ONLY.
- ANY DISCREPANCIES FOUND WITHIN THIS DOCUMENT NEED TO BE REPORTED TO THE SURVEYOR AS SOON AS POSSIBLE.

ALTA TABLE A NOTES:

2. SITE ADDRESS - 501 CATON FARM ROAD, CREST HILL, ILLINOIS.
3. ACCORDING TO OUR INTERPOLATION OF THE FLOOD INSURANCE RATE MAP THIS SITE IS LISTED AS BEING IN A ZONE "X", DESCRIBED AS "AREAS OF MINIMAL FLOOD HAZARD" PER F.E.M.A. PANEL NO.17197C0153G DATED FEBRUARY 15TH, 2019
4. LAND AREA
PARENT PARCEL: 549,406 SQ. FT (12.61 ACRES)
5. PER CLIENT REQUEST, ONLY PORTIONS OF THIS PROPERTY TO BE SHOWN WITH ELEVATIONS & CONTOURS.
6. A & B. PROPERTY IS ZONED COMMERCIAL.
7. A & B1. BUILDING TIES & DIMENSIONS SHOWN ARE MEASURED FROM THE OUTSIDE FACE OF THE BUILDING.
8. ALL SUBSTANTIAL FEATURES OBSERVED DURING THE FIELDWORK ARE PLOTTED HEREON, INCLUDING ANY ABOVE-GROUND UTILITIES.
9. THERE ARE NO PARKING STALLS ON PROPERTY.
11. THE LOCATION OF UNDERGROUND UTILITIES WAS DETERMINED BY FIELD OBSERVATION, VISIBLE MARKINGS ONLY.
13. NAMES OF ADJOINING OWNERS SHOWN ON SURVEY
14. THE NEAREST INTERSECTING STREET IN RELATION TO THE SURVEYED PROPERTY IS OAKLAND AVENUE, WHICH LIES APPROX. 579 FEET WEST OF THE NORTHWEST CORNER OF THE SURVEYED PROPERTY
16. THERE WAS NO EVIDENCE OF RECENT EARTH MOVING WORK.
17. THE SURVEYOR HAS NO KNOWLEDGE OF PROPOSED CHANGES IN STREET RIGHT OF WAY LINES OR RECENT STREET OR SIDEWALK CONSTRUCTION.
18. THE SURVEYOR HAS NO KNOWLEDGE OF ANY PLOTTABLE OFFSITE EASEMENTS.
19. CERTIFICATE OF INSURANCE IS AVAILABLE UPON REQUEST

TITLE NOTES:

SURVEY WAS PREPARED WITH THE AID OF A TITLE COMMITMENT PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, WTC FILE NUMBER VER-2025WL-97690, HAVING AN EFFECTIVE DATE OF JANUARY 28, 2025.

SCHEDULE B EXCEPTIONS

- 11 - EASEMENT DATED JUNE 2, 1954 AND RECORDED JUNE 8, 1954 AS DOCUMENT NO. 751112 MADE BY A E PATTON AND MABEL MARGARET PATTON TO NORTHERN ILLINOIS GAS COMPANY RECORDED IN THE WILL COUNTY RECORDERS OFFICE. SHOWN ON SURVEY. DOES NOT AFFECT PROPERTY.
- 12 - EASEMENT DATED JULY 26, 1954 AND RECORDED DECEMBER 11, 1961 AS DOCUMENT NO. 945505 MADE BY A E PATTON AND MABEL MARGARET PATTON TO COMMON WEALTH EDISON COMPANY AND ILLINOIS BELL TELEPHONE COMPANY RECORDED IN THE WILL COUNTY RECORDERS OFFICE. EASEMENT FALLS IN RIGHT OF WAY.

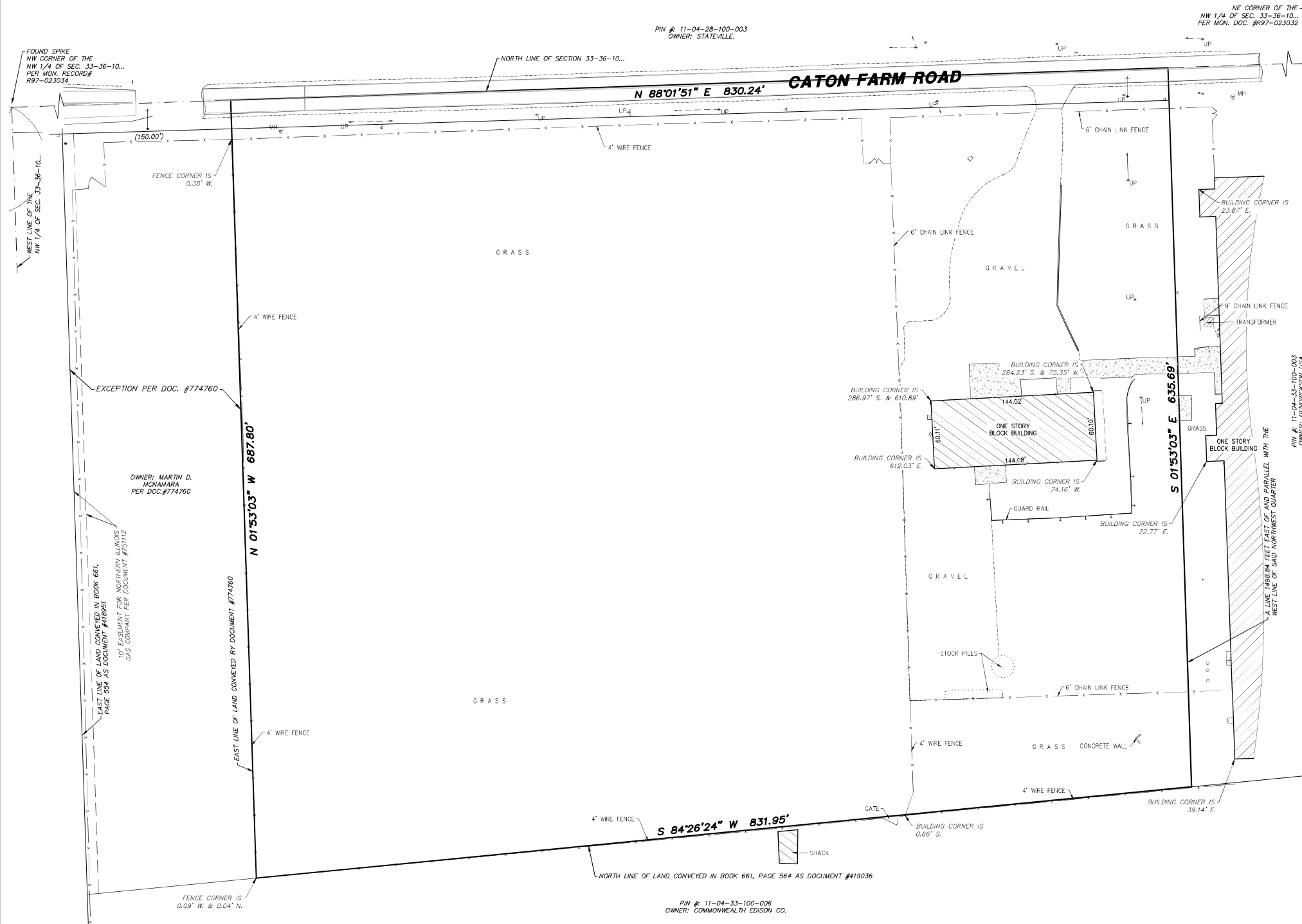
STATE OF ILLINOIS)
COUNTY OF COOK) SS
TO: XXXXXX
XXXXXXXX
XXXXXX

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 3, 6A, 7A, 8, 9, 11A, 13, 14, AND 16 OF TABLE "A" THEREOF. THE FIELD WORK WAS COMPLETED ON 12/4/2024.

GIVEN UNDER MY HAND AND SEAL THIS _____ DAY OF _____ A.D. _____ AT HOFFMAN ESTATES, ILLINOIS.

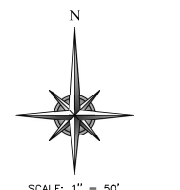
PRELIMINARY 2/7/2025

FRANJO I. MATIJC - PLS #035-003556 EXPIRES 11/30/2026
ILLINOIS PROFESSIONAL DESIGN FIRM LICENSE NO. 184.007570-0015



SEE SHEETS SUR-2 & SUR-3 FOR TOPOGRAPHIC FEATURES

LEGEND		
PROPERTY LINE	UTILITY POLE	SOIL BORING
CENTER LINE	TYPICAL SIGN	TELE/elec. MANHOLE
EASEMENT LINE	MAILBOX	HANDRAIL
BUILDING SETBACK	CLOSED MANHOLE	GUARDRAIL
SECTION LINE	OPEN GRATE MANHOLE	GUY WIRE ANCHOR
RECORD DATA	BEDWING GRATE MANHOLE	CONTOUR LINE
TOP OF CURB/RAIL, ETC.	CUTTER FRAME MANHOLE	EDGE GRAVEL/STONE
SPOT GRADE	VALVE VAULT	FENCE LINE
BOTTOM OF DRAIN, (OUTFALL)	FIRE HYDRANT	FLARED END SECTION
CONCRETE	B-BODY / SERVICE VALVE	STORM SEWER
EVERGREEN/DECIDUOUS	POST LIGHT/GROUND LIGHT	SANITARY SEWER
WITH SIZE IN INCHES	AREA LIGHT/LIGHT POLE	COMBO SEWER
SHRUB/SHRUB LINE	STREET LIGHT	WATER SERVICE LINE
MONITOR WELL	TRAFFIC SIGNAL	WATER MAIN
GAS VALVE	MAST ARM SIGNAL	OVERHEAD LINE
UTILITY MARKINGS	HAND-OLE (electric/traffic)	FIBER OPTIC LINE
(cable,elec, fiber)	GAS METER	GAS LINE
(water,gas)	ELECTRIC METER	U.C. TELE. LINE
	PRESTAL (tele,elec,cable)	U.C. ELECTRIC LINE



BASIS OF BEARINGS IS TRUE NORTH BASED ON ILLINOIS STATE PLANE COORDINATE SYSTEM, ILLINOIS EAST 1201 ZONE.

LIST OF POSSIBLE ENCROACHMENTS
TO THE SURVEYOR'S KNOWLEDGE, BASED ON FIELD EVIDENCE AND PROVIDED DOCUMENTATION, THERE ARE NO ENCROACHMENTS ONTO ADJOINING PROPERTY, STREETS OR ALLEYS OR ANY EASEMENTS BURDENING THE LEASE AREA BY ANY BUILDINGS, STRUCTURES, OR OTHER IMPROVEMENTS;
EXCEPT: NONE.
THERE ARE ALSO NO ENCROACHMENTS ONTO THE LEASE AREA OR EASEMENTS BENEFITING THE SURVEYED PROPERTY BY BUILDINGS, STRUCTURES, OR OTHER IMPROVEMENTS SITUATED ON ADJOINING PROPERTIES.

WT GROUP
Engineering with Precision, Pace and Passion.
1878 Park Avenue North, Westmont, Illinois, IL 60112
T: 224.298.6333 F: 224.298.6444
wtgroupinc.com
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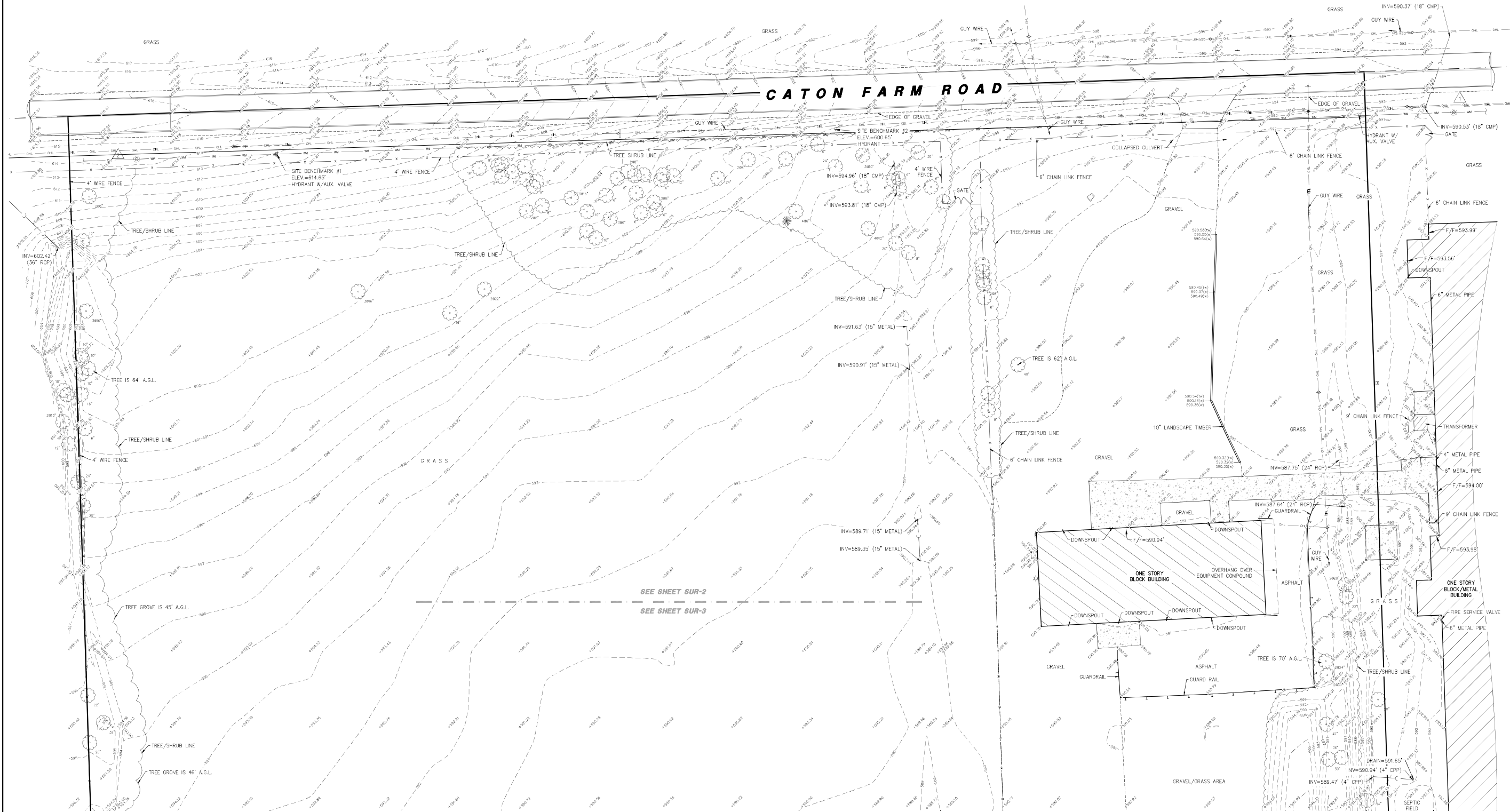
WT Group
Engineering • Design • Consulting

HENDRICKSON USA
501 CATON FARM ROAD
CREST HILL, ILLINOIS

ISSUE	
TO	DATE
CLIENT	12/19/24
CLIENT	1/17/25
CLIENT	2/7/25

CHECK:FM
DRAWN:REM
JOB: S2400104
SUR-1
SHEET 1 OF 3
ALTA/NSPS
LAND TITLE SURVEY

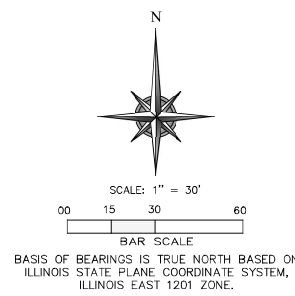
ALTA / NSPS LAND TITLE SURVEY



LEGEND			
—	PROPERTY LINE	⊕	UTILITY POLE
—	CENTER LINE	⊕	TELE/elec. MANHOLE
—	EASEMENT LINE	⊕	MAILBOX
—	BUILDING SETBACK	⊕	CLOSED MANHOLE
—	SECTION LINE	⊕	OPEN GRATE MANHOLE
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—	BOTTOM OF (DRAIN, UTILITY)	⊕	FIRE HYDRANT
—	CONCRETE	⊕	6-INCH / SERVICE VALVE
—	EVERGREEN/DECIDUOUS	⊕	POST LIGHT/GROUND LIGHT
—	WITH SIZE IN INCHES	⊕	AREA LIGHT/LIGHT POLE
—	SHRUB/SHRUB LINE	⊕	STREET LIGHT
—	MONITOR WELL	⊕	TRAFFIC SIGNAL
—	GAS VALVE	⊕	MAST ARM SIGNAL
—	UTILITY MARKINGS	⊕	HAND-TOLE (electric/traffic)
—	(cable, elec, fiber)	⊕	GAS METER
—	(tel, water, gas)	⊕	ELECTRIC METER
—		⊕	PRESTRESSAL (tele, elec, cable)
—		⊕	SOIL BORING
—		⊕	TELE/elec. MANHOLE
—		⊕	HANDRAIL
—		⊕	GUARDRAIL
—		⊕	GUY WIRE ANCHOR
—		⊕	CONTOUR LINE
—		⊕	EDGE GRAVEL/STONE
—		⊕	FENCE LINE
—		⊕	FLARED END SECTION
—		⊕	STORM SEWER
—		⊕	SANITARY SEWER
—		⊕	COMBO SEWER
—		⊕	WATER SERVICE LINE
—		⊕	WATER MAIN
—		⊕	OVERHEAD LINE
—		⊕	FIBER OPTIC LINE
—		⊕	GAS LINE
—		⊕	U.G. TELE. LINE
—		⊕	U.G. ELECTRIC LINE

1. RIM=691.15' (WATER)
48" CONCRETE STRUCTURE
586.87' AT TOP OF 12" DIP E/W

2. RIM=614.54' (WATER)
48" CONCRETE STRUCTURE
609.73' AT TOP OF 12" DIP E/W



SURVEY NOTES:

1. SITE BENCHMARK #1 - SE FLANGE BOLT ON HYDRANT ON THE SOUTH SIDE OF CATON FARM ROAD, 592' WEST OF ENTRANCE AS SHOWN ON SHEET SUR-2. ELEVATION-614.65' (NAVD88).
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5. BASIS OF BEARINGS IS TRUE NORTH BASED ON ILLINOIS STATE PLANE COORDINATE SYSTEM, ILLINOIS EAST 1201 ZONE.
6. ANY DISCREPANCIES FOUND WITHIN THIS DOCUMENT NEED TO BE REPORTED TO THE SURVEYOR AS SOON AS POSSIBLE.

WT GROUP
Engineering with Precision, Pace and Passion.
2025 P.O. Box 100, West Frankfort, IL 60192
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WT Group
Engineering • Design • Consulting

HENDRICKSON USA
501 CATON FARM ROAD
CREST HILL, ILLINOIS

ISSUE	
TO	DATE
CLIENT	12/19/24
CLIENT	1/17/25
CLIENT	2/7/25

CHECK: FIM
DRAWN: REM
JOB: S2400104
SUR-2
SHEET 2 OF 3
ALTA/NSPS
LAND TITLE SURVEY

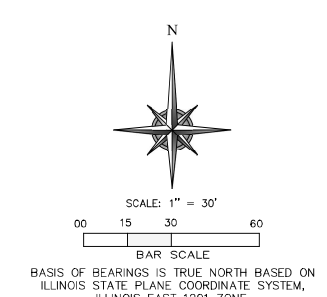
ALTA / NSPS LAND TITLE SURVEY



LEGEND		
PROPERTY LINE	UTILITY POLE	SOIL BORING
CENTER LINE	TYPICAL SIGN	TELE/elec. MANHOLE
EASEMENT LINE	MAILBOX	HANDRAIL
BUILDING SETBACK	CLOSED MANHOLE	GUARDRAIL
SECTION LINE	OPEN GRATE MANHOLE	GUY WIRE ANCHOR
RECORD DATA	BEHIND GRATE MANHOLE	CONTOUR LINE
TOP OF CURB/RAIL, ETC.	CUTTER FRAME MANHOLE	EDGE GRAVEL/STONE
SPOT GRADE	VALVE VAULT	FENCE LINE
BOTTOM OF DRAINAGE (OUTFALL)	FIRE HYDRANT	FLARED END SECTION
CONCRETE	B-BODY / SERVICE VALVE	STORM SEWER
EVERGREEN/DECIDUOUS	POST LIGHT/GROUND LIGHT	SANITARY SEWER
WITH SIZE IN INCHES	AREA LIGHT/LIGHT POLE	COMBO SEWER
SHRUB/SHRUB LINE	STREET LIGHT	WATER SERVICE LINE
MONITOR WELL	MAST ARM SIGNAL	WATER MAIN
GAS VALVE	HAND-HOLE (electric/traffic)	OVERHEAD LINE
UTILITY MARKINGS	GAS METER	FIBER OPTIC LINE
(cable,elec,fiber)	ELECTRIC METER	GAS LINE
(tel,wire,gas)	PRESTAL (tele,elec,cable)	U.G. TELE. LINE
		U.G. ELECTRIC LINE

▲ RIM=691.15' (WATER)
 48" CONCRETE STRUCTURE
 586.87' AT TOP OF 12" DIP E/W

▲ RIM=614.54' (WATER)
 48" CONCRETE STRUCTURE
 609.73' AT TOP OF 12" DIP E/W



- SURVEY NOTES:**
- SITE BENCHMARK #1 - SE FLANGE BOLT ON HYDRANT ON THE SOUTH SIDE OF CATON FARM ROAD, 592' WEST OF ENTRANCE AS SHOWN ON SHEET SUR-2. ELEVATION-614.65' (NAVD88).
 - SITE BENCHMARK #2 - SE FLANGE BOLT ON HYDRANT ON THE SOUTH SIDE OF CATON FARM ROAD, 600.65' WEST OF ENTRANCE AS SHOWN ON SHEET SUR-2. ELEVATION-600.65' (NAVD88)
 - THE LOCATION OF UNDERGROUND UTILITIES WAS DETERMINED BY FIELD OBSERVATION AND VISIBLE MARKINGS ONLY.
 - FIELD WORK COMPLETED ON 12/4/2024.
 - SURVEY PREPARED FOR: VERDE SOLUTIONS, LLC
 - BASIS OF BEARINGS IS TRUE NORTH BASED ON ILLINOIS STATE PLANE COORDINATE SYSTEM, ILLINOIS EAST 1201 ZONE.
 - ANY DISCREPANCIES FOUND WITHIN THIS DOCUMENT NEED TO BE REPORTED TO THE SURVEYOR AS SOON AS POSSIBLE.

AQUATIC \ CIVIL \ MECHANICAL \ ELECTRICAL \ PLUMBING \ TELECOMMUNICATION \ STRUCTURAL \ ACCESSIBILITY CONSULTING \ DESIGN & PROGRAM MANAGEMENT \ LAND SURVEY

WT GROUP
 Engineering with Precision, Pace and Passion.
 1878 Park View North (West) Estates, E. 05192
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WT Group
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HENDRICKSON USA
 501 CATON FARM ROAD
 CREST HILL, ILLINOIS

ISSUE
 TO: _____ DATE: _____
 CLIENT: 12/19/24
 CLIENT: 1/17/25
 CLIENT: 2/7/25

CHECK: FIM
 DRAWN: REM
 JOB: S2400104
SUR-3
 SHEET 3 OF 3
 ALTA/NSPS
 LAND TITLE SURVEY

PLAT OF SURVEY

SPACECO UAV
AERIAL IMAGE
DATE OF FLIGHT: 03/19/2024

PROPERTY DESCRIPTION:

PARCEL 1:
A TRACT OF LAND IN THE NORTHWEST QUARTER OF SECTION 33, IN TOWNSHIP 36 NORTH, RANGE 10, EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS BEGINNING AT THE NORTHEAST CORNER OF THE TRACT OF LAND CONVEYED TO LAVELLA BUILDING CORPORATION BY QUIT-CLAIM DEED RECORDED IN THE RECORDER'S OFFICE OF WILL COUNTY, ILLINOIS, AS DOCUMENT 754202, WHICH NORTHEAST CORNER IS ALSO THE NORTHEAST CORNER OF THE WEST 1498.84 FEET OF SAID NORTHWEST QUARTER AND RUNNING THENCE EAST ALONG THE NORTH LINE OF SAID NORTHWEST QUARTER A DISTANCE OF 859.31 FEET TO THE NORTHWEST CORNER OF THE TRACT OF LAND CONVEYED TO JOHN F. ZELLER BY QUIT-CLAIM DEED RECORDED IN SAID RECORDER'S OFFICE AS DOCUMENT 909129, WHICH NORTHWEST CORNER IS ALSO THE NORTHWEST CORNER OF THE EAST 282.71 FEET OF SAID NORTHWEST QUARTER, THENCE SOUTH ALONG THE WEST LINE OF SAID EAST 282.71 FEET AND THE WEST LINE OF SAID TRACT CONVEYED BY DOCUMENT #09129 A DISTANCE OF 577.61 FEET TO THE SOUTHWEST CORNER OF THE LAST ABOVE MENTIONED TRACT; THENCE WESTWARDLY A DISTANCE OF 136.08 FEET TO A POINT ON THE NORTHERLY LINE OF THE TRACT OF LAND CONVEYED TO THE PUBLIC SERVICE COMPANY OF NORTHERN ILLINOIS BY QUIT-CLAIM DEED RECORDED IN SAID RECORDER'S OFFICE AS DOCUMENT #19036, WHICH POINT IS 418.19 FEET WEST FROM THE EAST LINE OF SAID NORTHWEST QUARTER MEASURED PERPENDICULARLY THERETO; THENCE WESTWARDLY ALONG SAID NORTHERLY LINE OF SAID TRACT CONVEYED BY SAID DOCUMENT #19036 A DISTANCE OF 725.15 FEET TO THE SOUTHEAST CORNER OF SAID TRACT OF LAND CONVEYED BY DOCUMENT 754202, WHICH SOUTHEAST CORNER IS ON THE EAST LINE OF SAID WEST 1498.84 FEET AND THENCE NORTH ALONG THE EAST LINE OF SAID TRACT CONVEYED BY DOCUMENT 754202 AND ALONG SAID EAST LINE OF THE WEST 1498.84 FEET A DISTANCE OF 635.69 FEET TO THE PLACE OF BEGINNING, IN WILL COUNTY, ILLINOIS.

PARCEL 2:
THAT PART OF THE NORTHWEST QUARTER OF SECTION 33, IN TOWNSHIP 36 NORTH, RANGE 10, EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: BOUNDED ON THE NORTH BY THE NORTH LINE OF SAID SECTION 33, ON THE SOUTH BY THE NORTHERLY LINE AND ON SAID LINE EXTENDED WESTERLY OF LAND CONVEYED BY FLORENCE O. WINSHIP AND B. W. WINSHIP, ET AL., TO THE PUBLIC SERVICE COMPANY OF NORTHERN ILLINOIS BY WARRANTY DEED DATED APRIL 14, 1928 AND RECORDED JUNE 7, 1928 IN BOOK 661, PAGE 564, AS DOCUMENT #19036, ON THE WEST BY LAND CONVEYED BY FLORENCE O. WINSHIP, ET AL., TO THE CATHOLIC BISHOP OF CHICAGO BY WARRANTY DEED DATED FEBRUARY 10, 1928 AND RECORDED JUNE 5, 1928 IN BOOK 661, PAGE 554, AS DOCUMENT #19036, AND ON THE EAST LINE BY A LINE 1498.84 FEET EAST OF AND PARALLEL WITH THE WEST LINE OF SAID NORTHWEST QUARTER AND EXCEPT THAT PROPERTY CONVEYED BY LAVELLA BUILDING CORPORATION TO MARTIN D. MCNAMARA, TRUSTEE, BY DEED RECORDED MAY 31, 1955 AS DOCUMENT 774760, IN WILL COUNTY, ILLINOIS.

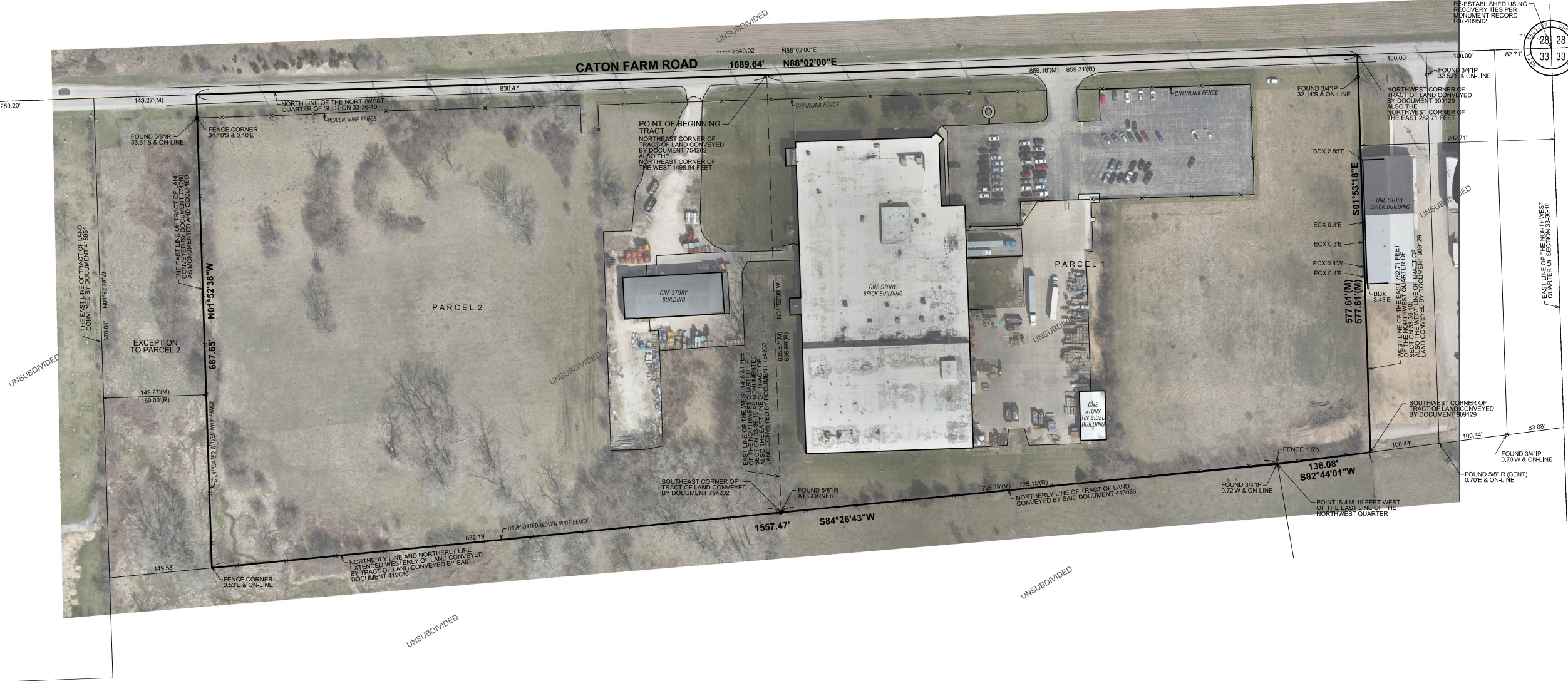
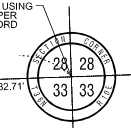
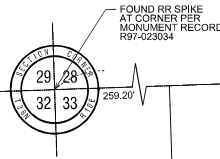
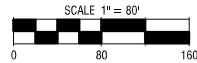
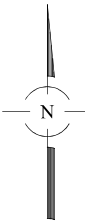
NOTES:

THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE COMMITMENT. IT IS POSSIBLE THAT ADDITIONAL EASEMENTS, RESTRICTIONS OR OTHER ENCUMBRANCES EXIST OVER THE PROPERTY THAT HAVE NOT BEEN SHOWN HEREON.
BEARINGS SHOWN HEREON ARE BASED ON NAD83 ILLINOIS STATE PLANE COORDINATE SYSTEM, EAST ZONE (2011 ADJUSTMENT) AND NAVD88 (GEOID 12B) UTILIZING GNSS EQUIPMENT AND TORNETLIVE RTK NETWORK.
LAST DATE OF FIELD WORK: APRIL 1, 2024.

PROPERTY SURVEYED: 1,072,114 SQ. FT. OR 24.612 ACRES MORE OR LESS.

ADDRESS:
501 CATON FARM RD
CREST HILL, ILLINOIS 60403

P.I.N:
11-04-33-100-002-0000 (PARCEL 2)
11-04-33-100-003-0000 (PARCEL 1)



LEGEND

	STORM SEWER		SANITARY MANHOLE		HAND HOLE		CUT GRASS
	SANITARY SEWER		STORM MANHOLE		STREET LIGHT		PK / MISC RAIL
	COMBINED SEWER		CATCH BASIN		UTILITY POLE		RAIL ROAD SPIKE
	WATER MAIN		INLET		TRAFFIC SIGNAL BOX		SDK BEARING
	GAS MAIN		FLARED END SECTION		SPRINKLER HEAD		TREE WITH SIZE
	UNDERGROUND TELEPHONE LINE		ELECTRIC MANHOLE		WELLHEAD		AIR TREE WITH SIZE
	UNDERGROUND ELECTRIC LINE		TELEPHONE MANHOLE		MANHOLE		BUSH
	UNDERGROUND CITY LINE		TELEPHONE CABINET		SEWER		SPOT ELEVATION
	CATV		ELECTRIC UPFRONT		UNDERSIZED MANHOLE		RIGHT-OF-WAY MONUMENT
	OVERHEAD WIRE(S) ON UTILITY POLES		CABLE TV UPFRONT		CONTOUR		DISC
	FIBER OPTIC LINE		FIRE HYDRANT		SPOT ELEVATION		IRON / STEEL ROD
	VALVE AND VAULT		WATER VALVE		RIGHT-OF-WAY MONUMENT		IRON PIPE
	POLE		FLARED END SECTION		CONTOUR		DISC
	FENCE		VALVE AND VAULT		SPOT ELEVATION		IRON / STEEL ROD
	GUARDRAIL		WATER VALVE		SPOT ELEVATION		IRON PIPE
	EDGE OF WATER		FLARED END SECTION		CONTOUR		DISC
	WETLAND LIMITS		VALVE AND VAULT		SPOT ELEVATION		IRON PIPE

ECX = EDGE OF CONCRETE CORNER
BDX = BUILDING CORNER
(M) = MEASURED DIMENSION
(R) = RECORD DIMENSION

STATE OF ILLINOIS
COUNTY OF GRUNDY

WE, SPACECO, INC., AN ILLINOIS PROFESSIONAL DESIGN FIRM, NUMBER 184-00167, DO HEREBY DECLARE THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED IS A TRUE AND CORRECT REPRESENTATION OF SAID SURVEY.

ALL DIMENSIONS ARE IN FEET AND DECIMAL PARTS THEREOF.
NO DISTANCES OR ANGLES SHOWN HEREON MAY BE ASSUMED BY SCALING.
THIS PROFESSIONAL SERVICE CONFORMS TO THE CURRENT ILLINOIS MINIMUM STANDARDS OF PRACTICE APPLICABLE TO BOUNDARY SURVEYS.
GIVEN UNDER OUR HAND AND SEAL THIS 2nd DAY OF APRIL, 2024, IN MORRIS, ILLINOIS.

Kevin W. Donovan

KEVIN W. DONOVAN, I.P.L.S. NO. 035-3781
LICENSE EXPIRES 11-30-2024
KDONOVAN@SPACECOINC.COM

(VALID ONLY IF EMBOSSED SEAL AFFIXED)

COMPARE ALL DIMENSIONS BEFORE BUILDING AND REPORT ANY DISCREPANCIES AT ONCE.
REFER TO DEED OR TITLE POLICY FOR BUILDING LINES AND EASEMENTS.



PREPARED FOR:
NARVICK BROTHERS

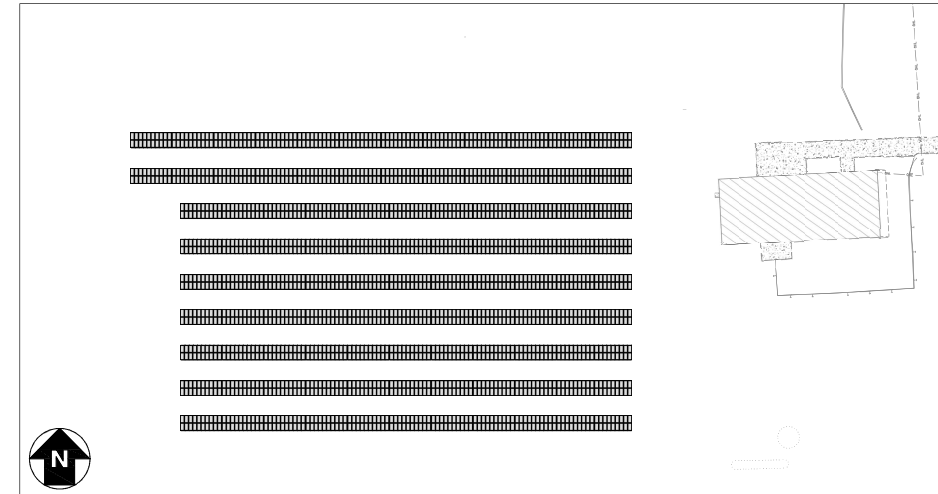
REVISIONS:	SPACECO INC. 	CONSULTING ENGINEERS	DATE: 04/02/2024
		SITE DEVELOPMENT ENGINEERS	JOB NO: 13227
		LAND SURVEYORS	FILENAME: 13227SUR-01
		224 1/2 N. Liberty Street, Morris, Illinois 60450	SHEET 1 OF 1
		Phone: (815) 941-0260 Fax: (815) 941-0263	

SOLAR GROUND MOUNT SYSTEM AT HENDRICKSON USA

501 CATON FARM RD, LOCKPORT, IL 60441



LOCATION MAP
SCALE: 1" = 1000'-0"



SYSTEM PLAN
SCALE: 1" = 80'-0"

TOTAL SYSTEM SUMMARY:

TOTAL DC SYSTEM SIZE: 1,185.24 kWDC
 TOTAL AC SYSTEM SIZE: 900.00/947.700 kWAC/KVA
 MODULE MANUFACTURER: JINKO SOLAR
 (QTY) MODULE TYPE 1: (1,992) JKM595N-72HL4-BDV
 MODULE TILT: 30°
 MODULE AZIMUTH: 180°
 INVERTER MANUFACTURER: CHINT POWER SYSTEMS
 (QTY) INVERTER TYPE 1: (9) CPS SCH100KTL D0/US-480

NOTES SPECIFIC TO ILLINOIS

ADOPTED NEC VERSION: 2008 (SET DESIGNED TO NEC 2023)
 ADOPTED IBC VERSION: 2021

SCOPE OF WORK SUMMARY

- GROUND MOUNT PV ARRAY:**
- INSTALL SOLAR MODULES AND RACKING SYSTEM ON GROUND LEVEL.
 - INSTALL INVERTERS AND ELECTRICAL DISTRIBUTION EQUIPMENT.
 - INTERCONNECT AT EXISTING ELECTRICAL DISTRIBUTION EQUIPMENT.

DEVELOPER:



2211 N ELSTON AVE
 SUITE 208
 CHICAGO, IL 60614

ENGINEERED BY:



111 RIVER STREET, SUITE 1110
 HOBOKEN, NEW JERSEY 07030

DRAWING INDEX

GENERAL	30% DESIGN	90% DESIGN	90% DESIGN REV1
G001 TITLE SHEET	●	●	●
ELECTRICAL			
E001 ELECTRICAL NOTES & SYMBOLS LIST	●	●	●
E100 OVERALL ELECTRICAL PLAN	●	●	●
E101 AC ELECTRICAL PLAN	●	○	○
E200 DC ELECTRICAL PLAN	●	○	○
E300 ONE LINE DIAGRAM	●	○	○
E310 SCHEDULES & CALCULATIONS	●	○	○
E410 GROUNDING DETAILS	●	○	○
E420 ELECTRICAL DETAILS	●	○	○
E500 LABELS & SIGNAGE	●	○	○
E600 EQUIPMENT DATA SHEETS	●	○	○
E601 EQUIPMENT DATA SHEETS	●	○	○

LEGEND:

UPDATED DRAWING ISSUED	●
UNCHANGED, PREVIOUSLY ISSUED DRAWING STILL CURRENT	○
DRAWING REMOVED FROM SET	x

DRAWING TITLE	TITLE SHEET
DRAWING #	G001

RULER IN INCHES: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
 PLP DATE: 3/21/2025 1:01 PM

PUREPOWER ENGINEERING
 111 RIVER STREET, SUITE 1110
 HOBOKEN, NJ 07030
 WWW.PUREPOWER.COM
 TRAVIS LENBERG
 IL LICENSE NO. 082.076988

VERDE SOLUTIONS
 2211 N ELSTON AVE
 CHICAGO, IL 60614
 WWW.VERDESOLUTIONS.COM

DEVELOPER: VERDE SOLUTIONS
 PROJECT # 11015.01

REVISION DESCRIPTION	DATE	FM	ENG	CHK
90% DESIGN REV1	03/28/2025	TL	DG	LP
90% DESIGN	02/26/2025	TL	DG	LP
30% CONCEPTUAL DESIGN	01/13/2025	TL	DG	LP

RULER IN INCHES: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

ELECTRICAL NOTES

1. GENERAL
 - 1.A. ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND ALL EQUIPMENT SHALL BE LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) TO APPLICABLE UL STANDARDS. THE CONTRACTOR SHALL PROCURE ALL NECESSARY CERTIFICATIONS FOR ALL WORK INSTALLED, PAY ALL FEES AND CHARGES CONNECTED THEREWITH AND DELIVER ALL CERTIFICATES AND INSPECTION APPROVALS TO THE OWNER THROUGH THE ENGINEER, BEFORE WORK WILL BE FINALLY ACCEPTED.
 - 1.B. ALL INVERTERS SHALL BE LISTED TO APPLICABLE UL STANDARDS AND SHALL BE INSPECTED BY LOCAL UTILITY BEFORE COMMISSIONING, TESTING AND OPERATION OF THE SYSTEM.
 - 1.C. UNLESS OTHERWISE NOTED, NEW EQUIPMENT SHALL HAVE AN INTERRUPT RATING (KAIC) OR SHORT CIRCUIT CURRENT RATING (SCCR) GREATER THAN OR EQUAL TO THE EXISTING EQUIPMENT.
2. MANNER OF INSTALLATION
 - 2.A. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. ALL DETAILS OF THE INSTALLATION SHALL BE MECHANICALLY AND ELECTRICALLY CORRECT.
 - 2.B. TORQUE AND MARK ALL RACKING AND MECHANICAL LUGS.
3. CONDUITS AND CONDUCTOR INSTALLATION
 - 3.A. WHERE POSSIBLE, ALUMINUM CABLE TERMINATIONS SHALL BE MADE WITH COMPRESSION LUGS OR MECHANICAL LUGS WITH COMPRESSION PIN ADAPTORS. REQUEST CLIENT APPROVAL FOR ALTERNATIVES.
 - 3.B. IF ALUMINUM MULTICONDUCTOR CABLE IS USED, THHN/THWN-2 INSULATION IS ACCEPTABLE. FOR SINGLE ALUMINUM CONDUCTORS, XHHW-2 SHALL BE USED.
 - 3.C. ANTI-OXIDANT COMPOUND SHALL BE USED WITH ALL ALUMINUM LUGS, CLEAN OXIDATION FROM WIRE STRANDS WITH STEEL WIRE BRUSH PRIOR TO APPLICATION OF COMPOUND.
 - 3.D. PV SYSTEM CONDUCTORS SHALL BE MARKED AND IDENTIFIED PER NEC 690.31(B).
 - 3.E. INSTALL WIRE AND CABLE IN ACCORDANCE WITH THE NEC AND AS HERINAFTER SPECIFIED. USE THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION'S 'STANDARD OF INSTALLATION', THE MANUFACTURER'S WRITTEN INSTRUCTIONS, UNLESS SUPERSEDED BY THESE SPECIFICATIONS. IN ALL CASES THE INSTALLATION SHALL BE IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES.
 - 3.F. THE USE OF WIRE SPLICES AT ANY POINT IN THE INSTALLATION IS STRICTLY PROHIBITED.
 - 3.G. THE USE OF WIRE LUBE IS REQUIRED FOR ALL WIRE PULLS THROUGH CONDUIT RUNS OF 20' OR LONGER, OR WITH BENDS IN 180' OR MORE. WIRE LUBE IS REQUIRED EVEN WHEN USING SELF LUBRICATING CABLES SUCH AS SOUTHWIRE 'SIMPULL'.
 - 3.H. STRING WIRING & HOMERUNS SHALL BE SECURED TO UNDERSIDE OF THE RACKING & MODULES USING SUNBUNDLERS OR EQUIVALENT APPROVED BY EOR. TRANSITION TO EMT OUTSIDE OF ARRAY. NEGATIVE HOMERUN SHALL BE RUN PARALLEL TO POSITIVE HOMERUN. EACH DC STRING WIRING CONDUIT SHALL HAVE AN EGC.
 - 3.I. ALL PV SOURCE CIRCUITS WHICH WOULD BE EXPOSED TO PHYSICAL DAMAGE SHALL BE PROTECTED IN CONDUIT OR CABLE TRAY.
 - 3.K. ALL PV SOURCE CIRCUITS WITH DIRECT EXPOSURE TO SUNLIGHT SHALL BE PROTECTED THROUGH THE USE OF CONDUIT, PROTECTIVE WRAP, SPLIT LOOM, OR EQUIVALENT, WHICH ARE DURABLE FOR THE ENVIRONMENT AND RATED FOR THE APPLICATION.
 - 3.L. ALL PLUG AND SOCKET CONNECTORS MATED TOGETHER SHALL BE OF THE SAME TYPE AND OF THE SAME MANUFACTURER. "COMPATIBLE" CONNECTORS SHALL NOT BE ACCEPTED (IEC 62446-1).
 - 3.M. ALL FIELD-MADE PLUG & SOCKET CONNECTORS SHALL BE INSTALLED USING MANUFACTURER APPROVED TOOLS AND METHODS, AND CABLE GLANDS SHALL BE TIGHTENED TO MANUFACTURER'S SPECIFIED TORQUE VALUE.
 - 3.N. ALL CONDUCTORS AND CABLES RATED OVER 1000V SHALL NOT BE BENT AT RADIUS LESS THAN 12X THEIR DIAMETER, OR AS SPECIFIED BY DATASHEET.
 - 3.O. CABLE TIES INSTALLED OUTDOORS SHALL BE TYPE 2, 2S, 21, OR 21S. IN ADDITION TO THESE ALLOWED TYPES, ONLY TIES THAT ARE UV RESISTANT AND HAVE A 25-YEAR SERVICE LIFE SHALL BE USED OUTDOORS. NO UNLISTED OR UNLABELED TIES LACKING MARKINGS SHALL BE USED. CABLE TIES OR SUPPORTS OF STAINLESS 316 SHALL BE CONSIDERED TO HAVE A 25-YEAR SERVICE LIFE.
4. PHASE RELATIONSHIP
 - 4.A. CONNECT FEEDERS TO MAINTAIN PHASE RELATIONSHIP THROUGH SYSTEM. PHASE LEGS OF FEEDERS SHALL MATCH BUS OR CABLE ARRANGEMENTS IN EQUIPMENT TO WHICH THE FEEDERS ARE CONNECTED. COLOR CODING SHALL BE AS FOLLOWS:
 - 208/120 VAC
A PHASE: BLACK, B PHASE: RED, C PHASE: BLUE
 - 277/480 VAC OR 346/600 VAC
A PHASE: BROWN, B PHASE: ORANGE, C PHASE: YELLOW
 - MEDIUM VOLTAGE AC (GREATER THAN 800 VAC)
A PHASE: BLACK, B PHASE: RED, C PHASE: BLUE
 - 1500 VDC, 1000 VDC, OR 600 VDC
UNGROUND POSITIVE CONDUCTOR: RED
UNGROUND NEGATIVE CONDUCTOR: BLACK
 - AC AND DC SYSTEMS:
GROUND CONDUCTOR: WHITE
GROUND: GREEN
 - 4.B. GROUNDED CONDUCTORS (NEUTRAL) AND EQUIPMENT GROUNDING CONDUCTORS SMALLER THAN #4 MUST HAVE COLOR CODED INSULATION. WHERE COLOR CODED CABLE IS NOT USED, TAPE CONDUCTOR WITH OVERLAPPED COLORED TAPE FOR A MINIMUM OF 6" IN ACCESSIBLE LOCATIONS. COLOR CODING MUST BE USED CONSISTENTLY FOR THE ENTIRE PROJECT.
5. CONDUITS AND RACEWAYS
 - 5.A. PROVIDE RACEWAYS MINIMUM SIZE 3/4".
 - 5.B. CONDUITS SHALL BE EMT WHERE NOT SUBJECT TO PHYSICAL DAMAGE. CONDUITS SHALL BE IMC OR RMC WHERE SUBJECT TO PHYSICAL DAMAGE. PVC CONDUITS ONLY PERMITTED IN BELOW GRADE DUCT BANKS.
 - 5.C. DRAWINGS SHOW RACEWAY LOCATIONS DIAGRAMMATICALLY. CONTRACTOR SHALL ADJUST ROUTING TO SUIT FIELD LOCATIONS. ANY CHANGES TO PROPOSED ROUTING SHALL BE SUBMITTED TO ENGINEER FOR REVIEW AND APPROVAL.
 - 5.D. FURNISH AND INSTALL ALL FITTINGS AND SPECIAL DEVICES NECESSARY FOR THE PROPER INSTALLATION, CONNECTION AND OPERATION OF THE SYSTEM. CONDUIT ELBOWS SHALL BE OF THE SAME MAKE, QUALITY AND FINISH AS THE CONDUIT USED.
 - 5.E. A PROTECTIVE COATING OF ASPHALT COMPOUND, PLASTIC SHEATH, OR OTHER EQUIVALENT PROTECTION SHALL BE APPLIED TO ANY GALVANIZED STEEL CONDUITS DIRECTLY BURIED IN EARTH.
 - 5.F. EMT CONDUIT OUTDOORS SHALL USE COMPRESSION RAIN-TIGHT CONNECTORS, FACTORY STAMPED RAIN-TIGHT WITH COMPONENTS PROPERLY INSTALLED.
 - 5.G. PROVIDE EXPANSION FITTINGS WITH BONDING JUMPERS FOR EVERY 100' OF STRAIGHT METAL CONDUIT RUN.
 - 5.H. CONDUIT EXPANSION AND DEFLECTION FITTINGS WITH BONDING JUMPERS SHALL BE USED WHENEVER CROSSING BUILDING EXPANSION AND SEISMIC SEPARATION JOINTS.
 - 5.I. LEAVE WIRE SUFFICIENTLY LONG TO PERMIT MAKING FINAL CONNECTIONS. ALL EMPTY CONDUITS OVER 10' IN LENGTH SHALL BE PROVIDED WITH SYNTHETIC FIBER ROPE PULL WIRE.
 - 5.J. PATCH AND REPAIR ALL SURFACES DAMAGED BY TRENCHING TO MATCH THE PREVIOUSLY EXISTING CONDITIONS.
 - 5.K. TRENCHING SHALL BE DONE SUCH THAT THE DISTANCE FROM ANY STRUCTURAL PILE TO THE NEAREST EDGE OF THE TRENCH IS AT LEAST EQUIVALENT TO THE DEPTH OF THE PILE. CONFIRM MINIMUM DISTANCE TO TRENCH WITH STRUCTURAL/RACKING EOR PRIOR TO DIGGING. ALL PENETRATIONS SHALL BE SEALED TO MAINTAIN THE EXISTING FIRE RATING.
 - 5.M. ALL CONDUITS ENTERING ENCLOSURES SHALL BE FITTED WITH PROTECTIVE BUSHINGS, INCLUDING CONDUIT WITH CONDUCTOR SIZES SMALLER THAN #4 AWG. METALLIC CONDUIT/BUSHINGS SHALL BE BONDED PER NEC.
 - 5.N. ALL CONDUIT ENTERING ENCLOSURES SHALL BE SEALED WITH AN APPROVED SEALANT (POLYWATER AFT).
6. ELECTRICAL ENCLOSURES
 - 6.A. ALL OUTDOOR ENCLOSURES (PANELBOARDS, DISCONNECT SWITCHES, JUNCTION BOXES, COMBINER BOXES, ETC.) SHALL BE NEMA 3R, 4, OR 4X. ALL WALL MOUNTED OUTDOOR ENCLOSURES SHALL HAVE A MINIMUM 2'-0" CLEARANCE ABOVE GRADE, AND A MINIMUM 1/4" CLEARANCE FROM WALL. INDOOR ENCLOSURES SHALL BE NEMA 1.
 - 6.B. PANELBOARD DOORS SHALL BE QUARTER TURN LATCHES OR EXTERNAL HANDLE WITH INTERNAL LATCHES, NO SETS OF EXTERNAL SCREW DOWN CLAMPS.
 - 6.C. NO PENETRATIONS OR CABLE ENTRIES IN THE TOP OF OUTDOOR ENCLOSURES. ENTER OUTDOOR ENCLOSURES FROM THE BOTTOM (PREFERRED) OR SIDE.
 - 6.D. RIGID CONDUIT TERMINATING IN OUTDOOR ENCLOSURES SHALL USE MYERS-TYPE HUBS WITH GROUND SCREWS (BOTTOM OR SIDE ENTRY).
 - 6.E. EMT CONDUIT TERMINATING IN OUTDOOR ENCLOSURES SHALL USE RAIN-TIGHT FITTINGS (BOTTOM OR SIDE ENTRY).

- 6.F. ALL ELECTRICAL EQUIPMENT SHALL BE LISTED OR LABELED BY A RECOGNIZED TESTING AGENCY.
 - 6.G. ARC FLASH HAZARD WARNING LABELS SHALL BE PROVIDED AND MOUNTED ON EVERY NEW ENCLOSURE CONTAINING SERVICEABLE COMPONENTS SUCH AS CONDUCTOR TERMINATIONS, DISCONNECTS, OR OCPDS. THIS INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING COMPONENTS: COMBINER BOX, TERMINAL BOX, INVERTER, AC AND DC SWITCH, TRANSFORMER, AND SWITCHGEAR.
 - 6.H. HAND HOLES, PULL BOXES, OR CONDUIT BODIES SHALL BE INSTALLED (WHETHER OR NOT SHOWN ON DRAWINGS) WHEN THE RACEWAY HAS MORE THAN 360° OF BENDS, OR AS NECESSARY TO NOT EXCEED MANUFACTURER'S MAXIMUM CABLE PULLING TENSION.
 - 6.I. SWITCHBOARDS AND SWITCHGEARS SHALL BE PROVIDED WITH TEMPORARY INTERNAL HEATERS DURING LONG TERM STORAGE WHILE NOT ENERGIZED AS REQUIRED BY THE MANUFACTURER. ALL OTHER EQUIPMENT SHALL BE STORED IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS.
 - 6.J. ALL ELECTRICAL EQUIPMENT CONTAINING A CIRCUIT BREAKER OR FUSE SHALL BE INSTALLED IN COMPLIANCE WITH NEC ARTICLE 240.24.
 - 6.K. CONTRACTOR SHALL FIELD VERIFY DESIGN COMPLIES WITH NEC 312.8 PRIOR TO INSTALLATION.
 - 6.L. ALL NEW ELECTRICAL EQUIPMENT INSTALLED INDOORS REQUIRES GFCI OUTLET TO BE INSTALLED WITHIN 25' OF NEW EQUIPMENT.
7. GROUNDING
 - 7.A. THE CONTRACTOR SHALL FURNISH AND INSTALL GROUNDING NECESSARY IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
 8. TESTS
 - 8.A. ALL TESTS SHALL BE PERFORMED BY TRAINED TECHNICIANS CERTIFIED TO DO THE PROCEDURES.
 - 8.B. FINAL TESTS AND INSPECTIONS SHALL BE HELD IN THE PRESENCE OF THE OWNER'S REPRESENTATIVES AND TO THEIR SATISFACTION.
 - 8.C. ALL APPLICABLE TESTS SHALL BE PERFORMED IN ACCORDANCE WITH NETA/ANSI ATS-2021 STANDARDS AND PRACTICES.
 - 8.D. ALL APPLICABLE TESTS SHALL BE PERFORMED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
 - 8.E. ALL TESTS SHALL BE PERFORMED PRIOR TO ENERGIZATION.
 - 8.F. TESTING IS LIMITED TO NEW EQUIPMENT RELATED TO THIS PROJECT.
 - 8.G. IV CURVE TRACES OF STRINGS SHALL BE GENERATED USING THE SOLMETRIC PV ANALYZER (OR EQUIVALENT DEVICE) AND SUBMITTED TO THE OWNER FOR APPROVAL. IF MLPE IS USED, MODULE TRACES ARE PERMITTED TO BE GENERATED THROUGH THE INVERTER PORTAL. TESTING TO BE PERFORMED DURING APPROVED WEATHER CONDITIONS.
 - 8.H. OPEN-CIRCUIT VOLTAGE (Voc) MEASUREMENTS SHALL BE PERFORMED ON ALL DC STRING CIRCUITS DURING APPROVED WEATHER CONDITIONS.
 - 8.I. ALL PV CONNECTORS MATED TOGETHER SHALL BE CONFIRMED TO BE OF THE SAME MAKE/MODEL.
 - 8.J. INSULATION TESTS SHALL BE PERFORMED ON ALL STRING AND FEEDER DC CIRCUIT CABLES.
 - 8.K. INSULATION TESTS SHALL BE PERFORMED ON ALL SERVICE AND FEEDER AC CIRCUIT CABLES.
 - 8.L. GROUND FAULT PROTECTION SYSTEMS SHALL BE FUNCTIONALLY TESTED IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS (NEC 230.95(C)).
 - 8.M. RELAY PROTECTION SYSTEM FUNCTIONAL TESTS SHALL BE IN ACCORDANCE WITH THE SETTINGS PROVIDED AND WITHIN THE OPERATIONAL INTENT OF THIS PROJECT NOTED IN EOR DRAWING. TESTING SHALL ENSURE RELAY READS VALUES ACCURATELY AND ALL LOGIC FACILITATES THE NECESSARY OPERATIONAL BEHAVIOR.
 - 8.N. ACCEPTANCE TESTING SHALL BE PERFORMED ON ALL COMBINER BOXES, PANELBOARDS SWITCHBOARDS AND SWITCHGEAR.

GENERAL NOTES

1. THE GENERAL NOTES APPLY TO ALL DRAWINGS UNDER THE CONTRACT. REFER TO INDIVIDUAL DRAWINGS FOR ADDITIONAL NOTES.
2. DRAWINGS ARE DIAGRAMS AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. FOLLOW DRAWINGS IN LAYING OUT OF WORK AND CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACE CONDITIONS, MAINTAIN HEADROOM, SPACE CONDITIONS, AND REQUIRED CLEARANCES.
3. PV SYSTEM CONTRACTOR SHALL COORDINATE ALL THE WORK WITH THE ENGINEER, THE CONSTRUCTION MANAGER AND ALL OTHER CONTRACTORS TO INSURE THAT THE PV SYSTEM IS INSTALLED AS SPECIFIED IN THESE DRAWINGS.
4. PERSONAL PROTECTIVE EQUIPMENT (PPE) SHALL BE PROVIDED AS REQUIRED IN ACCORDANCE WITH NFPA 70E AND OSHA REQUIREMENTS.
5. ALL STRUCTURAL AND MISCELLANEOUS EXTERIOR STEEL, INCLUDING STRUT CHANNEL (SUCH AS UNISTRUT OR KINDORF) SHALL BE CORROSION RESISTANT, HOT DIP GALVANIZED OR GALVANNEALED WITH A COATED FINISH MINIMUM.

LEGEND - GENERAL	
SYMBOL	DESCRIPTION
	LIGHT LINE INDICATES EXISTING OR BEYOND THE SCOPE OF PROJECT
	DARK LINE INDICATES NEW OR WITHIN THE SCOPE OF PROJECT
	DASHED LINE INDICATES EQUIPMENT AT A DIFFERENT ELEVATION
	LIGHT TEXT INDICATES EXISTING OR BEYOND THE SCOPE OF PROJECT
	DARK TEXT INDICATES NEW OR WITHIN THE SCOPE OF PROJECT

LEGEND - CIRCUITS	
SYMBOL	DESCRIPTION
	ABOVE-GROUND CABLE
	UNDER-GROUND CABLE

NOTE: XX REPRESENTS CIRCUIT TYPE BELOW

ABBREVIATION	DESCRIPTION
DC	DIRECT CURRENT
AC	ALTERNATING CURRENT
MV	MEDIUM VOLTAGE
C	COMMUNICATIONS
GND	GROUND
CAB	CAB MESSENGER
MES	MESSENGER WIRE
FO	FIBER OPTIC

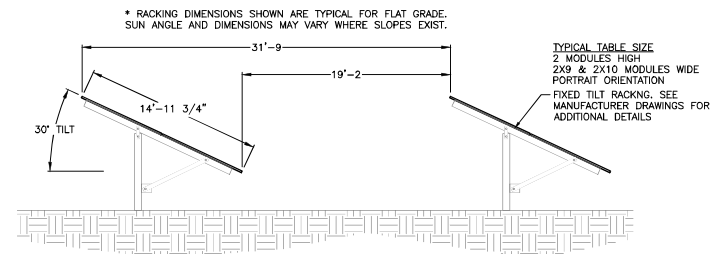
LEGEND - PLAN SYMBOLS	
SYMBOL	DESCRIPTION
	RACEWAY TURNING UP OR TOWARDS OBSERVER
	RACEWAY TURNING DOWN OR AWAY FROM OBSERVER
	JUNCTION BOX
	GROUND FAULT CIRCUIT INTERRUPTER DUPLEX RECEPTACLE, RATED: 125-VOLTS AC, 20A
	GROUND ROD
	GROUND ROD W/ TEST WELL
	SLOPE DIRECTION INDICATOR

LEGEND - ONE LINE DIAGRAM & WIRING DIAGRAM SYMBOLS	
SYMBOL	DESCRIPTION
	CIRCUIT BREAKER, FRAME SIZE AND TRIP SETTING AS NOTED
	DISCONNECT SWITCH
	INVERTER
	BUSS CONNECTION POINT
	CROSSING POINT (NO CONNECTION)
	NORMALLY CLOSED - NORMALLY OPEN CONTACTS
	TRANSFORMER CONTROL/POWER, SIZE AND RATING AS NOTED
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	FUSE, SIZE/RATING AS NOTED
	FUSED DISCONNECT SWITCH
	EARTH GROUND
	BATTERY
	KEYED INTERLOCK (KIRK KEY OR EQ.)
	SHUNT TRIP COIL; MOTORIZED CLOSE
	SURGE ARRESTOR
	METER
	NEUTRAL BUS
	GROUND BAR

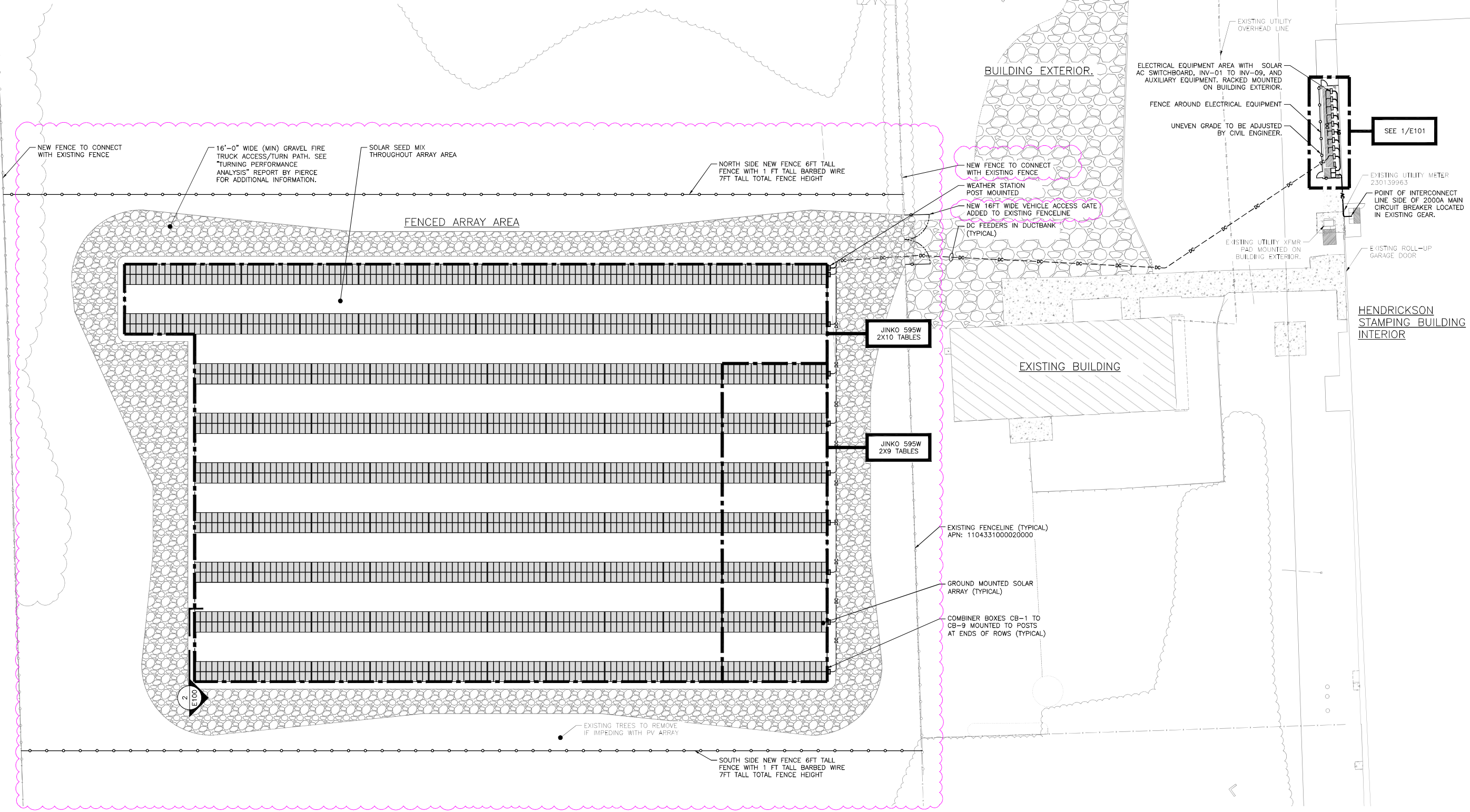
ABBREVIATIONS	
ABBREVIATION	DESCRIPTION
A	AMPERES
AERMS	ARC ENERGY REDUCING MAINTENANCE SYSTEM
AF	AMPERE FRAME
A.F.F.	ABOVE FINISH FLOOR
A.F.G.	ABOVE FINISH GRADE
AFDI	ARC FAULT DETECTION & INTERRUPTER
AIC	AMPS INTERRUPTING CAPACITY
AL	ALUMINUM
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BKR	CIRCUIT BREAKER
C	CONDUIT
CB	COMBINER BOX
CKT	CIRCUIT
CL	CLOSE
COU	CONDITIONS OF USE
CP	CONTROL PANEL
CT	CURRENT TRANSFORMER
CU	COPPER
DAS	DATA ACQUISITION SYSTEM
DB	DIRECT BURIAL
DISC	DISCONNECT
EGC	EQUIPMENT GROUNDING CONDUCTOR
ELEC	ELECTRIC, ELECTRICAL
EMERG	EMERGENCY
EMT	ELECTRIC METALLIC TUBING
EQUIP	EQUIPMENT
EV	ELECTRIC VEHICLE
EVCS	ELECTRIC VEHICLE CHARGING STATION
G, GND	GROUND
GEC	GROUNDING ELECTRODE CONDUCTOR
GFCI	GROUND-FAULT CIRCUIT INTERRUPTER
GFPD	GROUND-FAULT PROTECTION OF EQUIPMENT
HID	HIGH-INTENSITY DISCHARGE (LIGHTING)
HZ	HERTZ
IMC	INTERMEDIATE METAL CONDUIT
KAIC	1000 AMPS INTERRUPT CAPACITY
KCMIL	1000 CIRCULAR MILS
kVA	KILO-VOLT AMPERE
KW	KILOWATT
LA	LIGHTNING & SURGE ARRESTOR
LED	LIGHT-EMITTING DIODE
LSIG	LONG, SHORT, INSTANTANEOUS, & GROUND-FAULT
LTG	LIGHTING
MCM	1000 CIRCULAR MILS
MFG	MANUFACTURER
MLO	MAIN LUGS ONLY
MLPE	MODULE LEVEL POWER ELECTRONICS
MPPT	MAXIMUM POWER POINT TRACKING
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NTS	NOT TO SCALE
OH	OVERHEAD
OV	OVER VOLTAGE
P	POLE
PF	POWER FACTOR
PLC	PROGRAMMABLE LOGIC CONTROLLER
POA	PLANE OF ARRAY
POI	POINT OF INTERCONNECTION
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
PWR	POWER
RAC	RIGID ALUMINUM CONDUIT
RCPT	RECEPTACLE
RGS	RIGID GALVANIZED STEEL CONDUIT
RMC	RIGID METAL CONDUIT
SA	SURGE ARRESTOR
SEC	SECONDARY
SPD	SURGE PROTECTION DEVICE
SSBJ	SUPPLY SIDE BONDING JUMPER
ST	SHUNT TRIP
STP	SHIELDED TWISTED PAIR
SW	SWITCH
TBD	TO BE DETERMINED
TP	TWISTED PAIR
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UV	UNDER VOLTAGE OR ULTRAVIOLET
V	VOLT
VA	VOLT-AMPERE
W	WATT
WR	WEATHER RESISTANT
XFMR	TRANSFORMER
Ø	DIAMETER OR PHASE

REVISION DESCRIPTION DATE	90% DESIGN REV1 90% DESIGN 03/28/2024	ENGINEER TRANSLATION 01/13/2024
	30% CONCEPTUAL DESIGN 02/26/2024	
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PROJECT SOLAR GROUND MOUNT SYSTEM AT HENDRICKSON USA 501 CATON FARM ROAD LOCKPORT, IL 60441	DRAWING TITLE ELECTRICAL NOTES & SYMBOLS LIST	DRAWING # E001

RULER IN INCHES: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18



2 DCE RACKING DETAIL
SCALE: NONE



1 OVERALL ELECTRICAL PLAN
SCALE: 1" = 30'



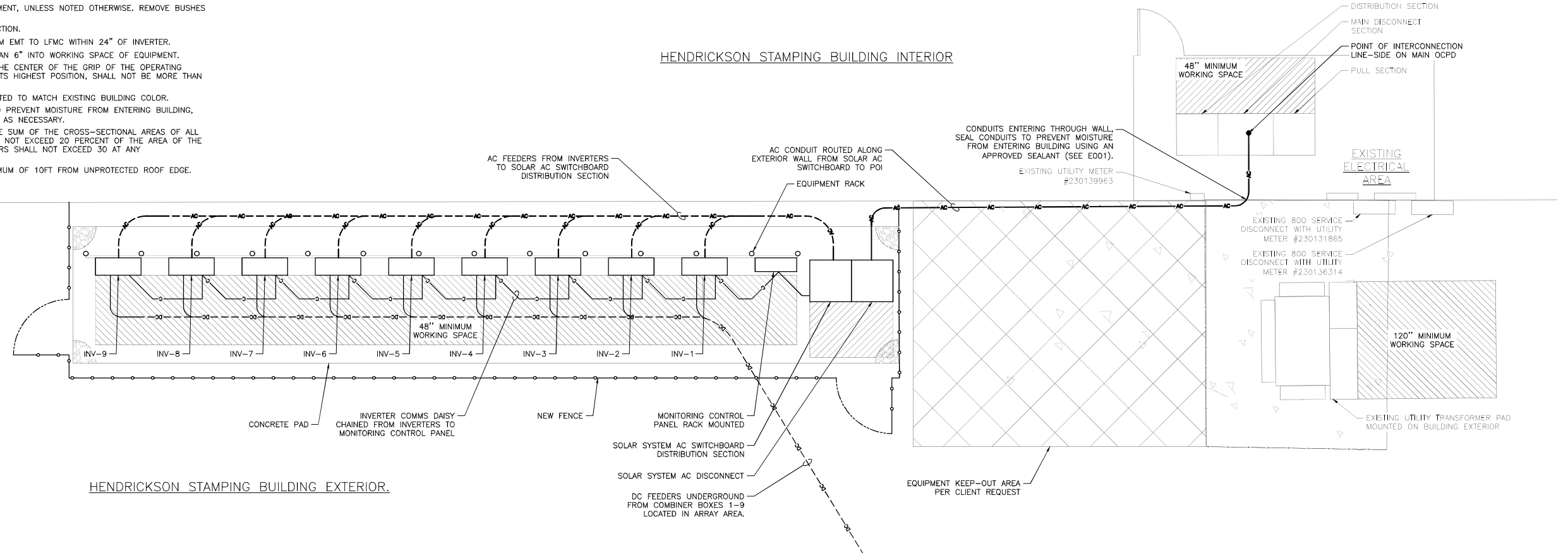
DRAWING TITLE	DRAWING #
OVERALL ELECTRICAL PLAN	E100

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03/28/2025	90% DESIGN REV1									
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01/13/2025	30% CONCEPTUAL DESIGN									
<p>PROJECT: SOLAR GROUND MOUNT SYSTEM AT HENDRICKSON USA 501 CATON FARM ROAD LOCKPORT, IL 60441</p>										
<p>DEVELOPER: HENDRICKSON USA</p>										
<p>PAGE SIZE: 36" x 24"</p>										
<p>PROJECT #: 11015.01</p>										

RULER IN INCHES: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

- NOTES:
1. MAINTAIN 48" (MIN) WORKING CLEARANCE FOR ALL EQUIPMENT, UNLESS NOTED OTHERWISE. REMOVE BUSHES AND TREES AS NECESSARY IN WORKING SPACE.
 2. MOUNT EQUIPMENT AS PER INSTALLATION MANUAL INSTRUCTION.
 3. TRANSITION AC, DC, AND COMMUNICATIONS CONDUITS FROM EMT TO LFMC WITHIN 24" OF INVERTER.
 4. CONDUITS AND TROUGHS SHALL NOT ENCRoACH MORE THAN 6" INTO WORKING SPACE OF EQUIPMENT.
 5. EQUIPMENT SHALL BE INSTALLED AT HEIGHT SUCH THAT THE CENTER OF THE GRIP OF THE OPERATING HANDLE OF THE SWITCH OR CIRCUIT BREAKER, WHEN IN ITS HIGHEST POSITION, SHALL NOT BE MORE THAN 67" ABOVE THE WORKING PLATFORM.
 6. ALL CONDUITS ON EXTERIOR OF BUILDING SHALL BE PAINTED TO MATCH EXISTING BUILDING COLOR.
 7. SEAL CONDUIT PENETRATIONS THROUGH BUILDING WALL TO PREVENT MOISTURE FROM ENTERING BUILDING, WITH AN APPROVED SEALANT (SEE E001). USE PULL BOX AS NECESSARY.
 8. TROUGHS AND WIREWAYS SHALL BE SIZED SUCH THAT THE SUM OF THE CROSS-SECTIONAL AREAS OF ALL CONDUCTORS AND CABLES AT ANY CROSS SECTION SHALL NOT EXCEED 20 PERCENT OF THE AREA OF THE TROUGH. THE NUMBER OF CURRENT CARRYING CONDUCTORS SHALL NOT EXCEED 30 AT ANY CROSS-SECTION OF THE TROUGH.
 9. INVERTERS AND PANELBOARDS SHALL BE PLACED AT MINIMUM OF 10FT FROM UNPROTECTED ROOF EDGE.

HENDRICKSON STAMPING BUILDING INTERIOR

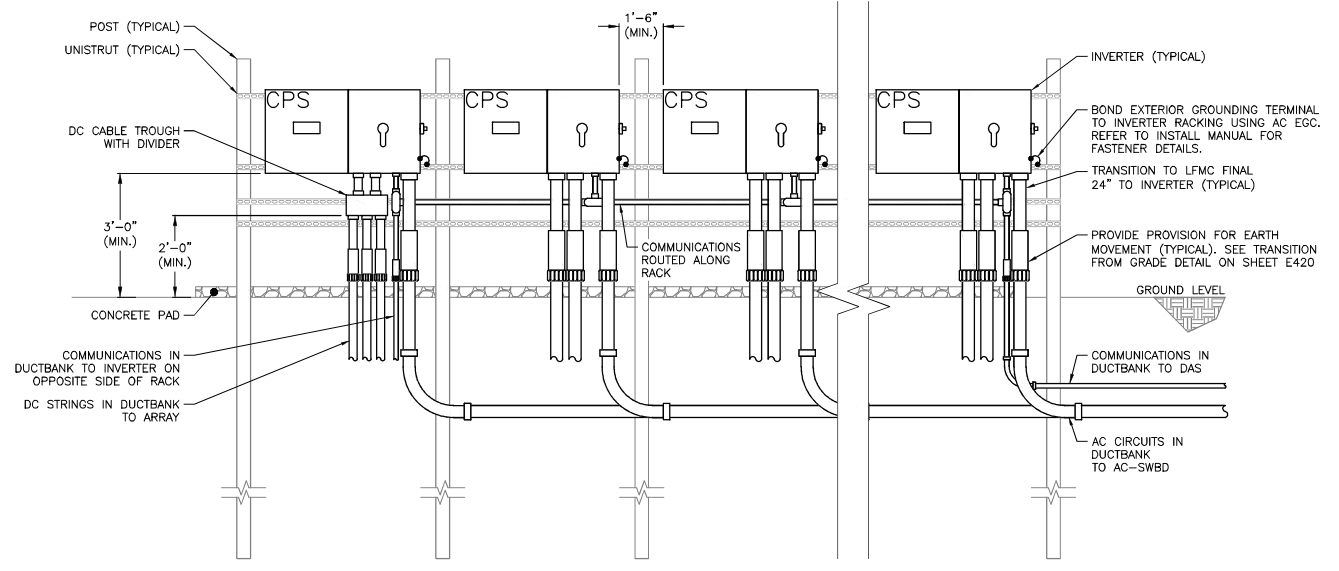


1 OVERALL INVERTER AREA PLAN
SCALE: 1/4" = 1'-0"



2 POI PHOTO
SCALE: NONE.

DETAIL FOR ELECTRICAL REFERENCE ONLY. SEE SEOR DRAWINGS FOR RACKING DETAILS.



3 TYPICAL INVERTER PLAN
SCALE: NONE.

DRAWING TITLE
AC ELECTRICAL PLAN

REVISION DESCRIPTION	DATE	DATE	DATE
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90% DESIGN	02/26/2024	02/26/2024	02/26/2024
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ENGINEER: TRAVIS LENBERG
 LICENSE NO. 082076898
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DEVELOPER: VERDE SOLUTIONS
 2211 S. WILSON AVE.
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PROJECT: SOLAR GROUND MOUNT SYSTEM AT HENDRICKSON USA
 501 CATON FARM ROAD
 LOCKPORT, IL 60441

PAGE SIZE: 36" x 24"
 PROJECT #: 11015.01

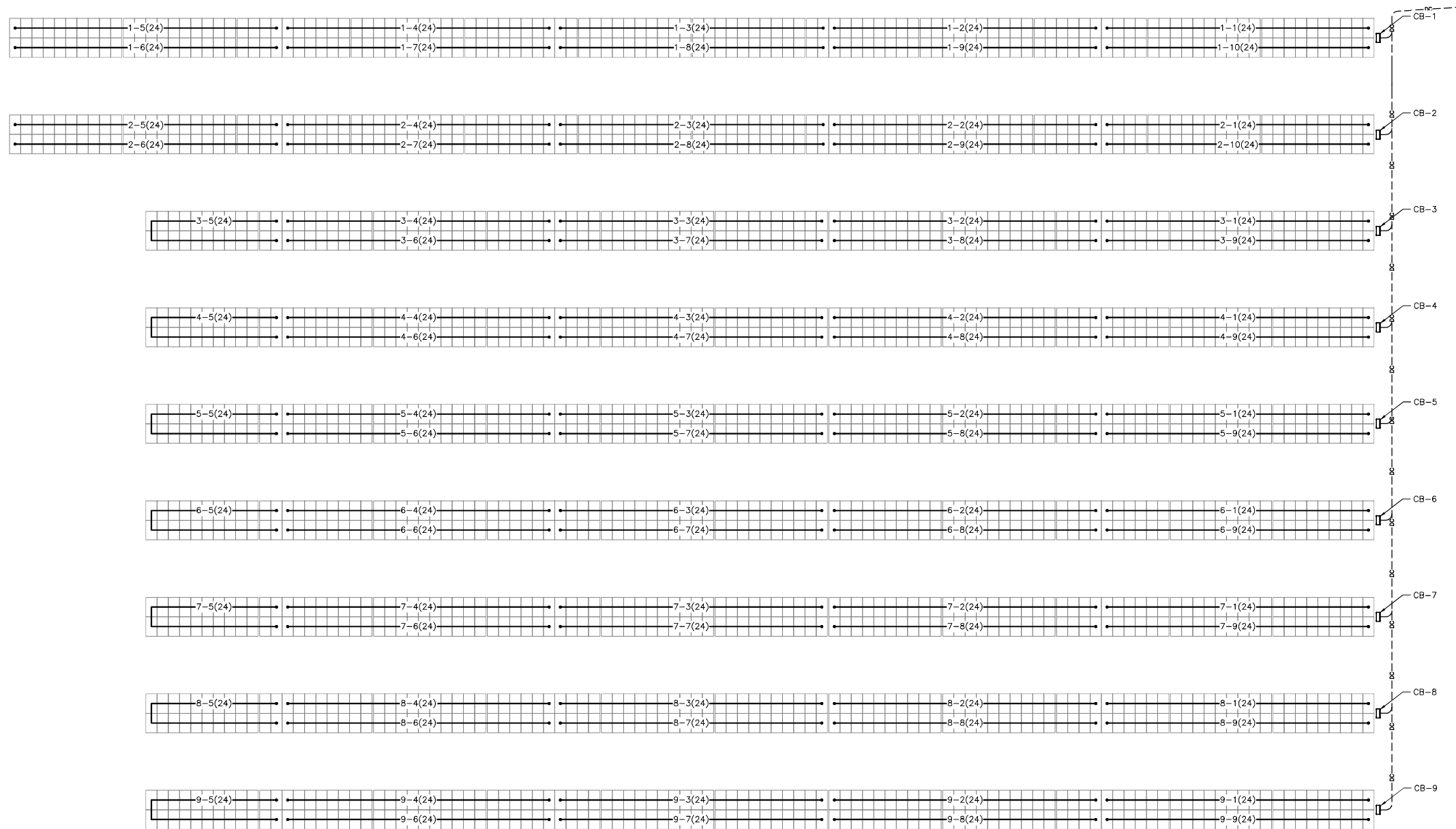
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PLOT DATE: 3/21/2025 1:02 PM

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9-8	24
9-9	24
TOTAL	1992



CONDUIT FILL TABLE (PVWIRE, 2000VDC MAX)		
MAXIMUM NUMBER OF CU #10 PV WIRES (WITH ALLOWANCE FOR AN ADDITIONAL GROUND WIRE)		
CONDUIT TRADE SIZE	CONDUIT LENGTH 24" OR LESS (60% FILL)	CONDUIT LENGTH OVER 24" (40% FILL - W/ CONDITIONS OF USE)
3/4"	3	2
1"	5	3
1.25"	9	6
1.5"	13	9
2"	23	9
2.5"	33	9
3"	52	9
3.5"	70	9
4"	91	9

TABLE ASSUMING: ANY CONDUIT TYPE AND CU #10 PV WIRE WITH 0.28in O.D., 1 TEMP. DERATE PV SOURCE CIRCUIT (SIMULATED) WITH 17.15A OUTPUT, 1 IN PARALLEL, AND 25A FUSES

STRING WIRING NOTE:
STRING WIRES TO BE GROUPED BY CIRCUIT INTO SAME CONDUIT OR CABLE TRAY PER NEC 300.3(B)

IMPORTANT
CONTRACTOR MUST REDLINE DRAWINGS TO REFLECT EXACT AS-BUILT STRINGING AND RETURN TO PURE POWER.

1 DC ELECTRICAL PLAN
SCALE: 1" = 20'



STRING LABEL KEY
2-3 → STRING #
→ INVERTER #

DRAWING TITLE
DC ELECTRICAL PLAN

DRAWING #
E200

PROJECT: SOLAR GROUND MOUNT SYSTEM AT HENDRICKSON USA
 501 CATON FARM ROAD
 LOCKPORT, IL 60441

DEVELOPER: VERDE SOLUTIONS
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 CHICAGO, IL 60614
 WWW.VERDESOLUTIONS.COM

ENGINEER: PURE POWER ENGINEERING
 111 W. FULLERTON AVE.
 WWW.PUREPOWER.COM
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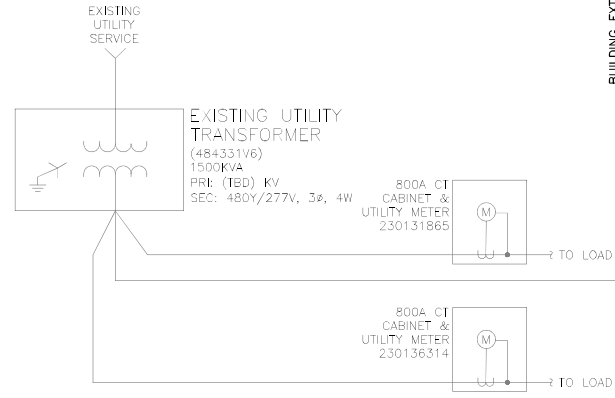
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PM, ENG, CHK, TL, DG, LP, TL, DG, LP, TL, DG, LP

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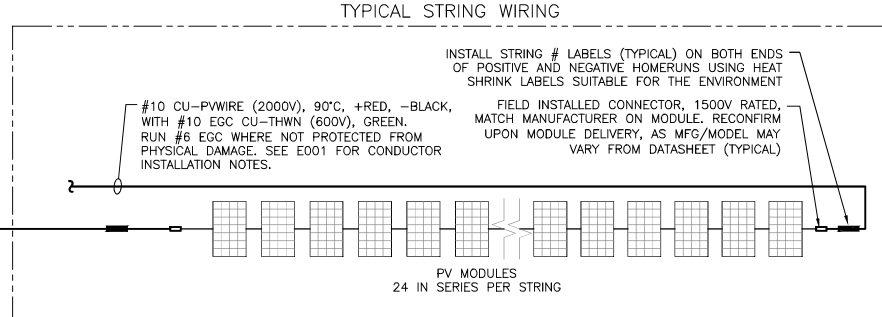
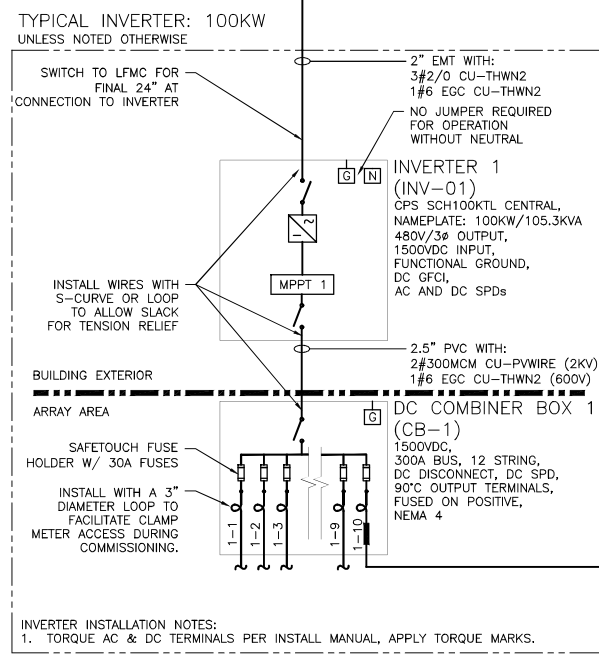
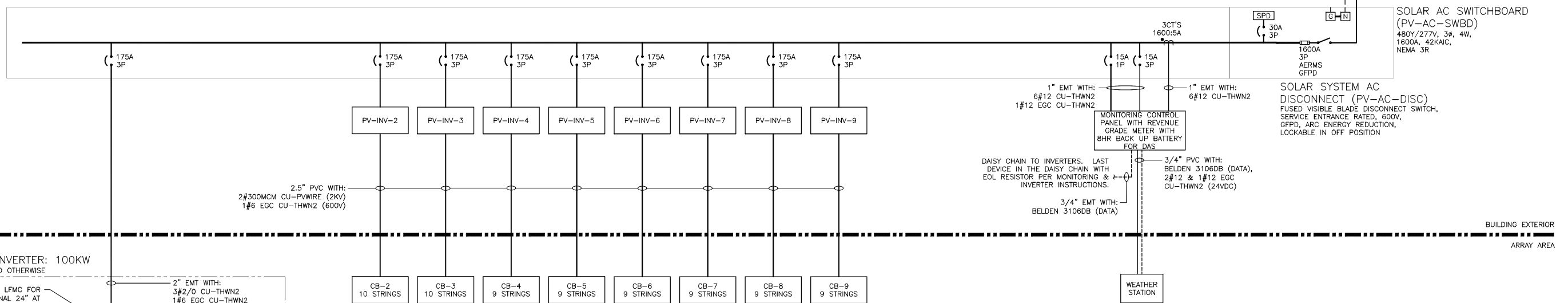
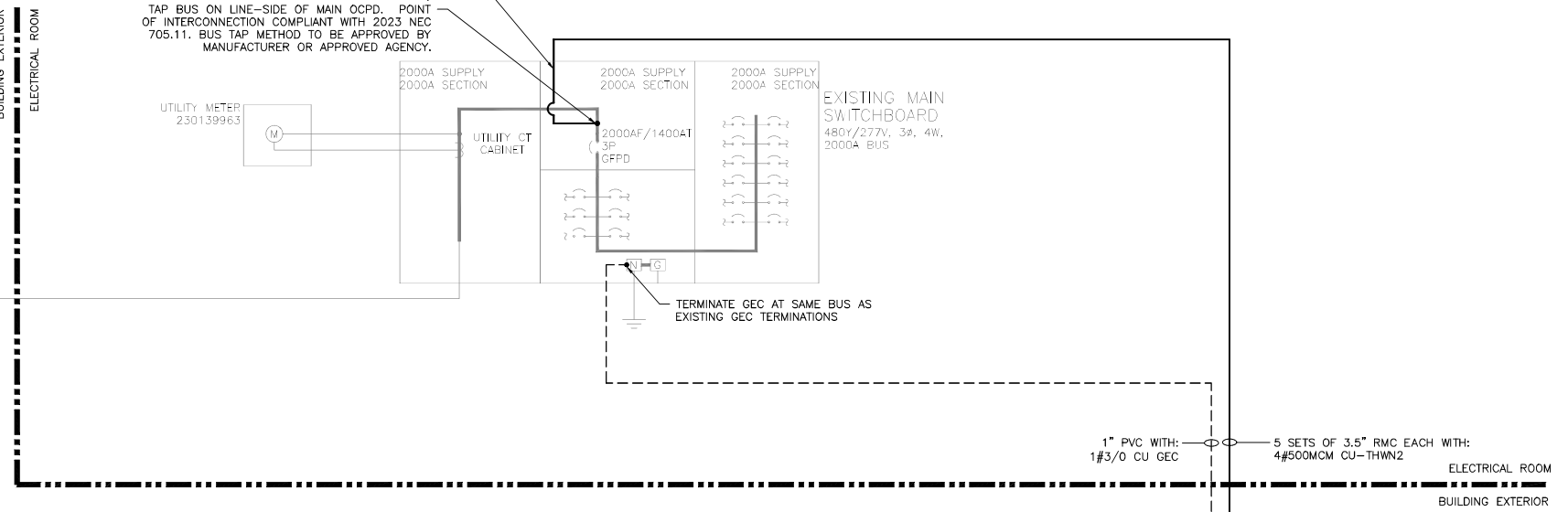
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SYSTEM SUMMARY	
AC SYSTEM SIZE	900.00 KW / 947.70 KVA
DC SYSTEM SIZE	1185.24 KW
(QTY) MODULE	(1,992) JINKO JKM595-72HL4-BDV
(QTY) INVERTER	(9) CPS SCH100KTL-DC/US-480
TILT / AZIMUTH	30° / 180°
UTILITY	COMED



CONDUCTORS MAY NOT PASS THRU CT CABINET, AND ONLY PASS THRU DISTRIBUTION SECTION IF SLEEVED IN PVC CONDUIT. (MUST KEEP PROTECTED AND UNPROTECTED CONDUCTORS SEPARATE)

TAP BUS ON LINE-SIDE OF MAIN OCPD. POINT OF INTERCONNECTION COMPLIANT WITH 2023 NEC 705.11. BUS TAP METHOD TO BE APPROVED BY MANUFACTURER OR APPROVED AGENCY.



- SHEET NOTES:**
- CONTRACTOR SHALL FIELD-VERIFY INTERCONNECTION MEANS/METHODS PRIOR TO INSTALLATION. COORDINATED SHUTDOWN MAY BE REQUIRED.
 - ALL GROUND BARS AND LUGS SHALL BE DUAL RATED AL/CU.
 - UNLESS OTHERWISE NOTED EQUIPMENT IS PERMITTED TO BE 80% OR 100% RATED. EQUIPMENT SHOWN AS "100% RATED" SHALL INCLUDE AN ASSEMBLY, INCLUDING OVERCURRENT PROTECTION DEVICES, WHICH IS LISTED FOR CONTINUOUS OPERATION AT 100% OF ITS RATED CURRENT.
 - PVC SCH80 REQUIRED WHERE PVC IS SPECIFIED. PVC SCH40 IS PERMITTED FOR UNDERGROUND STRAIGHT RUNS ONLY.
 - SET NEW ADJUSTABLE-TRIP BREAKERS TO THE SETTINGS BELOW, UNLESS OTHERWISE NOTED IN POWER STUDY. "NOMINAL TRIP" REFERS TO BREAKER TRIP RATING INDICATED ON ONELINE. SETTINGS BELOW ARE NOT FOR COORDINATION PURPOSES.
 - L = 100% OF NOMINAL TRIP (EXACT)
 - MINIMUM TIME DELAY
 - S = 125% OF NOMINAL TRIP (OR NEXT HIGHER)
 - MINIMUM TIME DELAY
 - I = MINIMUM VALUE GREATER THAN NOMINAL TRIP
 - G = 20% OF NOMINAL TRIP (OR NEXT HIGHER)
 - 0.5 SEC TIME DELAY

1 ONE LINE DIAGRAM
SCALE: NONE

DRAWING TITLE	ONE LINE DIAGRAM
DRAWING #	E300

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PROJECT	SOLAR GROUND MOUNT SYSTEM AT HENDRICKSON USA 501 CATON FARM ROAD LOCKPORT, IL 60441	
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RULER IN INCHES: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

AC CIRCUIT CALCULATIONS

EQUIPMENT SUPPLIED	FED FROM	VOLTAGE	FULL LOAD AMPS (FLA)	FLA x 1.25	OCPD SIZE [A]	CONDUIT TYPE	CONDUIT SIZE	CONDUCTORS PER PHASE	PHASE CONDUCTOR SIZE	NEUTRAL CONDUCTOR SIZE	GROUND CONDUCTOR SIZE	75° AMPACITY	90° AMPACITY	90° AMPACITY WITH C.O.U.	CABLE TRAY AMPACITY WITH C.O.U.	C.O.U. DERATE AMBIENT TEMP	C.O.U. DERATE CONDUIT FILL	FEEDER LENGTH (ONE-WAY) [FT]	SEGMENT VOLTAGE DROP AT FLA	TOTAL VOLTAGE DROP AT FLA
SOLAR SYSTEM AC DISCONNECT SWITCH	POINT OF INTERCONNECTION	480	1140.3	1425	1600	RMC	3.5"	5	CU 500MCM	CU 500MCM	CU #3/0 GEC	1900	2150	2150	N/A	1.00	1.00	75	0.18%	0.18%
SOLAR AC SWITCHBOARD	SOLAR SYSTEM AC DISCONNECT SWITCH	480	1140.3	1425	1600	BUS	N/A	N/A	1600A BUS	1600A BUS	BUS	1600	1600	1600	N/A	1.00	1.00	10	0.00%	0.18%
INVERTER 1	SOLAR AC SWITCHBOARD	480	126.7	158	175	PVC	2"	1	CU #2/0	NONE	CU #6	175	195	195	N/A	1.00	1.00	15	0.07%	0.25%
INVERTER 2	SOLAR AC SWITCHBOARD	480	126.7	158	175	PVC	2"	1	CU #2/0	NONE	CU #6	175	195	195	N/A	1.00	1.00	20	0.09%	0.27%
INVERTER 3	SOLAR AC SWITCHBOARD	480	126.7	158	175	PVC	2"	1	CU #2/0	NONE	CU #6	175	195	195	N/A	1.00	1.00	25	0.11%	0.29%
INVERTER 4	SOLAR AC SWITCHBOARD	480	126.7	158	175	PVC	2"	1	CU #2/0	NONE	CU #6	175	195	195	N/A	1.00	1.00	30	0.14%	0.32%
INVERTER 5	SOLAR AC SWITCHBOARD	480	126.7	158	175	PVC	2"	1	CU #2/0	NONE	CU #6	175	195	195	N/A	1.00	1.00	35	0.16%	0.34%
INVERTER 6	SOLAR AC SWITCHBOARD	480	126.7	158	175	PVC	2"	1	CU #2/0	NONE	CU #6	175	195	195	N/A	1.00	1.00	40	0.18%	0.36%
INVERTER 7	SOLAR AC SWITCHBOARD	480	126.7	158	175	PVC	2"	1	CU #2/0	NONE	CU #6	175	195	195	N/A	1.00	1.00	45	0.21%	0.38%
INVERTER 8	SOLAR AC SWITCHBOARD	480	126.7	158	175	PVC	2"	1	CU #2/0	NONE	CU #6	175	195	195	N/A	1.00	1.00	50	0.23%	0.41%
INVERTER 9	SOLAR AC SWITCHBOARD	480	126.7	158	175	PVC	2"	1	CU #2/0	NONE	CU #6	175	195	195	N/A	1.00	1.00	55	0.25%	0.43%

AVERAGE AC VOLTAGE DROP FROM POI TO INVERTERS: 0.34%

PV DC FEEDER CALCULATIONS

COMBINER BOX	CABLE MANAGEMENT	QTY OF STRINGS	OPERATING VOLTAGE Vmp [V]	STRING MAXIMUM CURRENT (SAM SIMULATED Imax) [A]	FEEDER MAX CURRENT (Imax) [A]	FEEDER CONTINUOUS CURRENT (Imax x 1.25) [A]	OCPD SIZE [A]	CONDUIT TYPE	CONDUIT SIZE	CONDUCTORS PER POLE	CONDUCTOR SIZE	GROUND SIZE	75° AMPACITY	90° AMPACITY	90° AMPACITY WITH C.O.U. ADJUSTMENT	CABLE TRAY AMPACITY WITH C.O.U.	C.O.U. DERATE FOR AMBIENT TEMPERATURE	C.O.U. DERATE FOR NUMBER OF CURRENT CARRYING CONDUCTORS	STRING OPERATING CURRENT (STRING Imp) [A]	FEEDER OPERATING CURRENT [A]	FEEDER LENGTH (ONE WAY) [FT]	FEEDER VOLTAGE DROP
CB-1	CONDUIT	10	1063	17.15	172	214	225	PVC	2.5"	1	AL 300MCM	CU #4	230	260	260	N/A	1	1	13.43	134	360	0.6%
CB-2	CONDUIT	10	1063	17.15	172	214	225	PVC	2.5"	1	AL 300MCM	CU #4	230	260	260	N/A	1	1	13.43	134	368	0.7%
CB-3	CONDUIT	9	1063	17.15	154	193	225	PVC	2.5"	1	AL 300MCM	CU #6	230	260	260	N/A	1	1	13.43	121	405	0.7%
CB-4	CONDUIT	9	1063	17.15	154	193	225	PVC	2.5"	1	AL 300MCM	CU #6	230	260	260	N/A	1	1	13.43	121	442	0.7%
CB-5	CONDUIT	9	1063	17.15	154	193	225	PVC	2.5"	1	AL 300MCM	CU #6	230	260	260	N/A	1	1	13.43	121	480	0.8%
CB-6	CONDUIT	9	1063	17.15	154	193	225	PVC	2.5"	1	AL 300MCM	CU #6	230	260	260	N/A	1	1	13.43	121	519	0.8%
CB-7	CONDUIT	9	1063	17.15	154	193	225	PVC	2.5"	1	AL 300MCM	CU #6	230	260	260	N/A	1	1	13.43	121	555	0.9%
CB-8	CONDUIT	9	1063	17.15	154	193	225	PVC	2.5"	1	AL 300MCM	CU #6	230	260	260	N/A	1	1	13.43	121	595	1.0%
CB-9	CONDUIT	9	1063	17.15	154	193	225	PVC	2.5"	1	AL 300MCM	CU #6	230	260	260	N/A	1	1	13.43	121	629	1.0%

AVERAGE DC VOLTAGE DROP FROM COMBINER BOXES TO INVERTERS: 0.92%

SAM SIMULATED VALUES	
MAXIMUM CURRENT [A]	17.15
MAXIMUM VOLTAGE [V]	1408.76

THE STRING MAX CURRENT IS CALCULATED BY SYSTEM ADVISOR MODEL SIMULATION PROGRAM PROVIDED BY THE NATIONAL RENEWABLE ENERGY LABORATORY, REFERENCE SAND 2004-3535, PHOTOVOLTAIC ARRAY PERFORMANCE MODEL, AS ALLOWABLE BY NEC 690.8(A)(1)(2), THE CALCULATED CURRENT IS 97.1% OF THE VALUE USING 690.8(A)(1)(1).

MODULE SPECIFICATIONS	
MAKE/MODEL	JKM595N-72HL4-BDV
POWER [W]	595
ISC [A]	14.13
IMP [A]	13.43
VOC [V]	53.10
VMP [V]	44.31
β VOC [%/degC]	-0.250%
SITE CLIMATE CRITERIA (WEATHER STATION NAME)	
ASHRAE HIGH [°C]	29.9
ASHRAE LOW [°C]	-23.5
ELEVATION (m)	201
STRING SPECIFICATIONS AT STC	
MODULES/STRING	24
POWER [W]	14280
STRING ISC [A]	14.13
STRING IMP [A]	13.43
STRING VMP [V]	1063.44

INVERTERS 1-9	
STRING WIRE GAUGE	10AWG-CU
DC IMPEDANCE [OHM/KFT]	1.2900
OPERATING VOLTAGE [VDC]	1063
OPERATING CURRENT [AMP]	17.2

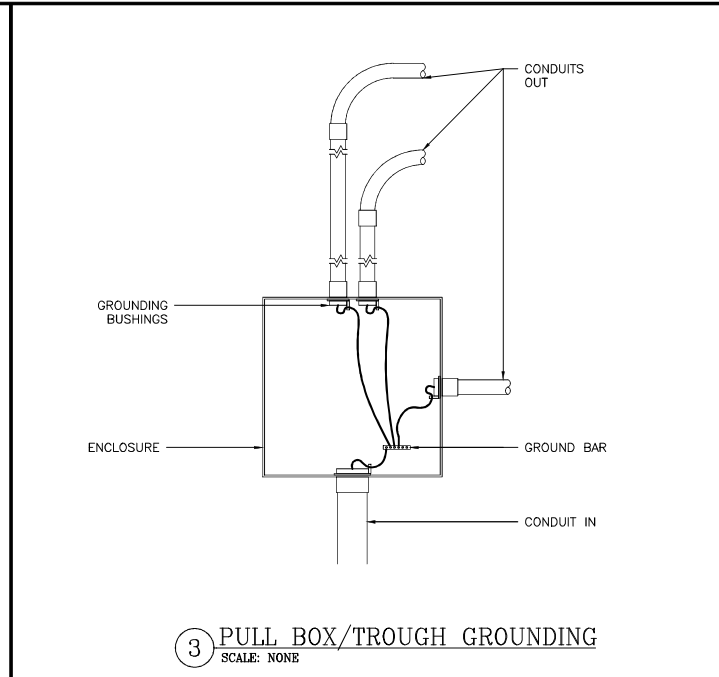
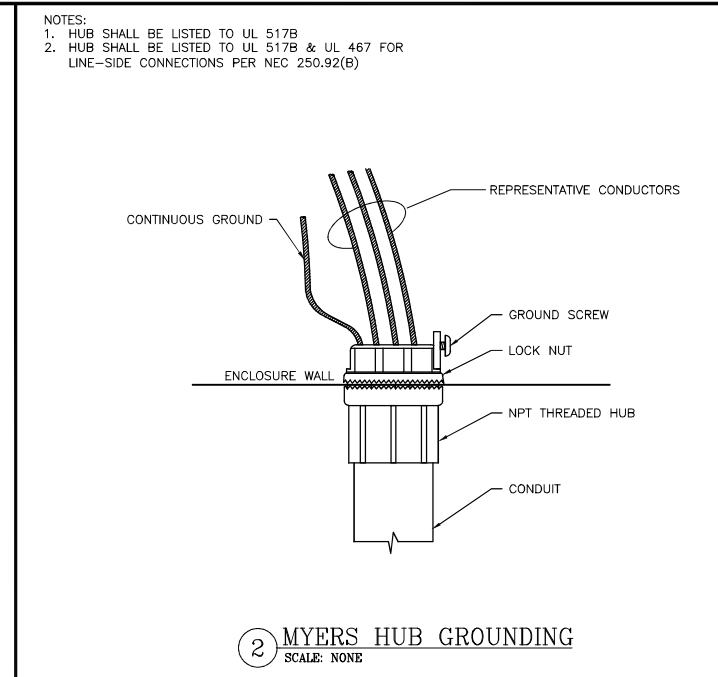
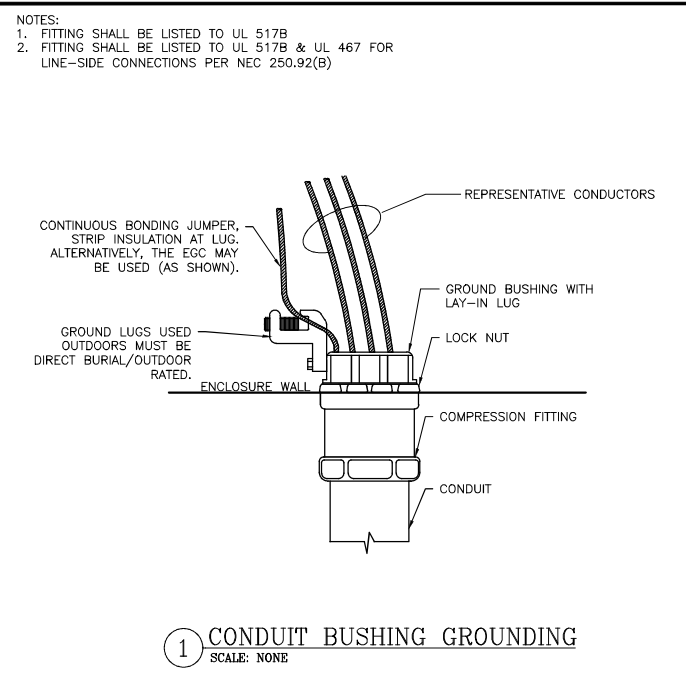
INVERTERS 1-5		
STRING NUMBER	TOTAL STRING DISTANCE [FT]	STRING VOLTAGE DROP
1-1	55	0.23%
1-2	145	0.61%
1-3	235	0.98%
1-4	325	1.36%
1-5	415	1.73%
1-6	415	1.73%
1-7	325	1.36%
1-8	235	0.98%
1-9	145	0.61%
1-10	55	0.23%
2-1	50	0.21%
2-2	145	0.61%
2-3	235	0.98%
2-4	325	1.36%
2-5	415	1.73%
2-6	415	1.73%
2-7	325	1.36%
2-8	235	0.98%
2-9	145	0.61%
2-10	55	0.23%
3-1	55	0.23%
3-2	145	0.61%
3-3	235	0.98%
3-4	325	1.36%
3-5	395	1.65%
3-6	325	1.36%
3-7	235	0.98%
3-8	145	0.61%
3-9	55	0.23%
4-1	55	0.23%
4-2	145	0.61%
4-3	235	0.98%
4-4	325	1.36%
4-5	395	1.65%
4-6	325	1.36%
4-7	235	0.98%
4-8	145	0.61%
4-9	55	0.23%
5-1	55	0.23%
5-2	145	0.61%
5-3	235	0.98%
5-4	325	1.36%
5-5	395	1.65%
5-6	325	1.36%
5-7	235	0.98%
5-8	145	0.61%
5-9	55	0.23%

INVERTERS 6-9		
STRING NUMBER	TOTAL STRING DISTANCE [FT]	STRING VOLTAGE DROP
6-1	55	0.23%
6-2	145	0.61%
6-3	235	0.98%
6-4	325	1.36%
6-5	395	1.65%
6-6	325	1.36%
6-7	235	0.98%
6-8	145	0.61%
6-9	55	0.23%
7-1	55	0.23%
7-2	145	0.61%
7-3	235	0.98%
7-4	325	1.36%
7-5	395	1.65%
7-6	325	1.36%
7-7	235	0.98%
7-8	145	0.61%
7-9	55	0.23%
8-1	55	0.23%
8-2	145	0.61%
8-3	235	0.98%
8-4	325	1.36%
8-5	395	1.65%
8-6	325	1.36%
8-7	235	0.98%
8-8	145	0.61%
8-9	55	0.23%
9-1	50	0.21%
9-2	145	0.61%
9-3	235	0.98%
9-4	325	1.36%
9-5	395	1.65%
9-6	325	1.36%
9-7	235	0.98%
9-8	145	0.61%
9-9	50	0.21%
AVERAGE VOLTAGE DROP		0.91%

SHEET NOTES:
1. DISTANCES ARE ONE-WAY ESTIMATES GENERATED FOR ENGINEER'S CALCULATIONS. CONTRACTOR IS RESPONSIBLE FOR OWN MEASUREMENTS AND TAKEOFFS.

PROJECT: SOLAR GROUND MOUNT SYSTEM AT HENDRICKSON USA
 501 CATON FARM ROAD
 LOCKPORT, IL 60441
 DEVELOPER: VERDE SOLUTIONS
 2211 SHELTON AVE
 CHICAGO, IL 60614
 WWW.VERDESOLUTIONS.COM
 ENGINEER: PURE POWER ENGINEERING
 111 WILSON AVENUE, SUITE 200
 CHICAGO, IL 60642
 WWW.PUREPOWER.COM
 ILL. LICENSE NO. 082.06988
 REVISION DESCRIPTION: 90% DESIGN REV1, 90% DESIGN, 30% CONCEPTUAL DESIGN
 DATE: 03/28/2024, 02/26/2023, 01/13/2023
 PM/ENG/CHK: TL, DG, LP, TL, DG, LP, TL, DG, LP

RULER IN INCHES: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18



NEC 250.102(C)(1) SSBJ IS SIZED PER TABLE 250.102(C)(1) BASED ON THE SIZE OF EACH INDIVIDUAL CONDUIT

NEC 250.102(C)(2) SSBJ IS SIZED PER TABLE 250.102(C)(1) BASED ON THE COMBINED AREA OF PARALLEL PHASE CONDUCTORS

INDIVIDUAL COMBINED

SIZE OF LARGEST UNGROUNDED CONDUCTOR OR EQUIVALENT AREA FOR PARALLEL CONDUCTORS (AWG/KCMIL)		SIZE OF GROUNDED CONDUCTOR OR BONDING JUMPER (AWG/KCMIL)	
COPPER	ALUMINUM OR COPPER-CLAD ALUMINUM	COPPER	ALUMINUM OR COPPER-CLAD ALUMINUM
2 OR SMALLER	1/0 OR SMALLER	8	6
1 OR 1/0	2/0 OR 3/0	6	4
2 OR 2/0	4/0 OR 250	4	2
OVER 3/0 THROUGH 350	OVER 250 THROUGH 500	2	1/0
OVER 350 THROUGH 600	OVER 500 THROUGH 900	1/0	3/0
OVER 600 THROUGH 1100	OVER 900 THROUGH 1750	2/0	4/0
OVER 1100	OVER 1750	REFER TO NOTES IN NEC TABLE 250.102(C)(1)	

④ SUPPLY SIDE BONDING JUMPERS (SSBJ)
SCALE: NONE

A) FOR CONCENTRIC KNOCKOUTS, USE BONDING JUMPERS AS FOLLOWS:

OVERCURRENT DEVICE CIRCUIT NOT EXCEEDING (AMPERES)	SIZE (AWG OR KCMIL)	
	COPPER	ALUMINUM
15	14	12
20	12	10
60	10	8
100	8	6
200	6	4
300	4	2
400	3	1
500	2	1/0
600	1	2/0
800	1/0	3/0
1000	2/0	4/0
1200	3/0	250
1600	4/0	350
2000	250	400
2500	350	600
3000	400	600
4000	500	750

FOR PARALLEL FEEDERS - NEC 250.102(D) EQUIPMENT BONDING JUMPER IS SIZED PER TABLE 250.122, REGARDLESS IF COMBINED OR INDIVIDUAL BONDING JUMPERS ARE USED

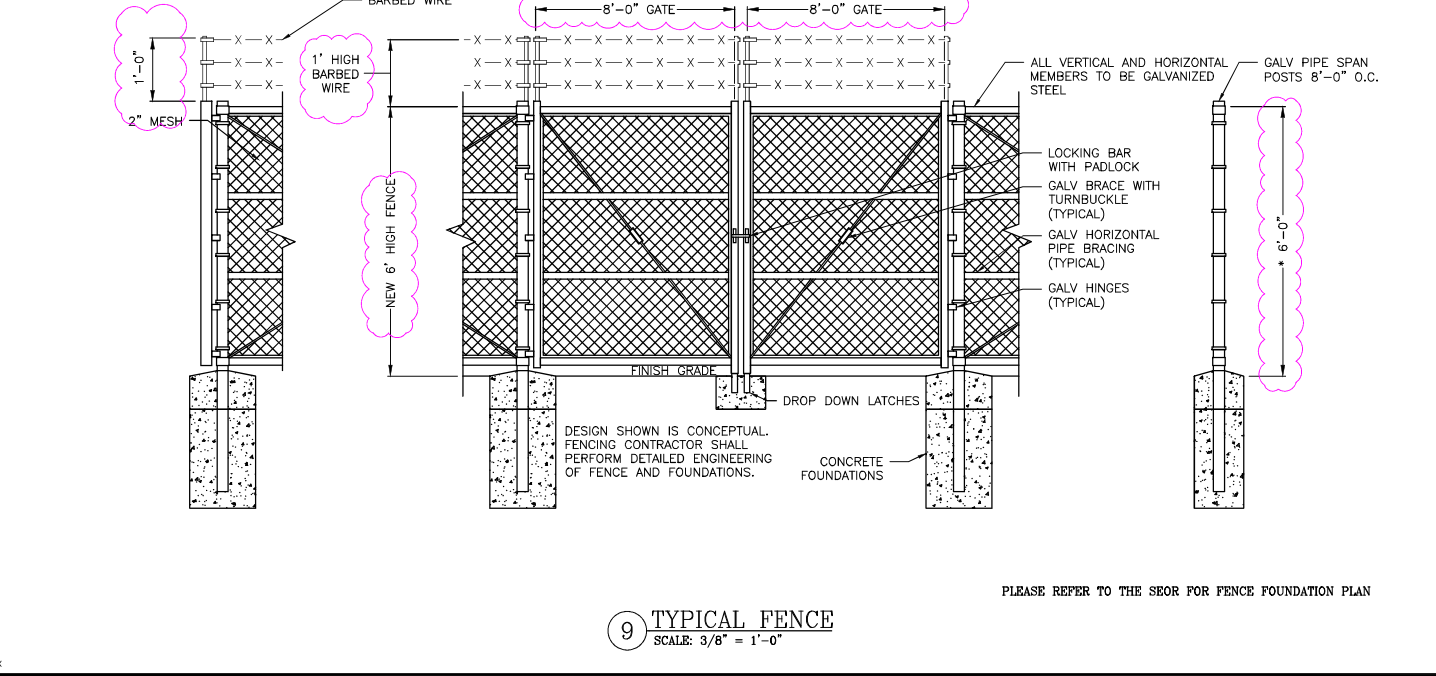
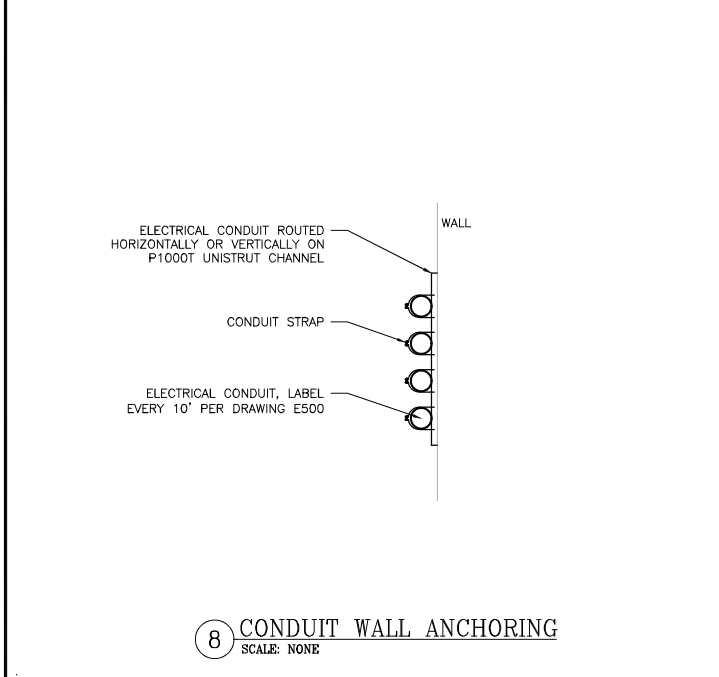
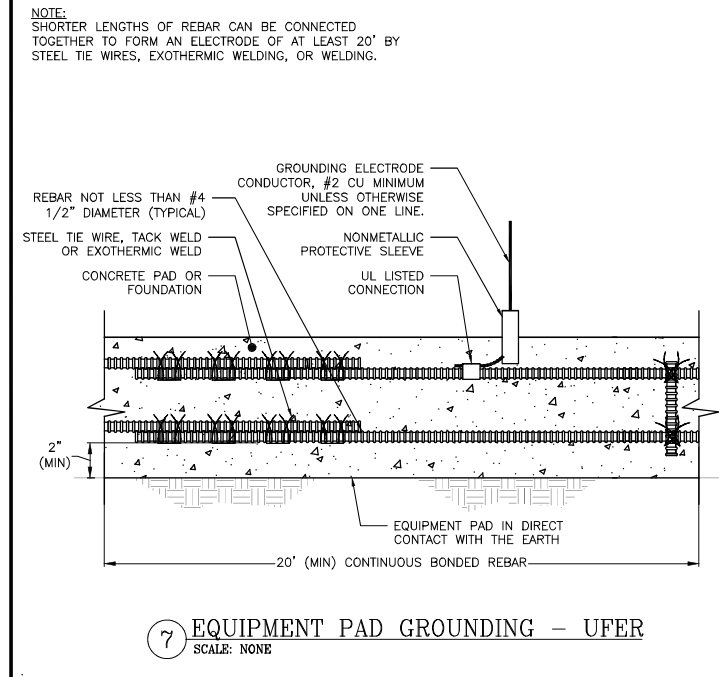
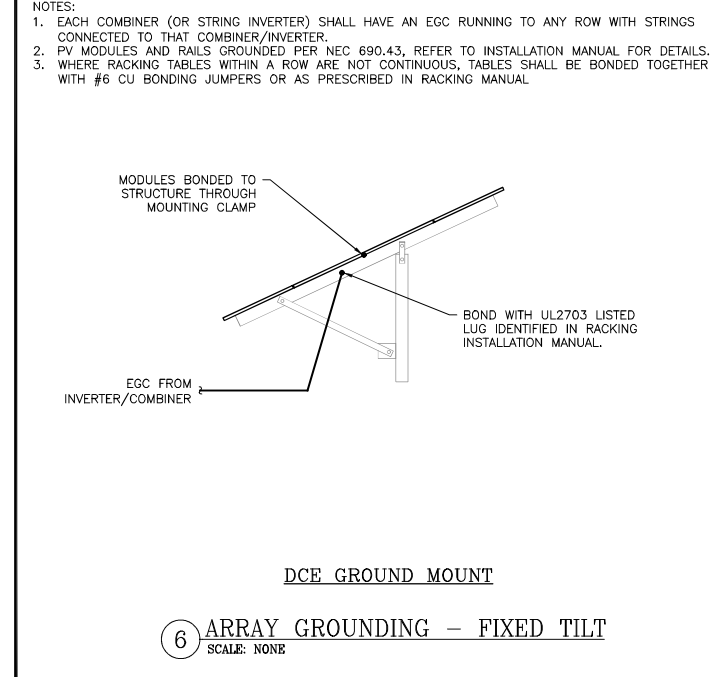
1) INDIVIDUAL

2) COMBINED

B) FOR NON-CONCENTRIC KNOCKOUTS, THE FOLLOWING METHODS SHALL BE PERMITTED (PER NEC 250.97)

- 1) THREADLESS COUPLINGS AND CONNECTORS FOR CABLES WITH METAL SHEATHS
- 2) TWO LOCKNUTS, ON RIGID METAL CONDUIT OR INTERMEDIATE METAL CONDUIT, ONE INSIDE AND ONE OUTSIDE OF BOXES AND CABINETS
- 3) FITTINGS WITH SHOULDERS THAT SEAT FIRMLY AGAINST THE BOX OR CABINET, SUCH AS ELECTRICAL METALLIC TUBING CONNECTORS, FLEXIBLE METAL CONDUIT CONNECTORS, AND CABLE CONNECTORS, WITH ONE LOCKNUT ON THE INSIDE OF BOXES AND CABINETS
- 4) LISTED FITTINGS (SUCH AS MYERS HUB)

⑤ LOAD SIDE EQUIPMENT BONDING JUMPER
SCALE: NONE



REVISION DESCRIPTION: 90% DESIGN REV1, 90% DESIGN, 30% CONCEPTUAL DESIGN

DATE: 03/28/2024, 02/26/2024, 01/13/2024

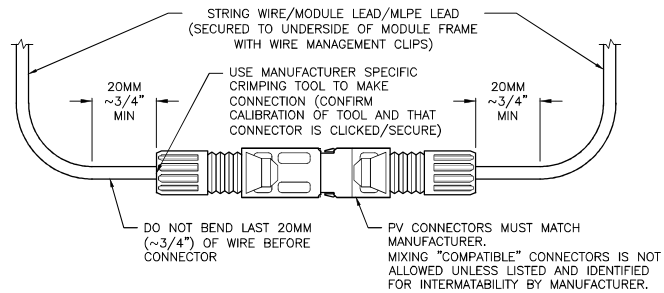
ENGINEER: PURE POWER ENGINEERING, INC. (WWW.PUREPOWER.COM)

DEVELOPER: VERDE SOLUTIONS (WWW.VERDESOLUTIONS.COM)

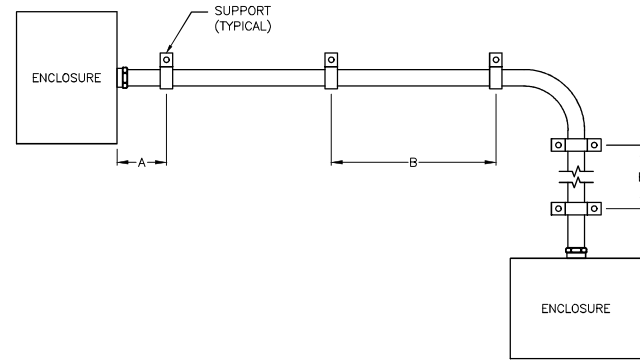
PROJECT: SOLAR GROUND MOUNT SYSTEM AT HENDRICKSON USA, 501 CATON FARM ROAD, LOCKPORT, IL 60441

PAGE SIZE: 36" x 24", PROJECT #: 11015.01

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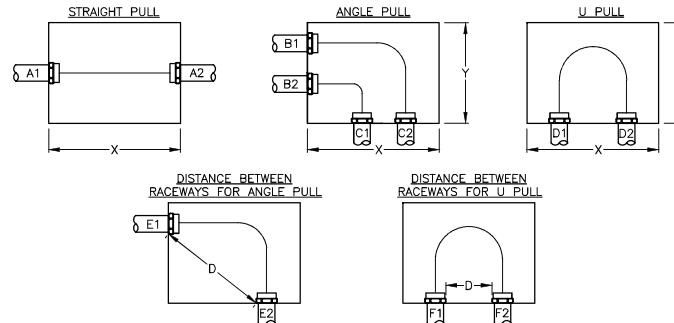


1 MODULE CONNECTORS
SCALE: NONE



MAXIMUM CONDUIT HARDWARE SPACING			
CONDUIT TYPE	ENCLOSURE TO SUPPORT (A)	SUPPORT TO SUPPORT (B)	NEC ARTICLE
ELECTRICAL METALLIC TUBING (EMT)	3'	10'	358
INTERMEDIATE METAL CONDUIT (IMC)	3'	10'	342
RIGID METAL CONDUIT (RMC)	3'	10'	344
LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)	1'	4.5'	350
PVC (SCH40 & 80) [0.5" - 1"]	3'	3'	352
PVC (SCH40 & 80) [1.25" - 2"]	3'	5'	352
PVC (SCH40 & 80) [2.5" - 3"]	3'	6'	352
PVC (SCH40 & 80) [3.5" - 5"]	3'	7'	352
PVC (SCH40 & 80) [6"]	3'	8'	352

2 CONDUIT SUPPORT SPACING
SCALE: NONE

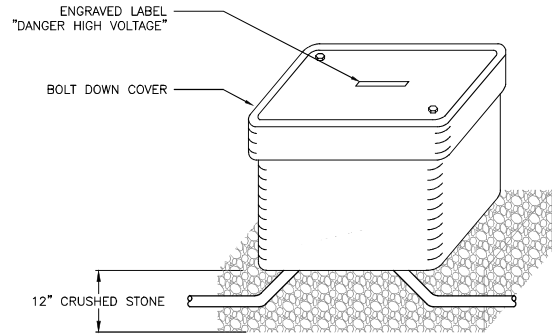


NEC 314.28(A)(1)-(3) PULL BOX SIZING (UP TO 1000V)			
BOX TYPE	LENGTH (X)	HEIGHT (Y)	DISTANCE (D)
STRAIGHT PULL	8 X LARGEST OF A1 & A2	AS NEEDED	N/A
ANGLE PULL	6 X (LARGEST OF B1 & B2) + SUM OF OTHER CONDUIT ENTERING THE SAME WALL	6 X (LARGEST OF C1 & C2) + SUM OF OTHER CONDUIT ENTERING THE SAME WALL	6 X LARGEST OF E1 & E2
U PULL	AS NEEDED	6 X (LARGEST OF D1 & D2) + SUM OF OTHER CONDUIT ENTERING THE SAME WALL	6 X LARGEST OF F1 & F2

NOTES:
1. REFER TO NEC 314.28 FOR ADDITIONAL REQUIREMENTS.
2. ENSURE CONDUCTOR BEND RADIUS MINIMUMS ARE MET.
REFER TO NEC 312.6 FOR ADDITIONAL REQUIREMENTS.

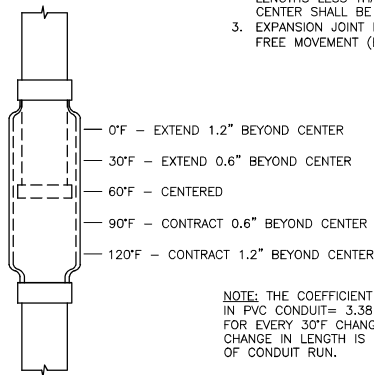
3 PULL BOX & JUNCTION BOX SIZING
SCALE: NONE

NOTES:
1. BOX SHALL BE RATED TB FOR USE IN GRASSY AREAS NOT SUBJECT TO VEHICULAR TRAFFIC, OR RATED T22 FOR USE IN SIDEWALKS OR PARKING LOTS SUBJECT TO OCCASIONAL NON-DELIBERATE HEAVY VEHICULAR TRAFFIC. BOXES TO BE USED IN ROADWAYS OR AREAS FREQUENTLY SUBJECT TO HEAVY VEHICULAR TRAFFIC SHALL BE SUBMITTED TO EOR FOR APPROVAL 24" BELOW FINISHED GRADE.
2. CONDUITS SHALL ENTER FROM BOTTOM AT 45° ANGLE. MINIMUM BURIAL DEPTHS OF CONDUITS IS 24" BELOW FINISHED GRADE.
3. CONDUIT KNOCKOUTS SHALL BE DRILLED OR PUNCHED ON SITE, QUANTITIES AND SIZES TO MATCH TRENCH PLAN AND COMBINER SCHEDULE.
4. USE APPROPRIATE SEALING METHODS FOR CONDUITS ENTERING THE HANDHOLE TO ENSURE A WATERTIGHT AND SECURE INSTALLATION.
5. FOLLOW BENDING RADIUS REQUIREMENTS PER CONDUCTOR MANUFACTURER'S SPECIFICATIONS.
6. SPLICES ARE PROHIBITED
7. BOX SHALL BE SIZED PER DETAIL "PULL BOX & JUNCTION BOX SIZING"



4 HANDHOLE
SCALE: NONE

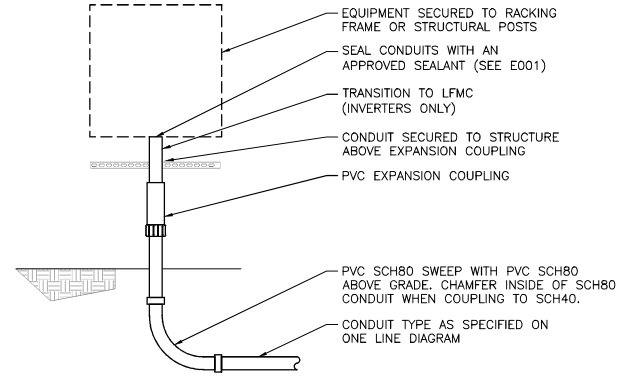
NOTES:
1. INSTALL EXPANSION COUPLING EVERY 50' OF STRAIGHT CONDUIT RUN.
2. IF EXPANSION COUPLINGS ARE INSTALLED AT LENGTHS LESS THAN 50', THE OFFSET FROM CENTER SHALL BE ADJUSTED PROPORTIONALLY.
3. EXPANSION JOINT MUST HAVE AT LEAST 4" OF FREE MOVEMENT (END TO END).



NOTE: THE COEFFICIENT OF THERMAL EXPANSION IN PVC CONDUIT= 3.38 X 10⁻⁵IN./IN./°F. FOR EVERY 30° CHANGE IN TEMPERATURE, THE CHANGE IN LENGTH IS 0.6 INCHES PER 50 FEET OF CONDUIT RUN.

PVC

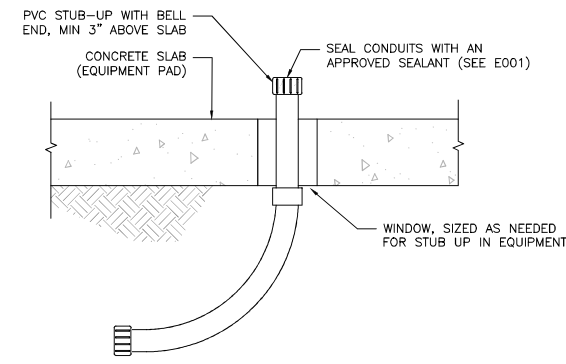
5 EXPANSION COUPLING
SCALE: NONE



NOTES:
1. EXPANSION FITTINGS SHALL BE PROVIDED FOR ALL CONDUITS EXITING FROM GRADE THAT TERMINATE ON FIXED EQUIPMENT. CONDUITS THAT TERMINATE AT WEATHER HEADS DO NOT REQUIRE PROVISION FOR EARTH MOVEMENT.
2. PVC SWEEPS SHALL ONLY BE USED AT END WHERE WIRE REEL IS LOCATED. RMC SWEEPS SHALL BE USED AT END WHERE THE PULLING MACHINE IS LOCATED.

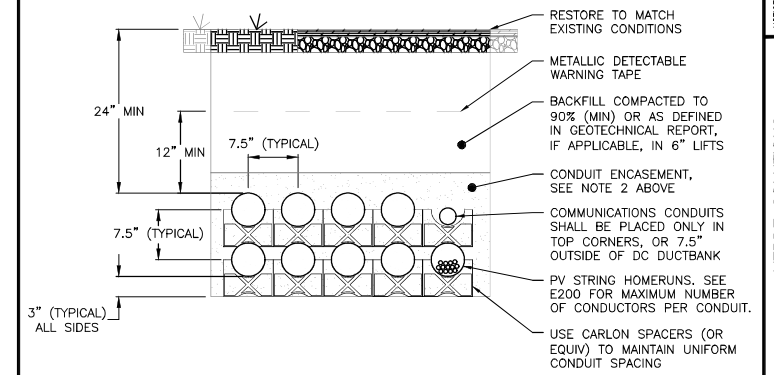
6 TRANSITION FROM GRADE
SCALE: NONE

NOTES:
1. INITIALLY INSTALL COUPLING CAP TO PREVENT DAMAGE TO STUB-UP UNTIL GEAR IS SET.
2. INSTALL ROUNDED FITTING BEFORE PULLING CABLES TO AVOID DAMAGE TO CABLES.



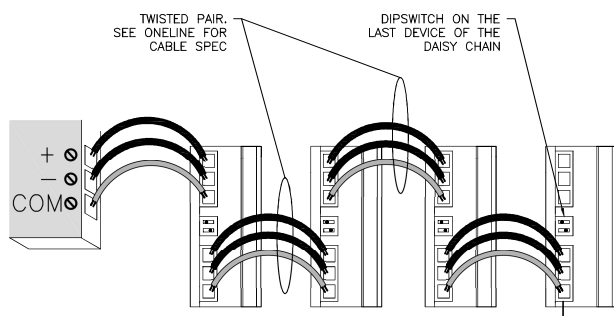
7 EQUIPMENT PAD STUB-UP
SCALE: NONE

NOTES:
1. ALL UNDERGROUND CONDUIT SHALL BE PVC AND TRANSITION TO RMC FOR ELBOW. RMC ELBOW DOES NOT NEED TO BE BONDED IF THE ENTIRE ELBOW IS >= 18" DEEP (NEC 250.86 EXCEPTION 3)
2. UNDER ROADS AND PARKING AREAS ENCASMENT SHALL BE 2500 PSI CONCRETE. UNDER GRASSY AREAS NOT SUBJECT TO VEHICULAR TRAFFIC ENCASMENT SHALL BE EITHER SAND, NATIVE BACKFILL CONTAINING NO ROCKS LARGER THAN 3/4" AND FREE FROM SHARP ANGULAR SUBSTANCES, OR SOIL ON SITE AS CONFIRMED ACCEPTABLE BY SITE SUPERVISOR.
3. CALL BEFORE YOU DIG, DIAL 811 TO BE CONNECTED TO THE LOCAL ON-CALL CENTER. YOU MUST CALL AT LEAST 48 HOURS BEFORE EXCAVATING.
4. IF DUCTBANK SLOPES SUCH THAT ANY PART OF THE DUCTBANK IS ABOVE STUB UP ELEVATION, INCLUDE HAND HOLE WITH GRAVEL BASE TO ALLOW DRAINAGE AT LOWEST ELEVATION.
5. DUCTBANK SIZE SHOWN IS THE MAXIMUM ALLOWABLE SIZE WITHOUT THERMAL ANALYSIS.



8 TYPICAL DC DUCTBANK & COMMS
SCALE: NONE

MONITORING NOTES:
1. REFER TO MONITORING SYSTEM INSTALLATION MANUAL FOR DETAILS ON TERMINAL BLOCKS, CABLE TERMINATIONS, AND SYSTEM CONFIGURATION.
2. WIRELESS TRANSCIEVERS MUST HAVE LINE-OF-SIGHT BETWEEN EACH OTHER.
3. PYRANOMETER MUST BE INSTALLED IN UNSHADED LOCATION.



9 MODBUS COMMUNICATIONS
SCALE: NONE

REVISION DESCRIPTION	DATE	REVISED BY	DATE
90% DESIGN REV1	03/28/2024	TRAVIS LEMBERG	03/28/2024
90% DESIGN	02/26/2024	TRAVIS LEMBERG	02/26/2024
30% CONCEPTUAL DESIGN	01/13/2024	TRAVIS LEMBERG	01/13/2024

ENGINEER: TRAVIS LEMBERG, LICENSE NO. 082.076989

DEVELOPER: VERDE SOLUTIONS, 2211 S. LEXINGTON AVE, CHICAGO, IL 60614, WWW.VERDESOLUTIONS.COM

PROJECT: SOLAR GROUND MOUNT SYSTEM AT HENDRICKSON ROAD, 501 CATON FARM ROAD, LOCKPORT, IL 60441

PAGE SIZE: 36" x 24"

PROJECT #: 11015.01

RULER IN INCHES: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 PLP DATE: 3/21/2024 1:02 PM

GENERAL NOTES FOR LABELS:
 1. LABEL SCALE 1:2 UNLESS NOTED
 2. LETTERING ON SIGNS SHALL BE CAPITAL LETTERS
 3. CLEARLY LABEL ALL CIRCUIT BREAKERS IN SUBPANEL(S) / PANELBOARD(S) / SWITCHBOARD(S). THE LABEL SHALL INDICATE THE NAME OF THE DEVICE IT SERVES. USE LABEL FORMAT 5.
 4. ALL LABELS SHALL BE OUTDOOR RATED.

FORMAT	TYPE	BACKGROUND COLOR	TEXT COLOR	TEXT HEIGHT
FORMAT 1	ENGRAVED MELAMINE	RED	WHITE	TITLES (3/8") ALL OTHER TEXT (5/32")
FORMAT 2	ENGRAVED MELAMINE	WHITE	BLACK	TITLES (3/8") ALL OTHER TEXT (5/32")
FORMAT 3	REFLECTIVE UV RATED	RED	WHITE	AT LEAST (3/8")
FORMAT 4	ENGRAVED MELAMINE	RED	WHITE	TITLES (5/32") ALL OTHER TEXT (5/32")
FORMAT 5	VINYL FILM	WHITE	BLACK	(3/8")
FORMAT 6	ENGRAVED MELAMINE	ORANGE	BLACK	TITLES (3/8") ALL OTHER TEXT (5/32")

PER 2023 NEC 690.31(B)(2): PV SYSTEM CIRCUIT CONDUCTORS SHALL BE IDENTIFIED AT ALL ACCESSIBLE POINTS OF TERMINATION, CONNECTION, AND SPLICES.

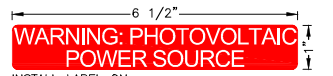
- STRING HOMERUNS AT ARRAY
- DC INPUT TERMINALS OF COMBINER BOX
- DC OUTPUT TERMINALS OF COMBINER BOX
- DC INPUT TERMINALS OF INVERTER
- AC OUTPUT TERMINALS OF INVERTER
- AC INPUT & OUTPUT TERMINALS OF EACH SUCCESSIVE DEVICE (WHERE APPLICABLE)

CIRCUIT BREAKER AND SWITCH LABELS:
 UNLESS LABELED OTHERWISE, ALL CIRCUIT BREAKERS AND SWITCHES SHALL BE LABELED WITH THE NAME OF THE EQUIPMENT IT IS SUPPLYING.

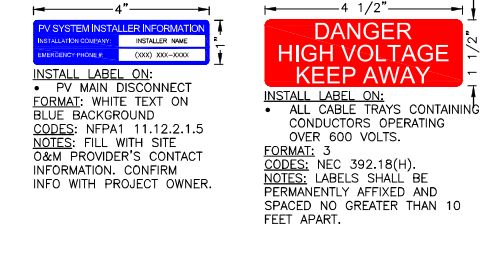
1 NOTES AND FORMATS



INSTALL LABEL ON:
 • EVERY 75' OF FENCELINE
 FORMAT: SCALE 1:4



INSTALL LABEL ON:
 • ALL DC EXPOSED RACEWAYS, CABLE TRAYS, PULL BOXES, AND JUNCTION BOXES.
 FORMAT: 3
 CODES: NEC 690.31(D)(2), NFPA 11.12.2.1.3
 NOTES: HELLERMANN TYTON #: 596-00206 OR EQUAL, LABELS SHALL BE PERMANENTLY AND SPACED NO GREATER THAN 10 FEET APART.

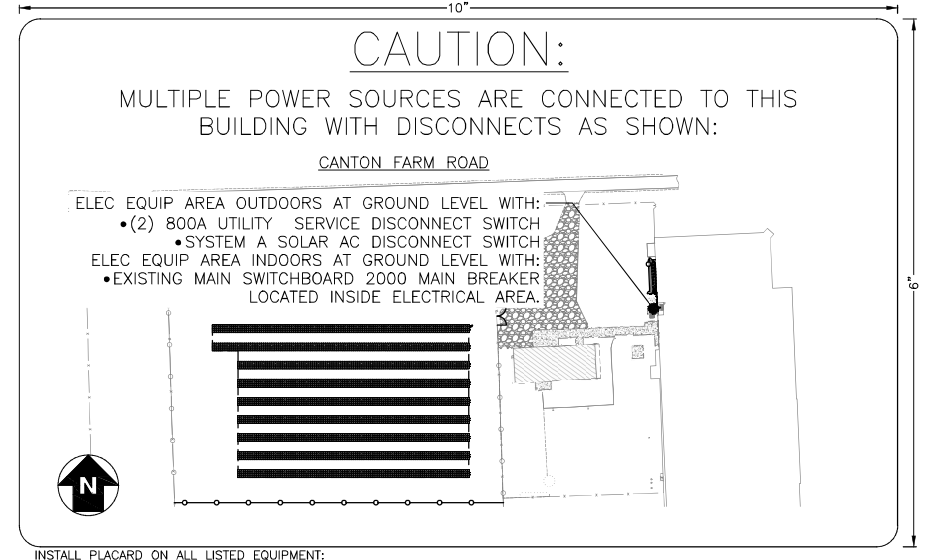


INSTALL LABEL ON:
 • ALL CABLE TRAYS CONTAINING CONDUCTORS OPERATING OVER 600 VOLTS.
 FORMAT: 3
 CODES: NEC 392.18(H).
 NOTES: LABELS SHALL BE PERMANENTLY AFFIXED AND SPACED NO GREATER THAN 10 FEET APART.



INSTALL LABEL ON:
 • ALL EQUIPMENT NOT OTHERWISE LABELED IN POWER STUDY
 FORMAT: 1:1 SCALE
 NOTES: OUTDOOR RATED STICKER.

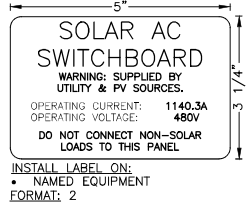
2 GENERAL SIGNAGE



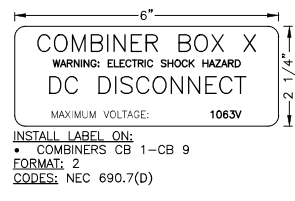
INSTALL PLACARD ON ALL LISTED EQUIPMENT:
 • PV SYSTEM MAIN DISCONNECT
 • UTILITY SERVICE DISCONNECTS
 FORMAT: ENGRAVED MELAMINE, WHITE TEXT ON YELLOW BACKGROUND, TITLE MIN. 1/2", DESCRIPTION 5/16", ALL OTHER TEXT 1/8"
 CODES: NEC 705.10 & 690.56(B)

3 DIRECTORY LABEL

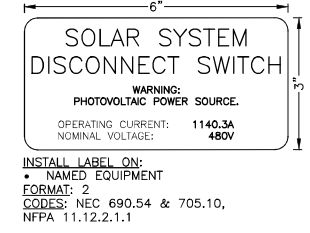
SWITCHBOARD(S)



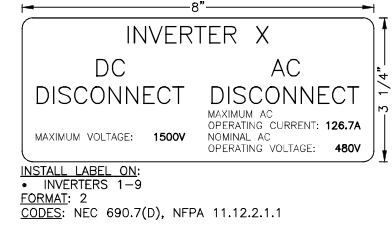
COMBINER(S)



DISCONNECT(S)/ BREAKER(S)



INVERTER(S)



MONITORING/AUXILIARY



4 EQUIPMENT LABELS

DRAWING TITLE	DRAWING #
LABELS & SIGNAGE	E500

REVISION DESCRIPTION: 90% DESIGN REV1, 90% DESIGN, 30% CONCEPTUAL DESIGN

DATE: 03/28/2024, 02/26/2024, 01/13/2024

ENGINEER: TRANNS LEMBERG, LICENSE No. 082,076,988

DEVELOPER: VERDE SOLUTIONS, 2211 SHELTON AVE, CHICAGO, IL 60614, WWW.VERDESOLUTIONS.COM

PROJECT: SOLAR GROUND MOUNT SYSTEM AT HENDRICKSON USA, 501 CANTON FARM ROAD, LOCKPORT, IL 60441

PAGE SIZE: 36" x 24", PROJECT #: 11015.01

RULER IN INCHES: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 RULER DATE: 3/21/2025 102 PM


Dataset

100 kW, 1500 Vdc/480 Vac String Inverters for North America



CPS SCH100KTL-DO-US-480

The 100 kW high power CPS three-phase string inverters are designed for ground-mount applications with 480 Vac service voltage. The units are high performance, advanced, and reliable inverters designed specifically for the North American environment and grid. High efficiencies, wide operating voltages, broad temperature ranges, and a NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications. The CPS 100 kW products ship with the Distributed or Centralized Wire Box, each fully integrated and separable with AC and DC disconnect switches. The Enhanced DC Wire Box includes touch-safe fusing for up to 20 strings. The CPS FlexOM solution enables communication, controls and remote product upgrades.

Key Features

- NFPA 70 and NEC compliant
- Touch-safe DC fuse holders adds convenience and safety
- CPS FlexOM Gateway enables remote firmware upgrades
- Integrated AC and DC disconnect switches
- 1 MPPT with 20 fused inputs for maximum flexibility
- Copper- and aluminum-compatible AC connections
- NEMA Type 4X outdoor rated, tough tested enclosure
- Advanced Smart-Grid features (CA Rule 21 certified)
- KVA headroom yields 100 kW @ 0.95 PF
- Generous DC/AC inverter load ratios
- Separable wire box design for fast service
- Enhanced DC wire boxes available



Distributed



Centralized



Enhanced DC Wire Boxes




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1800 Presidential Drive, Suite 100, Richardson, TX 75081

Tel: 855-584-7168 Mail: AmericaSales@chintpower.com Web: www.chintpowersystems.com







THE MOST DEPENDABLE SOLAR PRODUCT

EAGLE® G6B

580-600 WATT • N-TYPE BIFACIAL

Positive power tolerance of 0→+3%

- NYSE-listed since 2010, Bloomberg Tier 1 manufacturer
- Top performance in the strictest 3rd party labs
- Automated manufacturing utilizing artificial intelligence
- Vertically integrated, tight controls on quality
- Premium solar factories in USA and Vietnam

KEY FEATURES

N-Type Technology
N-type cells offer Jinko's in-house TOPCon technology with better performance and improved reliability.

Industrial Grade Construction
Fire Type 29 with optimized dual-glass construction and aluminum frame for highest mechanical load resistance.

Multi Busbar Half Cell Technology
Better light trapping and current collection to improve module power output and reliability.

Shade Tolerant
Twin array design allows continued performance even with shading by trees or debris.

Bifacial Power Gain
N-type architecture increases bifaciality for higher backside bonus and better lifetime yield.

Protected Against All Environments
Certified to withstand humidity, heat, rain, marine environments, wind, hailstorms, and packed snow.

Low Temperature Coefficient
Best in class temperature coefficient for highest lifetime energy yield in all climates.

Warranty
12-year product and 30-year linear power warranty.

- ISO9001:2015 Quality Standards
- ISO14001:2015 Environmental Standards
- IEC61215, IEC61730 certified products

- ISO45001:2018 Occupational Health & Safety Standards
- UL16730 certified products







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LONG SPAN

GROUND MOUNT SYSTEMS

Solar Racking with the Industry's Most Topographically Adaptable PV System



Elevating the Future of Solar



LONG SPAN

Structural Components

All above ground members are constructed from G115 galvanized steel with ground penetrating components from G235 or better.



Technical Benefits

- » Minimal hardware
- » Designed to custom fit the panel
- » Fewer foundations per panel

TECHNICAL SPECIFICATIONS

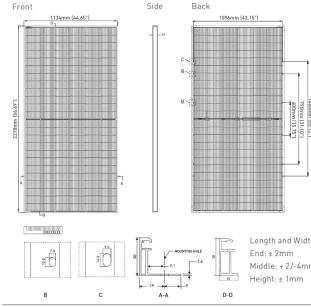
Wind Load	90 - 150 MPH *
Snow Load	0 - 70 PSF *
Leading Module Height	18" - 60" MAX
Tilt Angle	5° - 35°
Module Suitability	All Major Brands *
Panel Orientation	Portrait (2H x 12W) *
Warranty	20 years

* Higher wind, snow conditions, and panel frame profiles, are feasible but site specific and are subject to approval by DCE Engineering.

CPS SCH100KTL-DO-US-480	
Model Name	CPS SCH100KTL-DO-US-480
DC Input	1500 Vdc
Max. DC input voltage	1500 Vdc
Operating DC input voltage range	750-1450 Vdc
Startup DC input voltage / power	900 Vdc / 200 W
Number of MPPT trackers	1
MPPT voltage range @ PF = 0.991	760-1300 Vdc
Max. PV input current (Isc = 1.25)	27.5 A
Number of DC inputs	Distributed Wire Box: 20 PV source circuits, positive and negative fused Centralized Wire Box: 1 input circuit, 1-2 terminations per pole, non-fused
DC disconnection type	Load-rated DC switch
DC surge protection	Type II MOV (with indicator/remote signaling)
AC Output	
Rated AC output power	100 kW
Max. AC output power ²	100 kVA (105.3 kVA @ PF > 0.95)
Rated output voltage	480 Vdc
Output voltage range	425-528 Vdc
Grid connection type ³	3 Phase / PE / N (neutral optional)
Max. AC output current @ 480 Vac	120.3 A / 126.7 A
Rated output frequency	60 Hz
Output frequency range ³	57-63 Hz
Power factor	> 0.99 (0.8 adjustable)
Current THD @ rated load	3%
Max. fault current contribution (1 cycle RMS)	43.47 A
Max. OCPD rating	200 A
AC disconnection type	Load-rated AC switch
AC surge protection	Type II MOV (with indicator/remote signaling)
System and Performance	
Topology	Transformerless
Max. efficiency	98.9%
CEC efficiency	98.0%
Standby / night consumption	< 4 W
Environment	
Enclosure protection degree	NEMA Type 4X
Cooling method	Variable speed cooling fans
Operating temperature range	-27°F to 140°F / -30°C to 60°C
Non-operating temperature range ³	-40°F to 158°F (-40°C to 70°C)
Operating humidity	0-100%
Operating altitude	8202 ft / 2500 m (no derating)
Audible noise	< 65 dBA @ 1 m and 77°F (25°C)
Display and Communication	
User interface and display	LED indicators, Wi-Fi and app
Inverter monitoring	Modbus RS485
Site-level monitoring	CPS FlexOM Gateway (1 per 32 inverters)
Modbus data mapping	SunSpec / CPS
Remote diagnostics / firmware upgrade functions	Standard / (with FlexOM Gateway)
Mechanical	
Dimensions (W x H x D)	Distributed Wire Box: 45.28" x 24.25" x 9.84" in (1150 x 616 x 250 mm) Centralized Wire Box: 39.37" x 24.25" x 9.84" in (1000 x 616 x 250 mm)
Weight	Inverter: 121 lbs (55 kg) Distributed Wire Box: 55 lbs (25 kg) Centralized Wire Box: 33 lbs (15 kg)
Mounting / installation angle	15-90 degrees from horizontal (vertical or angled)
AC termination	M10 stud type terminal [30] (wire range: 1/0 AWG-500 kcmil CU/AL; lugs not supplied) Screw clamp terminal block [N] (#12-1/0 AWG CU/AL)
DC termination	Distributed Wire Box: Screw clamp fuse holder (wire range: #12-#6 AWG CU) Centralized Wire Box: Busbar M10 bolts (wire range: #1 AWG-300 kcmil CU/AL [1 termination per pole], #1 AWG-300 kcmil CU/AL [2 terminations per pole]; lugs not supplied)
Fused string inputs	Standard/Distributed Wire Boxes: 25 A fuses provided (Fuse values up to 30 A acceptable) Enhanced DC Wire Boxes: 20 A fuses provided (Fuse values up to 30 A acceptable)
Safety	
Certifications and standards	UL 1741-SA/SB Ed. 3, CSA-C22.2 NO.107.1-01, IEEE 1547-2018, FCC PART15 Selectable grid standard: IEEE 1547a-2014, IEEE 1547-2018P, CA Rule 21, ISO-9001
Smart-grid features	Volt-Ride-Thru, Freq-Ride-Thru, Ramp-Rate, Specified #0, Volt-VAR, Frez-Watt, Volt-Watt
Warranty	
Standard	5 years
Extended terms	10, 15, and 20 years

1) See user manual for information regarding MPPT voltage range when operating at non-unity PF.
2) 100 kW @ 0.95 power factor (begin at 107.91°C when PF = 0.95 and MPPT is idle).
3) At 117° (20°C) when PF = 1 and MPPT is idle.
4) The "output voltage range" and "output frequency range" may differ according to the specific grid standard.

ENGINEERING DRAWINGS



MECHANICAL CHARACTERISTICS

No. of Cells	144 (2 x 72)
Dimensions	2278 x 1154 x 30mm (89.69 x 44.45 x 1.18in)
Weight	21kg (46.34lbs)
Front Glass	2.0mm, Anti-Reflection Coating
Back Glass	2.0mm, Heat Strengthened Glass
Frame	Anodized Aluminum Alloy
Junction Box	IP68 Rated
Output Cables	12 AWG, 1400mm (55.12in)
Fire Type	Type 29
Pressure Rating	S400Pa (Snow) & 2400Pa (Wind)
Hailstone Test	45mm Hailstone at 30.7m/s

TEMPERATURE CHARACTERISTICS

Temperature Coefficients of Pmax	-0.25%/°C
Temperature Coefficients of Voc	-0.25%/°C
Temperature Coefficients of Isc	0.045%/°C
Normal Operating Cell Temperature (NOCT)	45±2°C
Bifacial Factor	88±5%

MAXIMUM RATINGS

Operating Temperature (°C)	-40°C ~ +80°C
Maximum System Voltage	1500VDC
Maximum Series Fuse Rating	30A

PACKAGING CONFIGURATION

[Two pallets = One stack]
36pcs/pallets, 72pcs/stack, 576pcs/40 HQ Container

BIFACIAL OUTPUT-REARSIDE POWER GAIN

5%	Maximum Power (Pmax)	609Wp	614Wp	620Wp	625Wp	630Wp
	Module Efficiency (%)	23.57%	23.78%	23.98%	24.18%	24.39%
15%	Maximum Power (Pmax)	647Wp	672Wp	679Wp	684Wp	690Wp
	Module Efficiency (%)	25.82%	26.50%	26.27%	26.49%	26.71%
25%	Maximum Power (Pmax)	725Wp	731Wp	738Wp	744Wp	750Wp
	Module Efficiency (%)	28.06%	28.31%	28.55%	28.79%	29.03%

WARRANTY

12-year product and 30-year linear power warranty
1st year degradation not to exceed 1%, each subsequent year not to exceed 0.4%, minimum power at year 30 is 87.4% or greater.

ELECTRICAL CHARACTERISTICS


Module Type	JKM580N-72HL4-BDV	JKM585N-72HL4-BDV	JKM590N-72HL4-BDV	JKM595N-72HL4-BDV	JKM600N-72HL4-BDV	
	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax)	588Wp	627Wp	585Wp	641Wp	590Wp	645Wp
Maximum Power (Pmax) (Irrad.)	42.88W	46.89W	44.22W	47.83W	43.31W	47.32W
Maximum Power Current (Imp)	13.12A	10.49A	12.29A	10.16A	13.36A	10.79A
Open-circuit Voltage (Voc)	52.50V	49.87V	52.70V	50.04V	52.90V	50.25V
Short-circuit Current (Isc)	13.95A	11.26A	14.01A	11.31A	14.27A	11.41A
Module Efficiency STC (%)	22.45%		22.45%		22.64%	
					23.03%	
						23.23%

STC: ☉ Irradiance 1000W/m² ☁ Cell Temperature 25°C
NOCT: ☉ Irradiance 800W/m² ☁ Ambient Temperature 20°C

☁ AM = 1.5 ☁ AM = 1.5 ☁ Wind Speed 1m/s
*Power measurement tolerance: ±3%

The company reserves the final right for explanation on any of the information presented hereby. JKMS600N-72HL4-BDV-F30R-F2-US

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LONG SPAN

Most advanced table based racking solution with the DCE Long Span Racking System.

- » Newly designed Long-Span pivot bracket allows for superior purlin adjustability
- » Integrated wire management & direct panel frame mounting & bonding
- » Driven Beam, ballast, or screw foundations accommodating all soil & site conditions
- » Structurally independent tables to diminish terrain challenges

HIGHER YIELD PER FOUNDATION

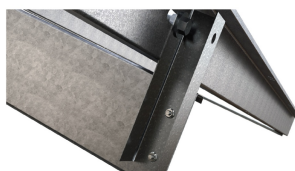

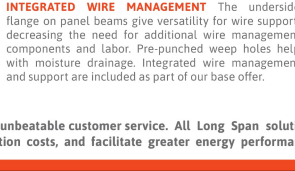
Purlins spanning up to twelve panels in portrait orientation result in fewer foundations throughout the entire installation. More panels on each table with fewer posts installed reduce labor & material cost; compounding value per watt generated.

PIVOT ADAPTER

The uniquely designed pivot adapter elevates each one-point purlin connection to drastically improve every table's adaptability to challenging topography. The fully grounded rows can adjust to changes up to 20% grade.

FOUNDATION FLEXIBILITY

Ideal for maximizing your investment for virtually any condition - Driven beam, ground screw, and ballasted foundation variants available to minimize installation challenges or environmental demands - distinguishing Long-Span brand versatility.


SCREWS DRIVEN BEAM BALLASTED

INTEGRATED BONDING

Each continuous row is bonded using serrated hardware, therefore only one ground is needed per row. No additional costly grounding components needed such as WEBS and star washers, lowering material and installation costs. This reduces labor time, hardware, and cost for additional bonding components. (Certified to UL 2703)

INTEGRATED WIRE MANAGEMENT

The underside flange on panel beams give versatility for wire support, decreasing the need for additional wire management components and labor. Pre-punched weep holes help with moisture drainage. Integrated wire management and support are included as part of our base offer.

Elevating the Future of Solar  Made in America

DCE Solar
19410 Jetton Road Suite 220 Cornelius, NC 28031 USA
704-659-7474 | info@dcesolar.com | www.dcesolar.com

DCE Solar delivers industry-leading racking products with unbeatable customer service. All Long Span solutions have been designed to minimize grading, lower foundation costs, and facilitate greater energy performance.

LONG SPAN


DCE Solar is a market leader in industrial grade solar mounting and consulting. DCE designs, engineers, and manufactures the leading product line in the C&I and utility market. DCE continues to set the gold standard with innovative solutions created and perfected by a trademarked, world-class engineering and support team.



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REVISION	DESCRIPTION	DATE	PM	ENG	CHK
90%	DESIGN REV1	03/26/2025	TL	DG	LP
90%	DESIGN	02/26/2025	TL	DG	LP
30%	CONCEPTUAL DESIGN	01/13/2025	TL	DG	LP



PURE POWER ENGINEERING
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WWW.PUREPOWER.COM
TRAVIS LEBERG
082076988
IL LICENSE NO.

ENGINEER

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DEVELOPER

VERDE SOLUTIONS
2211 WILSON AVE
CHICAGO, IL 60614
WWW.VERDESOLUTIONS.COM

PAGE SIZE

36" x 24"

PROJECT #

11015.01

SOLAR GROUND MOUNT SYSTEM AT

HENDRICKSON USA
501 CANTON FARM ROAD
LOCKPORT, IL 60441

PROJECT

VERDE SOLUTIONS

DRAWING TITLE

EQUIPMENT DATA SHEETS

DRAWING #

E600

RULER IN INCHES: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 PLP DATE: 3/31/2025 1:02 PM

CPS
FlexOM Meter

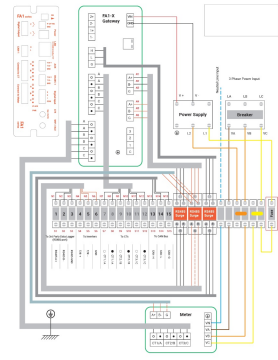
Datasheet



The CPS FlexOM Meter offers a revenue-grade metering solution for CPS 25, 36, 50, 60, 100, and 125 kW inverters. The FlexOM meter solution includes a FlexOM Gateway and revenue-grade meter integrated into a NEMA 4 enclosure. FlexOM Portal Bundles are offered by CPS with web portal data access to features such as data charting, monitoring alerts, kiosk view, and more!

Key Features

- Low-cost, complete hardware and software package
- Includes revenue-grade site-level meter (CTs not supplied, and must have output voltage of 0.333Vac at full scale)
- Full access to inverter data (15+ parameters per inverter)
- 1- to 20-minute interval data (download up to 5 years of site data)
- 5 years of monitoring included (extensions available)
- Automated site commissioning report
- Up to 32 devices per Flex Gateway (no additional fees for each inverter connection)
- Site activation with "CPS Connect Pro" app (iOS and Android)
- Inverter on/off, remote arc-fault reset, PF and active power curtailment controls capability
- Remote CT reversal capability



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 Client Power Systems America
 1380 Presidential Drive, Suite 100, Richardson, TX 75081
 Tel: 855-584-7168 Mail: AmericaSales@chintpower.com Web: www.chintpowersystems.com

CPS
FlexOM Meter

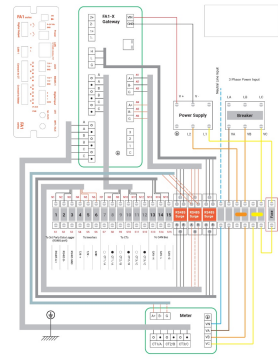
Datasheet



The CPS FlexOM Meter offers a revenue-grade metering solution for CPS 25, 36, 50, 60, 100, and 125 kW inverters. The FlexOM meter solution includes a FlexOM Gateway and revenue-grade meter integrated into a NEMA 4 enclosure. FlexOM Portal Bundles are offered by CPS with web portal data access to features such as data charting, monitoring alerts, kiosk view, and more!

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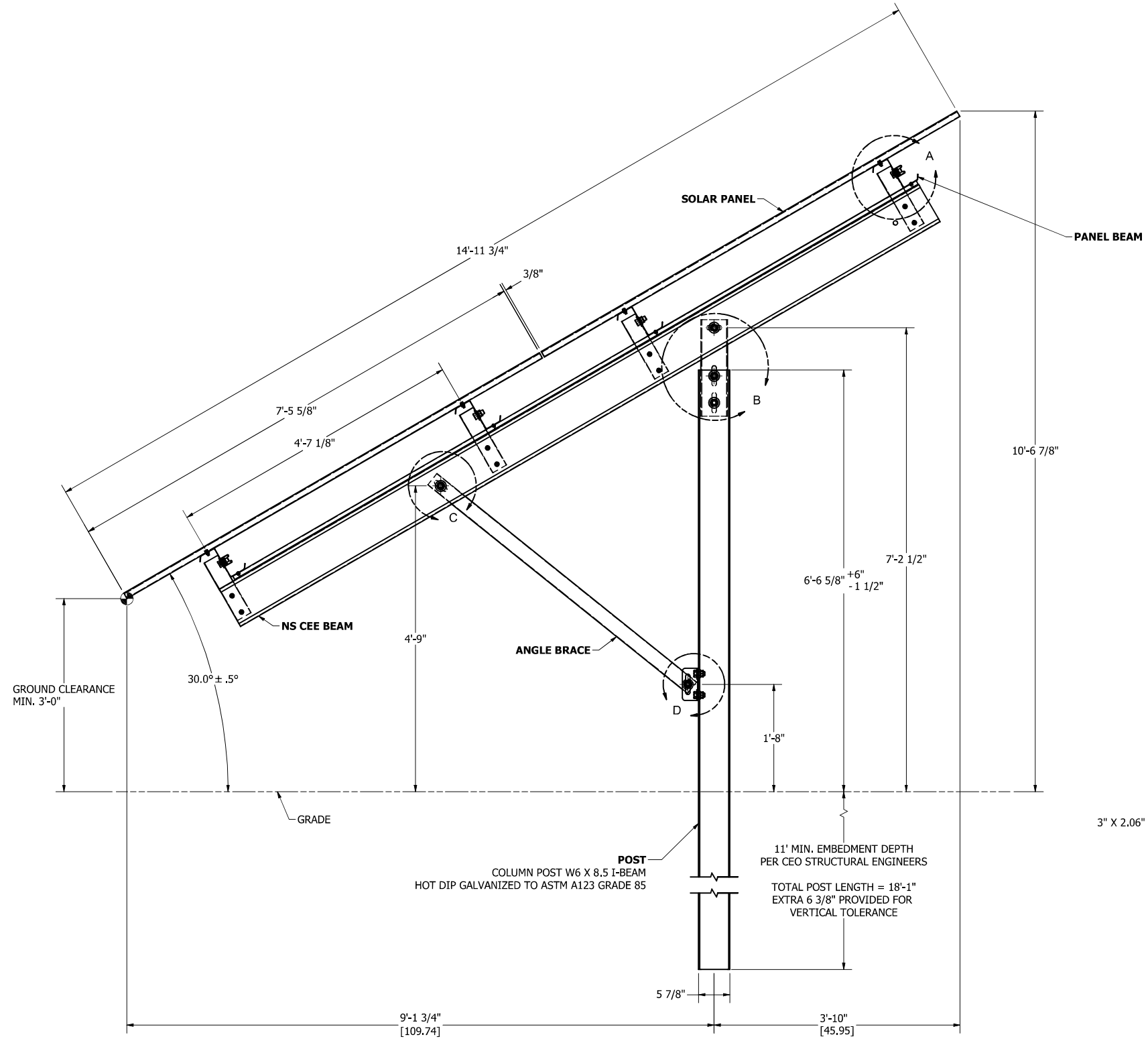
<p>PUREPOWER ENGINEERING 111 S. LEXINGTON AVE. CHICAGO, IL 60614 WWW.PUREPOWER.COM TRANSL. LENBERG IL LICENSE NO. 082.076988</p>	REVISION DESCRIPTION	DATE	PM	ENG	CHK
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	DEVELOPER				
<p>VERDE SOLUTIONS 2211 S. LEXINGTON AVE CHICAGO, IL 60614 WWW.VERDESOLUTIONS.COM</p>	PAGE SIZE	3.6" x 24"			
	PROJECT #	11015.01			
<p>PROJECT: SOLAR GROUND MOUNT SYSTEM AT HENDRICKSON USA 501 CATON FARM ROAD LOCKPORT, IL 60441</p>					
	DRAWING #	E601			

DRAWING TITLE	EQUIPMENT DATA SHEETS
DRAWING #	E601

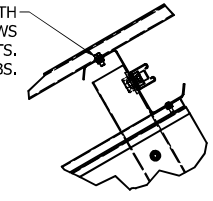
APPENDIX- A
STRUCTURAL DETAIL DRAWING
NOT FOR CONSTRUCTION

PROJECT INFORMATION	
INSTALLATION ADDRESS: 501 Caton Farm Rd, Lockport, IL 60441	
Structural General Notes	
1. The contractor will be solely responsible for all construction means, methods, techniques, sequences and procedures and shall at all times take reasonable precautions for the safety of its employees on the project, and shall comply with all applicable provisions of federal, state, and municipal safety laws and building construction codes.	
2. If existing conditions make it necessary to revise structural details, consult DCE Solar before proceeding with any change.	
3. These drawings and notes are for this specific project and no other use is authorized.	
4. Structure designed in accordance with the International Building Code, 2021 Edition, ASCE 7-16, AISC 360-16 (14th Edition), and AISI S100-16: ASD	
Snow Loads: -Ground Snow Load $pg = 25$ psf -Importance Factor $Is = 0.8$ -Exposure Factor $Ce = 0.9$ -Slope Snow Load $ps = 11.00$ psf	
Wind Loads: MRI Factor = 1.00 -Basic Wind Speed $V = 100$ mph - $Iw = 1$ -Exposure = C -Wind Design performed in accordance with the requirements of ASCE - Wind Tunnel Procedure. Refer to Wind Tunnel Report by UWU BLWT Laboratory dated 12/11/14.	
Seismic Loads: -SS = 0.137g, S1 = 0.069g -Site Class = D -SDS = 0.150g, SD1 = 0.110g -Seismic Design Category = A -Ordinary Steel Cantilever Column System	
5. Material strengths: -Hot-rolled structural steel ASTM A992 GR50. -Cold Formed Steel Sections comply w/ASTM A1003, structural grade, galvanized to Grade as noted. -Formed Steel Brackets - ASTM A653 Galvanized Grade 50 SS -I-Beams - A992, 50 ksi, Hot Dip Galvanized to ASTM 123 Grade 85 -Plate - A36 Steel, Hot Dip Galvanized -Connectors - Stainless Steel unless otherwise noted.	
6. Members and connections have been designed for worst-case loading associated with exterior zones of the array per the wind tunnel report.	
7. Foundation embedment depths are to be calculated and sealed by an IL State Licensed Geotechnical engineer.	
8. For the purposes of this project, all arrays are classified as Exterior Arrays.	
9. Scope of work by Structural Engineer includes member design, connection design, and determination of design base reactions only. Layout of PV arrays such that they do not conflict with existing site obstructions, determination of site-specific foundation and geotechnical parameters, and all other work not specifically noted is by others.	
Engineer of Record	

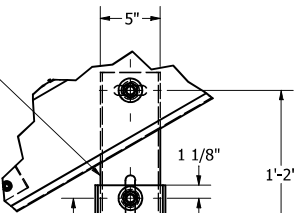
ALL PANEL MOUNTING HARDWARE CALLED OUT BELOW WILL BE PROVIDED BY DCE SOLAR. ANY CUSTOMIZED PANEL MOUNTING HARDWARE PROVIDED BY OTHERS MAY VOID DCE SOLAR'S UL2703 CERTIFICATION.



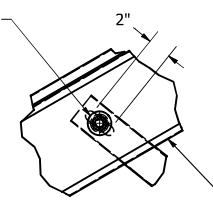
PANEL ATTACHES TO PANEL BEAMS WITH (4) 5/16-18 X 3/4" SERRATED FLANGE CAP SCREWS AND 5/16-18 SERRATED FLANGE NUTS. TORQUE TO 15 FT-LBS.



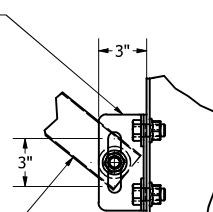
TOP BEAM ADAPTER
 5" X 1.75" X 8G CHANNEL, 18"L ASTM A653 GALVANIZED GRADE 50 SS STEEL ATTACHES TO NS BEAM AND COLUMN POST WITH (3) 3/4-10 X 1.5" GRADE 5 STEEL HHCS, WASHERS, AND SERRATED FLANGE NUTS. TORQUE TO 250 FT-LB.



ANGLE BRACE ATTACHES TO NS CEE BEAM WITH (1) 3/4-10 X 1.5" GRADE 5 STEEL HHCS, WASHER, AND SERRATED FLANGE NUT. TORQUE TO 250 FT-LB.



LOWER MOUNT BRACKET
 3" X 2.06" X 0.188" X 6"L BENT PLATE, A653 SS GRADE 37 G115. ATTACHES TO ANGLE BRACE AND I-BEAM WITH (3) 3/4-10 X 1.5" GRADE 5 STEEL HHCS, WASHERS, AND SERRATED FLANGE NUTS. TORQUE TO 250 FT-LB.



ANGLE BRACE
 2.75" X 1.75" U-CHANNEL 14 GAUGE, ASTM A653 GALVANIZED GRADE 50 SS STEEL

SIDE VIEW
 VIEW1
 SCALE 1 : 12

REVISION HISTORY			
REV	DESCRIPTION	DESIGNER	DATE
0	STRUCTURAL DETAIL DRAWING	CPATTERSON	2/4/2025
1	REVISED POST EMBEDMENT DEPTH AND ALTERNATE FOUNDATION DESIGN	CPATTERSON	2/24/2025
2	REVISED GML ON PAGE 5	CPATTERSON	3/6/2025
3	REVISED GML ON PAGE 5	CPATTERSON	3/25/2025

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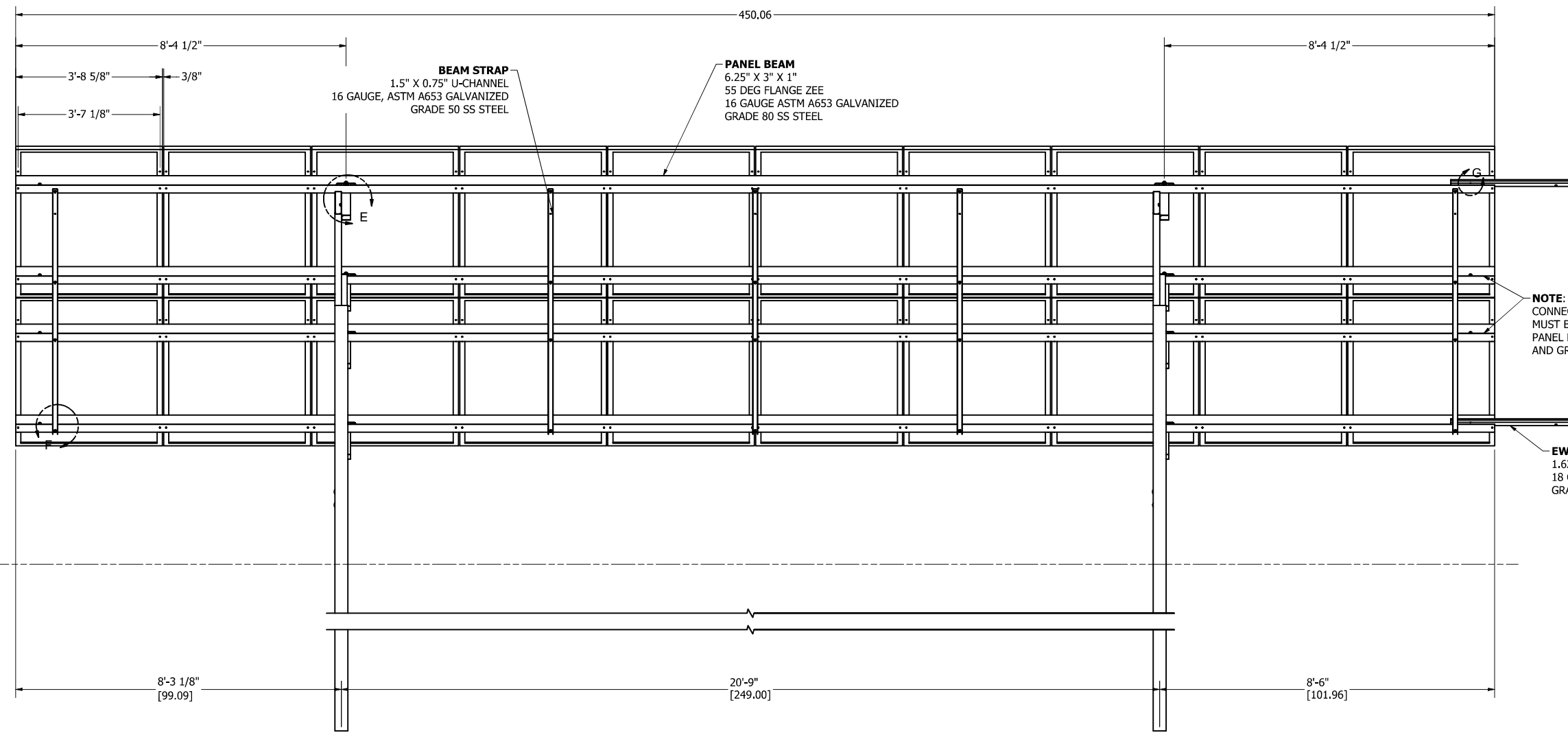
 DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED TOLERANCES ARE AS FOLLOWS: .X = ± 0.100" (2.54mm) .XX = ± 0.030" (0.76mm) .XXX = ± 0.010" (0.25mm) ANGLE = ± 5° MIN. BREAK = 0.012" (0.3mm) SURFACE FINISH = 63 (US)	Material:	Weight: 2267.715 lbmass	
	Description:	CT-LS-DB, JINKO JKM595-72HL4-BDV, 2x10, 30 DEG, HENDRICKSON USA, FRESH COAST SOLAR	
Project:	HENDRICKSON USA	Date:	3/6/2025
Drawn:	CPATTERSON	Scale:	1 of 5
Format:	D	Part Number:	6438
Rev:		Sheet:	3

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 Cornelius, NC, 28031
 www.dcesolar.com
 Phone: 1-704-659-7474

STRUCTURAL DETAIL DRAWING - REAR
NOT FOR CONSTRUCTION

PROJECT INFORMATION
 INSTALLATION ADDRESS:
 501 Caton Farm Rd, Lockport, IL 60441
 Structural General Notes

- The contractor will be solely responsible for all construction means, methods, techniques, sequences and procedures and shall at all times take reasonable precautions for the safety of its employees on the project, and shall comply with all applicable provisions of federal, state, and municipal safety laws and building construction codes.
- If existing conditions make it necessary to revise structural details, consult DCE Solar before proceeding with any change.
- These drawings and notes are for this specific project and no other use is authorized.
- Structure designed in accordance with the International Building Code, 2021 Edition, ASCE 7-16, AISC 360-16 (14th Edition), and AISI S100-16: ASD
 Snow Loads:
 -Ground Snow Load $p_g = 25$ psf
 -Importance Factor $I_s = 0.8$
 -Exposure Factor $C_e = 0.9$
 -Slope Snow Load $p_s = 11.00$ psf
 Wind Loads:
 MRI Factor = 1.00
 -Basic Wind Speed $V = 100$ mph
 - $I_w = 1$
 -Exposure = C
 -Wind Design performed in accordance with the requirements of ASCE - Wind Tunnel Procedure. Refer to Wind Tunnel Report by UWOLBLWT Laboratory dated 12/11/14.
 Seismic Loads:
 -SS = 0.137g, S1 = 0.069g
 -Site Class = D
 -SDS = 0.150g, SD1 = 0.110g
 -Seismic Design Category = A
 -Ordinary Steel Cantilever Column System
 5. Material strengths:
 -Hot-rolled structural steel ASTM A992 GR50.
 -Cold Formed Steel Sections comply w/ASTM A1003, structural grade, galvanized to Grade as noted.
 -Formed Steel Brackets - ASTM A653 Galvanized Grade 50 SS
 -I-Beams - A992, 50 ksi, Hot Dip Galvanized to ASTM 123 Grade 85
 -Plate - A36 Steel, Hot Dip Galvanized
 -Connectors - Stainless Steel unless otherwise noted.
- Members and connections have been designed for worst-case loading associated with exterior zones of the array per the wind tunnel report.
- Foundation embedment depths are to be calculated and sealed by an IL State Licensed Geotechnical engineer.
- For the purposes of this project, all arrays are classified as Exterior Arrays.
- Scope of work by Structural Engineer includes member design, connection design, and determination of design base reactions only. Layout of PV arrays such that they do not conflict with existing site obstructions, determination of site-specific foundation and geotechnical parameters, and all other work not specifically noted is by others.

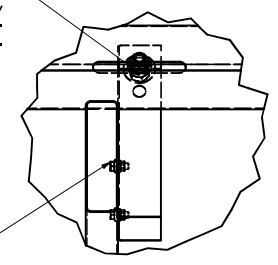


NOTE: FOR ALTERNATE ARRAY CONNECTIONS, STRUT CONNECTORS MUST BE PLACED ON 2ND & 3RD EW PANEL BEAMS PER INSTALLATION MANUAL AND GROUND MOUNT LAYOUT

EW STRUT CONNECTOR
 1.625" X 1.625" U-CHANNEL
 18 GAUGE, ASTM A653 GALVANIZED
 GRADE 80 SS STEEL

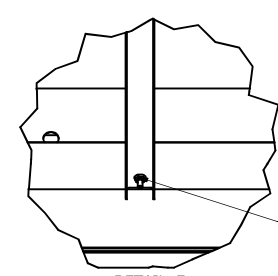
REAR VIEW
 VIEW3
 SCALE 1 / 20

ZEE BEAM ATTACHES TO PIVOT BRACKET USING (1) 3/4-10 GRADE 5 STEEL HHCS, WASHER, AND SERRATED FLANGE NUT. TORQUE TO 250 FT-LBS.



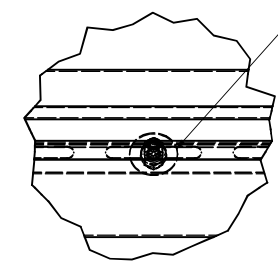
DETAIL E
 SCALE 1 / 6

ZEE BEAM ATTACHES TO CEE BEAM USING PIVOT BRACKET 3" X 2.7" X 12.375" 14G CHANNEL ASTM A653 GRADE 80 SS STEEL ASTM A653 GALVANIZED. BRACKET ATTACHES TO NS BEAM WITH (2) 18-8 SS 3/8-16 SERRATED FLANGE CAP SCREWS AND SERRATED FLANGE NUTS. TORQUE TO 20 FT-LBS.



DETAIL F
 SCALE 1 / 5

BEAM STRAP ATTACHES TO PANEL BEAM WITH (2) 18-8 SS 1/4-20 BUTTON HEAD CAP SCREWS AND SERRATED FLANGE NUTS. TORQUE TO 15 FT-LBS



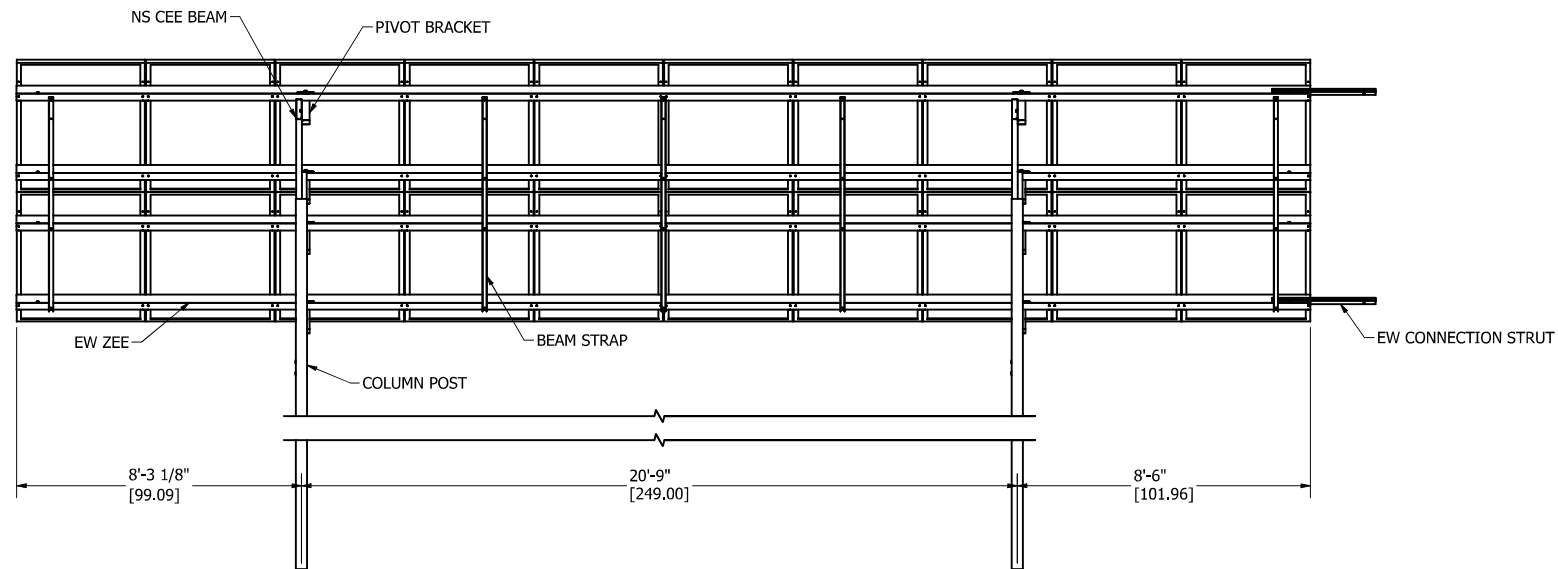
DETAIL G
 SCALE 1 / 3

NEIGHBORING TABLES BONDED VIA 18G CHANNEL STRUTS. STRUTS CONNECT TO EW PANEL ZEE BEAMS WITH (2) 18-8 SS 3/8-16 SERRATED FLANGE CAP SCREWS, FENDER WASHERS, AND SERRATED FLANGE NUTS. TORQUE TO 20 FT-LBS.

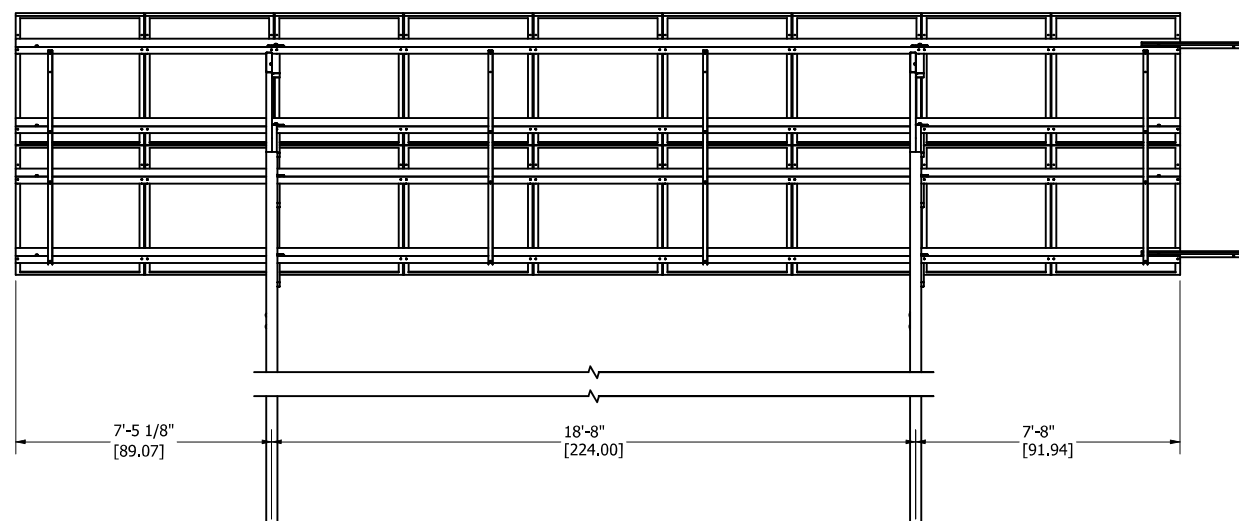
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	Description: CT-LS-DB, JINKO JKM595-72HL4-BDV, 2x10, 30 DEG, HENDRICKSON USA, FRESH COAST SOLAR			
	Project: HENDRICKSON USA		Date: 3/6/2025	
	Drawn: CPATTERSON		Scale: 2 of 5	
19410 Jetton Rd, Ste 220 Cornelius, NC, 28031 www.dcesolar.com Phone: 1-704-659-7474		Format: D	Part Number: 6438	Rev: 3

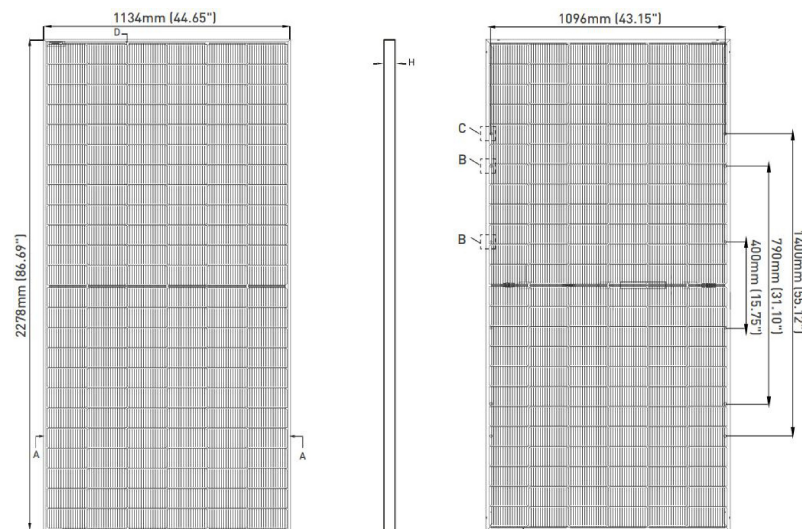
NOT FOR CONSTRUCTION



REAR VIEW
2X10 ARRAY
VIEW13
SCALE 0.03 : 1



REAR VIEW
2X9 ARRAY
VIEW20
SCALE 0.03 : 1



PANEL SPECIFICATION			PROJECT INFORMATION	
NAME	DESCRIPTION		INSTALLATION ADDRESS:	
MANUFACTURER	JINKO SOLAR		501 Caton Farm Rd, Lockport, IL 60441	
MODEL	JKM595-72HL4-BDV		Structural General Notes	
LENGTH (mm)	2278		1. The contractor will be solely responsible for all construction means, methods, techniques, sequences and procedures and shall at all times take reasonable precautions for the safety of its employees on the project, and shall comply with all applicable provisions of federal, state, and municipal safety laws and building construction codes.	
WIDTH (mm)	1134			
THICKNESS (mm)	30			
MATERIAL DESCRIPTION				
MEMBER	SHAPE	MATERIAL	GAGE	2. If existing conditions make it necessary to revise structural details, consult DCE Solar before proceeding with any change.
PANEL BEAM	6.25Z3X1X55DEG	A653 SS Gr80	16GA	
NS CEE BEAM	8CS2X0.625	A653 SS Gr80	14GA	
KICKER BRACE	2.75CU1.75	A653 SS Gr50	14GA	
BEAM BRACE	1.5CU0.75	A653 SS Gr50	16GA	
POST	W6x8.5	A992	-	3. These drawings and notes are for this specific project and no other use is authorized.
PULL TEST LOADS				
LOAD TYPE	UNFACTORED LOAD (LB)			4. Structure designed in accordance with the International Building Code, 2021 Edition, ASCE 7-16, AISC 360-16 (14th Edition), and AISI S100-16: ASD
UPLIFT	550			
ADJUSTED UPLIFT*	3050			
COMPRESSIVE LOAD	4350			
LATERAL LOAD	750			Snow Loads: -Ground Snow Load pg = 25 psf -Importance Factor Is = 0.8 -Exposure Factor Ce = 0.9 -Slope Snow Load ps = 11.00 psf
NOTES				
*ADJUSTED UPLIFT IS ASSUMED AS 70% OF THE DOWNWARD LOAD. IT'S RECOMMENDED TO USE THIS LOAD FOR PULL TEST IN CASE PUSH TEST CANNOT BE PERFORMED.				Wind Loads: MRI Factor = 1.00 -Basic Wind Speed V = 100 mph -Iw = 1 -Exposure = C -Wind Design performed in accordance with the requirements of ASCE - Wind Tunnel Procedure. Refer to Wind Tunnel Report by UWO BLWT Laboratory dated 12/11/14.
1: USE ADJUSTED UPLIFT IF NO REFUSAL IS ENCOUNTERED.				
2: USE UPLIFT FORCE IN CASE OF REFUSAL.				
3: FOR UPLIFT AND LATERAL FORCES USE SAFETY FACTOR OF 1.5 AND 2, RESPECTIVELY.				Seismic Loads: -SS = 0.137g, S1 = 0.069g -Site Class = D -SDS = 0.150g, SD1 = 0.110g -Seismic Design Category = A -Ordinary Steel Cantilever Column System
ALTERNATE FOUNDATION DESIGN				
NAME	DESCRIPTION			5. Material strengths: -Hot-rolled structural steel ASTM A992 GR50. -Cold Formed Steel Sections comply w/ASTM A1003, structural grade, galvanized to Grade as noted. -Formed Steel Brackets - ASTM A653 Galvanized Grade 50 SS -I-Beams - A992, 50 ksi, Hot Dip Galvanized to ASTM 123 Grade 85 -Plate - A36 Steel, Hot Dip Galvanized -Connectors - Stainless Steel unless otherwise noted.
POST TYPE	W6x8.5			
MIN. EMBEDMENT DEPTH (FT) IN CASE OF REFUSAL	6'-6"			
ALTERNATE FOUNDATION DESIGN - A	6'-6" MIN. DEPTH, 1'-6" DIAMETER DRILLED SHAFT DESIGN SEE PAGE 4 FOR DETAILS			
ALTERNATE FOUNDATION DESIGN - B	7' LONG X 2' WIDE X 2' THICK SPREAD FOOTING DESIGN SEE PAGE 4 FOR DETAILS			6. Members and connections have been designed for worst-case loading associated with exterior zones of the array per the wind tunnel report.
IN-FIELD PILE REMEDIATION				
ANY IN-FIELD REMEDIATION REQUIRING THE CUTTING OR DRILLING OF GALVANIZED MATERIAL SHOULD FOLLOW ONE OF THESE TWO GUIDELINES TO COAT AND TREAT METALS THAT ARE EXPOSED TO GALVANIZATION DAMAGE:				7. Foundation embedment depths are to be calculated and sealed by an IL State Licensed Geotechnical engineer.
1. USE PAINTS CONTAINING ZINC DUST (IN ACCORDANCE WITH "ASTM A 780-01" SECTION A2)				
2. USE ZINC SPRAY (IN ACCORDANCE WITH "ASTM A 780-01" SECTION A3) ONE OF THE ABOVE GUIDELINES MUST BE FOLLOWED TO MAINTAIN THE DCE WARRANTY REQUIREMENTS.				8. For the purposes of this project, all arrays are classified as Exterior Arrays.
9. Scope of work by Structural Engineer includes member design, connection design, and determination of design base reactions only. Layout of PV arrays such that they do not conflict with existing site obstructions, determination of site-specific foundation and geotechnical parameters, and all other work not specifically noted is by others.				

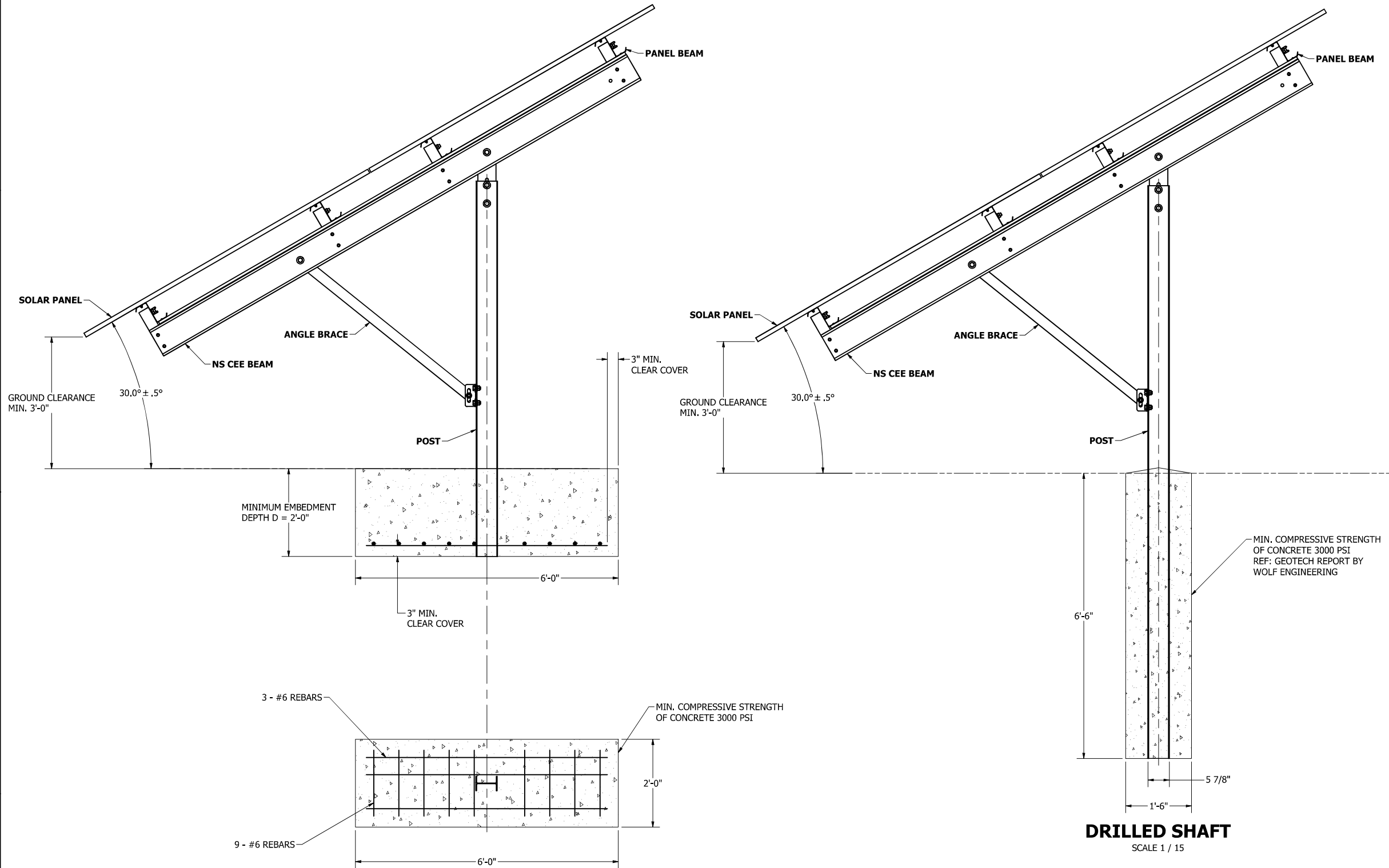
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	Weight:	2267.715 lbmass			
Project:	HENDRICKSON USA				
Drawn:	CPATTERSON	Date:	3/6/2025		
Scale:	3 of 5		Sheet:	3 of 5	
Format:	D	Part Number:	6438	Rev:	3

Engineer of Record

STRUCTURAL DETAIL DRAWING - ALTERNATE FOUNDATIONS
NOT FOR CONSTRUCTION

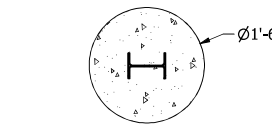


ALTERNATE PILE SECTION FOR USE WHEN REFUSAL CONDITION ENCOUNTERED AT EMBEDMENT DEPTHS LESS THAN 6'-6"

SPREAD FOOTING
SCALE 1 / 15

DRILLED SHAFT

SCALE 1 / 15



DRILLED SHAFT TOP VIEW

SCALE 1 / 15

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 .XX = ± 0.030" (0.76mm)
 .XXX = ± 0.010" (0.25mm)

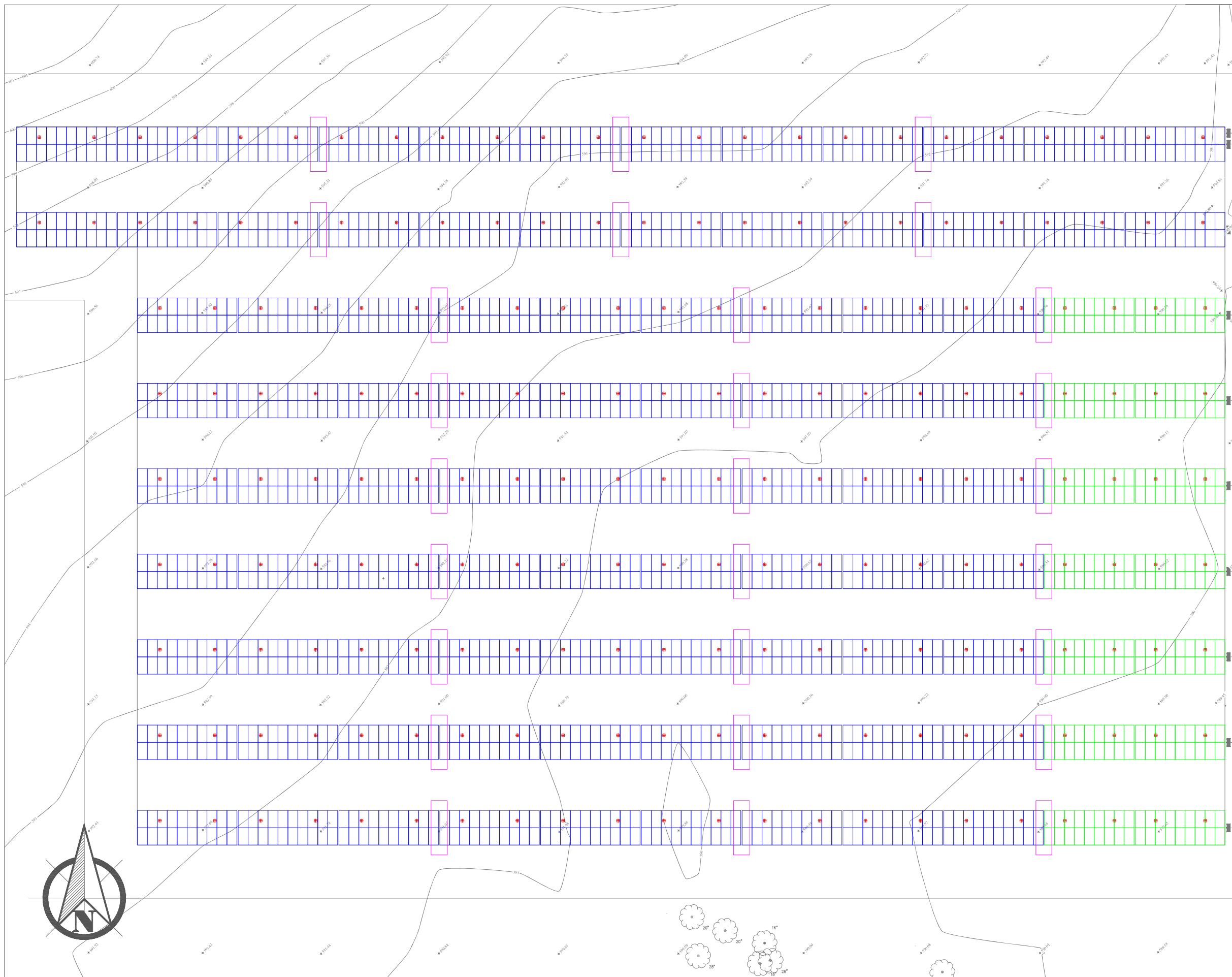
ANGLE = ± 5°
 MIN. BREAK = 0.012" (0.3mm)
 SURFACE FINISH = 63 (US)

PROJECT INFORMATION	
INSTALLATION ADDRESS: 501 Caton Farm Rd, Lockport, IL 60441	
Structural General Notes	
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3. These drawings and notes are for this specific project and no other use is authorized.	
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5. Material strengths: -Hot-rolled structural steel ASTM A992 GR50. -Cold Formed Steel Sections comply w/ASTM A1003, structural grade, galvanized to Grade as noted. -Formed Steel Brackets - ASTM A653 Galvanized Grade 50 SS -I-Beams - A992, 50 ksi, Hot Dip Galvanized to ASTM 123 Grade 85 -Plate - A36 Steel, Hot Dip Galvanized -Connectors - Stainless Steel unless otherwise noted.	
6. Members and connections have been designed for worst-case loading associated with exterior zones of the array per the wind tunnel report.	
7. Foundation embedment depths are to be calculated and sealed by an IL State Licensed Geotechnical engineer.	
8. For the purposes of this project, all arrays are classified as Exterior Arrays.	
9. Scope of work by Structural Engineer includes member design, connection design, and determination of design base reactions only. Layout of PV arrays such that they do not conflict with existing site obstructions, determination of site-specific foundation and geotechnical parameters, and all other work not specifically noted is by others.	
Engineer of Record	

Material:	
Weight: 2267.715 lbmass	
Description: CT-LS-DB, JINKO JKM595-72HL4-BDV, 2x10, 30 DEG, HENDRICKSON USA, FRESH COAST SOLAR	
Project: HENDRICKSON USA	
Drawn: CPATTERSON	Date: 3/6/2025
Scale:	Sheet: 4 of 5
Format: D	Part Number: 6438
	Rev: 3

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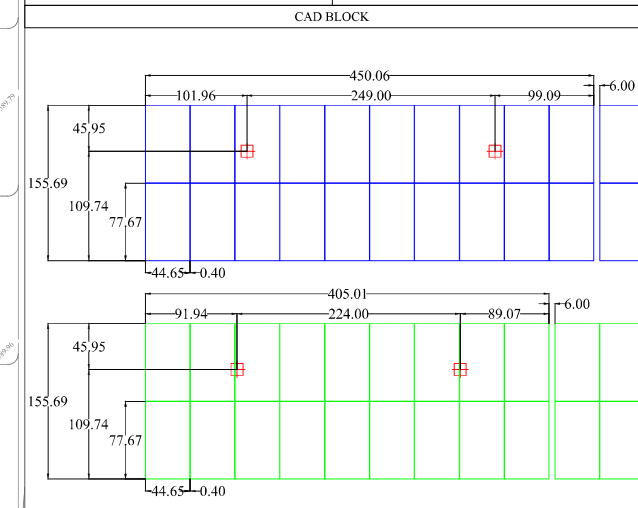
PROJECT INFORMATION	
PROJECT NAME	HENDRICKSON USA
INSTALLATION ADDRESS	501 CATON FARM RD, LOCKPORT, IL 60441
CLIENT	FRESH COAST SOLAR

SITE SPECIFICATION		PANEL SPECSHEET	
WIND SPEED (MPH)	100	ASCE 7-16	
SNOW LOAD (PSF)	25	ASCE 7-16	
EXPOSURE CATEGORY	C	ASCE 7-16	
RISK CATEGORY	1	ASCE 7-16	

PANEL SPECIFICATION	
MODEL	JINKO JKMS95-72HL4-BDV
LENGTH (mm)	2278
WIDTH (mm)	1134
WEIGHT (lb)	68.3
PANEL WATTAGE (W)	595
PROJECT PANEL COUNT	1,992

SYSTEM INFORMATION	
ARRAY CONFIGURATION	2X10, 2X9
SYSTEM SIZE (W)	1,185,240
ARRAY TILT (°)	30
GROUND CLEARANCE (in)	36

ARRAY DETAILS	
ITEM	QUANTITY
2X10 TABLE	87
2X9 TABLE	14
POSTS	202
ALTERNATE ARRAY CONNECTIONS	27



GENERAL NOTES

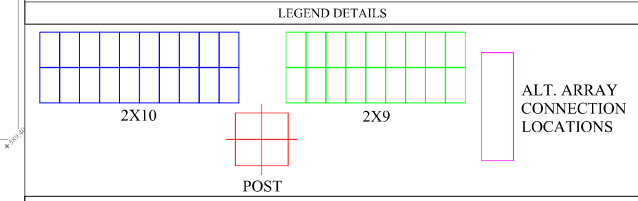
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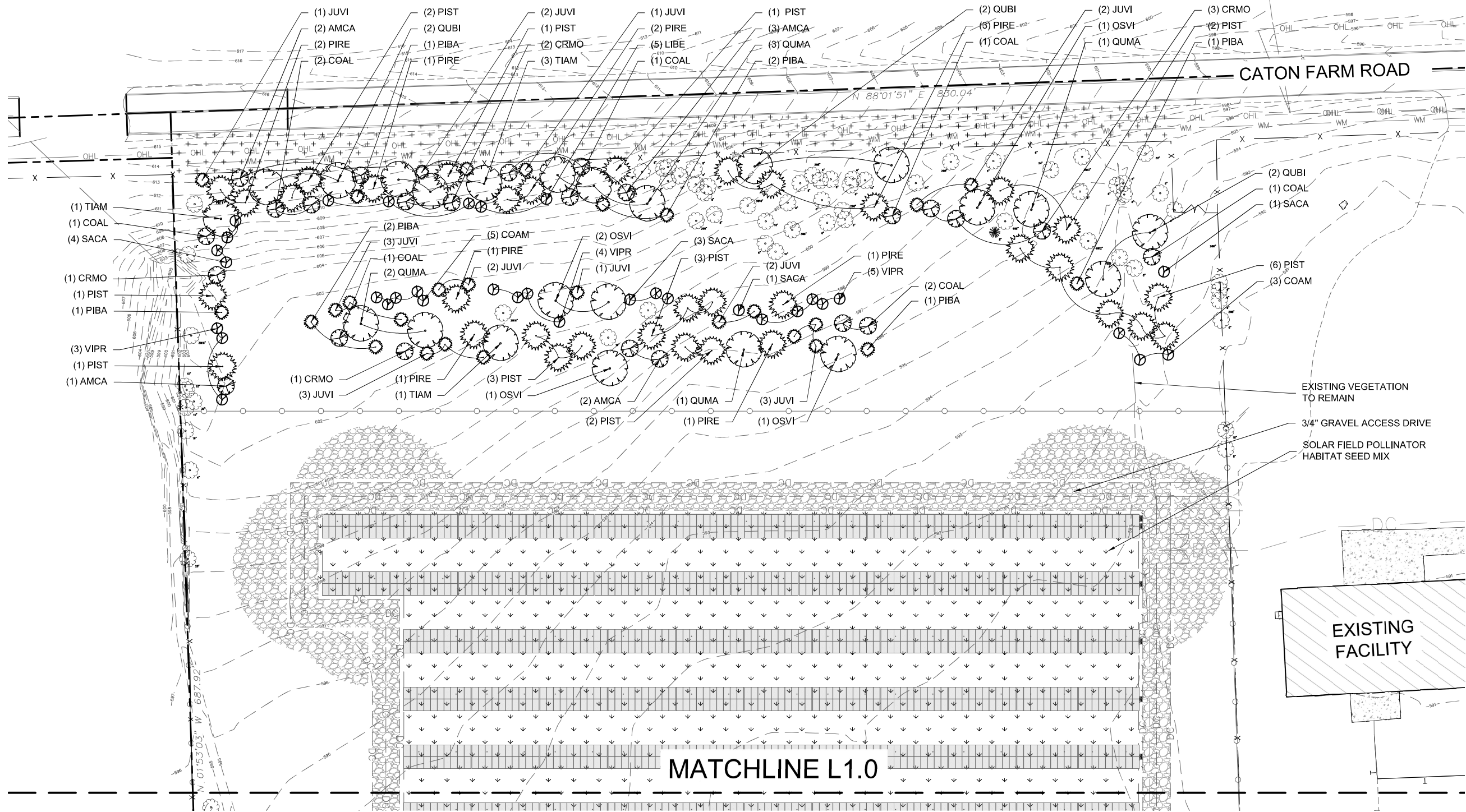
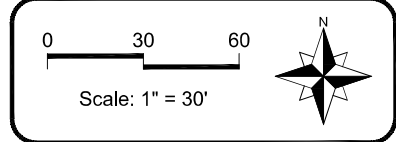
2. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND SHALL AT ALL TIMES TAKE REASONABLE PRECAUTIONS FOR THE SAFETY OF ITS EMPLOYEES ON THE PROJECT, AND SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF FEDERAL, STATE, AND MUNICIPAL SAFETY LAWS AND BUILDING CONSTRUCTIONS CODES.

3. CUSTOMER PROVIDED SITE LAYOUTS WERE USED TO GENERATE THE LAYOUT AS SHOWN.

4. ANY CHANGES TO THE LAYOUT SHOWN THAT MAY CAUSE ERRORS DURING INSTALLATION ARE NOT THE RESPONSIBILITY OF DCE SOLAR.



REVISION NOTES			
REV	DESCRIPTION	PREPARED BY	DATE
0	GROUND MOUNT LAYOUT	CPATTERSON	2/4/2025
1	REVISED EMBEDMENT DEPTH AND ALTERNATE FOUNDATION DESIGNS	CPATTERSON	2/24/2025
2	REVISED LAYOUT	CPATTERSON	3/6/2025
3	REVISED LAYOUT	CPATTERSON	3/25/2025
4			



LEGEND

Solar Field Pollinator Habitat
Seed Mix: Seed and Blanket

IDOT 2A Seed Mix: Seed and Blanket

Existing Tree

Deciduous Tree

Ornamental Tree

Coniferous Tree

Deciduous Shrub

No.	Revision/Issue	Date

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Verde Solutions
 Crest Hill

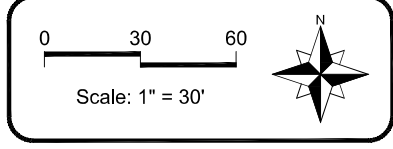
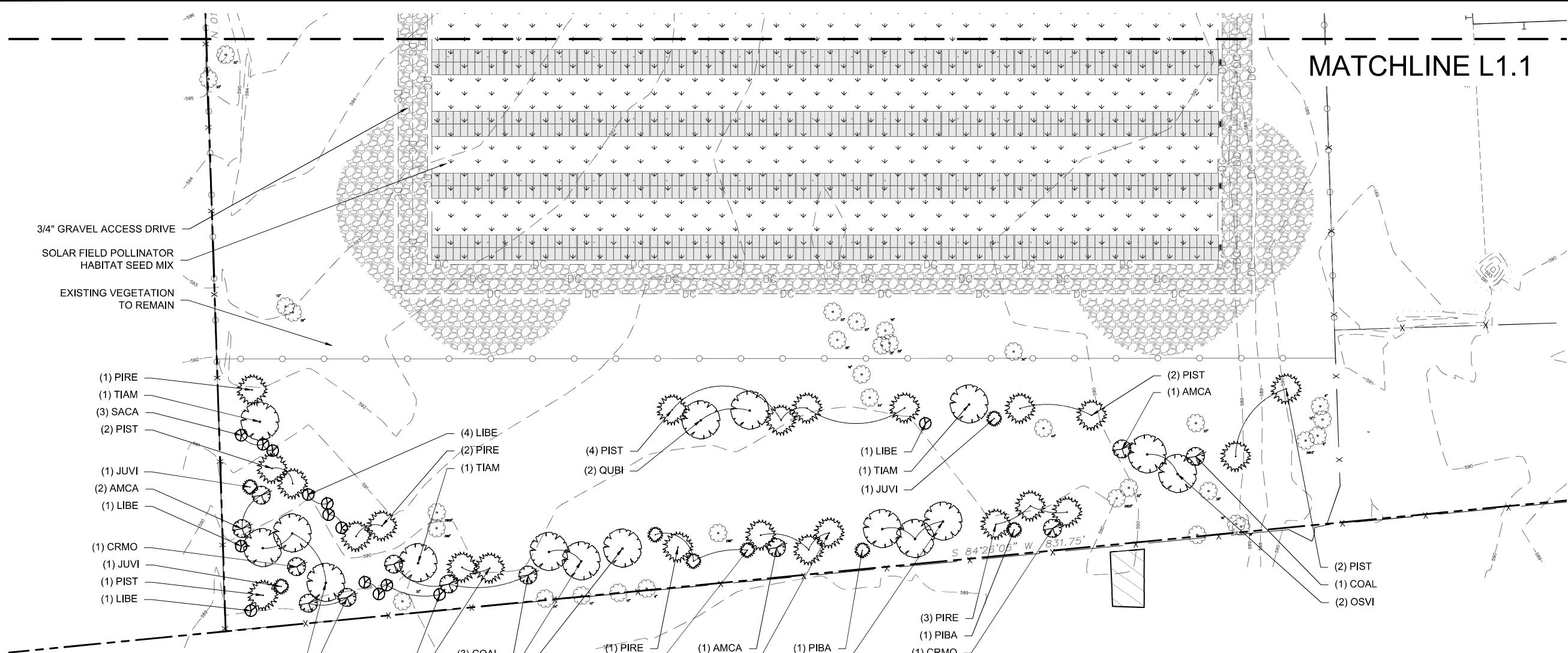
Landscape Plan

PROJECT NO:	25-0072	SHEET NO:	L1.0
DESIGNED BY:	BMJ	PAGE NO:	
DRAWN BY:	BMJ	1 of 3	
CHECKED BY:	RJA		
APPROVED BY:	TP		
ISSUE DATE:	3/31/25		

For Review

File: P:\25000025-0072 Verde Solutions-Crest Hill-Caton Farm Rd\05 CAD\25-0072 Verde Solutions.dwg Plot Date: April 14, 2025 Plotted by: Brett Jackson

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PLANTSCHEDULE

Quantity	Code	Size	Botanical Name	Common Name
DECIDUOUS TREES				
10	OSM	2.5" CAL	Ostrya virginiana	American Hophornbeam
10	TIAM	2.5" CAL	Tilia americana	American Basswood
10	QUBI	2.5" CAL	Quercus bicolor	Swamp White Oak
10	QUMA	2.5" CAL	Quercus macrocarpa	Bur Oak
CONIFEROUS TREES				
26	JUM	6 HT	Juniperus virginiana	Eastern Red Cedar
10	RIBA	6 HT	Pinus banksiana	Jack Pine
20	PIRE	6 HT	Pinus resinosa	Red Pine
36	PIST	6 HT	Pinus strobus	Eastern White Pine
ORNAMENTAL TREES				
12	AMCA	6 HT	Amelanchier canadensis	Shadblow Serviceberry
12	COAL	6 HT	Cornus alternifolia	Pagoda Dogwood
12	CRMO	6 HT	Crataegus mollis	Downy Hawthorn
DECIDUOUS SHRUBS				
12	COAM	#5 CONT	Cornus amomum	Silky Dogwood
12	LIBE	#5 CONT	Lindera benzoin	Northern Spicebush
12	SACA	#5 CONT	Sambucus canadensis	American Elderberry
12	VIFR	#5 CONT	Viburnum prunifolium	Blackhaw Viburnum

Ordinance code: 15.04.040 (2)

REQ.
1 planting (tree or shrub) per 725 sf 10 sf groundcover per planting
AREA
226,939 sf existing / 725 = 313 plantings 313 plantings x 10 sf groundcover = 3,130 sf
EXISTING
97 trees 313 - 97 = 216
PROV.
216 (168 trees, 48 shrubs) 155,840 sf groundcover

Solar Field Pollinator Habitat Seed Mix

Source: Stantec

Apply at 41.25 FLS pounds per acre
Mature height of species selected = under 3'

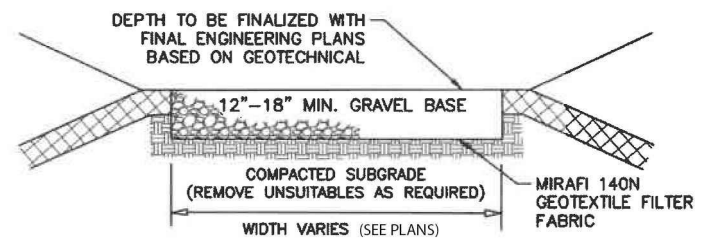
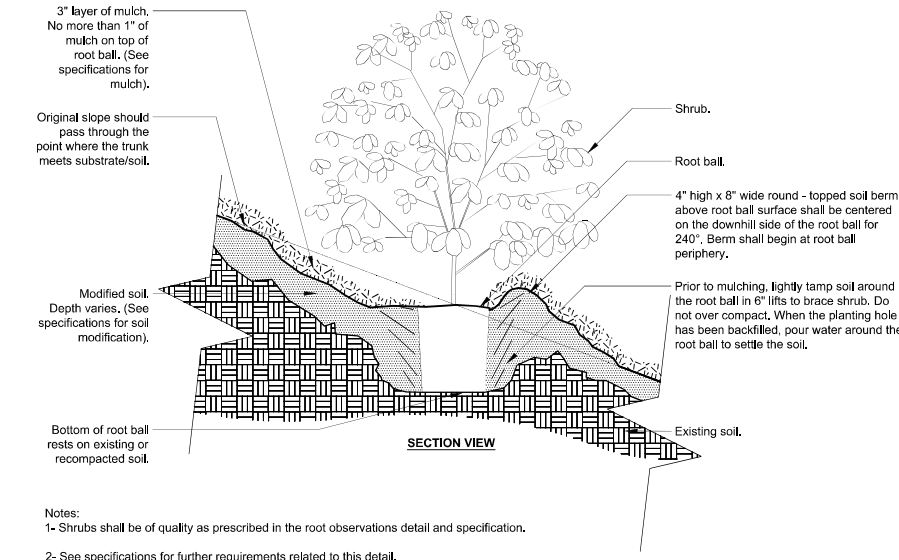
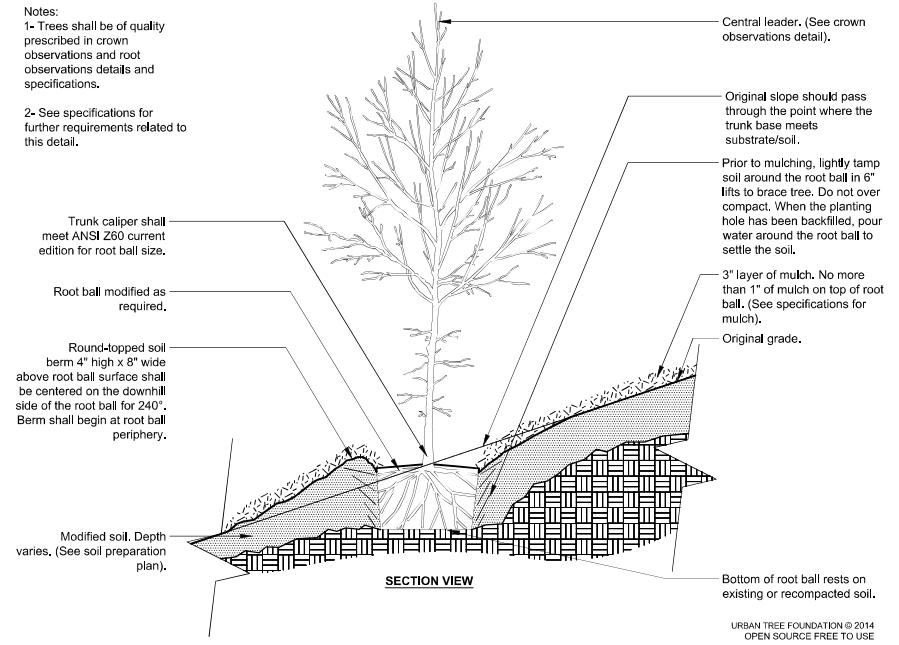
Scientific Name	Common Name	Total Ozs.
<i>Allium cernuum</i>	Nodding Onion	6.0
<i>Aquilegia canadensis</i>	Wild Columbine	1.0
<i>Asclepias syriaca</i>	Common Milkweed	4.0
<i>Chamaecrista fasciculata</i>	Partridge Pea	12.0
<i>Coreopsis lanceolata</i>	Sand Coreopsis	10.0
<i>Dalea purpurea</i>	Purple Prairie Clover	6.0
<i>Liatris pycnostachya</i>	Prairie Blazing Star	2.0
<i>Lupinus perennis var. occidentalis</i>	Wild Lupine	2.0
<i>Monarda punctata</i>	Horse Mint / Spotted Bergamot	1.5
<i>Penstemon hirsutus</i>	Hairy Beard Tongue	1.5
<i>Solidago nemoralis</i>	Old-Field Goldenrod	1.0
<i>Symphotrichum pilosum</i>	Hairy Aster	1.0
<i>Verbena stricta</i>	Hoary Vervain	2.0
<i>Zizia aurea</i>	Golden Alexander	2.0
TOTAL		52.0
Grasses		
<i>Bouteloua curtipendula</i>	Side-Oats Grama	24.0
<i>Carex bicknellii</i>	Copper-Shouldered Oval Sedge	3.5
<i>Koeleria macrantha</i>	June Grass	1.5
<i>Schizachyrium scoparium</i>	Little Bluestem	64.0
<i>Sporobolus heterolepis</i>	Prairie Dropseed	3.0
TOTAL		96.0
Cover Crop		
<i>Avena sativa</i>	Common Oat	512.0
TOTAL		512.0

IDOT Class 2A (salt tolerant roadside mix)

Source: IDOT

Seeding rate: 200 lbs/acre (3,834 seeds / square foot)
Mature height of species selected = under 3'

Scientific Name	Common Name	% Mix	Total Ozs.
<i>Festuca arundinacea</i>	Tall Fescue	30	60.0
<i>Festuca rubra</i>	Red Fescue	15	30.0
<i>Festuca trachyphylla</i>	Hard Fescue	15	30.0
<i>Lolium perenne</i>	Perennial Rye	10	20.0
<i>Puccinellia distans</i>	Alkali Grass	30	60.0
TOTAL			200.0



- NOTES:**
1. REMOVE TOPSOIL AND ALL UNSUITABLE MATERIAL AS REQUIRED AND REPLACE WITH GRAVEL.
 2. ACCESS DRIVES TO SLOPE IN THE DIRECTION OF THE EXISTING GRADE AT A MINIMUM OF 2.0% DRIVEWAY SHALL BE GRADED TO ALLOW STORMWATER TO SHEET ACROSS IT AND TO PREVENT PUDDLING.
 3. ROAD SECTION SHALL COMPLY WITH RECOMMENDATIONS FROM GEOTECHNICAL REPORT.
 4. FILTER FABRIC SHALL MEET THE REQUIREMENTS OF MATERIAL SPECIFICATION 592 GEOTEXTILE, TABLE 1 OR 2, CLASS I, II, OR IV AND SHALL BE PLACED OVER THE CLEARED AREA PRIOR TO THE PLACING OF ROCK.

**ACCESS DRIVE/TEMPORARY LAYDOWN AREA
CROSS SECTION
NOT TO SCALE**

LEGEND		
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