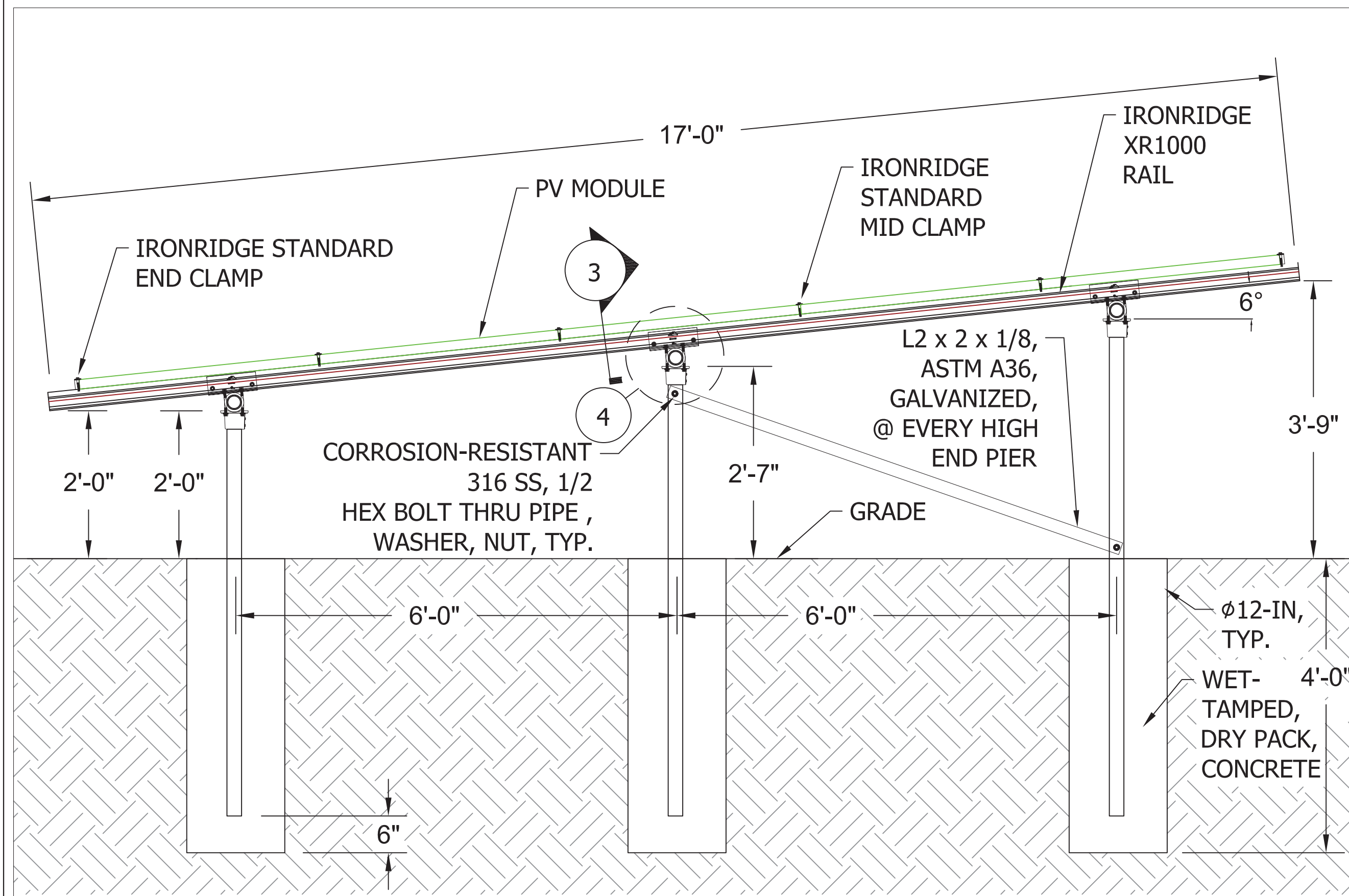
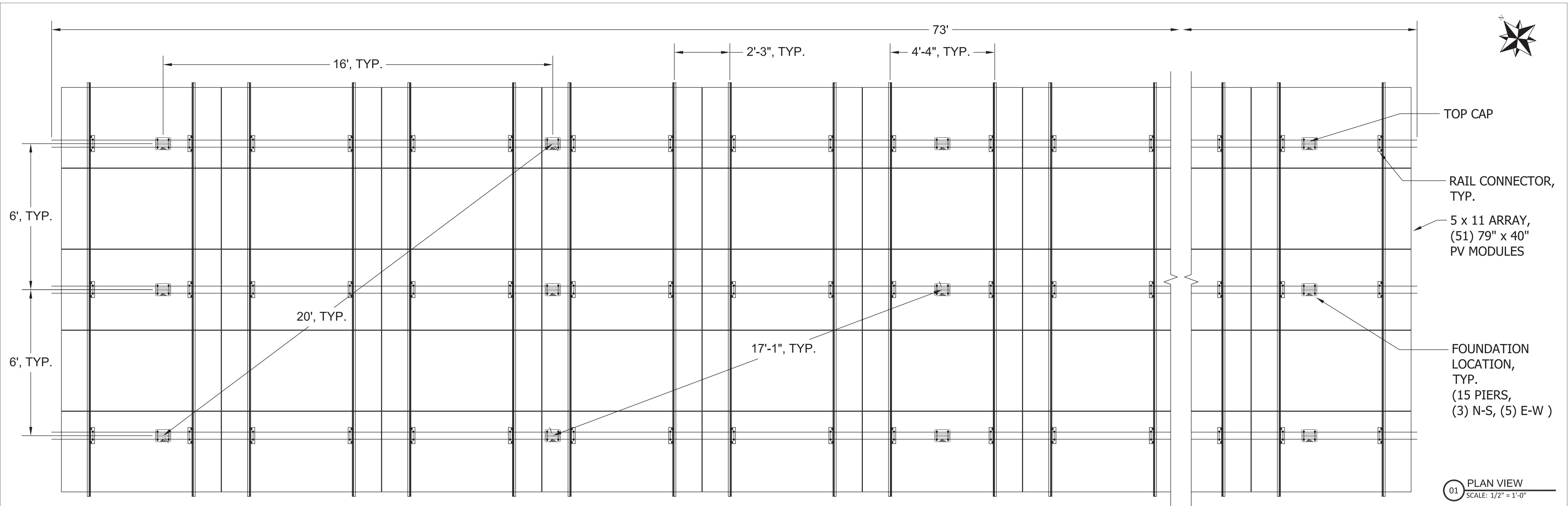
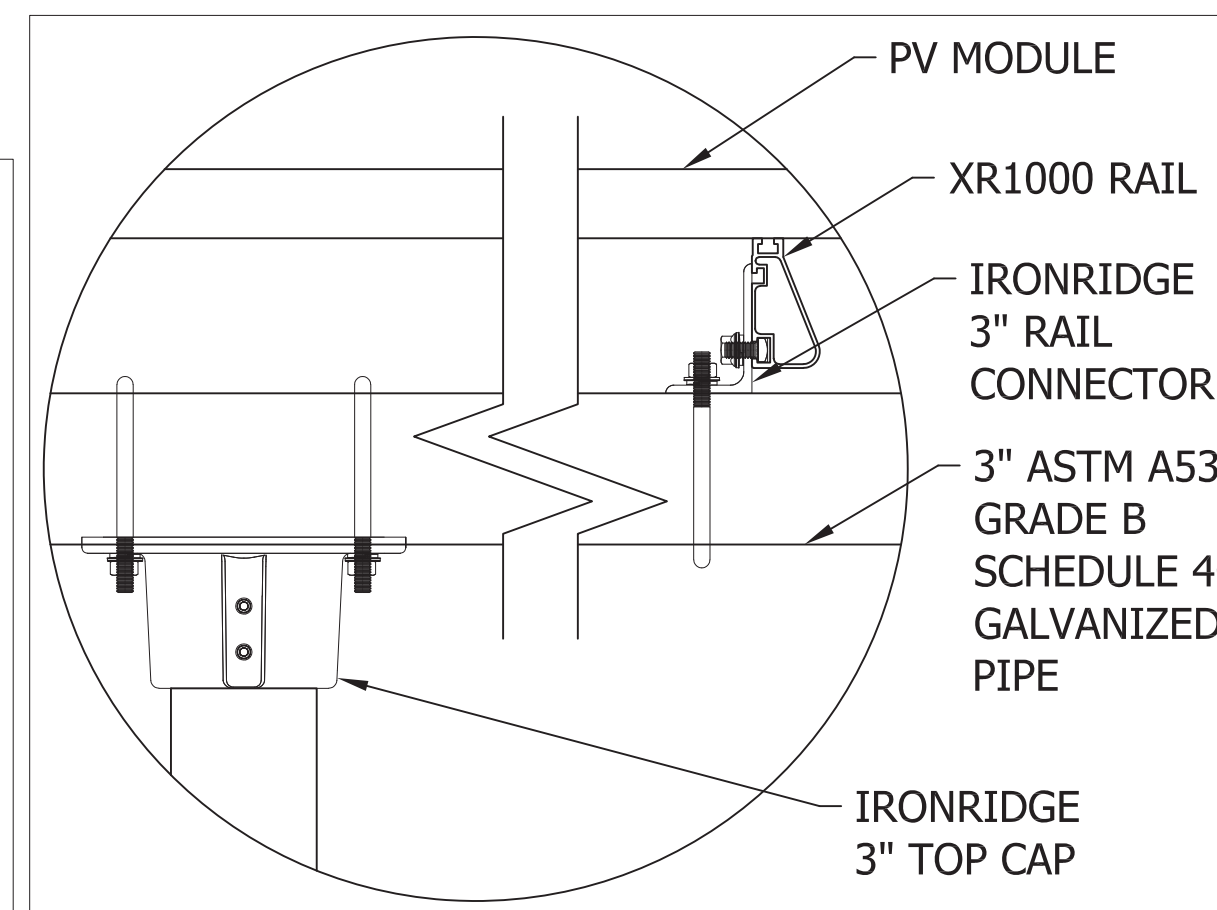


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alper@iceli-pe.com

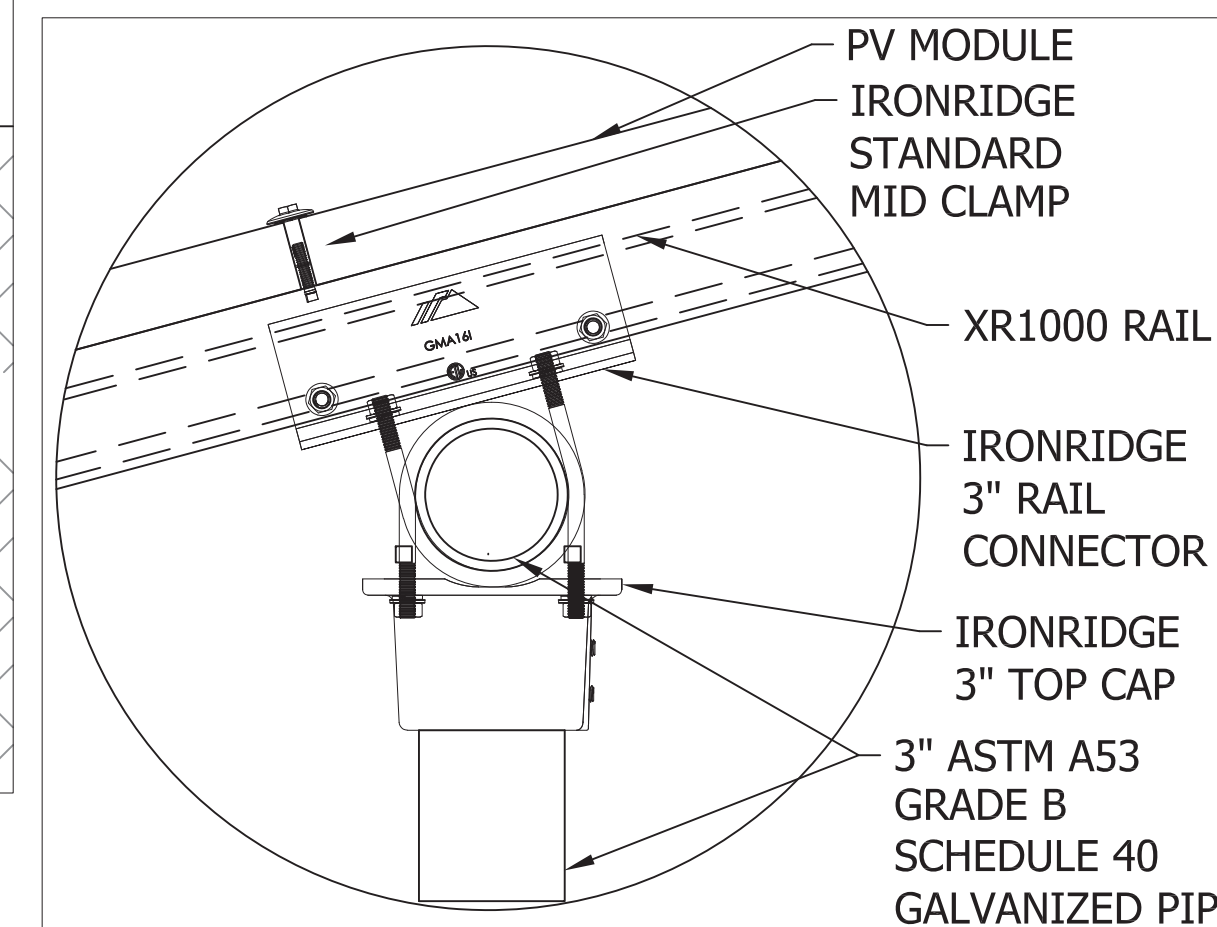


02 ELEVATION VIEW
SCALE: 3/4" = 1'-0"

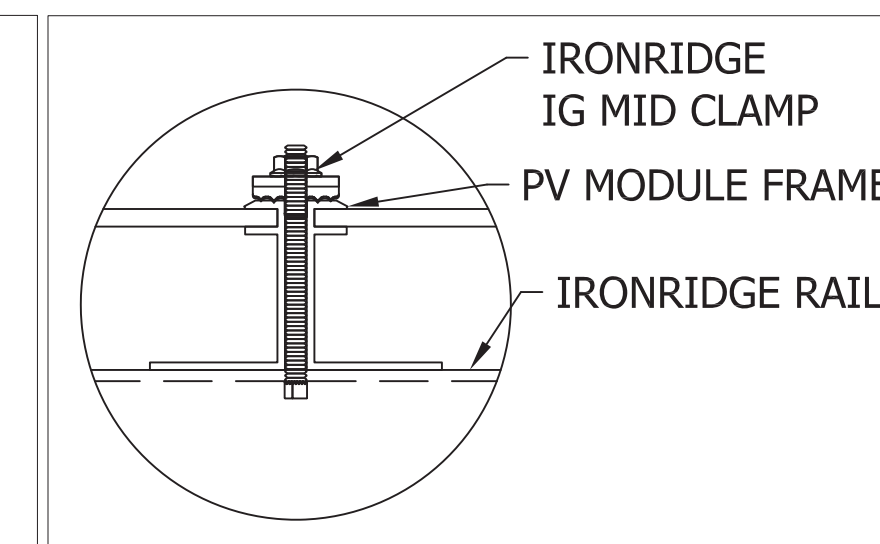


03 PIPE FITTINGS DETAIL

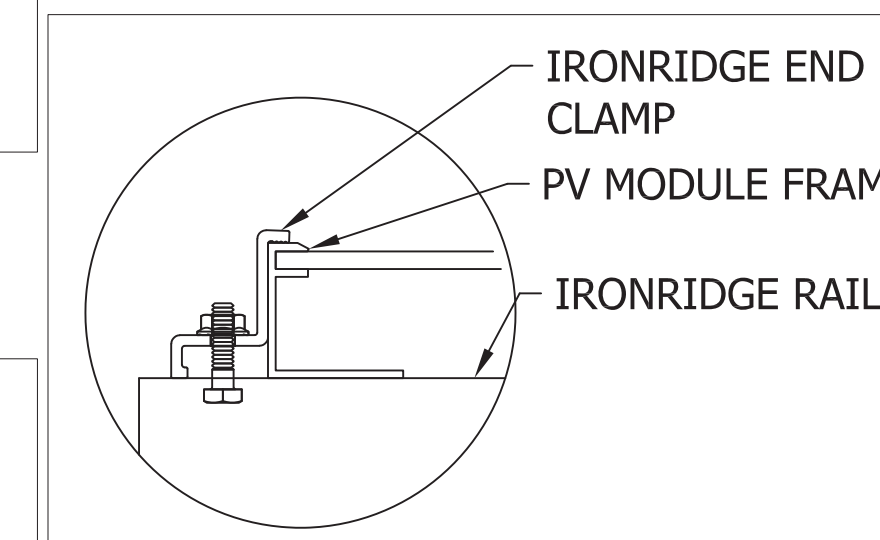
SCALE: NTS



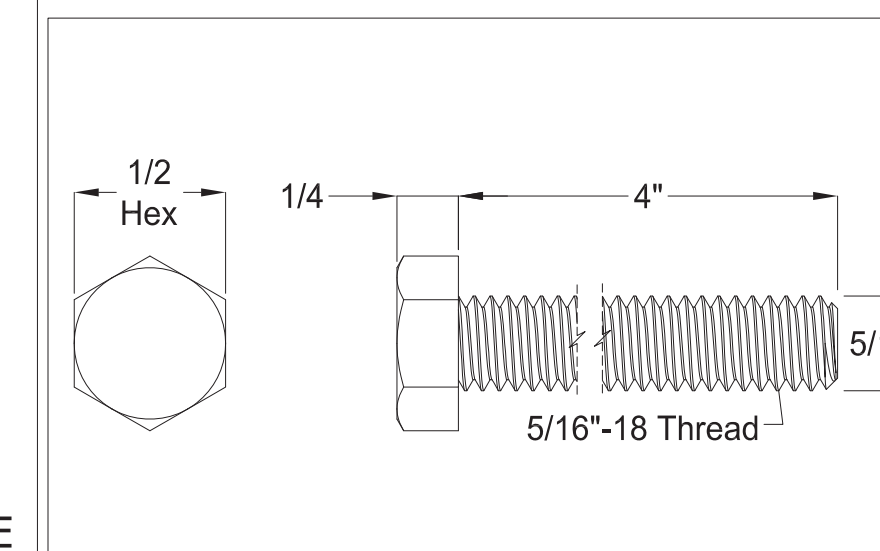
04 PIPE FITTINGS DETAIL
SCALE: NTS



05 IRONRIDGE MID-CLAMP
SCALE: NTS



06 IRONRIDGE STANDARD END-CLAMP
SCALE: NTS



06 HEX BOLT FOR DIAGONAL BRACING
SCALE: NTS

INSTALLATION NOTES

- **THIS PAPER PLAN IS INTENDED TO PROVIDE THE ESSENTIAL INFORMATION NEEDED BY AHJ (AUTHORITY HAVING JURISDICTION) AND INSTALLERS.**
- THIS IS A COMBINED SET OF STRUCTURAL AND ELECTRICAL PLANS. THE FIRST TWO SHEETS ARE STRUCTURAL, THE LAST TWO ARE ELECTRICAL.
- ALL VERTICAL AND HORIZONTAL PIPE SECTIONS SHALL BE GALVANIZED, ASTM A53, SCHEDULE 40, 3-INCH-DIAMETER.
- CONCRETE FOR ANCHORING PIERS SHALL BE 4000 PSI WET-TAMPED CONCRETE.
- SOIL CLASSIFICATION IS CONSERVATIVELY ASSUMED TO BE CLASS 4 AND LATERAL BEARING PRESSURE CAPACITY IS 150 PSF PER FOOT BASED ON FBC (2020), SECTION 1807, TABLE 1806.2 PRESUMPTIVE LOAD-BEARING VALUES.
- SEE DRAWINGS FOR MEANS & METHODS INFORMATION IN ADDITION TO THESE NOTES.
- ARRAY SHALL HAVE 51-PV MODULES. PV MODULES SHALL BE INSTALLED PORTRAIT, 11-MODULES WIDE BY 5-MODULES HIGH.
- PV MODULES SHALL REST UPON & BE CLAMPED TO NORTH-SOUTH IRONRIDGE XR1000 RAILS @ MODULE UPPER & LOWER ENDS (4-CLAMPS PER PV MODULE) BY IRONRIDGE BONDING MID CLAMPS/STANDARD END CLAMPS.
- EAST-WEST HORIZONTAL PIPE SECTIONS SHALL BE CONNECTED TO VERTICAL PIPE SECTIONS BY 2-CRS (CORROSION RESISTANT STEEL) U-BOLTS AS SHOWN IN DRAWINGS.
- EACH POST SHALL BE PLUMBED & TAMPED WITH DRY CONCRETE MIX BACK-FILL OF POST HOLE - USE WATER TO CONSOLIDATE WHILE TAMPING.
- CONTRACTOR SHALL FULFILL INSTALLATION ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- CONTRACTOR SHALL PROVIDE AHJ (AUTHORITY HAVING JURISDICTION) ADDITIONAL INFORMATION AS MAY BE REQUESTED.
- EOR (ENGINEER OF RECORD) PREFERS EMAIL COMMUNICATIONS: alper@iceli-pe.com

NAME OF OWNER: FRANKLIN ANITA
DAWN CABRERA
ADDRESS: 1322 SE EBENEZER RD
LAKE CITY, FL 32025
PROPERTY ID#: 31-4S-18-10519-004

CONTRACTOR:
ave's Home Helper
ervice, Inc.
 5549 Laurel Oaks Dr.
 ade City, FL 33525
 13-991-7596
 C13007006

DHHS-
CABRERA
STRUCTURAL
SHEET 1-REV.1
JUNE.17-21

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A

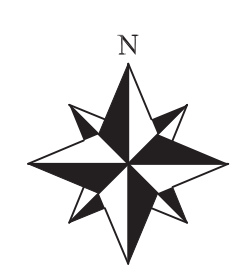
B

C

D

E

F



MEASUREMENTS CALLED OUT ARE NOT INTENDED TO BE EXACT. AHJ, CONTRACTOR, & OWNER ARE NOTIFIED THAT SITE CONDITONS WILL CAUSE VARIATIONS, WHICH ENGINEER OF RECORD (EOR) DECLARES TO BE ACCEPTABLE.

INVERTERS, SUBPANEL, ON GROUND MOUNT FRAME, APPROPRIATELY SECURED PER NEC 2017

ELECTRICAL SERVICE ENTRANCE, AC DISCONNECT

HOUSE FOOTPRINT

UTILITY POLE



01 PLAN VIEW
SCALE: 1/16" = 1'-0"

* VERTICAL SUPPORT PIPE

PROPOSED GROUND MOUNT PV SYSTEM LOCATION

1 INCH SCH 80 PVC CONDUIT IN MINIMUM 18-INCH DEEP TRENCH

ATC Hazards by Location

Search Information

Address: 1322 Ebenezer Rd, Lake City, FL 32025, USA

Coordinates: 30.0950067, -82.5542964

Elevation: 143 ft

Timestamp: 2021-05-02T12:03:51.041Z

Hazard Type: Wind

ASCE 7-16

MRI 10-Year: 74 mph

MRI 25-Year: 83 mph

MRI 50-Year: 89 mph

MRI 100-Year: 97 mph

Risk Category I: 109 mph

Risk Category II: 119 mph

Risk Category III: 129 mph

ASCE 7-10

MRI 10-Year: 76 mph

MRI 25-Year: 84 mph

MRI 50-Year: 91 mph

MRI 100-Year: 98 mph

Risk Category I: 110 mph

Risk Category II: 119 mph

Risk Category III/IV: 129 mph

ASCE 7-05

ASCE 7-05 Wind Speed: 100 mph

If the structure under consideration is a healthcare facility and you are also within 1 mile of the coastal mean high water line, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region.

If the structure under consideration is a healthcare facility and you are also within 1 mile of the coastal mean high water line, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region.

You are in a wind-borne debris region if you are also within 1 mile of the coastal mean high water line.

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area. In some cases, the website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For further wind-borne debris region.

IronRidge
Mr. Corey Geiger
Ground Mounting System - Structural Analysis - 4 Module (XR1000)

July 1, 2019
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| Table 2B - MAXIMUM PIER SPACING (in) | | | | | | | | | | | | |
|--|------------|--|--|--|--|--|--|--|--|--|--|--|
| 3" Unbraced Pipe Frame Wind Speed & Exposure Category | Snow pf | Slope (deg) | | | | | | | | | | |
| | | 0 5 10 15 20 25 30 35 40 45 | | | | | | | | | | |
| | | [Data table with 11 columns for slope angles and 10 rows for wind speeds from 10 to 180 mph] | | | | | | | | | | |

Notes: see page 14

Starling Madison Lofquist, Inc.

Consulting Structural and Forensic Engineers

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Mr. Corey Geiger
Ground Mounting System - Structural Analysis - 4 Module (XR1000)

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Notes for Tables 3 & 4:

- Concrete Weight = 145 pcf / $\rho_c = 2500$ psi
- Provide Air Entraining Admixture for freeze and thaw cycles as required for colder climates.
- SKN Friction per 2020 FBC 1810.3.3.1.4 & 5
- Top 1'-0" of soil neglected for Skin Friction
- Snow Load = 0 psf - tabulated values are conservative for Snow Loads > 0 psf
- * Indicates special foundation required. Contact IronRidge
- Resistance to corrosion and/or sulfate attack, along with possible adverse effects due to expansive soils has not been considered in these foundation recommendations. SML Engineers assumes no liability with regard to these items.
- Soil classification is to be determined and verified by the end user of this certification letter.

The analysis assumes that the array, including the connections and associated hardware, are installed in a workmanlike manner in accordance with the IronRidge Ground Mount Installation Manual and generally accepted standards of construction practice. Verification of PV Module capacity to support the loads associated with the given array shall be the responsibility of the Contractor or Owner and not IronRidge or Starling Madison Lofquist.

Please feel free to contact me at your convenience if you have any questions.

Respectfully yours,

Tres Warner, P.E.
Design Division Manager

Starling Madison Lofquist, Inc.

Consulting Structural and Forensic Engineers

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Starling Madison Lofquist, Inc.
5224 South 39th Street, Phoenix, Arizona 85040
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IronRidge
Mr. Corey Geiger
Ground Mounting System - Structural Analysis - 4 Module (XR1000)

July 1, 2019
Page 1 of 52

Attn: Mr. Corey Geiger, VP New Markets, IronRidge Inc.

Subject: Ground Mounting System - Structural Analysis - 4 Module (XR1000)

Dear Sir:

We have analyzed the subject ground mounted structure and determined that it is in compliance with the applicable sections of the following Reference Documents:

Codes: ASCE/SEI 7-16 Min. Design Loads for Buildings & Other Structures
Florida Building Code, 2020 Edition
Other: AC408, Acceptance Criteria for Modular Framing Systems Used to Support PV Modules, dated Effective November 1, 2012 by ICC-ES
Aluminum Design Manual, 2015 Edition
IronRidge Exhibit EX-0001

The structure is a simple column (pier) and beam (cross pipe) system. The piers & cross pipes are ASTM A53 Grade B standard weight (schedule 40) steel pipe or Allied Mechanical Tubing. Please refer to Exhibit EX-0001 for approved pipe geometry and material properties. The tops of the piers are connected in the E-W direction by the cross pipes which cantilever over and extend past the end piers. The cross pipes are connected by proprietary IronRidge XR1000 Rails spanning up and down the slope which cantilever over and extend past the top and bottom cross pipes. There are typically two rails per column of modules. The modules are clamped to the rails by the IronRidge Module Mounting Clamps as shown in the attached Exhibit.

Gravity loads are transferred to the piers and foundations by the rails and cross pipes acting as simple beams. For lateral loads the system is either a cantilever structure or, when diagonal bracing is provided, a braced frame. The effect of seismic loads (for all design categories A-F) have been determined to be less than the effect due to wind loads in all load conditions and combinations.

The pier spacing in the N-S direction is 7'-6". The pier spacing in the E-W direction is selected from load tables determined by the structural design for the specified slope, wind load, and snow load. The governing criteria for the pier spacing is either the opening capacity of the cross pipes or the cantilever capacity of the pier. Simplified Load Tables 1A-F & 2A-F are included herein for reference.

More comprehensive information covering all load combinations is available at the IronRidge website, IronRidge.com.

Starling Madison Lofquist, Inc.

Consulting Structural and Forensic Engineers

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IronRidge
Mr. Corey Geiger
Ground Mounting System - Structural Analysis - 4 Module (XR1000)

July 1, 2019
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| Soil Class 4 | | | | | | | | | | | | |
|--|---------------------|---|----|----|----|----|----|----|----|----|----|----|
| 3" Pipe Frame Unbraced Wind Speed & Exposure Category | Pier Dia (in) | Table 4B - MINIMUM FOUNDATION DEPTHS (in) | | | | | | | | | | |
| | | Slope (deg) | | | | | | | | | | |
| | | 0 5 10 15 20 25 30 35 40 45 | | | | | | | | | | |
| 100 mph Exposure C | 12 | 42 | 48 | 54 | 60 | 72 | 84 | 90 | 90 | 90 | 90 | 90 |
| | 15 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 78 | 78 | 78 | 78 |
| | 20 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 72 | 72 | 72 | 72 |
| | 24 | 38 | 38 | 38 | 48 | 54 | 66 | 66 | 66 | 66 | 66 | 66 |
| | 30 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 72 | 72 | 72 | 72 |
| 110 mph Exposure C | 12 | 42 | 48 | 54 | 60 | 72 | 84 | 90 | 90 | 90 | 90 | 90 |
| | 15 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 78 | 78 | 78 | 78 |
| | 20 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 72 | 72 | 72 | 72 |
| | 24 | 38 | 38 | 38 | 48 | 54 | 66 | 66 | 66 | 66 | 66 | 66 |
| | 30 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 72 | 72 | 72 | 72 |
| 120 mph Exposure C | 12 | 42 | 48 | 54 | 60 | 72 | 84 | 90 | 90 | 90 | 90 | 90 |
| | 15 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 78 | 78 | 78 | 78 |
| | 20 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 72 | 72 | 72 | 72 |
| | 24 | 38 | 38 | 38 | 48 | 54 | 66 | 66 | 66 | 66 | 66 | 66 |
| | 30 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 72 | 72 | 72 | 72 |
| 130 mph Exposure C | 12 | 42 | 48 | 54 | 60 | 72 | 84 | 90 | 90 | 90 | 90 | 90 |
| | 15 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 78 | 78 | 78 | 78 |
| | 20 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 72 | 72 | 72 | 72 |
| | 24 | 38 | 38 | 38 | 48 | 54 | 66 | 66 | 66 | 66 | 66 | 66 |
| | 30 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 72 | 72 | 72 | 72 |
| 140 mph Exposure C | 12 | 42 | 48 | 54 | 60 | 72 | 84 | 90 | 90 | 90 | 90 | 90 |
| | 15 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 78 | 78 | 78 | 78 |
| | 20 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 72 | 72 | 72 | 72 |
| | 24 | 38 | 38 | 38 | 48 | 54 | 66 | 66 | 66 | 66 | 66 | 66 |
| | 30 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 72 | 72 | 72 | 72 |
| 150 mph Exposure C | 12 | 42 | 48 | 54 | 60 | 72 | 84 | 90 | 90 | 90 | 90 | 90 |
| | 15 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 78 | 78 | 78 | 78 |
| | 20 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 72 | 72 | 72 | 72 |
| | 24 | 38 | 38 | 38 | 48 | 54 | 66 | 66 | 66 | 66 | 66 | 66 |
| | 30 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 72 | 72 | 72 | 72 |
| 160 mph Exposure C | 12 | 42 | 48 | 54 | 60 | 72 | 84 | 90 | 90 | 90 | 90 | 90 |
| | 15 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 78 | 78 | 78 | 78 |
| | 20 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 72 | 72 | 72 | 72 |
| | 24 | 38 | 38 | 38 | 48 | 54 | 66 | 66 | 66 | 66 | 66 | 66 |
| | 30 | 38 | 38 | 42 | 48 | 54 | 66 | 72 | 72 | 72 | 72 | 72 |

Notes: see page 52

Starling Madison Lofquist, Inc.

Consulting Structural and Forensic Engineers

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http://files.ironridge.com/groundmounting/certification/XR1000SGA4/IronRidge_XR1000SGA4_Certification_UFO_FL.pdf

ULTIMATE WIND SPEED: 110 MPH
EXPOSURE CATEGORY: C
RISK CATEGORY: 1

SOIL CLASSIFICATION 4
(SECTION 1806 PRESUMPTIVE LOAD-BEARING VALUES OF SOILS, FBC 7TH EDITION, 2020.)

SLOPE: 6°

PIER PILE DIAMETER PROVIDED: 12 INCHES.

PIER DEPTH REQUIRED PER MANUFACTURER'S RECOMMENDATION: 54 INCHES (FOR 2 ROWS OF VERTICAL SUPPORT PIPES (VSP)).
PIER DEPTH PROVIDED : 48 INCHES (3 ROWS OF VSP'S PROVIDED).

CONCRETE COMPRESSIVE STRENGTH REQUIRED PER MANUFACTURER'S RECOMMENDATION : 2500 PSI
CONCRETE PROVIDED: 4000 PSI, WET-TAMPED

MAXIMUM EAST-WEST PIER SPACING REQUIRED PER MANUFACTURER'S RECOMMENDATION: 202 INCHES.
EAST-WEST PIER SPACING PROVIDED : 192 INCHES.

NORTH-SOUTH PIER SPACING IS REDUCED TO 6 FEET WITH THE ADDITION OF THE THIRD PIER TO ACCOMMODATE 5 ROWS OF MODULES IN LANDSCAPE. THIS IS A CONSERVATIVE DESIGN CHANGE WITH RESPECT TO THE MANUFACTURER'S RECOMMENDED SPACING OF 7.75 FT. WITH 2 PIERS. THIS CHANGE ALSO REDUCES THE CANTILEVERING BEAM OVERHANGS, THEREBY REDUCES WIND FORCE EFFECTS.

02 WIND LOAD, PIER(PIPE) SPACING & PIER DEPTH

SCALE: N/A

ENGINEER
ALPER ICELI
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(813) 406-7060
alper@iceli-pe.com

This item has been digitally signed and sealed by Alper Iceli, PE, on date shown above.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

NAME OF OWNER: FRANKLIN ANITA
DAWN CABRERA
ADDRESS: 1322 SE EBENEZER RD
LAKE CITY, FL 32025
PROPERTY ID#: 31-4S-18-10519-004 (38586)

CONTRACTOR:
Dave's Home Helper Service, Inc.
36549 Laurel Oaks Dr.
Dade City, FL 33525
813-991-7596
EC13007006

DHHS-CABRERA STRUCTURAL
REV.2-SHEET 2
JUNE.17-21

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