

**PHOTOVOLTAIC ELECTRIC SYSTEM
RIVERGOLD ELEMENTARY SCHOOL
180.0 KW
31800 RD 400, COARSEGOLD, CA 93614**

PROJECT TEAM

DESIGN PROFESSIONAL:	ELECTRICAL ENGINEER ON RECORD:	STRUCTURAL ENGINEER ON RECORD:
TEDD KELLEY 116 INVERNESS DR E SUITE 109 ENGLEWOOD, CO 80112 TEL: (303) 346-8975 TKELLEY@WILLDAN.COM	TBD	TBD

WILLDAN
2401 E. KATELLA AVE, SUITE 300
ANAHEIM, CA 92806
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PROJECT SCOPE

SCOPE OF WORK INCLUDES THE INSTALLATION OF PHOTOVOLTAIC CANOPIES AT AN EXISTING SCHOOL CAMPUS. THE PV CANOPIES WILL CONSIST OF DSA PRE-CHECK APPROVED PV CANOPY STRUCTURES. PHOTOVOLTAIC ELECTRIC SYSTEM CONSISTS OF ALL ASSOCIATED ELECTRICAL EQUIPMENT, RACKING, LIGHTING, PRODUCTION MONITORING, AND ALL OTHER EQUIPMENT REQUIRED FOR THIS PV SYSTEM TO OPERATE AND INTERCONNECT TO THE UTILITY GRID. THIS SYSTEM WILL BE INTERCONNECTED TO AND WILL BE OPERATED IN PARALLEL WITH THE PG&E ELECTRIC GRID PER THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND UTILITY INTERCONNECT AGREEMENT.

AUTHORITY HAVING JURISDICTION (AHJ)

DIVISION OF THE STATE ARCHITECT DSA

ELECTRIC UTILITY

PG&E

CODE SUMMARY & REGULATIONS

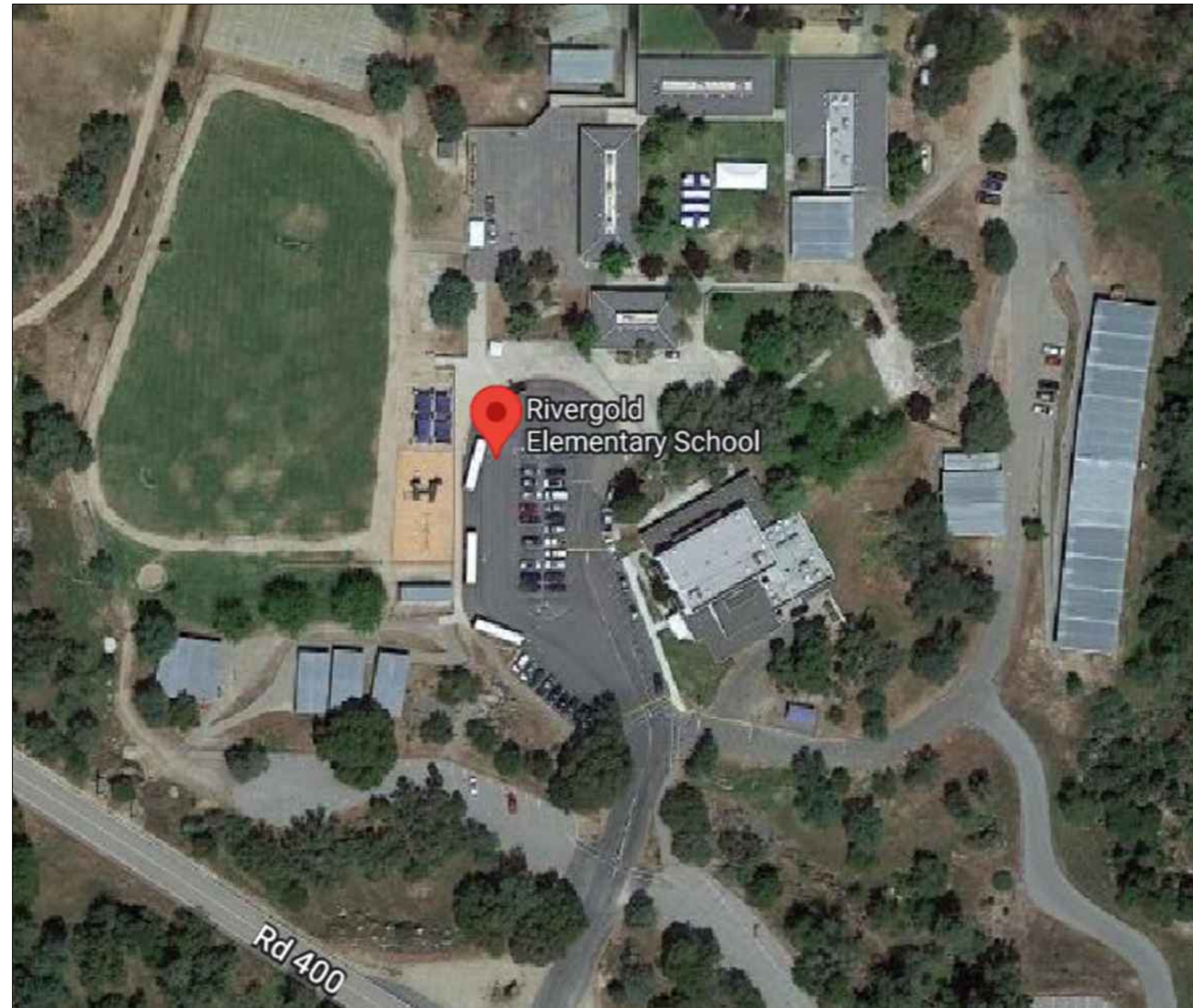
THIS PROJECT IS SUBJECT TO DRAWING REVIEW AND JOB SITE INSPECTIONS BY A REPRESENTATIVE APPROVED BY THE DIVISION OF THE STATE ARCHITECT (DSA)

- THIS PROJECT SHALL CONFORM TO THE FOLLOWING CODE VERSIONS:
2022 CALIFORNIA BUILDING CODE (CBC) ALL PARTS OF TITLE 24, C.C.R.
2022 CALIFORNIA ELECTRIC CODE (CEC)
2022 CALIFORNIA FIRE CODE (CFC)
2022 CALIFORNIA ENERGY CODE (CEnc)
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CGBSG)
2022 CALIFORNIA PLUMBING CODE (CPC)
2022 CALIFORNIA MECHANICAL CODE (CMC)

- 110.2 APPROVAL: ALL ELECTRICAL EQUIPMENT SHALL BE LABELED, LISTED, OR CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY ACCREDITED BY THE UNITED STATES OCCUPATIONAL SAFETY HEALTH ADMINISTRATION.

GENERAL NOTES

- ALL WORK SHALL COMPLY WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR)
- ALL CHANGES TO THE APPROVED DRAWINGS SHALL BE MADE BY ADDENDUM OR CHANGE DOCUMENTS APPROVED BY THE DIVISION OF THE STATE ARCHITECT.
- A CERTIFIED DSA INSPECTOR SHALL PROVIDE ONGOING INSPECTION OF ALL WORK ON THE SITE THROUGHOUT CONSTRUCTION ACCORDING TO CBC ADMINISTRATIVE CODE.
- CLASS II CERTIFIED DSA INSPECTOR IS REQUIRED FOR THIS PROJECT
- DSA INSPECTOR MUST BE CERTIFIED IN MECHANICAL STRUCTURAL AND ELECTRICAL WORK.



AERIAL VIEW

Sheet List Table	
Sheet Number	Sheet Title
T100	Title Sheet
A100	General Site Plan
A200	Array Layout Plan
E001	Electrical Notes
E100	Electrical Site Plan
E201	Electrical PV Details
E203	Electrical Canopy Details
E701	Single-Line Diagram

PROFESSIONAL SEALS

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT TITLE

**PHOTOVOLTAIC ELECTRIC SYSTEM
YOSEMITE USD - RIVERGOLD ES**

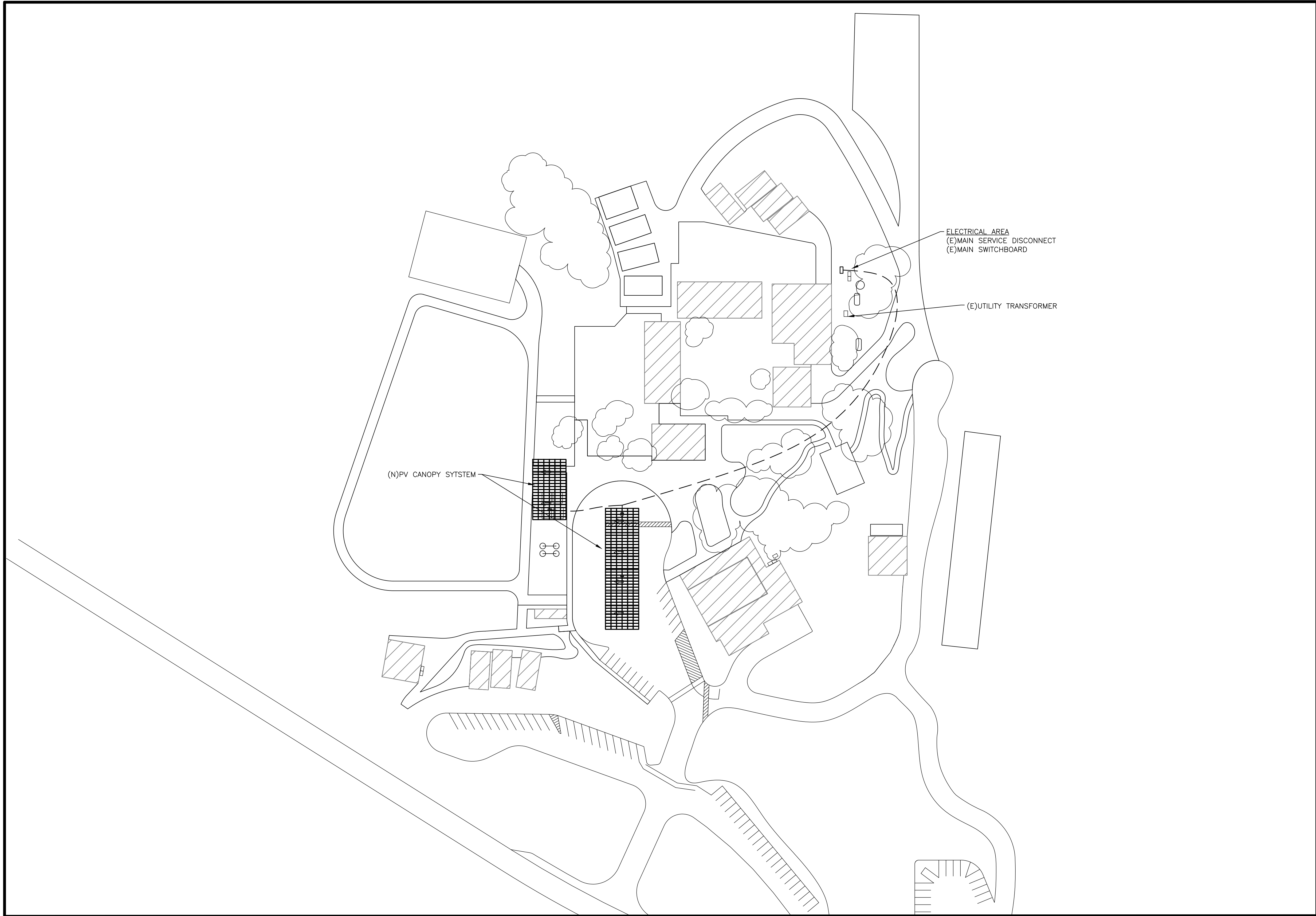
31800 RD 400, COARSEGOLD, CA 93614


60% DESIGN

REV. MARK	DATE	DESCRIPTION	DATE: 01/22/23	DRAWN BY: TSK
PROJECT NO: ----	CHKD BY: JPD	COPYRIGHT: © 2022 WILLDAN GROUP		

SHEET TITLE
TITLE SHEET

T100



1 GENERAL SITE PLAN— SCALE 1/64" = 1'-0" 

PV ARRAY SUMMARY						
	MODULE QTY	ARRAY TYPE	TILT DEG	AZIMUTH DEG	CLEARANCE	ROW X COLUMN
ARRAY 1	120	CANOPY	7°	270°	14'-0"	6 X 20
ARRAY 2	132	CANOPY	7°	270°	14'-0"	6 X 20
ARRAY 3	132	CANOPY	7°	270°	14'-0"	6 X 20

PROFESSIONAL SEALS
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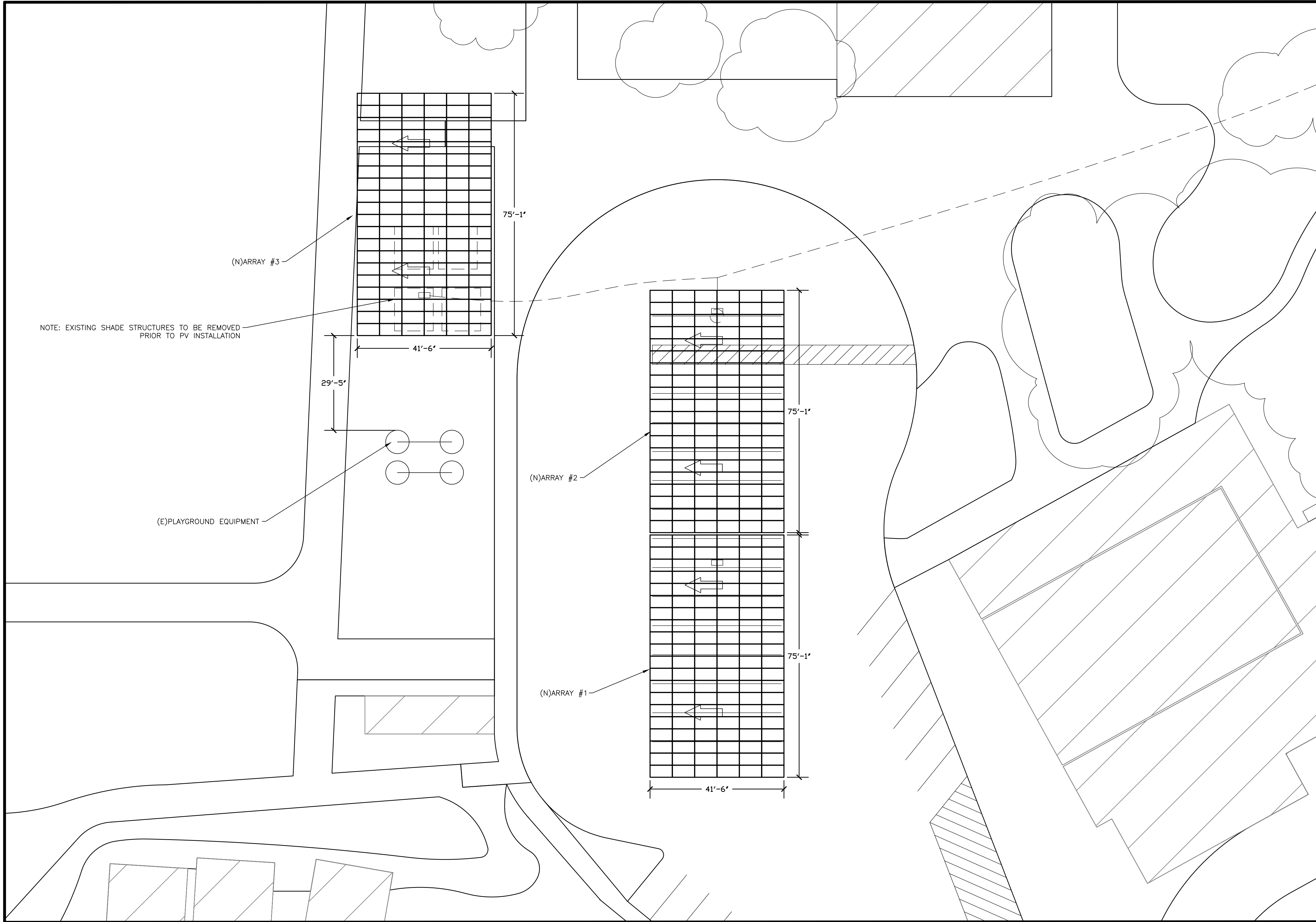
PROJECT TITLE
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SHEET TITLE
 GENERAL SITE PLAN

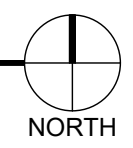
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1 ARRAY LAYOUT PLAN

SCALE: 1/32" = 1'-0" (11X17)

SCALE: 1/16" = 1'-0" (22X34)



PV ARRAY SUMMARY						
	MODULE QTY	ARRAY TYPE	TILT DEG	AZIMUTH DEG	CLEARANCE	ROW X COLUMN
ARRAY 1	120	CANOPY	7°	270°	14'-0"	6 X 20
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ABBREVIATIONS

Table listing abbreviations such as AMPERE, ALTERNATING CURRENT, AMERICANS WITH DISABILITIES ACT, AMERICAN SOCIETY FOR TESTING AND MATERIALS, BUILDING, CLEAR, CONCRETE, DIRECT CURRENT, DIAMETER, DISTANCE, EQUAL, EQUIPMENT GROUNDING CONDUCTOR, EXISTING, EACH, ELECTRICAL METALLIC TUBING GALVANIZED, GROUNDING ELECTRODE CONDUCTOR, GROUND, HOT DIPPED GALVANIZED CURRENT, CURRENT AT MAX POWER INVERTERS, SHORT CIRCUIT CURRENT, KILOVOLT AMPERE, KILOWATT, KILOWATT-HOUR, LOAD BEARING WALL, MAXIMUM, MINIMUM, NEW, NATIONAL ELECTRIC CODE, NOT IN CONTRACT, NOT TO SCALE, ON CENTER, OVERCURRENT PROTECTION, PROPERTY LINES, PHOTOVOLTAIC, POLYVINYL CHLORIDE, SCHEDULE, SQUARE INCHES, STAINLESS STEEL, SEE STRUCTURAL DRAWINGS, STANDARD TESTING CONDITIONS, TYPICAL, UNLESS OTHERWISE NOTED, UNINTERRUPTIBLE POWER SUPPLY, VERIFY IN FIELD, VOLT, VOLTAGE AT MAX POWER, VOLTAGE AT OPEN CIRCUIT, WATT, NEMA 3R, RAINTIGHT.

GENERAL NOTES

ALL WORK SHALL COMPLY WITH ALL STATE AND LOCAL CODES AND ANY OTHER REGULATING AUTHORITIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK.

DRAWINGS HAVE BEEN DETAILED IN COMPLIANCE WITH UL LISTING REQUIREMENTS, OSFM SOLAR PHOTOVOLTAIC INSTALLATION REQUIREMENTS, AND BUILDING CODES FOR THE MATERIALS SPECIFIED.

PRIOR TO COMMENCEMENT OF ANY WORK, THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND NOTIFY THE DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE FROM WILLDAN GROUP OF ANY DISCREPANCIES. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS SHALL BE CORRECTED AT THE SUBCONTRACTORS SOLE EXPENSE.

SUBCONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO WILLDAN GROUP FOR APPROVAL BEFORE MAKING ANY CHANGES. DEVIATION FROM PLANS BEFORE WRITTEN APPROVAL FROM EOR PLACES LIABILITY ON THE SUBCONTRACTOR.

ALL EQUIPMENT SHALL BE MOUNTED AS SHOWN. WHERE DETAILS ARE NOT PROVIDED, CONTRACTOR SHALL USE STANDARD CONSTRUCTION PRACTICES.

ALL SURFACES SHALL BE PATCHED AND PAINTED AROUND NEW DEVICES AND EQUIPMENT TO MATCH EXISTING FINISHES.

ANY METAL SHAVINGS FROM SITE WORK SHALL BE CLEANED FROM ALL SURFACES WHERE OXIDIZED OR CONDUCTIVE METAL SHAVINGS MY CAUSE RUST, ELECTRICAL SHORT CIRCUITS, OR OTHER DAMAGE.

BEAMS OR PURLINS SHALL NOT BE DRILLED UNLESS AUTHORIZED BY EOR OR SHOWN IN THE DRAWINGS.

APPROVALS FROM BUILDING INSPECTORS SHALL NOT CONSTITUTE AUTHORITY TO DEVIATE FROM THE DRAWINGS.

GENERAL CONTRACTOR NOTES

1. GENERAL CONTRACTOR SHALL FURNISH THE FOLLOWING INSURANCE COVERAGE:PUBLIC LIABILITY, PROPERTY DAMAGE, AUTOMOBILE LIABILITY, WORKMAN'S COMPENSATION, ETC., IN AMOUNTS AS SPECIFIED BY THE LOCAL DEPARTMENT OF BUILDINGS AND THE OWNER. GENERAL CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS, PRIOR TO COMMENCING ANY WORK.

2. PRIOR TO START OF CONSTRUCTION, THE GENERAL CONTRACTOR SHALL VERIFY ALL JOB CONDITIONS, DIMENSIONS AND DETAILS ON SITE AND NOTIFY THE ARCHITECT AND OWNER OF ANY CONDITIONS, DISCREPANCIES OR OMISSIONS WHICH WOULD INTERFERE WITH THE SATISFACTORY COMPLETION OF THE WORK.

3. EXERCISE CARE TO AVOID DISRUPTION OF ALL OCCUPIED PREMISES AND THEIR ACCESSIBILITY, EXISTING IMPROVEMENTS AND UTILITIES.

4. GENERAL CONTRACTOR SHALL PROTECT AND SAFEGUARD THE SAFETY OF THE GENERAL PUBLIC BY ERECTING ALL REQUIRED BARRICADES/CONSTRUCTION FENCES TO PERMIT SAFE PASSAGE DURING CONSTRUCTION.

5. GENERAL CONTRACTOR SHALL COORDINATE HIS WORK WITH THE WORK OF OTHER CONTRACTORS AND THE BUILDING MANAGEMENT.

6. REMOVE ALL DEBRIS AT THE END OF EACH WORK DAY.

ELECTRICAL NOTES

GENERAL ELECTRICAL NOTES

ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND SHALL BE UNDERWRITERS LABORATORIES (UL) LABELED. THE CONTRACTOR SHALL PROCURE ALL NECESSARY CERTIFICATIONS FOR ALL WORK INSTALLED, PAY ALL FEES AND CHARGES CONNECTED THEREWITH AND DELIVERALL CERTIFICATES AND INSPECTION APPROVALS TO THE OWNER THROUGH THE ENGINEER, BEFORE HIS WORK WILL BE FINALLY ACCEPTED.

ALL INVERTERS SHALL BE IEEE 929 COMPLIANT, UL1741 SA LISTED, AND CERTIFIED TO CA RULE 21 INCLUDING SA8-SA18 AND SHALL BE INSPECTED BY LOCAL UTILITY BEFORE COMMISSIONING, TESTING AND OPERATION OF THE SYSTEM.

NEW EQUIPMENT SHALL HAVE AN INTERRUPT RATING (kAIC) GREATER THAN OR EQUAL TO THE EXISTING EQUIPMENT.

DO NOT DRILL BUSBAR FOR LINE- SIDE INTERCONNECTIONS. USE EXISTING LUGS. OBTAIN MANUFACTURER APPROVAL IF DRILLING IS NECESSARY

MANNER OF INSTALLATION

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.

TORQUE AND MARK ALL RACKING AND MECHANICAL LUGS.

CONDUCTORS AND CONDUCTOR INSTALLATION COMPRESSION LUGS SHALL BE USED ON ALL ALUMINUM CABLE TERMINATIONS. MECHANICAL LUGS MAY ONLY BE USED FOR COPPER CABLE TERMINATIONS.

IF ALUMINUM MC CABLE IS USED, THHN/THWN-2 INSULATION IS ACCEPTABLE . FOR ALUMINUM CONDUCTORS XHHW-2 SHALL BE USED.

NO-LOX TO BE USED WITH ALL ALUM INUM LUGS. COMPRESSION PINS OR MAC ADAPTERS SHALL BE USED TO TERMINATE ALUMINUM WIRE AT LUGS

PV SYSTEM CONDUCTORS SHALL BE MARKED AND IDENTIFIED PER NEC 690.4(8).

INSTALL WIRE AND CABLE IN ACCORDANCE WITH THE NEC AND AS HEREINAFTER 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.

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' .

STRING WIRING & HOMERUNS SHALL BE SECURED TO UNDERSIDE OF THE RACKING & MODULES USING ZIP TIES OUTDOOR RATED FOR UV. HELLERMAN TYTON PA66UV OR EQUAL. TRANSITION TO RACEWAY OUTSIDE OF ARRAY.

PHASE RELATIONSHIP

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
A PHASE: BROWN, B PHASE; ORANGE, C PHASE: YELLOW

1000 VDC OR 600 VDC
UNGROUND POSITIVE CONDUCTOR : RED
UNGROUND NEGATIVE CONDUCTOR: BLACK

AC AND DC SYSTEMS:
GROUNDED CONDUCTOR: WHITE
GROUND: GREEN
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.

CONDUITS AND RACEWAYS

PROVIDE RACEWAYS MINIMUM SIZE 3/4". 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. 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. EMT CONDUIT SHALL USE COMPRESSION RAINTIGHT CONNECTORS, FACTORY STAMPED RAINTIGHT WITH COMPONENTS PROPERLY INSTALLED. PROVIDE 2 PROTECTIVE COATS OF ASPHALTUM COMPOUND FOR ANY GLAVANIZED STEEL CONDUITS DIRECTLY BURIED IN EARTH. PROVIDE EXPANSION FITTINGS WITH BONDING JUMPERS. ONE FOR EVERY 100' OF STRAIGHT METAL CONDUIT RUN. CONDUIT EXPANSION AND DEFLECTION FITTINGS WITH BONDING JUMPERS SHALL BE USED WHENEVER CROSSING BUILDING EXPANSION AND SEISMIC SEPARATION JOINTS . 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.

ALL PENETRATIONS SHALL BE SEALED TO MAINTAIN THE EXISTING FIRE RATING.
ALL ROOFTOP CONDUITS SHALL BE MARKED PER LOCAL FIRE CODES

ELECTRICAL ENCLOSURES

ALL OUTDOOR ENCLOSURES (PANELBOARDS, DISCONNECT SWITCHES, JUNCTION BOXES, COMBINER BOXES, ETC.) SHALL BE NEMA 3R, 4, OR 4X. INDOOR ENCLOSURES SHALL BE NEMA 1.

PANELBOARD DOORS SHALL BE QUARTER TURN LATCHES OR EXTERNAL HANDLE WITH INTERNAL LATCHES, NO SETS OF EXTERNAL SCREW DOWN CLAMPS .

CONDUIT TERMINATING IN OUTDOOR ENCLOSURES SHALL UTILIZE RAINTIGHT FITTINGS FOR ALL CABLE ENTRIES.

ARC FLASH HAZARD WARNING LABELS SHALL BE PROVIDED AND MOUNTED ON EVERY COMB INER BOX, TERMINAL BOX, INVERTER, AC AND DC SWITCH, TRANSFORMER, AND SWITCHGEAR.

HAND HOLES, PULL BOXES, OR CONDU IT 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.

GROUNDING

THE CONTRACTOR SHALL FURNISH AND INSTALL GROUNDING NECESSARY IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.

TESTS

MEGGER ALL: STRING WIRING, COMBINER BOX OUTPUT FEEDERS , AND AC FEEDERS. SUBMIT RESULTS TO OWNER FOR REVIEW. IV CURVE TRACES OF STRINGS SHALL BE GENERATED USING THE SOLMETRIC PV ANALYZER (OR EQUIVALENT DEVICE) AND SUBMITTED TO OWNER FOR APPROVAL.

EV CHARGER NOTES

- 1. ALL WORK, MATERIAL, AND EQUIPMENT FOR EV CHARGING STATIONS AND THE INSTALLATION THEREOF SHALL CONFORM TO CALTRANS STANDARD PLANS AND SPECIFICATIONS, 2018 EDITION, THIS PLAN, SPECIAL PROVISIONS, AND OTHER CONTRACT DOCUMENTS.
- 2. ALL MATERIALS AND EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR, UNLESS OTHERWISE NOTED.
- 3. LOCATE ALL SUBSTRUCTURES PRIOR TO CONSTRUCTION. HAND DIG FOUNDATIONS UNTIL CLEAR OF OBSTRUCTIONS. CONTACT UNDERGROUND SERVICE ALERT AT 811, 48 HOURS PRIOR TO CONSTRUCTION.
- 4. ALL EQUIPMENT LOCATIONS SHALL BE APPROVED BY THE ENGINEER IN THE FIELD OR HIS/HER DESIGNATED REPRESENTATIVE IN THE FIELD PRIOR TO INSTALLATION.



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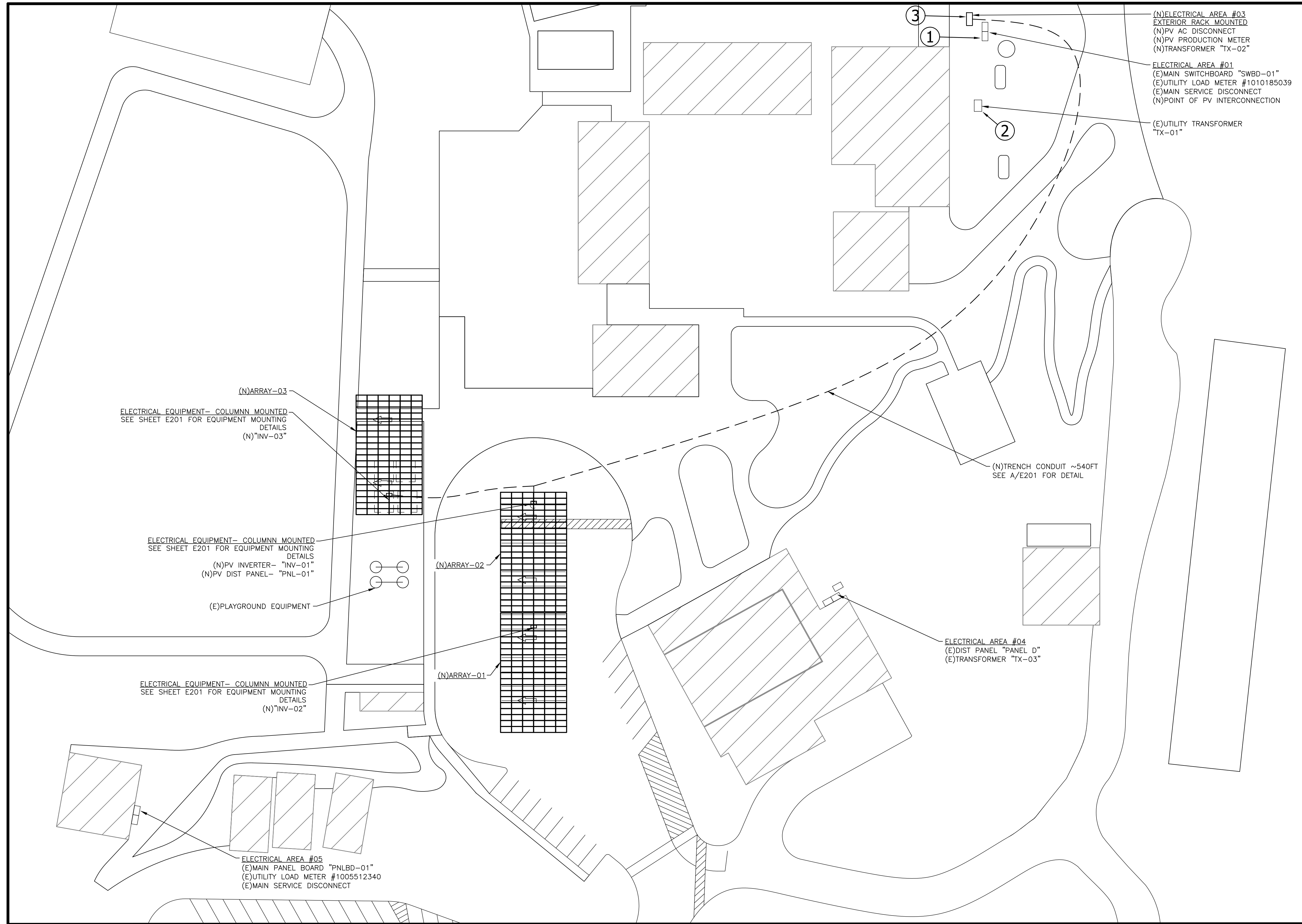
Table with columns: REV, MARK, DATE, DESCRIPTION, PROJECT NO, DATE, DRAWN BY, CHK'D BY, COPYRIGHT. Includes values like 01/22/23, TSK, JPD, 2022 WILLDAN GROUP.

SHEET TITLE
ELECTRICAL NOTES

NOTE:
THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS, ABBREVIATIONS, ETC. ARE NECESSARILY USED ON THE DRAWINGS.

E001

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(N)ELECTRICAL AREA #03
EXTERIOR RACK MOUNTED
(N)PV AC DISCONNECT
(N)PV PRODUCTION METER
(N)TRANSFORMER "TX-02"

ELECTRICAL AREA #01
(E)MAIN SWITCHBOARD "SWBD-01"
(E)UTILITY LOAD METER #1010185039
(E)MAIN SERVICE DISCONNECT
(N)POINT OF PV INTERCONNECTION

(E)UTILITY TRANSFORMER
"TX-01"

(N)ARRAY-03
ELECTRICAL EQUIPMENT- COLUMN MOUNTED
SEE SHEET E201 FOR EQUIPMENT MOUNTING
DETAILS
(N)"INV-03"

ELECTRICAL EQUIPMENT- COLUMN MOUNTED
SEE SHEET E201 FOR EQUIPMENT MOUNTING
DETAILS
(N)PV INVERTER- "INV-01"
(N)PV DIST PANEL- "PNL-01"

(E)PLAYGROUND EQUIPMENT

ELECTRICAL EQUIPMENT- COLUMN MOUNTED
SEE SHEET E201 FOR EQUIPMENT MOUNTING
DETAILS
(N)"INV-02"

ELECTRICAL AREA #05
(E)MAIN PANEL BOARD "PNLBD-01"
(E)UTILITY LOAD METER #1005512340
(E)MAIN SERVICE DISCONNECT

ELECTRICAL AREA #04
(E)DIST PANEL "PANEL D"
(E)TRANSFORMER "TX-03"

(N)TRENCH CONDUIT ~540FT
SEE A/E201 FOR DETAIL

- Ⓢ KEYED NOTES
- (E) MAIN SWITCHGEAR, THE POINT OF PV INTERCONNECTION COULD BE AT THIS LOCATION BUT WILL REQUIRE A STEP DOWN TRANSFORMER. ALTERNATIVE INTERCONNECTION LOCATION AT 480V SIDE OF THE EXISTING TRANSFORMER TO BE INVESTIGATED.
 - (E)UTILITY TRANSFORMER WITH 480V PRIMARY SIDE
 - (N) PV BALANCE OF SYSTEMS TO BE RACK MOUNTED IN THIS LOCATION UNLESS ALTERNATIVE POINT OF COMPLIANT INTERCONNECTION IS DETERMINED.

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1 ELECTRICAL SITE PLAN - 1/16" = 1'0" NORTH

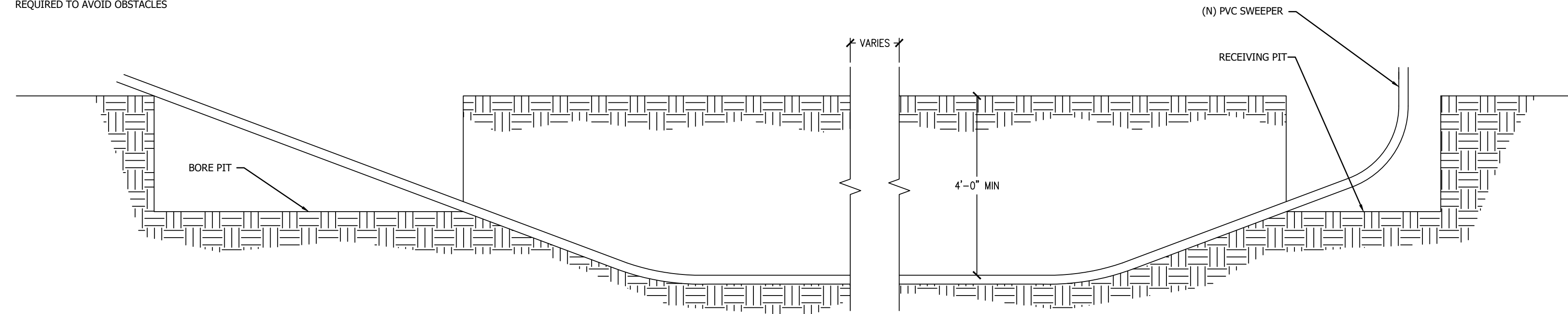
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SHEET TITLE
ELECTRICAL SITE PLAN

E100

NOT ALL DETAILS WILL BE APPLICABLE TO CONSTRUCTION AT THIS PROJECT -

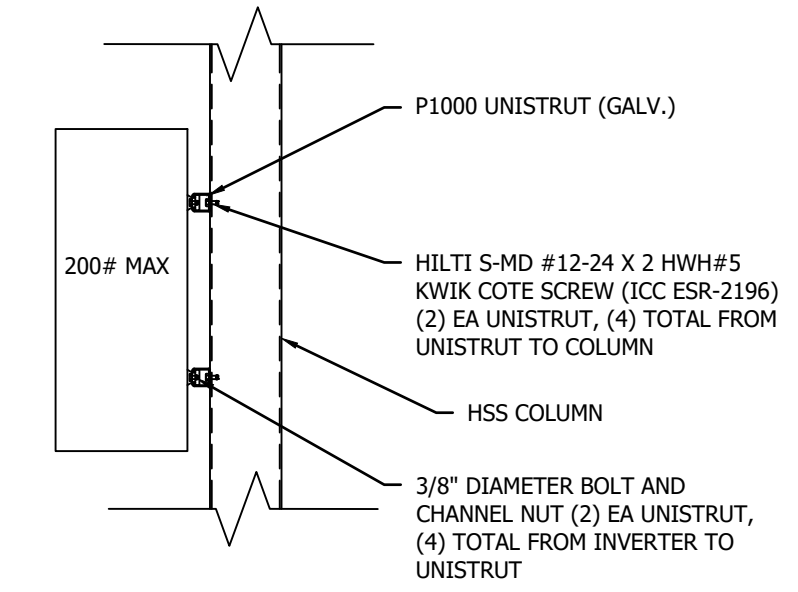
NOTE:
4" BORE DEPTH TO BE MAINTAINED EXCEPT WHERE ELEVATION CHANGES ARE REQUIRED TO AVOID OBSTACLES



A HORIZONTAL BORE DETAIL

70.01 HORIZONTAL BORE DETAIL

NTS



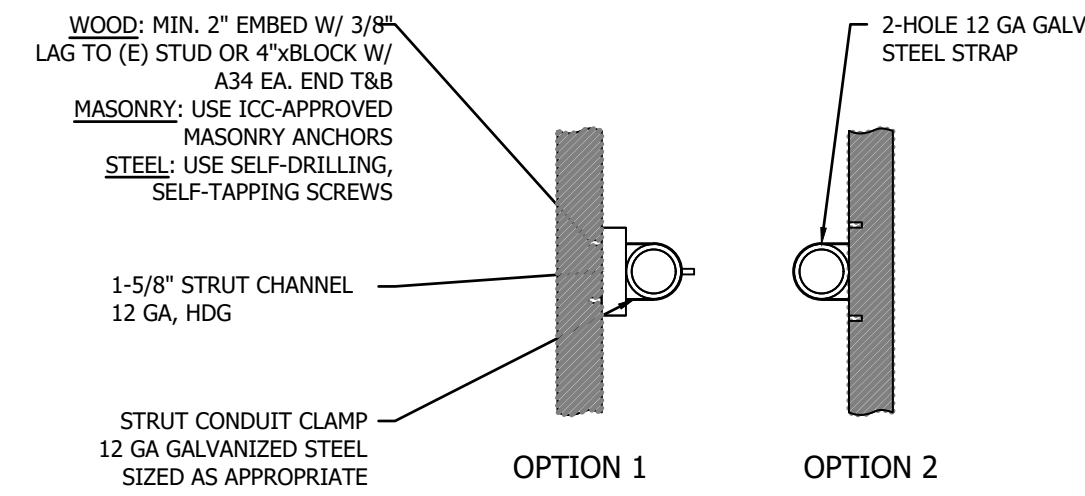
NOTE: HILTI SCREW TO PENETRATE A MINIMUM OF THREE THREADS THROUGH STEEL OF UNISTRUT, A MINIMUM OF 1.5 TIMES THE DIAMETER OR .432" FROM THE CENTER OF THE SCREW TO THE EDGE OF THE UNISTRUT HOLE.

B CANOPY COLUMN EQUIPMENT MOUNT

70.01 CANOPY COLUMN EQUIPMENT MOUNT

NTS

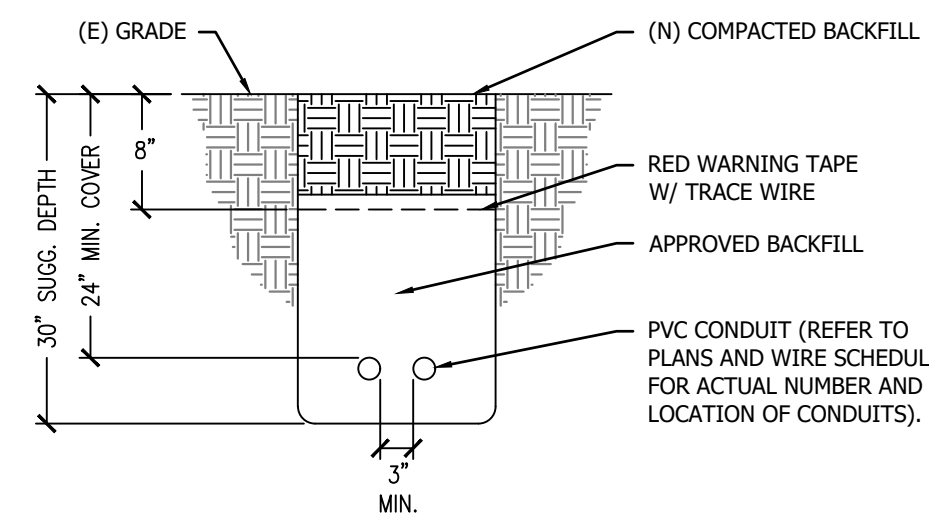
NOTE: ALL HOLES FOR CONDUIT SHALL BE PROVIDED WITH CONDUIT FITTINGS HAVING AN ENVIRONMENTAL RATING APPROVED TO MAINTAIN NEMA 3R ENCLOSURE RATING (UL508A, TABLE 19.2). IN GENERAL COMPONENTS MARKED "WEATHERPROOF" OR "RAINPROOF" SHALL BE INSTALLED ONLY BELOW THE LOWEST UNINSULATED LIVE PARTS WITHIN THE ENCLOSURE. CONDUIT OPENINGS ABOVE THE LOWEST UNINSULATED LIVE PARTS SHALL BE PROVIDED WITH CONDUIT FITTINGS MARKED "WET LOCATION" OR "RAINTIGHT".



C CONDUIT SUPPORT - WALL

70.02 CONDUIT SUPPORT - WALL

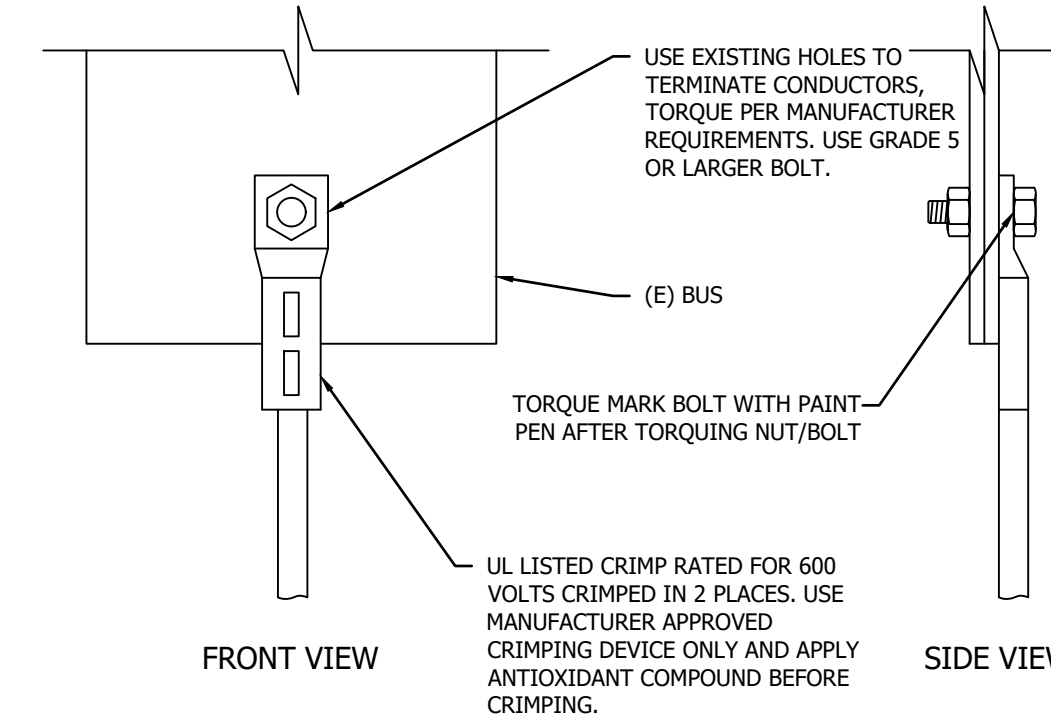
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D TRENCH THROUGH SOIL TRAFFIC DETAIL

70.03 TRENCH THROUGH SOIL TRAFFIC

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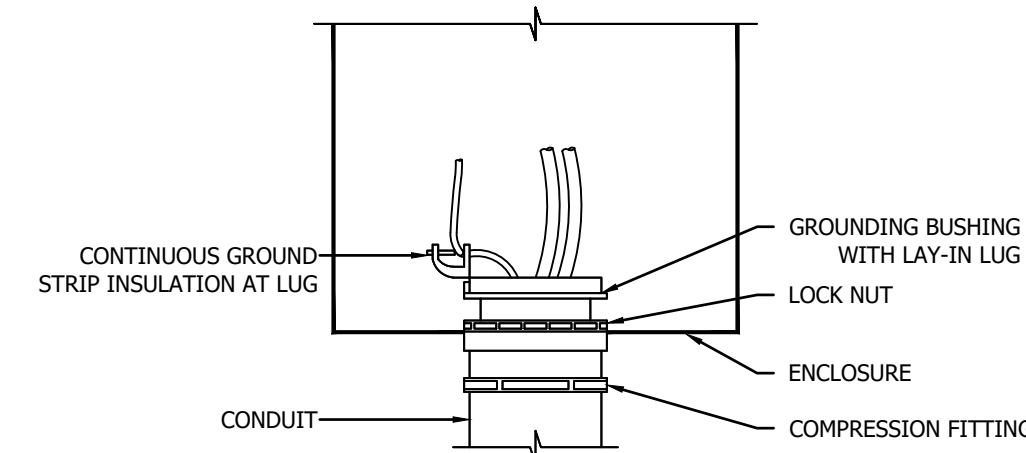


NOTE:
ALUMINUM CONDUCTORS SHALL NOT BE TERMINATED WITH MECHANICAL LUGS.

E ALUMINUM CONDUCTOR TERMINATION DETAIL

70.01 ALUMINUM CONDUCTOR TERMINATION

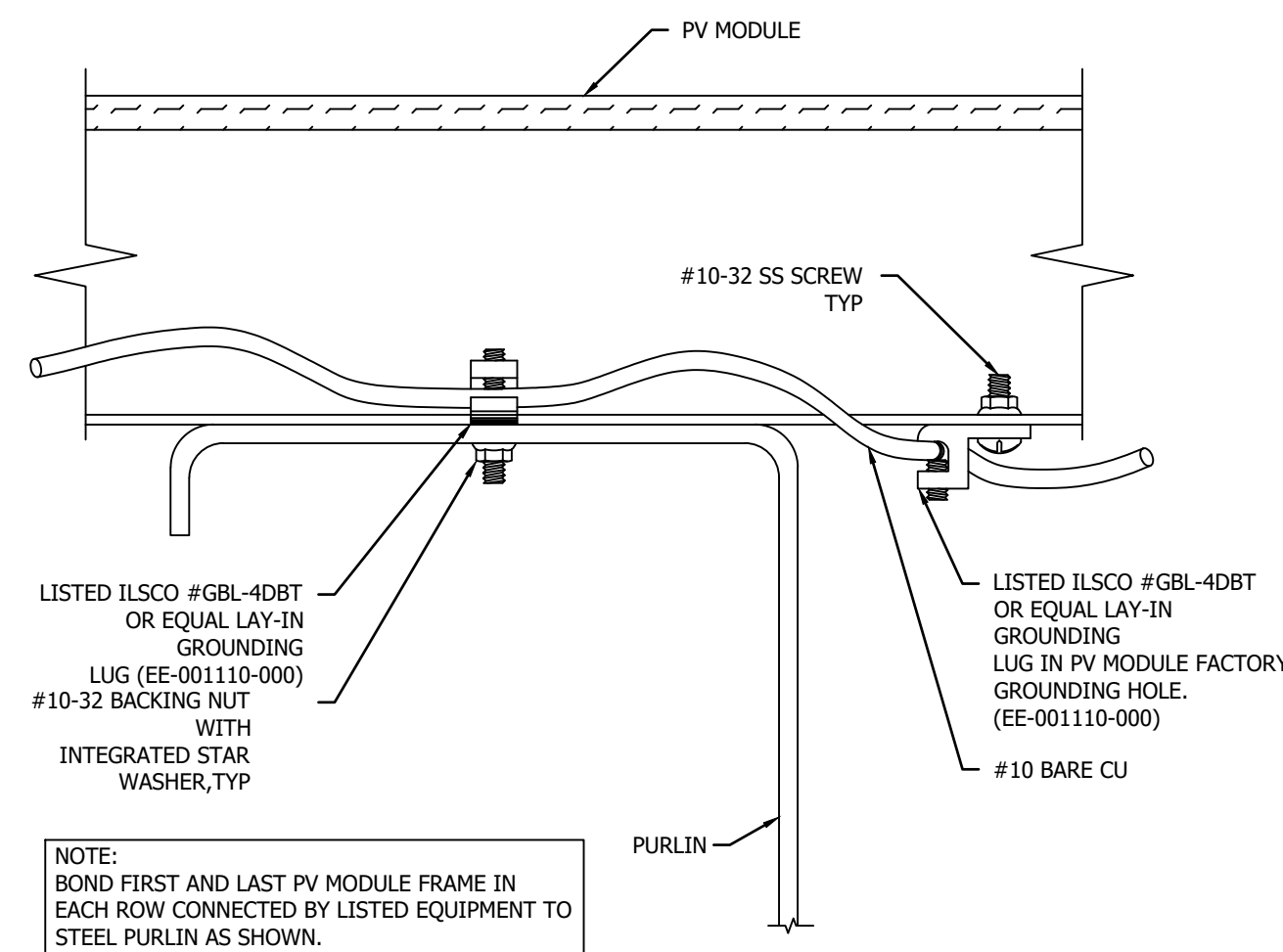
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F CONDUIT GROUNDING DETAIL

70.03 CONDUIT GROUNDING AT ENCLOSURE

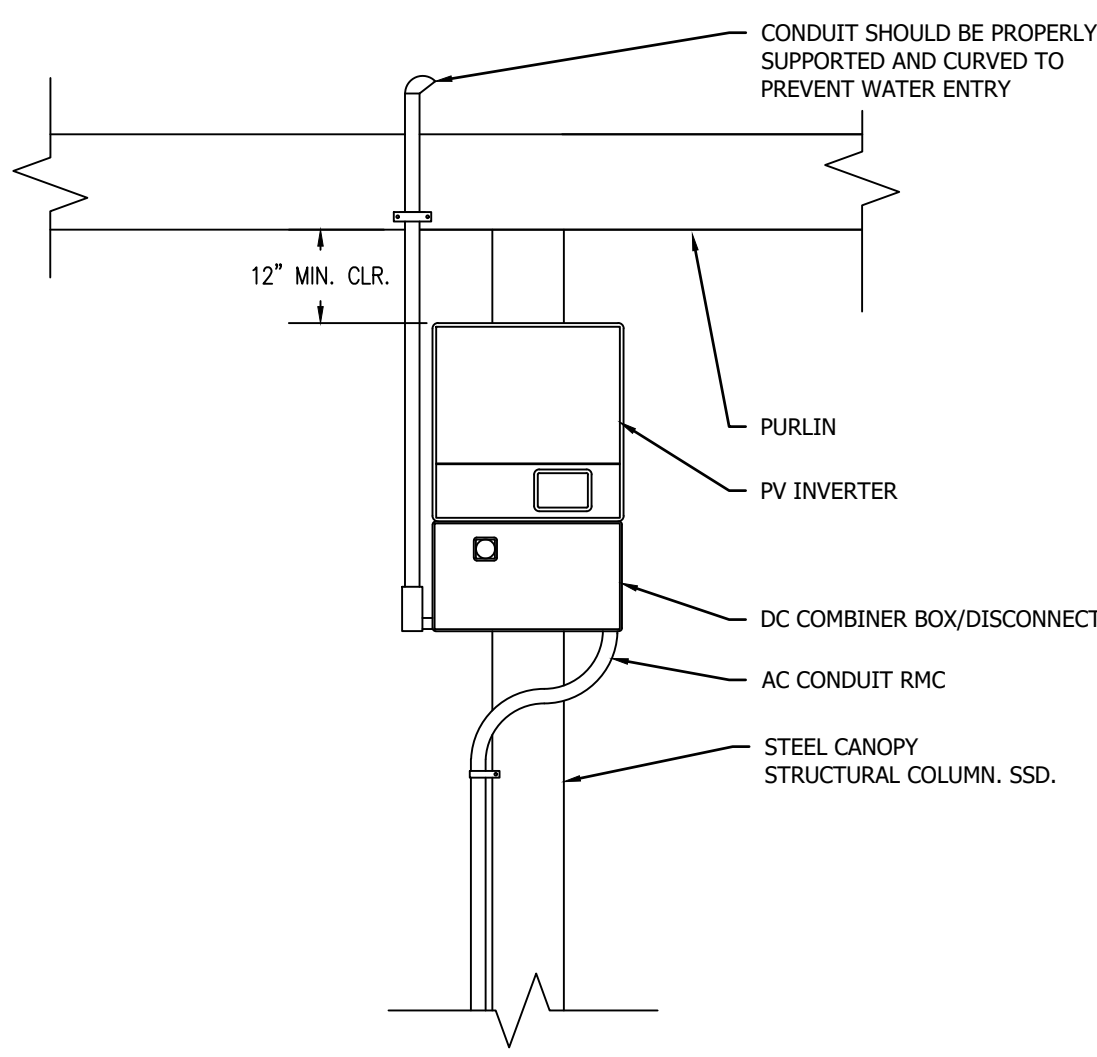
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G MODULE ROW GROUNDING DETAIL

70.02 MODULE ROW GROUNDING DETAIL

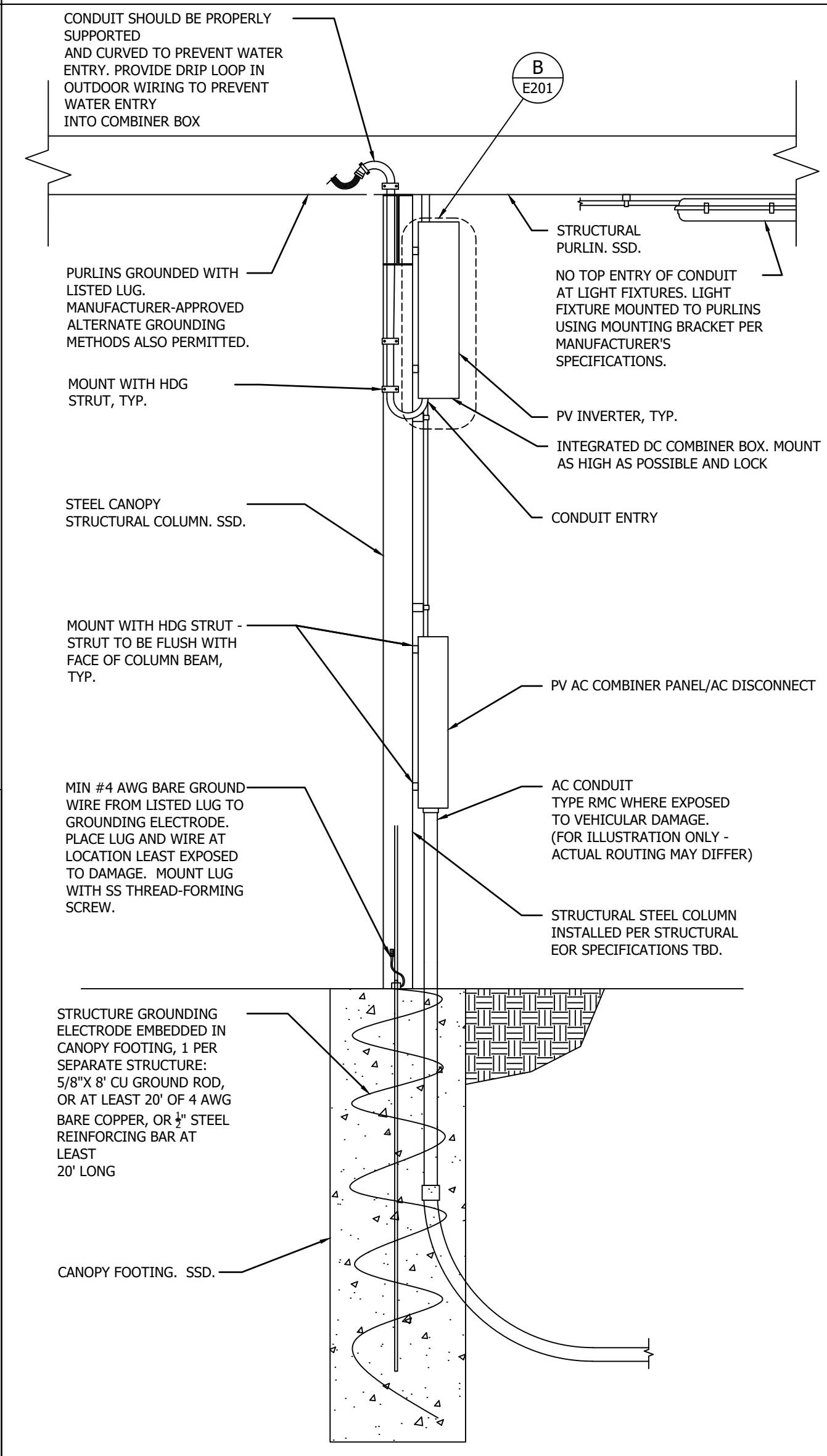
NTS



H CANOPY COLUMN ELEVATION WIRING

70.01 CANOPY COLUMN ELEVATION WIRING

NTS



I EQUIPMENT MOUNTED ON COLUMN

70.04 CANOPY COLUMN STRUCTURAL ELEVATION WIRING

NTS

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31800 RD 400, COARSEGOLD, CA 93614

60% DESIGN

REV. MARK	DATE	DESCRIPTION

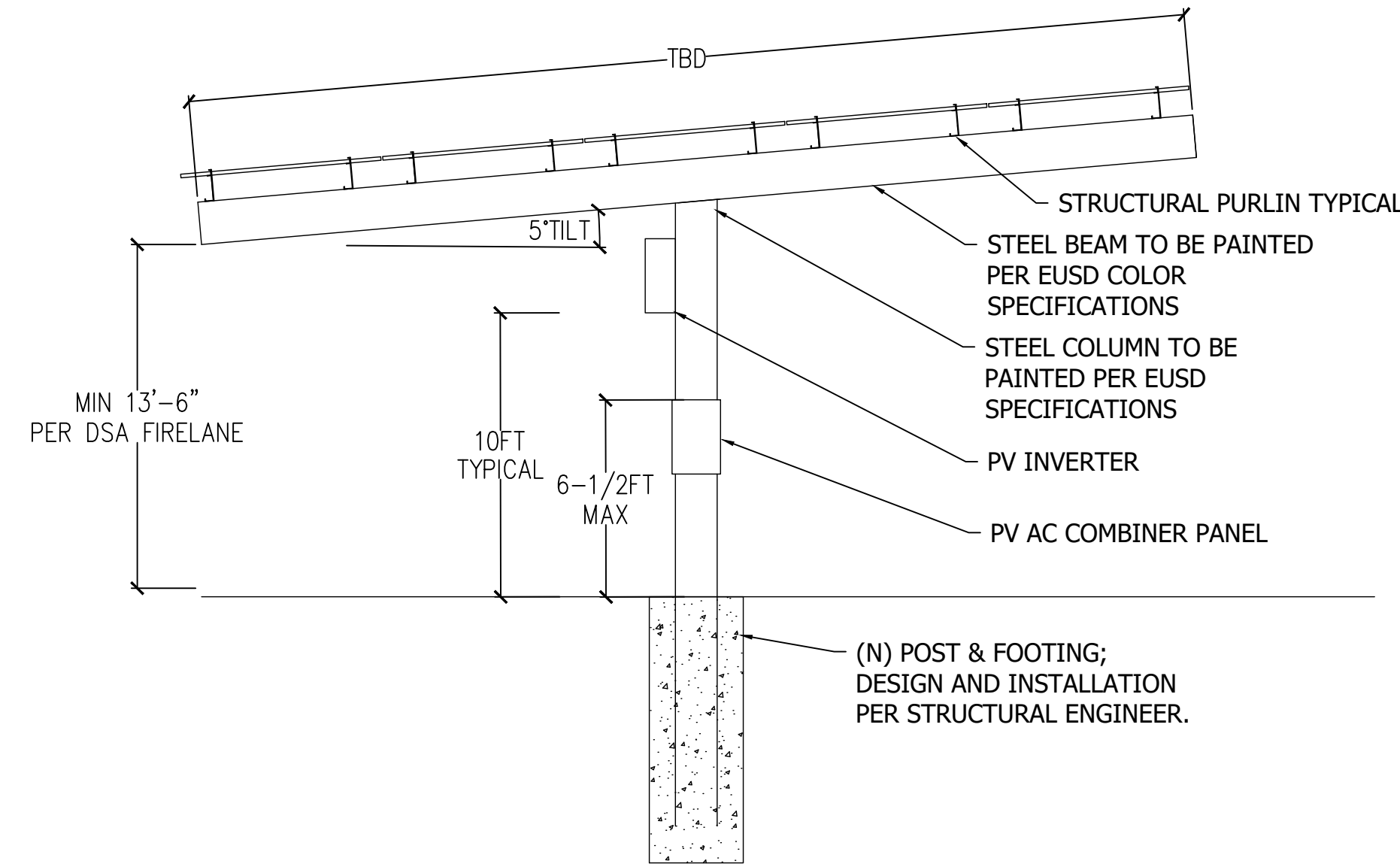
PROJECT NO: 01/22/23
DATE: 01/22/23
DRAWN BY: TSK
CHK'D BY: JPD
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SHEET TITLE
ELECTRICAL PV DETAILS

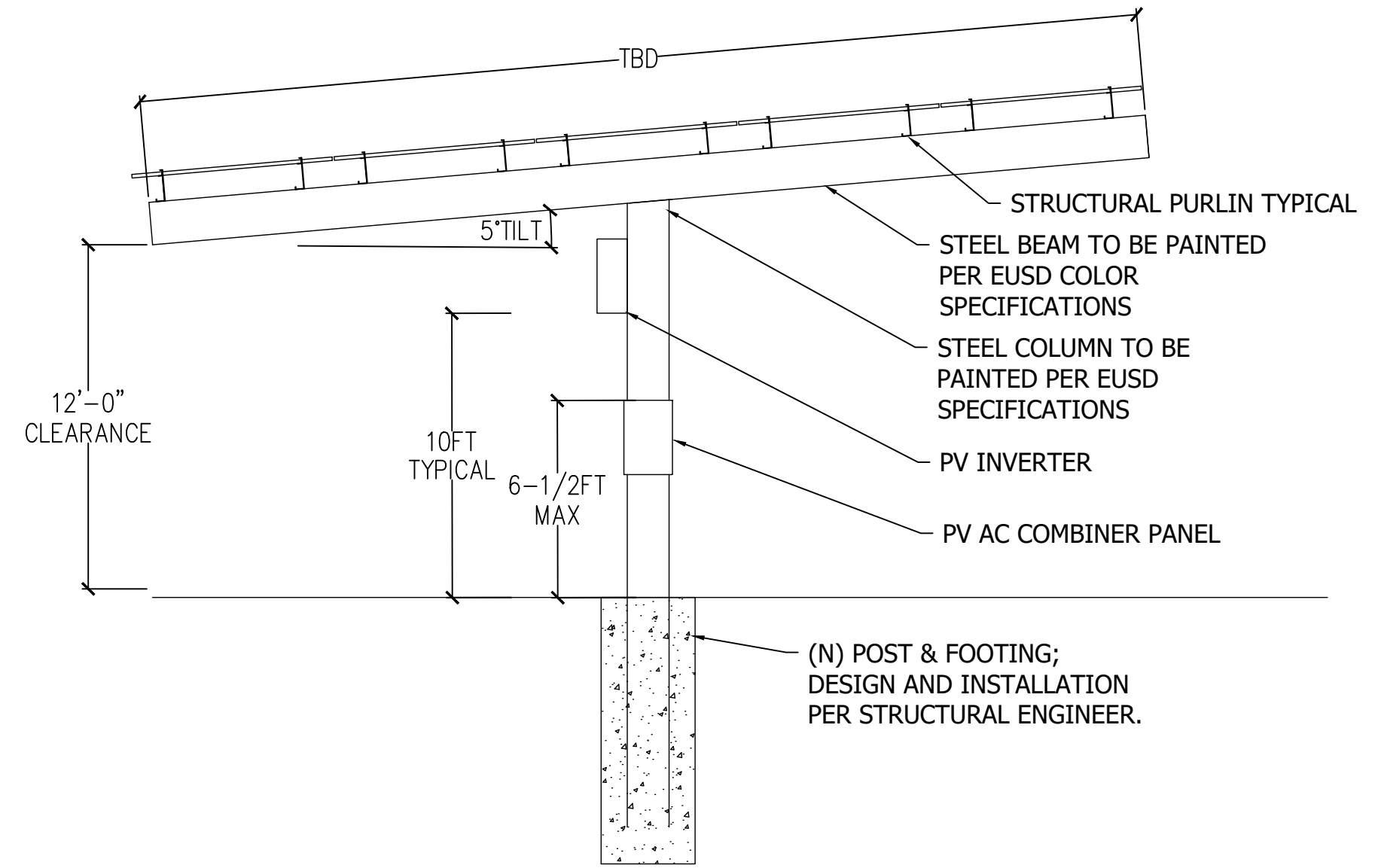
E201

2/6/2023 11:44 AM

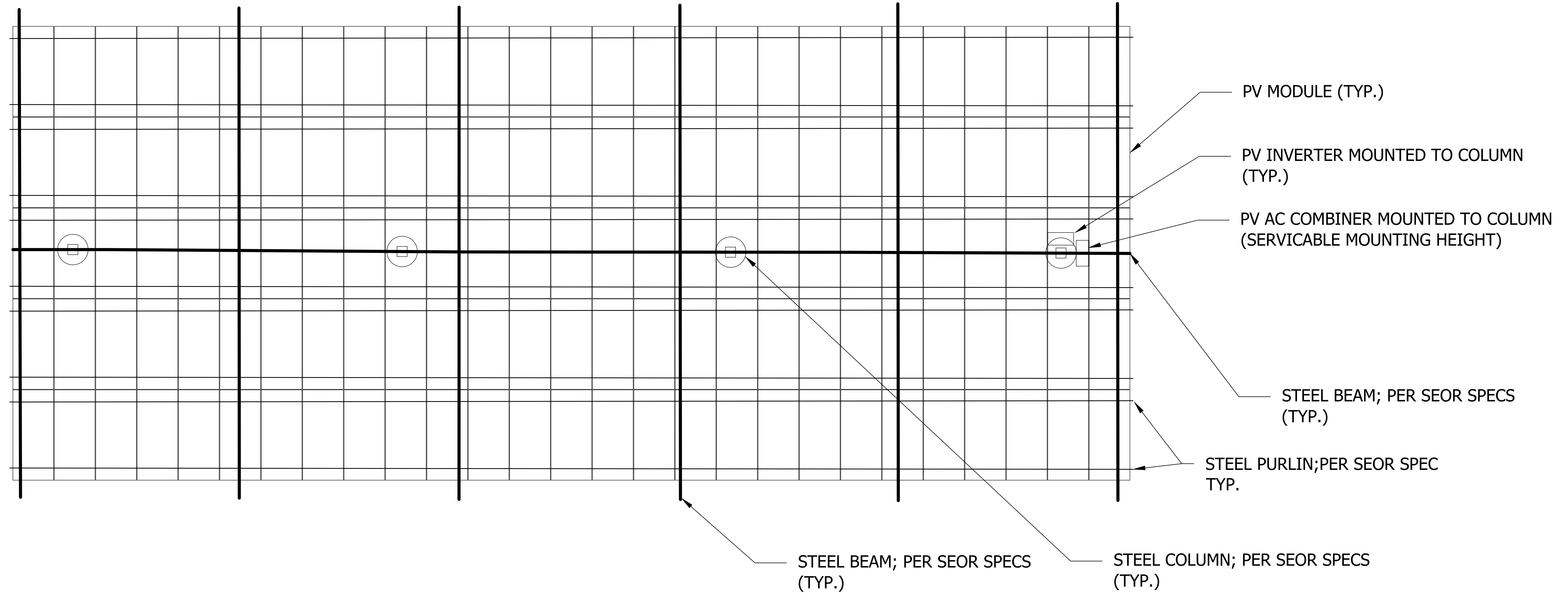
PV CANOPY DETAIL DRAWINGS ARE FOR DEMONSTRATION PURPOSES, NOT FOR CONSTRUCTION.



(A) ARRAY 1 AND 2 :PV "T" CANOPY - 6 ROW STEEL STRUCTURE PROFILE VIEW



(B) ARRAY 3: "T" CANOPY - 6 ROW STEEL STRUCTURE PROFILE VIEW



(D) PV "T" CANOPY 6-ROW EXAMPLE LAYOUT VIEW



2401 E. KATELLA AVE, SUITE 300
ANAHEIM, CA 92806
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PROFESSIONAL SEALS

PRELIMINARY
NOT FOR
CONSTRUCTION

PROJECT TITLE

PHOTOVOLTAIC ELECTRIC SYSTEM
YOSEMITE USD - RIVERGOLD ES
50200 HIGH SCHOOL RD, OAKHURST, CA 93844

60% DESIGN

REV	MARK	DATE	DESCRIPTION	DATE	DRAWN BY
				01/22/23	TSK
PROJECT NO: ----			CHKD BY: JPD		
PROJECT NO: ----			COPYRIGHT: © 2022 WILLDAN GROUP		

SHEET TITLE
ELECTRICAL CANOPY
DETAILS

E203

2/7/2023 11:44 AM

REV.	MARK	DATE	DESCRIPTION	DATE	DRAWN BY
				01/22/23	TSK

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KEY PV EQUIPMENT

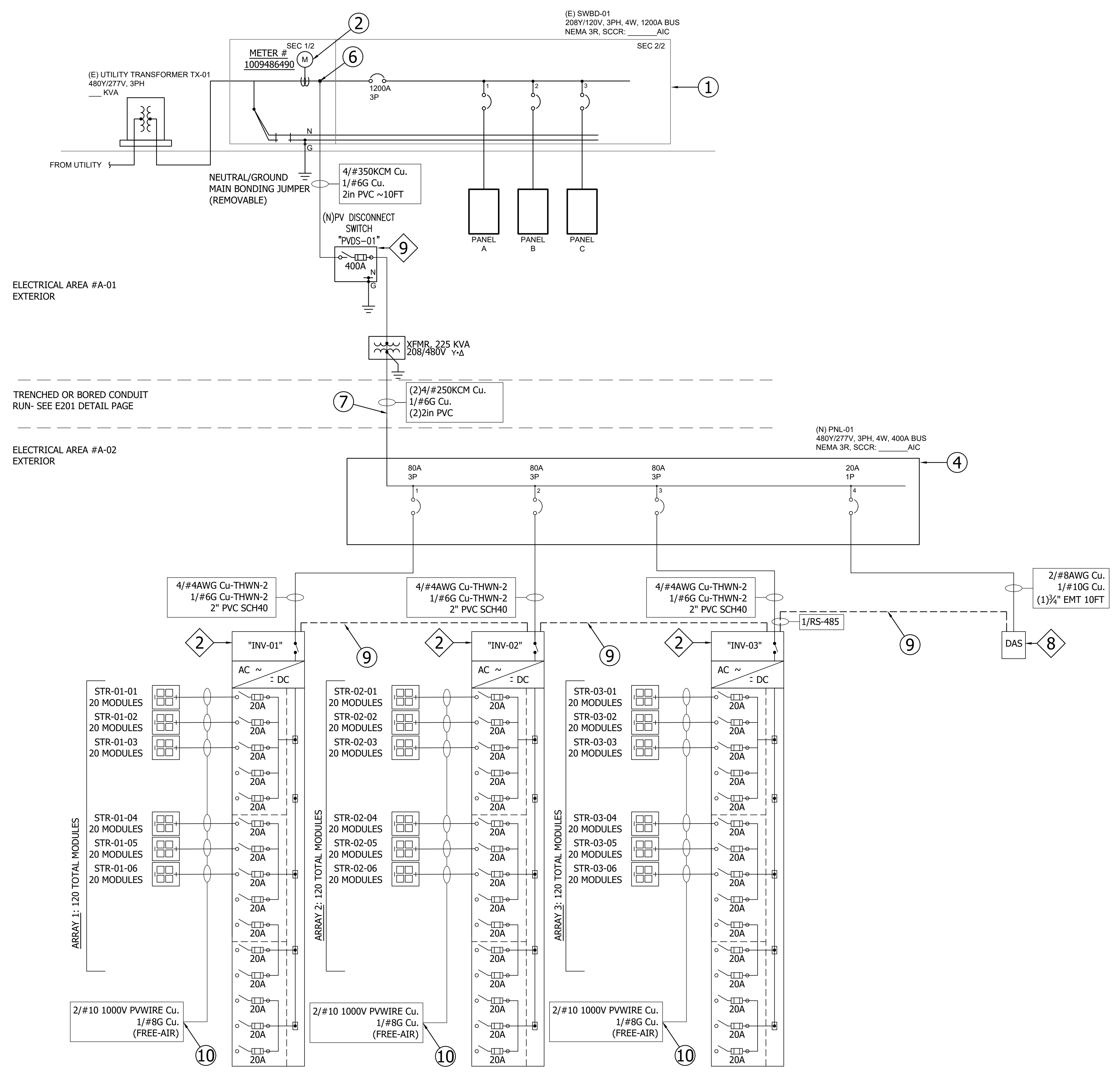
- PV MODULE- SILFAB SIL-500 HM
- (N) 50kW PV INVERTER: OR SIMILAR CHINT POWER SYSTEMS
 MODEL: CPS SCA50KTL-DO/US-480 50KW, 480VAC, 60.2A, 1000VDC, 3Φ, 4W INTEGRATED DC AND AC DISCONNECT
- (N) 60kW PV INVERTER: OR SIMILAR CHINT POWER SYSTEMS
 MODEL: CPS SCA60KTL-DO/US-480 60KW, 480VAC, 72.2A, 1000VDC, 3Φ, 4W INTEGRATED DC AND AC DISCONNECT
- (N) 36kW PV INVERTER: OR SIMILAR CHINT POWER SYSTEMS
 MODEL: CPS SCA36KTL-DO/US-480 36KW, 480VAC, 43.5A, 1000VDC, 3Φ, 4W INTEGRATED DC AND AC DISCONNECT
- NA
- NA
- NA
- (N) DATA ACQUISITION SYSTEM - PV PRODUCTION MONITORING SYSTEM
- (N) FUSED PV AC DISCONNECT "PVDS-01" 480V, 3P, 600A, NEMA 3R. LABEL DETAIL 2/WARNING LABELS SHEET

KEY ELECTRIC NOTES

- (E) MAIN SWITCHGEAR AND (N) POINT OF PV AC INTERCONNECTION. ALL CONNECTIONS MADE INSIDE (E) SWITCHGEAR AT OTHER THAN CIRCUIT BREAKERS OR FUSED SWITCHES LISTED FOR USE WITH THAT MANUFACTURERS INSTRUCTIONS OR BE RE-LISTED BY A NRTL. ALL TERMINATIONS OF ALUMINUM CONDUCTORS SHALL BE WITH HIGH PRESS CRIMP LUGS ONLY. WARNING LABEL DETAIL 1/WARNING LABELS SHEET
- (E) UTILITY LOAD METER WILL BE UPDATED WITH NET METERING UTILITY METER UPON SYSTEM COMMISSIONING
- (N) PV SYSTEM UTILITY AC DISCONNECT. WARNING LABEL DETAIL 2/WARNING LABELS SHEET
- DIST PANEL USED FOR COMBINING INVERTER OUTPUT AND PROVIDING POWER FOR DAS. NO ADDITIONAL LOADS WARNING LABEL DETAIL 1/WARNING LABELS SHEET
- (N) GRID-INTERACTIVE PV INVERTER LISTED TO UL 1741 WITH GROUND FAULT DETECTION & INTERRUPTION WITH INTEGRATED FUSED DC CIRCUIT COMBINER AND DISCONNECT, AND AC DISCONNECT. WARNING LABEL DETAIL 8/WARNING LABELS SHEET
- SUPPLY-SIDE PV CONNECTION PER ART 705.12(D)(7). AND 240.21(B)(5)
- TRENCHED CONDUCTORS RUN IN PARALLEL SHALL BE INSTALLED PER ART 310.4/310.10(H) AND 250.122 (F)
- NOT USED
- (N) PROVIDE RS485 CABLE FOR DAISY-CHAIN CONNECTION OF ALL INVERTERS TO THE DATA ACQUISITION SYSTEM (DAS).
- ALL FREE-AIR DC SOURCE CIRCUIT CONDUCTORS SHALL USE COPPER 1000V PVWIRE, AND SHALL BE STRAPPED TO RACKING WITH UV LISTED PLASTIC FASTENERS OR ZIP-TIES.

LEGEND

	CURRENT TRANSFORMER (DOT INDICATES DIRECTION)
	METER
	CIRCUIT BREAKER
	SWITCH
	FUSE
	PV MODULES (WIRED IN SERIES)
	INVERTER
	DC COMBINER
	BATTERY STORAGE
	GENERATOR
	TRANSFORMER



ELECTRICAL AREA #A-01
 EXTERIOR

TRENCHED OR BORED CONDUIT
 RUN- SEE E201 DETAIL PAGE

ELECTRICAL AREA #A-02
 EXTERIOR