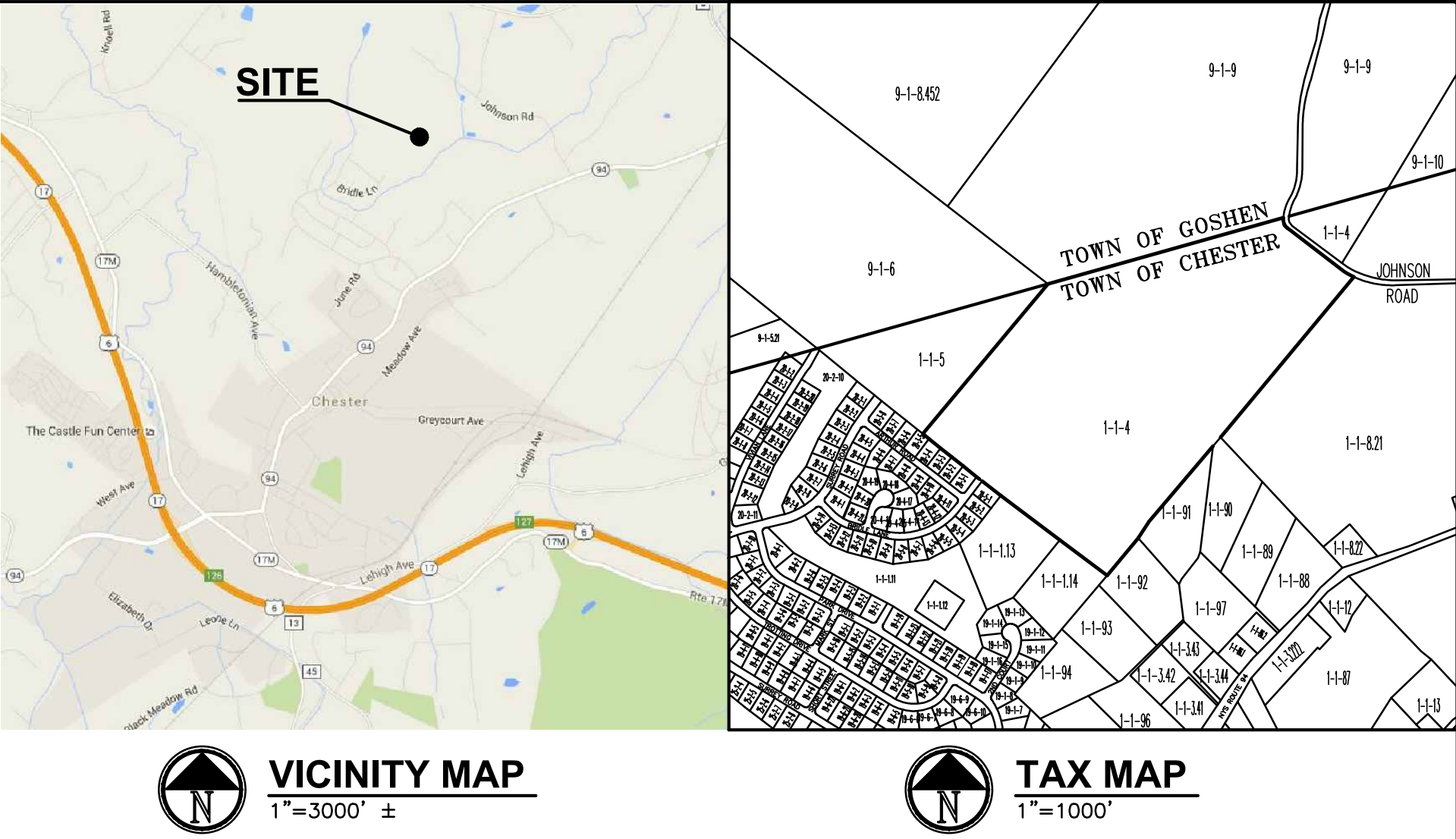


JOHNSON FARM
PHOTOVOLTAIC ARRAY

121 JOHNSON ROAD
TOWN OF CHESTER, 10918
COUNTY OF ORANGE
STATE OF NEW YORK



BULK REQUIREMENTS TOWN OF CHESTER AR-3 DISTRICT (UTILITY STRUCTURE USE)			
BULK TABLE REQUIREMENTS			
MINIMUM REQUIRED			
BULK ITEM	REQUIRED	PROVIDED	VARIANCE
LOT AREA (AC)	83.80	—	—
LOT WIDTH (FT)	1580±	—	—
LOT DEPTH (FT)	2650±	—	—
FRONT SETBACK (FT)	—	—	—
REAR SETBACK (FT)	—	—	—
ONE SIDE (FT)	—	—	—
BOTH SIDES (FT)	—	—	—
FLOOR AREA (FT ²)	—	—	—
MAXIMUM PERMITTED			
BULK ITEM	PERMITTED	PROVIDED	VARIANCE
BUILDING COVERAGE (%)	—	—	—
BUILDING HEIGHT (FT)	—	—	—
* AS REQUIRED BY THE APPROPRIATE REGULATORY AGENCY			
PROPERTY ADDRESS			
121 JOHNSON ROAD CHESTER, NEW YORK 10918			
TAX MAP			
SECTION 1, BLOCK 1, LOT 4			
OWNER			
JOHNSON REALTY 112 JOHNSON ROAD CHESTER, NEW YORK 10918			
DEVELOPER			
SIEMENS INDUSTRY, INC 8 FERNWOOD ROAD FLORHAM PARK, NEW JERSEY 07932			
EXISTING USE			
COMMERCIAL AGRICULTURAL OPERATION			
PROPOSED USE			
COMMERCIAL AGRICULTURAL OPERATION & PUBLIC UTILITY STRUCTURES			



NOTE:
UPON DECOMMISSIONING OF THE SOLAR ARRAY, THE ARRAY OPERATOR SHALL REMOVE THE ARRAY, RACKING, INVERTERS, POLES, UNDERGROUND AND OVERHEAD WIRING AND ALL ASSOCIATED IMPROVEMENTS AND SHALL RETURN THE LAND TO ITS PRE-CONSTRUCTION STATE.

SCHEDULE OF DRAWINGS:

SHEET NO.	DRAWING NO.	TITLE
1	C-101	SITE PLAN
2	C-102	EXTENDED TOPOGRAPHY MAP
3	C-800	3 LINE SCHEMATIC DIAGRAM
4	C-901	DETAILS
5	C-902	RACK DETAILS
6	C-903	RACK DETAILS
7	C-904	LATERAL & METER POLE DETAILS
8	C-905	RECLOSER POLE DETAILS
9	C-906	GROUNDING & TRENCH DETAILS

REV #

DATE

REMARKS:

ISSUE #

DATE

ISSUED FOR:

1/8"

1/4"

1/2"

0

1"

2"

REFERENCE SCALE

UNAUTHORIZED ALTERATION OR ADDITION TO A PLAN BEARING A LICENSED PROFESSIONAL ENGINEER'S SEAL IS A VIOLATION OF SECTION 7209, SUB-DIVISION 2 OF THE N.Y. STATE EDUCATION LAW.

FELLENZER III

ENGINEERING LLP

www.fellp.com

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1 845-343-1481 fx 845-343-4986

181 Church St., Suite 100,
Poughkeepsie, NY 12601
1 845-454-9704 fx 855-320-8735

STAMP:

PROJECT TITLE:

JOHNSON FARM
PHOTOVOLTAIC ARRAY
121 JOHNSON ROAD, CHESTER, NY 10918

DRAWING TITLE:

SITE PLAN

DESIGNED BY:

DRAWN BY:

APPROVED BY P.E.:

APPROVED BY P.E.:

RDF

SAR

ACL

MDF

DATE:

SCALE:

FE PROJECT #:

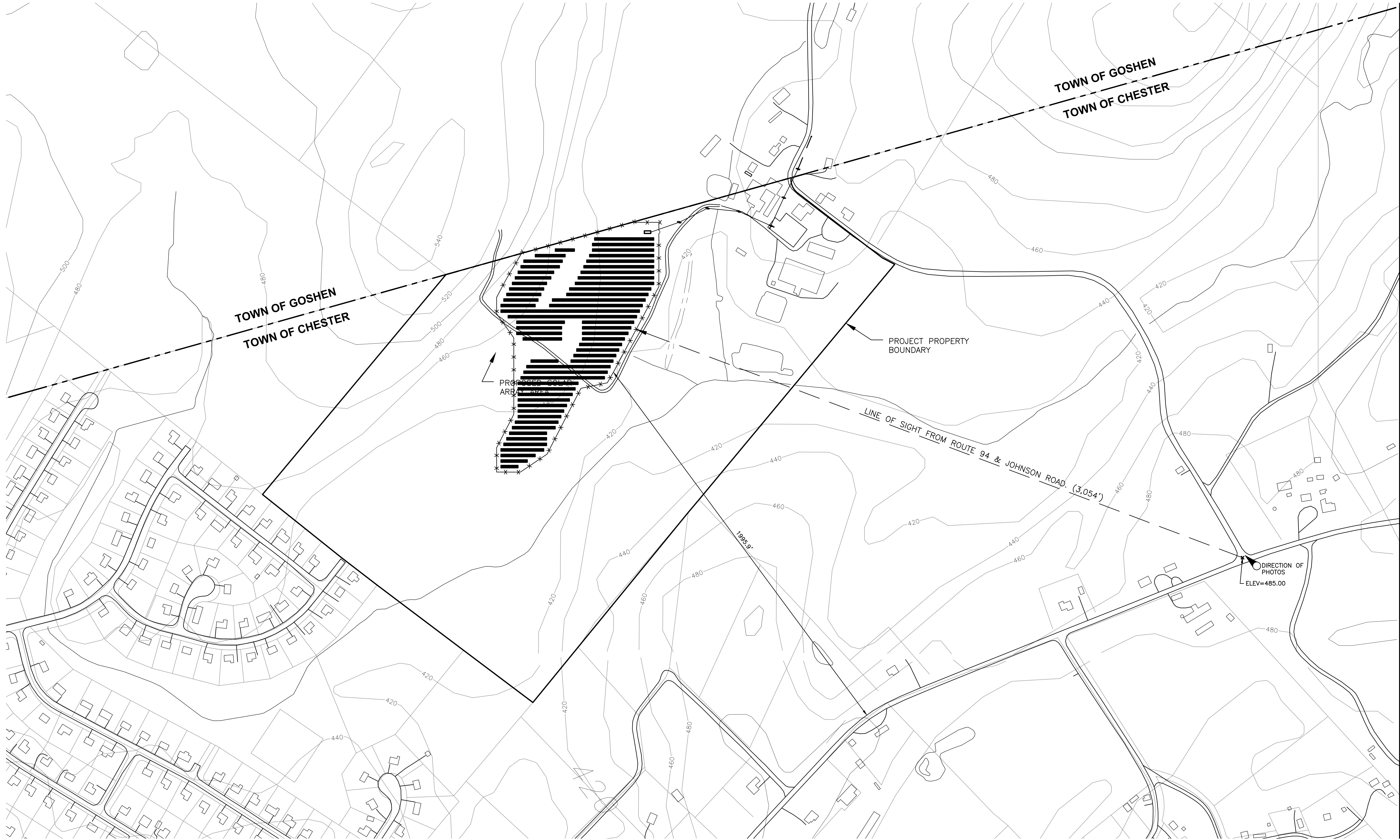
C-101

09/15/15

AS SHOWN

15-255

PAGE 1 OF 9



1 EXTENDED TOPOGRAPHY MAP
1"=200' ±



ZOOM 2



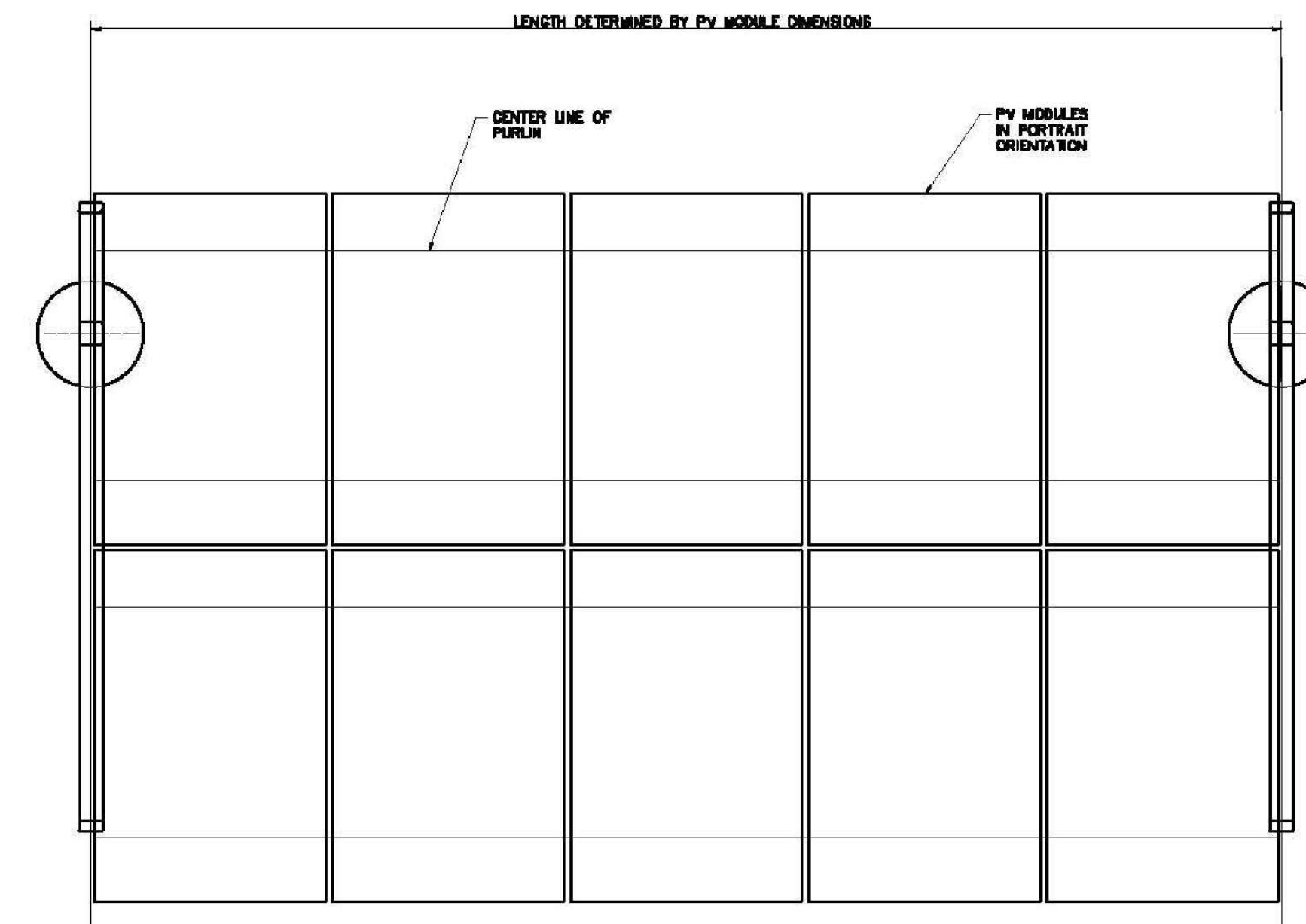
ZOOM 1



PHOTO

TOWN OF CHESTER PLANNING BOARD APPROVAL

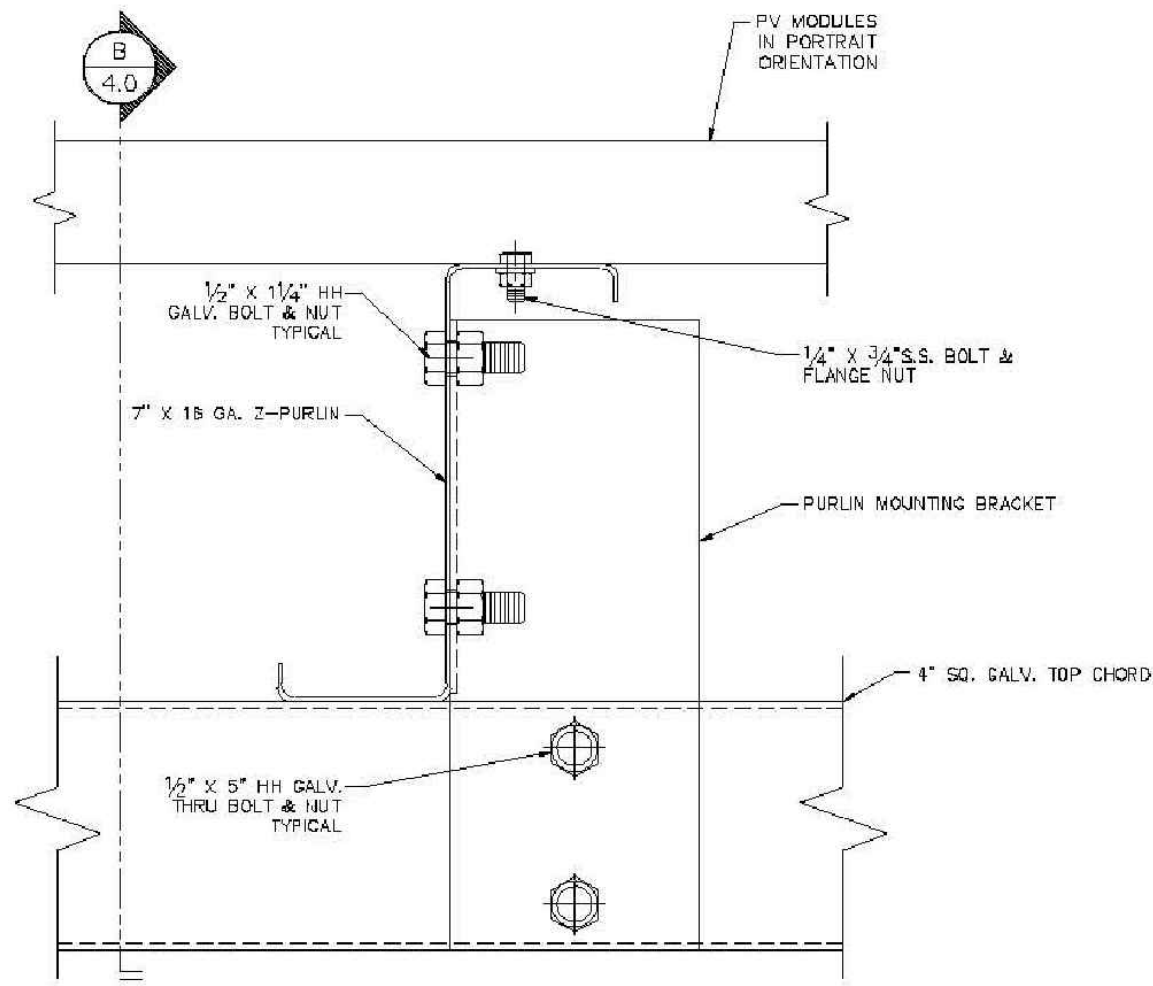
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<div>1/2" 1/4" 1/8" 0 1" 2"</div> <div>REFERENCE SCALE</div>					
UNAUTHORIZED ALTERATION OR ADDITION TO A PLAN BEARING A LICENSED PROFESSIONAL ENGINEER'S SEAL IS A VIOLATION OF SECTION 7209, SUB-DIVISION 2 OF THE N.Y. STATE EDUCATION LAW.					
<div><div>FELLENZER III ENGINEERING LLP</div><div>22 Mulberry St., Suite 2A, Middletown, NY 10940 t 845-343-1481 fx 845-343-4986</div><div>181 Church St., Suite 100, Poughkeepsie, NY 12601 t 845-454-9704 fx 855-320-8735</div></div>					
STAMP: PROGRESS PRINT 1/21/16 NOT FOR CONSTRUCTION					
PROJECT TITLE: JOHNSON FARM PHOTOVOLTAIC ARRAY					
DRAWING TITLE: EXTENDED TOPOGRAPHY MAP					
DESIGNED BY: RDF	DRAWN BY: SAR	APPROVED BY P.E.: ACL	APPROVED BY P.E.: MDF	DRAWING #: C-102	
DATE: 09/15/15	SCALE: AS SHOWN	FE PROJECT #: 15-255	PAGE 2 OF 9		



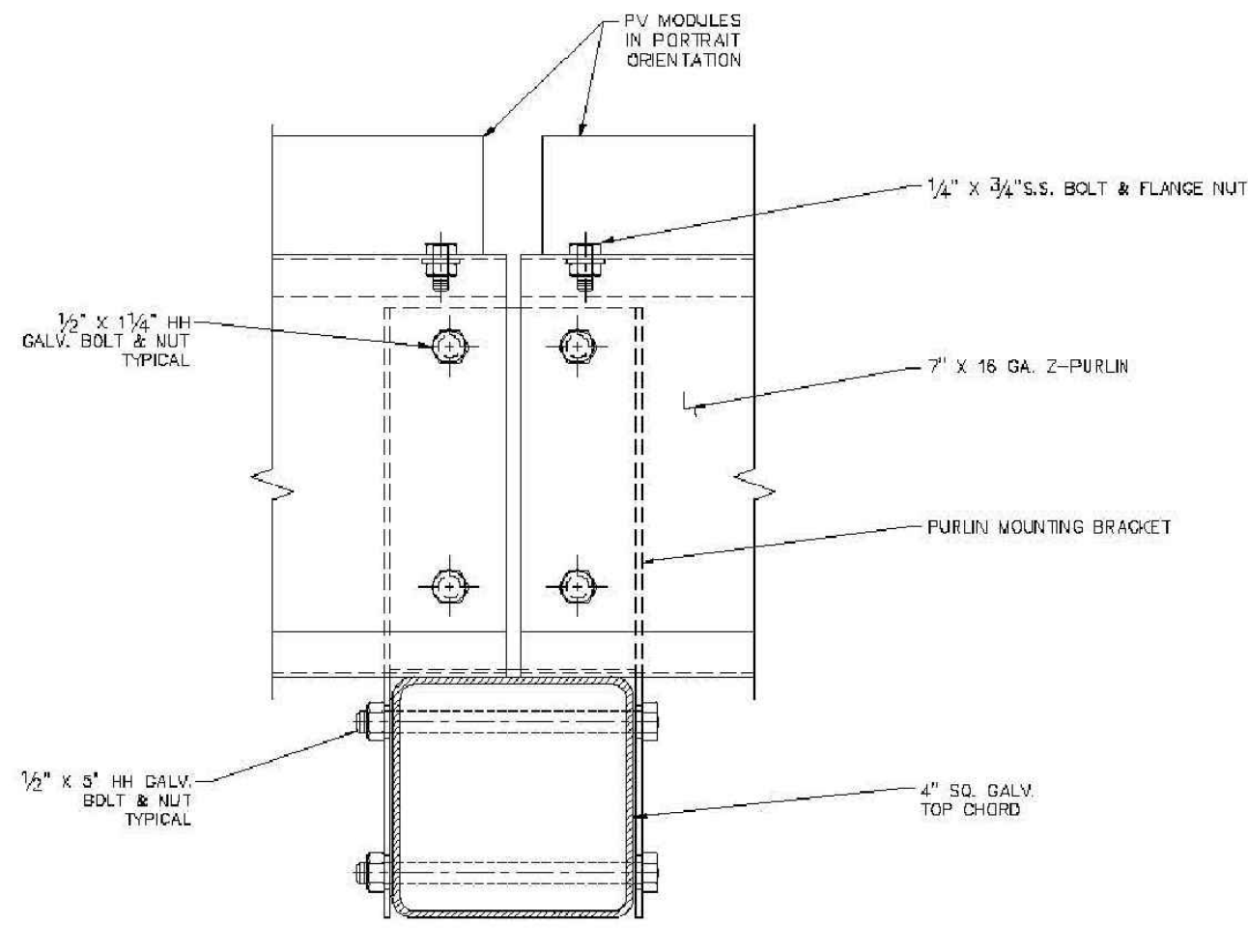
3 SOLAR RACKING - PLAN VIEW
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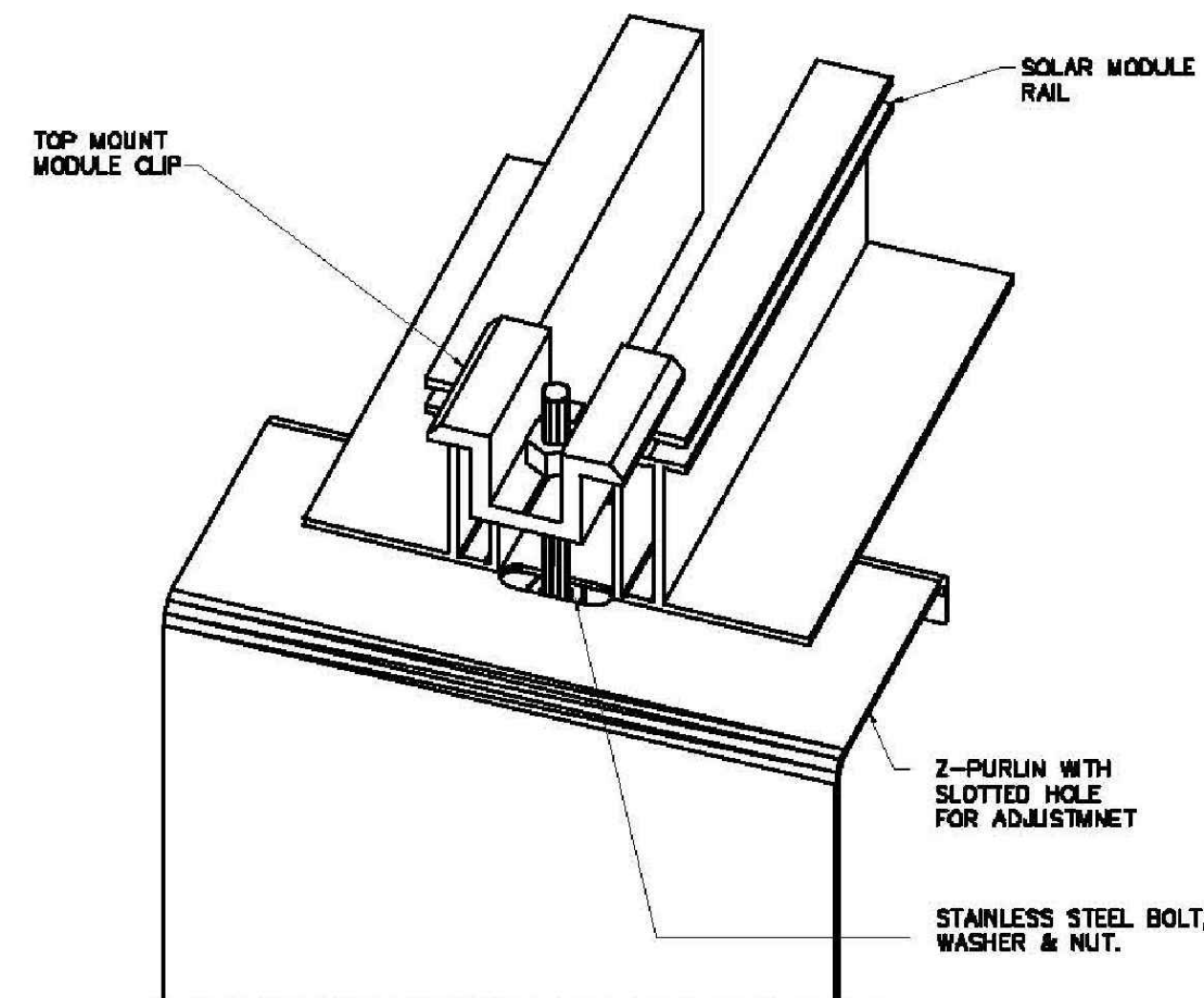
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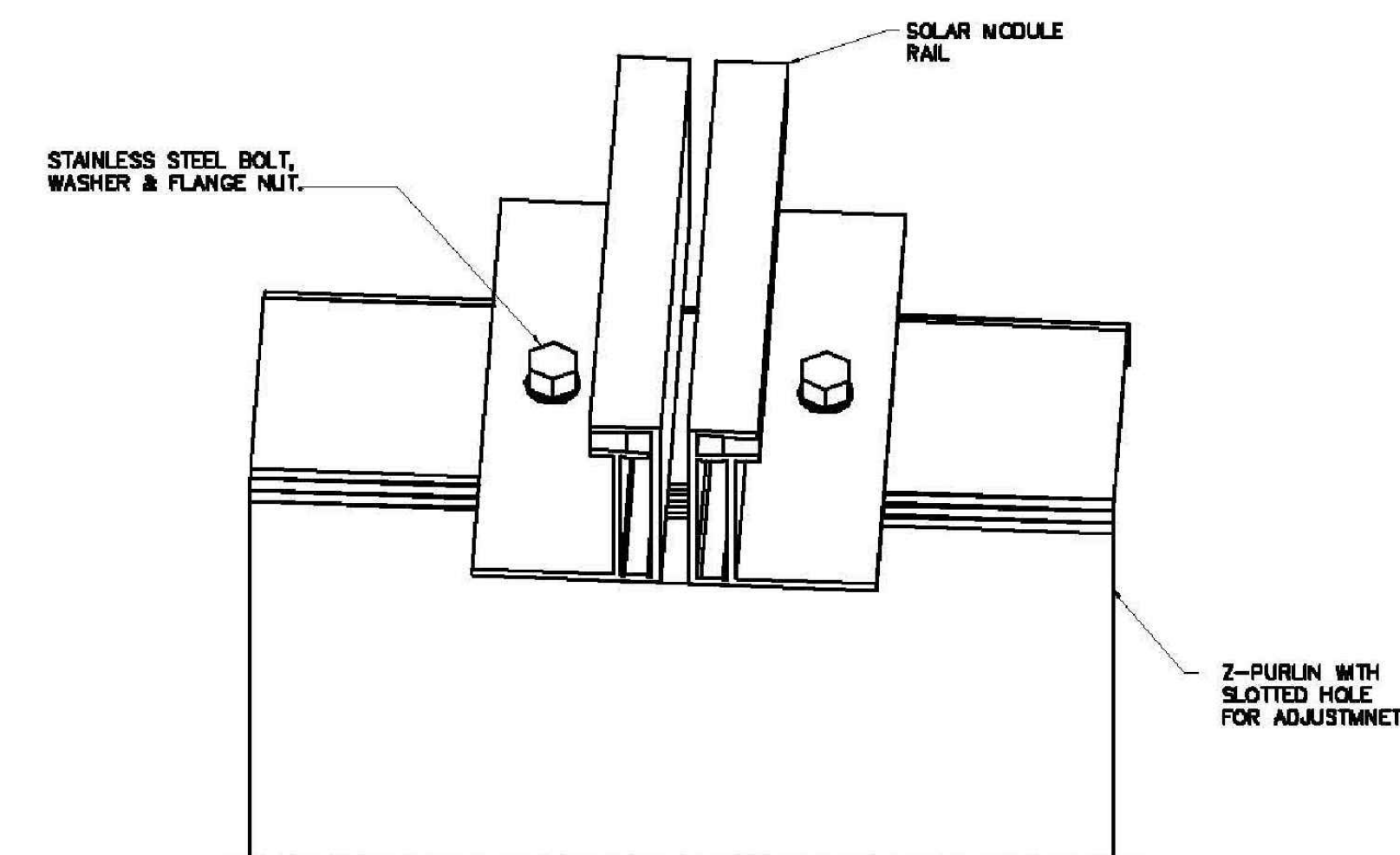
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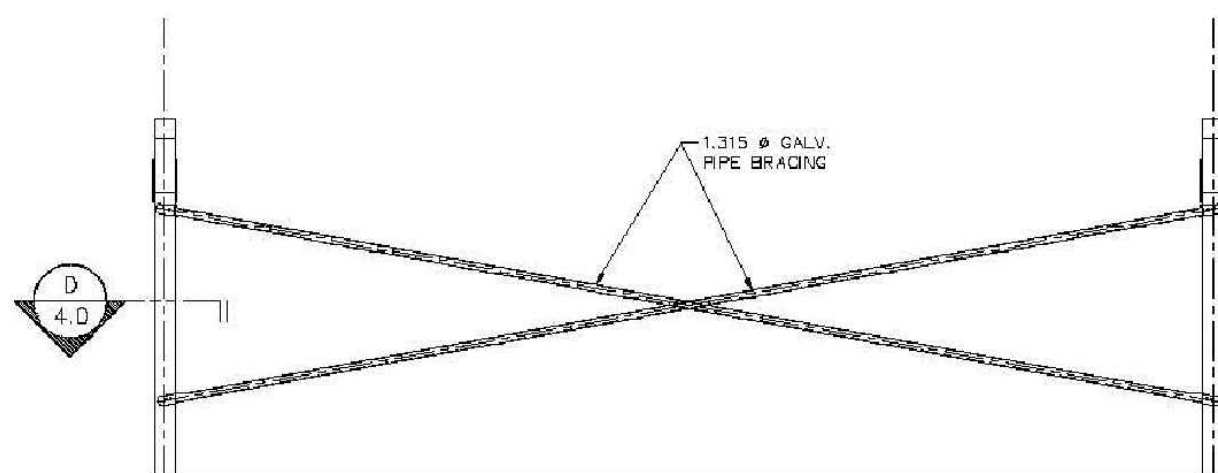
2 PURLIN CONNECTION - SECTION
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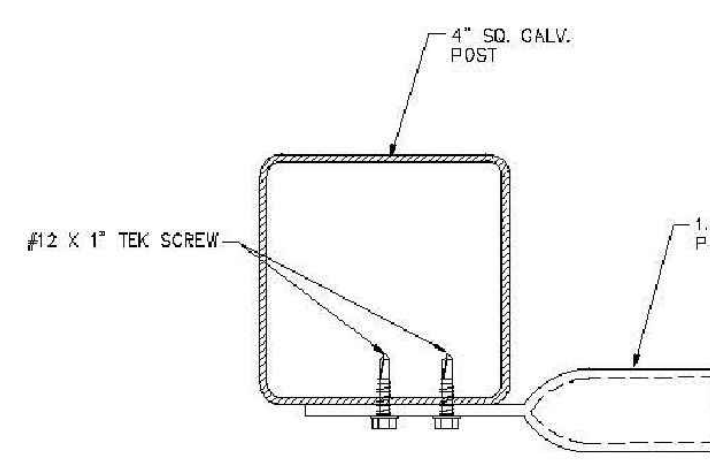
6 TOP MODULE MOUNTING SYSTEM
N.T.S.



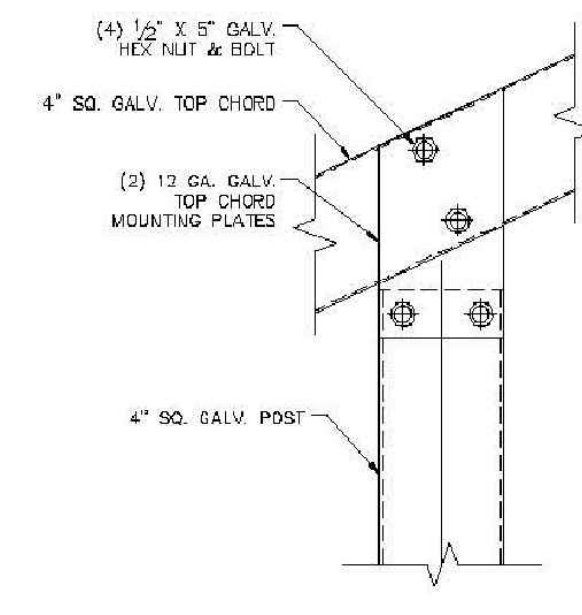
7 BOTTOM MODULE MOUNTING SYSTEM
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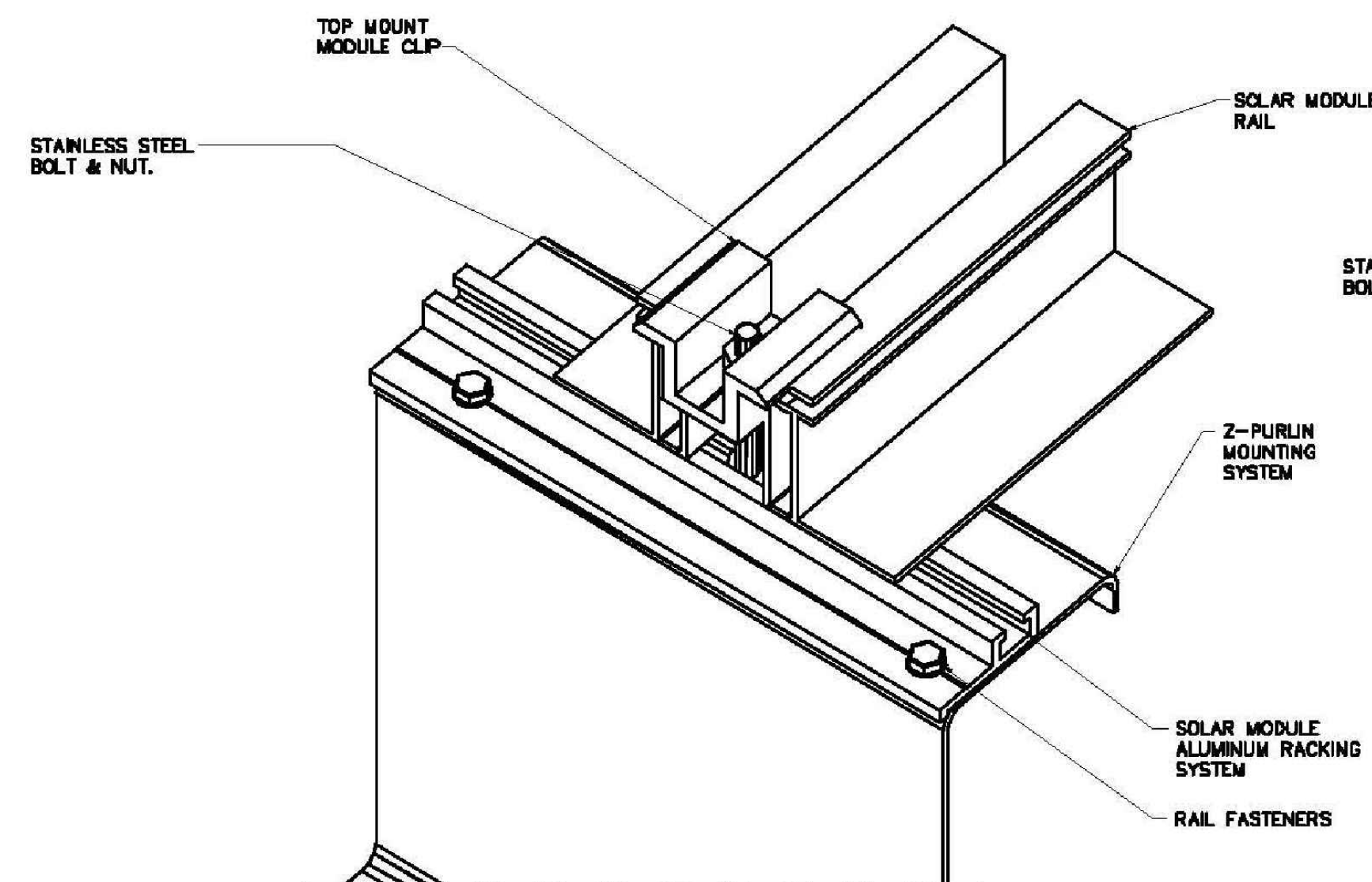
3 BRACING DETAIL
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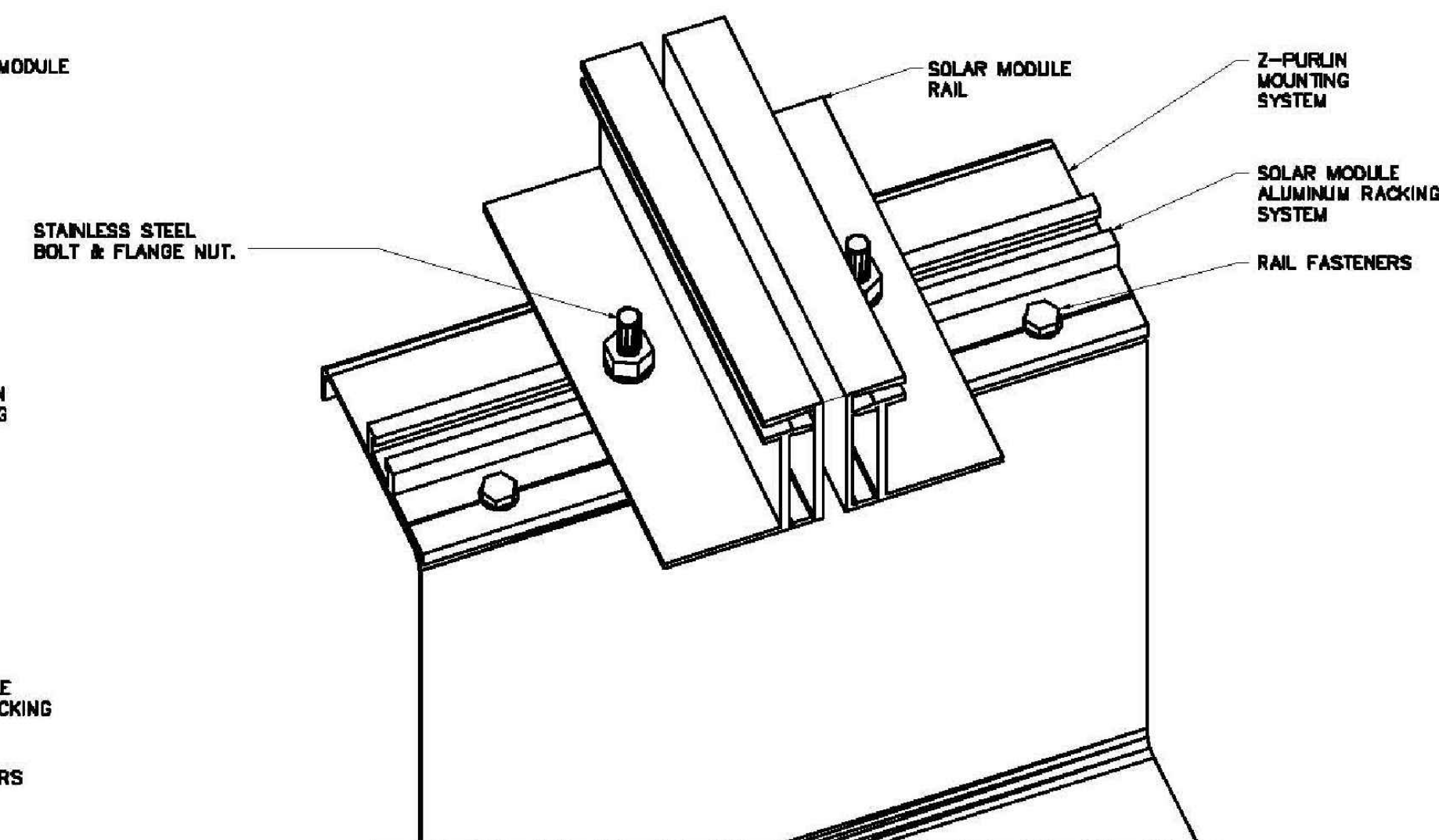
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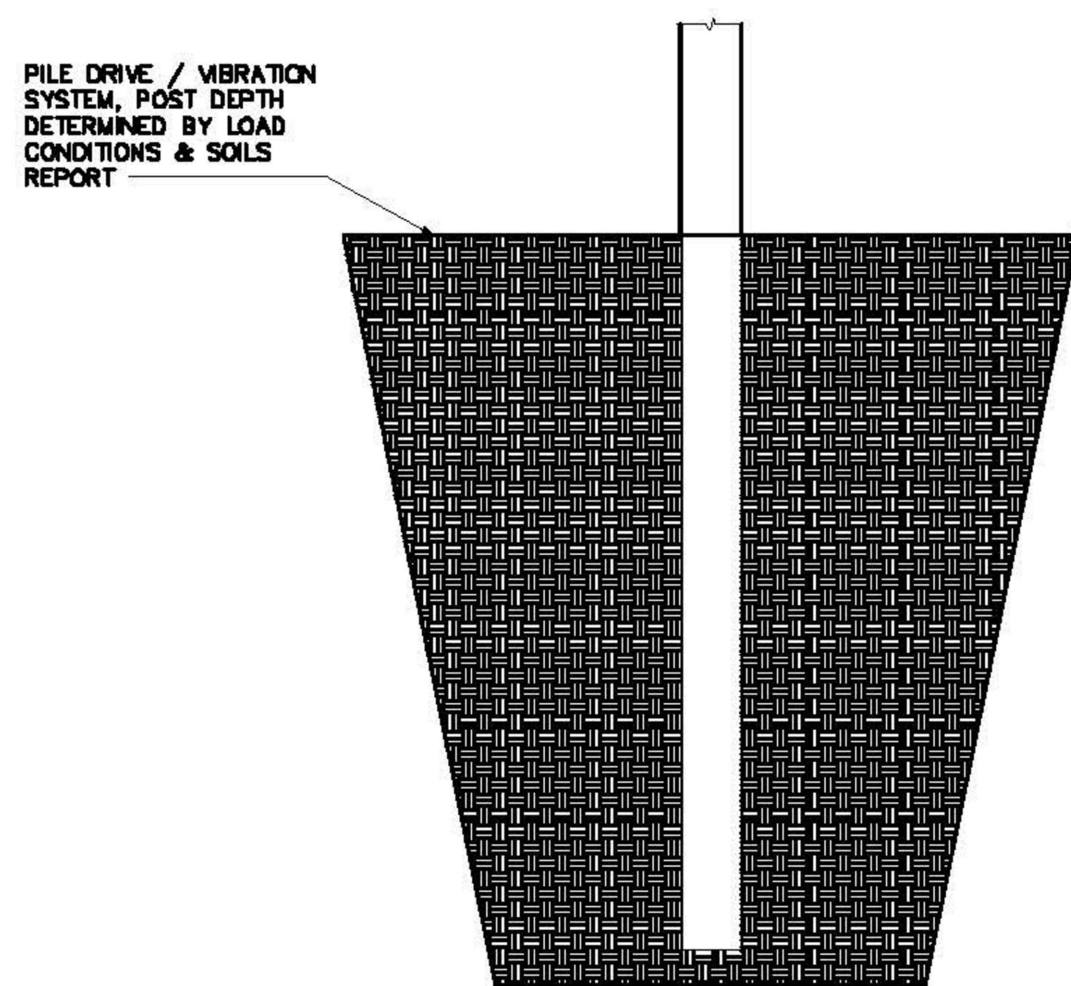
5 TOP CHORD / POST CONNECTION
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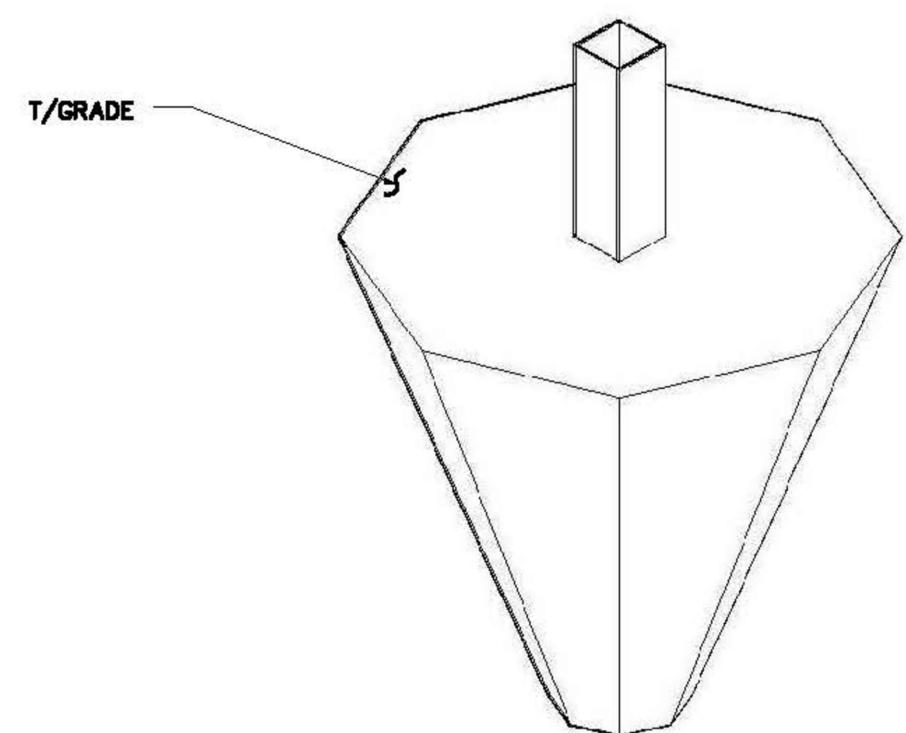
8 TOP MODULE MOUNTING WITH RACKING SYSTEM
N.T.S.



9 BOTTOM MODULE MOUNTING WITH RACKING SYSTEM
N.T.S.



10 PILE DRIVEN / VIBRATION SYSTEM PIER
N.T.S.

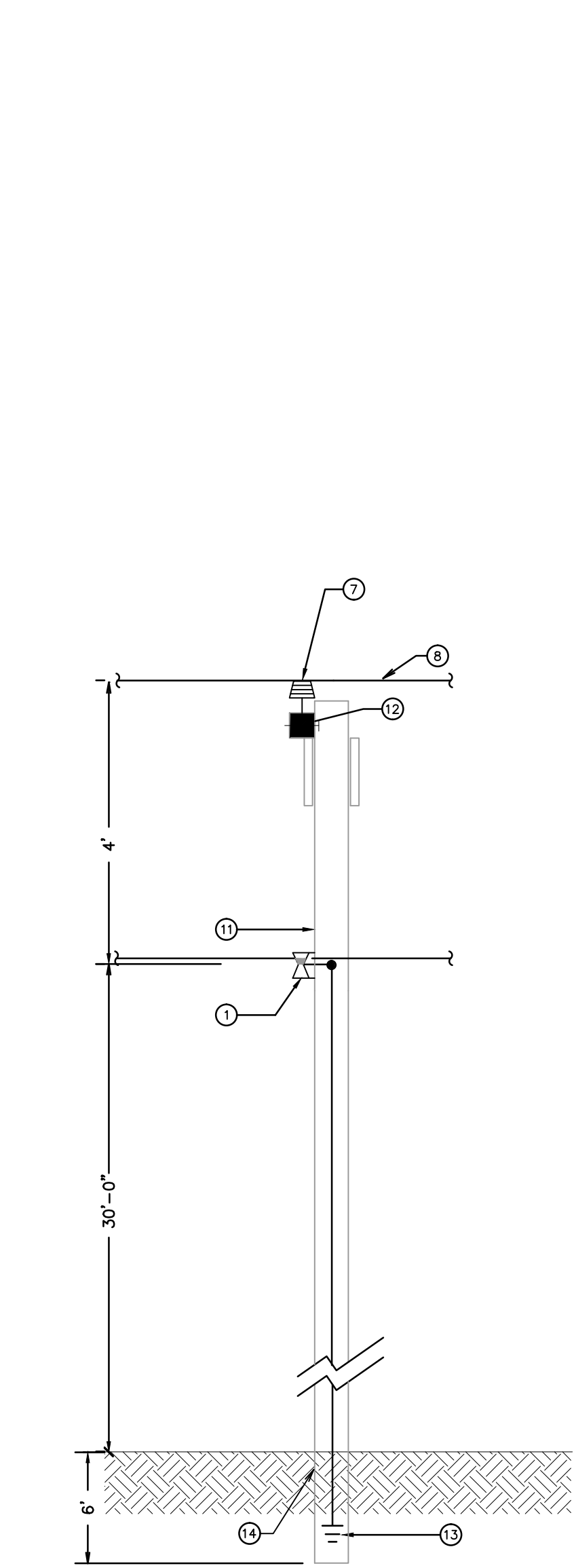


TOWN OF CHESTER PLANNING BOARD APPROVAL

REV #	DATE	REMARKS:	ISSUE #	DATE	ISSUED FOR:
<div><div>1/2" 3/4" 1" 2"</div><div>REFERENCE SCALE</div></div>					
UNAUTHORIZED ALTERATION OR ADDITION TO A PLAN BEARING A LICENSED PROFESSIONAL ENGINEER'S SEAL IS A VIOLATION OF SECTION 7209, SUB-DIVISION 2 OF THE N.Y. STATE EDUCATION LAW.					
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PROJECT TITLE: JOHNSON FARM PHOTOVOLTAIC ARRAY 121 JOHNSON ROAD, CHESTER, NY 10918					
DRAWING TITLE: RACK DETAILS					
DESIGNED BY: RDF	DRAWN BY: SAR	APPROVED BY P.E.: ACL	APPROVED BY P.E.: MDF	DRAWING #: C-903	
DATE: 09/15/15	SCALE: AS SHOWN	FE PROJECT #: 15-255	PAGE 6 OF 9		

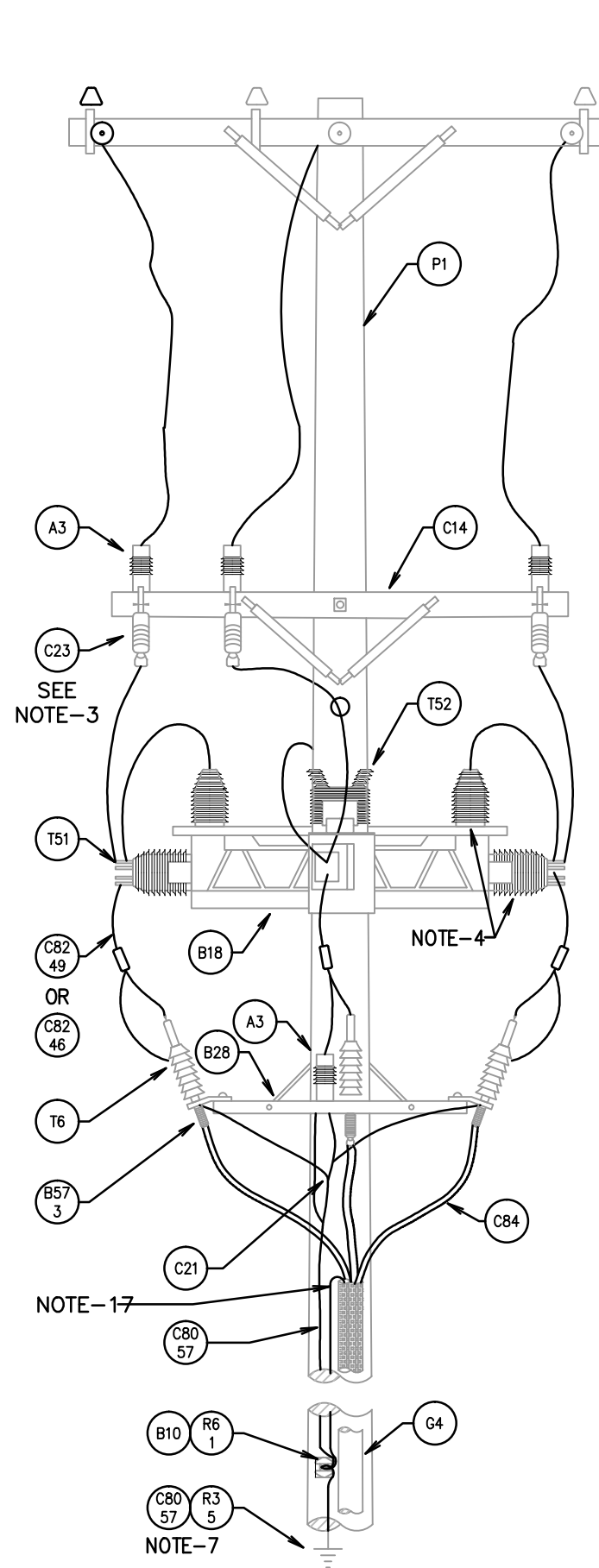
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1/21/16
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CONSTRUCTION

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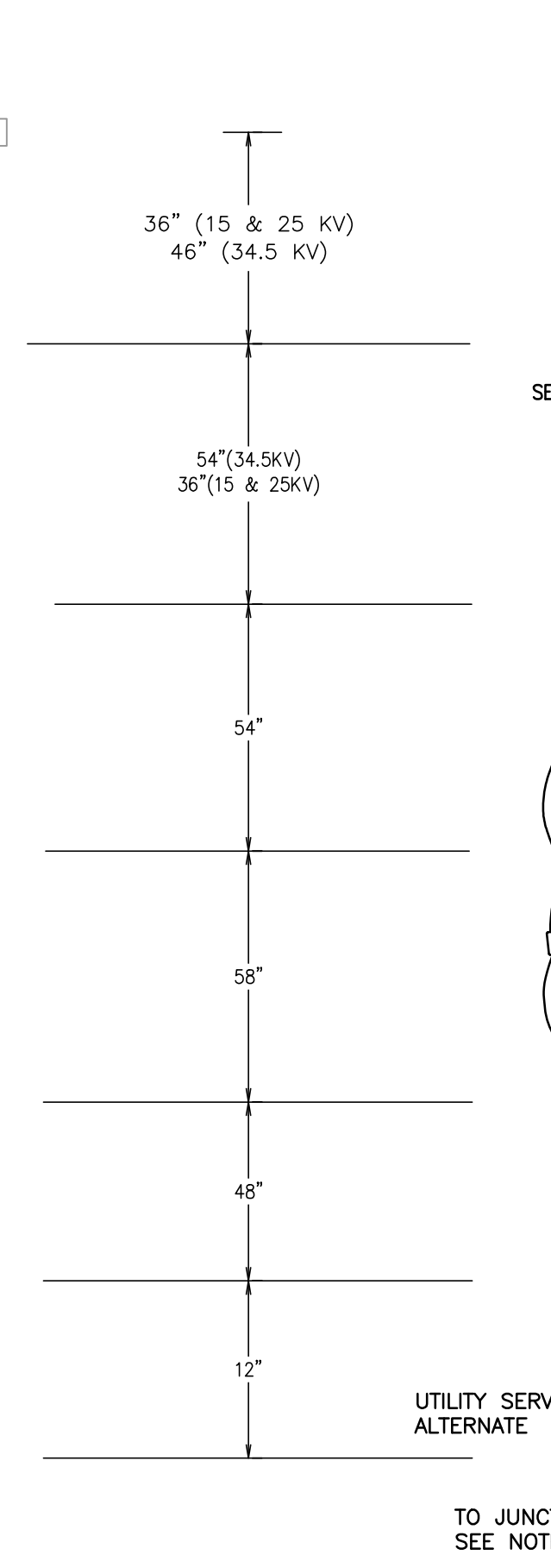


- ① CLEVIS FOR NEUTRAL.
② 3-1/4" "U" GUARD (CARLON) AND/OR CONDUIT.
③ PIN TYPE INSULATORS 15KV CLASS.
④ #1 ALUMINUM 133% INSULATION LEVEL OF EPR 15KV CLASS TAPE SHIELDED ANIXTER 3-FE-1011 OR EQUIVALENT WITH 1#1 INSULATED (600V) GROUND.
⑤ NEW POLE 40' CLASS 4 DOUGLAS FIR (PENTH CHLOR) TREATED.
⑥ TREATED CROSS ARM 3-1/4" X 4-1/4" X 8'-0" WITH 60" BRACES.
⑦ GROUND ROD 3/4"X10' LENGTH
⑧ SET POLE 6' DEEP

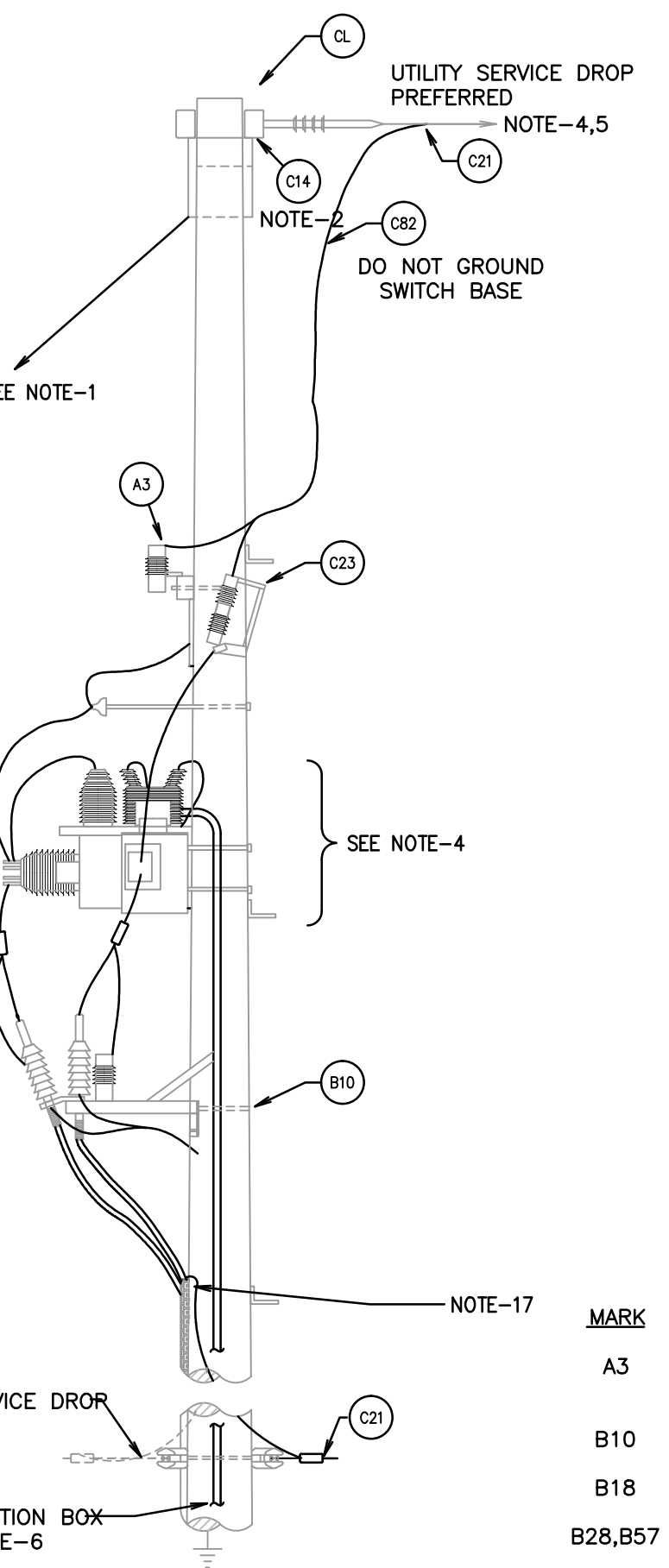
1 TYPICAL PRIMARY MID SPAN LATERAL POLE
N.T.S.



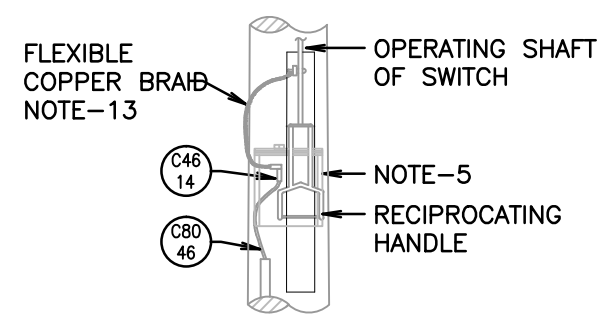
LOAD SIDE VIEW



SOURCE SIDE HANDLE VIEW



SIDE VIEW



GROUNDING DETAIL SCHEMATIC

NOTES:

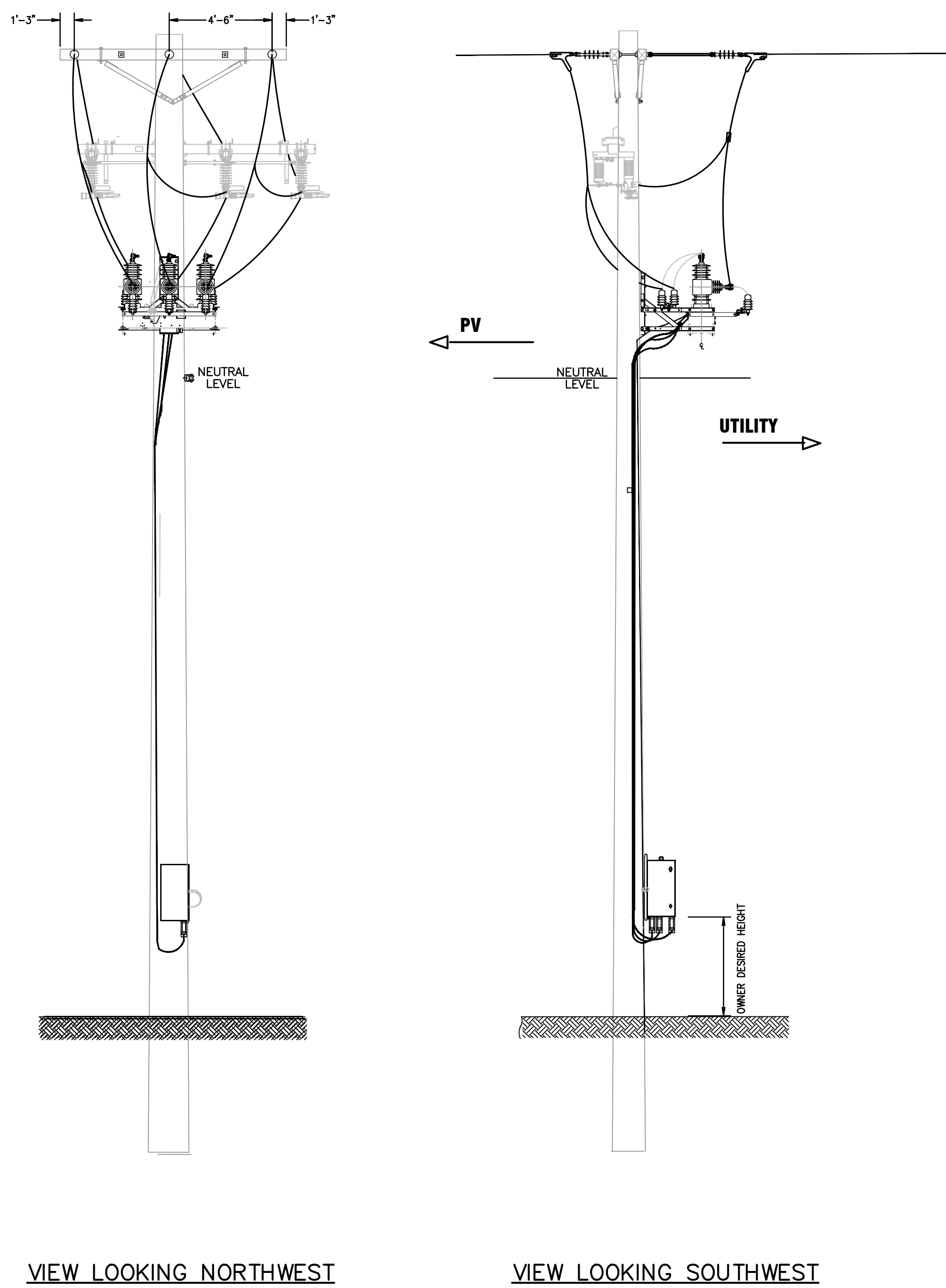
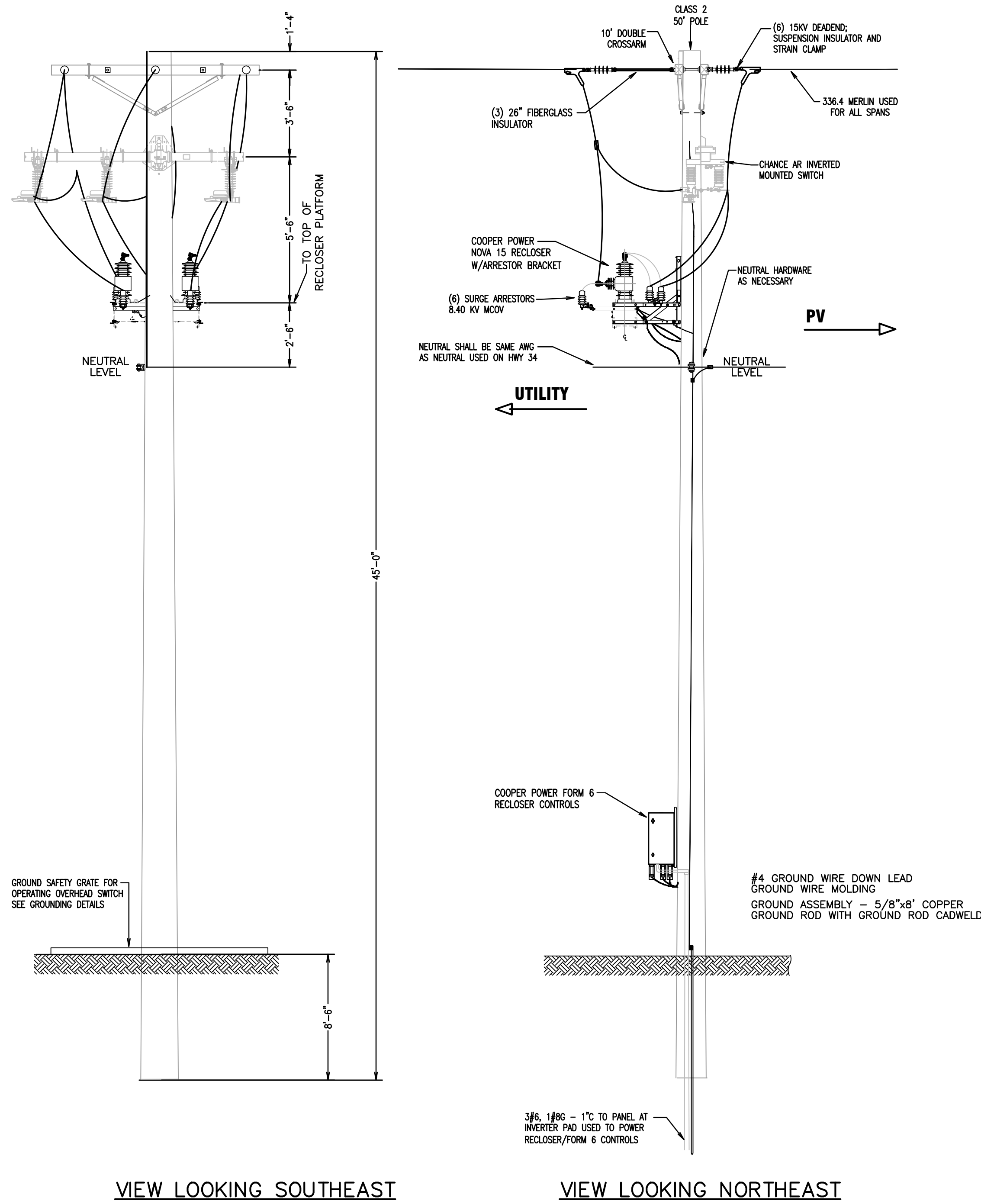
1. GUY AS REQUIRED. PROVIDE 3/8" EHS PRIMARY GALVANIZED DOWN GUY, WITH 54" FIBERGLASS STRAIN INSULATOR GRIPS AND 8" SCREW ANCHOR WITH GALVANIZED THIMBLE EYE BOLTS 2" SQ. FLAT OR CURVED CAST WASHER, SQUARE NUT AND GRIPS OR GUY CLAMPS AND GUY MARKERS (CHANCE, JOSLYN, OR MACLEAN). PROVIDE 1/4" EHS GALVANIZED SECONDARY DOWN GUY WITH GUY GRIPS OR CLAMPS (FOR NEUTRAL) TO 8" SCREW ANCHOR AND GUY MARKERS (CHANCE, JOSLYN, OR MACLEAN).
2. DOUBLE DEAD END 8'-0" OR 10'-0" CROSS ARM CONSTRUCTION TO BE LIMITED TO 2000 LBS. PER PHASE.
3. CUSTOMER CUTOUT FUSES TO BE SIZED PER UTILITY Co., CUTOUTS MUST HAVE LOADBREAK CAPABILITIES.
4. CUSTOMER OWNED METERING EQUIPMENT, OVERHEAD SOURCE SIDE CONDUCTORS, AND HARDWARE INCLUDING POLE, SWITCHES, CUTOUTS, AND TRANSFORMER BRACKET.
5. ELECTRICAL CONTRACTOR SHALL PROVIDE DISCONNECTING MEANS ON ADJACENT SOURCE SIDE OWNER OWNED POLE.
6. PROVIDE JUNCTION BOX NO HIGHER THAN 15'-0", JUNCTION BOX PER UTILITY Co. SHALL BE GROUNDED.
7. STANDARD GROUNDING METHODS. SEE GROUNDING DETAILS ON SHEET E4.02.
8. NOT USED
9. SEE GROUNDING DETAIL FOR PRIMARY AND GROUNDING SCHEMATIC.
10. CONTRACTOR SHALL VERIFY IF STANDARD IS CURRENT AND COORDINATE ALL WORK WITH UTILITY OBTAIN LATEST DETAILS FROM LOCAL UTILITY AND PERFORM ALL WORK PER UTILITY CURRENT STANDARDS.
11. GROUND RODS SHALL BE PROVIDED ON A LINE PARALLEL TO THE PHASE CONDUCTORS.
12. GROUND RESISTANCE OF 10 OHMS OR LESS SHALL BE OBTAINED. USE 3 POINT TEST FOR MEASURING GROUND RESISTANCE.
13. FLEXIBLE BRAID TO BE SUPPLIED BY SWITCH MANUFACTURER, FROM SHAFT TO HANDLE BASE GROUND CONNECTION.
14. USE COMPRESSION CONNECTORS IN PREFERENCE TO BOLTED CONNECTORS. **DO NOT COIL A WIRE UNDER A BOLT.** TERMINATE IT IN A LUG BEFORE BOLTING IT DOWN.
15. IF EQUIPMENT GROUND IS REQUIRED, IT SHALL BE BONDED TO GROUND GRID BELOW GRADE.
16. IF METER POLE FOLLOWS CUSTOMER OWNED RECLOSURE; A SOLID BLADE CUT OUT IS REQUIRED. S&C #15932(200A) 15KV, 89053R10-P 25/34.5KV
17. CONNECT CABLE GROUNDED NEUTRAL TO UTILITY AERIAL GROUNDED NEUTRAL.
18. ALL POLES, CROSS ARMS, AERIAL CABLES, ETC. SHALL CONFORM TO ORANGE & ROCKLAND UTILITIES SPECIFICATIONS.

UTILITY POLE DETAIL:

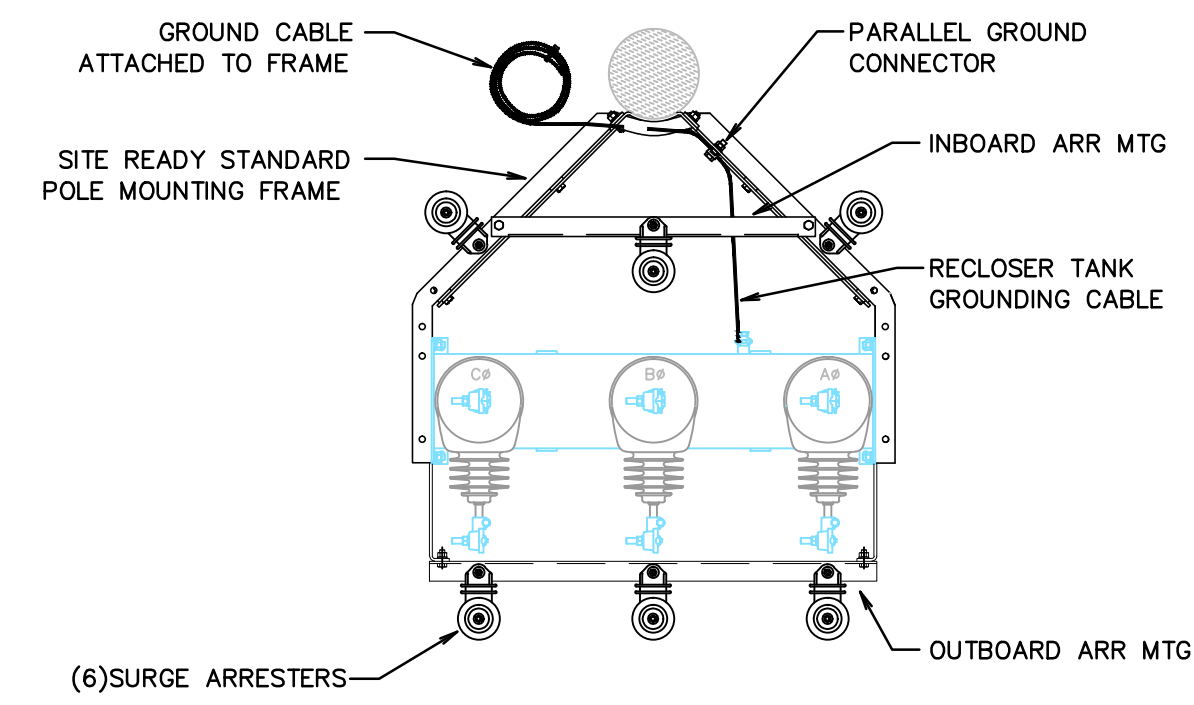
MARK	DESCRIPTION
A3	PROVIDE 10KV MCOV NON GAPPED POLYMER SURGE ARRESTOR 15KV CLASS OB PDV65 #217560. 35KV CLASS OB PDV65 #213279, 29MCOV (OR EQUAL BY COOPER)
B10	BOLTS AS REQUIRED WITH SQUARE CURVED WASHERS AND SQUARE NUTS GALVANIZED.
B18	PROVIDE BRACKET FOR METERING ALUMAFORM PMM-6 3 POSITION FOR INSTRUMENT TRANSFORMERS.
B28,B57	TERMINATION MOUNTING BRACKET WITH TIES OR STRAPS AND GUIDES AS REQUIRED. CHANCE CTB-EMB SERIES, JOSLYN J9203 SERIES OR EQUAL BY ALUMA FORM, KELLUMS, OR ELASTIMOLD 16TB-S (PTC).
C1	CAD WELDED
C14	PROVIDE TREATED CROSS ARM 3-1/4" X 4-1/4" X 8'-0" (OR 10'-0" PER UTILITY Co. REQUIREMENTS) WITH 60" SPAN BRACES AND 30" DROP, WITH GALVANIZED CAST IRON GAIN (JOSLYN, HUGHES OR EQUAL). GALVANIZED HARDWARE AND BRACKETS: SQUARE HEAD BOLTS OR EYELETS, 2" SQUARE CAST FLAT OR CURVED WASHER AND SQUARE NUT.
C21,C46	COMPRESSION CONNECTORS AS REQUIRED.
C23	PROVIDE S & C CUT OUT SMD-20, #92122R3-D WITH LOAD BREAK HORNS WITH 100 "E" FUSE. 34.5KV, 150KV BIL CHANCE #(C720613, S&C #89053R10-D-P (OR EQUAL BY COOPER). NOTES-3,16
C80	PROVIDE INSULATED #2 SOLID CU DOWN GROUND STAPLED EVERY 5' WITH GROUND RODS PER DETAIL. NOTE-11
C82	PROVIDE 1/0 ACSR-RAVEN OR (MEDIUM-HARD DRAWN TEMPER) COPPER AND COMPRESSION CONNECTORS WITH INHIBITOR (OR MATCH ELECTRIC UTILITY CONDUCTOR IF LARGER).
C84	PROVIDE 1/0 COPPER 133% INSULATION LEVEL OF 133% EPR 15KV CLASS TAPE SHIELDED PER SPEC, 16121 MV 105 MIN. 1#2 INSULATED (600V) GROUNDED NEUTRAL. (OKONITE SOUTHWIRE).
CL	PIN INSULATORS TANGENT TYPE 15KV & 95KV BIL PP366-S PP2045-S 34.5KV 125KV BIL (VICTOR OR EQUAL).
G4	PROVIDE 3-1/2" - I.D. GALVANIZED STEEL "U" GUARD WITH COVER BOOT OR 4" RGS CONDUIT ON STAND OFFS. (CHANCE OR EQUAL) OR PVC(80) 3.2" I.D. (MIN.) "U" GUARD (CARLON OR EQUAL)
IS	PROVIDE DEAD END (POLYMER) STRAIN TYPE INSULATOR & O-B. PDI +15(KV)#4010150215 OR PDI-35(KV) #4010350215 (OR EQUAL) GALVANIZED CLEVIS BOLT, EYELET SHACKLE OR DEAD END CLEVIS, UNLESS PROVIDED BY UTILITY Co.
P1	PROVIDE 45'-0" CLASS 4 PENTACHLOROPHENOL/CWA TREATED POLE, SET 6'-6" DEEP. PROVIDE 50'-0" CLASS 4 POLE SET 7' DEEP FOR 34.5KV AS REQUIRED. VERIFY POLE HEIGHT & ARM SPACING WITH LOCAL UTILITY Co.
R3	COPPER GROUND RODS 3/4" DIAMETER, 10'-0" LENGTH.
R6	PROVIDE INSULATED CLEVIS FOR NEUTRAL: (CHANCE OR JOSLYN)
S6	STAPLE 1/2" RGS CONDUIT TO POLE, FOR GROUND WIRE PROTECTION.
T6	PROVIDE OUTDOOR TERMINATOR 15KV JOSLYN JPT15W/K1 BRACKET 3M 5630 SERIES W/BACKET OR EQUAL BY CHANCE, WITH CABLE GUIDE AND TAPE SHIELDED ADAPTER AS REQUIRED. 34.5KV JOSLYN #E5203/K1 BRACKET (OR EQUAL BY 3M OR CHANCE)
T51	CT BY ELECTRICAL CONTRACTOR.
T52	PT BY ELECTRICAL CONTRACTOR.

REV #	DATE	REMARKS:	ISSUE #	DATE	ISSUED FOR:
<div>8" 1/4" 1/2" 0 1" 2"</div> REFERENCE SCALE					
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TOWN OF CHESTER PLANNING BOARD APPROVAL		PROJECT TITLE: JOHNSON FARM PHOTOVOLTAIC ARRAY 121 JOHNSON ROAD, CHESTER, NY 10918			
STAMP: PROGRESS PRINT 1/22/16 NOT FOR CONSTRUCTION		DRAWING TITLE: LATERAL & METER POLE DETAILS			
DESIGNED BY: RDF	DRAWN BY: SAR	APPROVED BY P.E.: ACL	APPROVED BY P.E.: MDF	DRAWING #: C-904	
DATE: 09/15/15	SCALE: AS SHOWN	FE PROJECT #: 15-255		PAGE 7 OF 9	

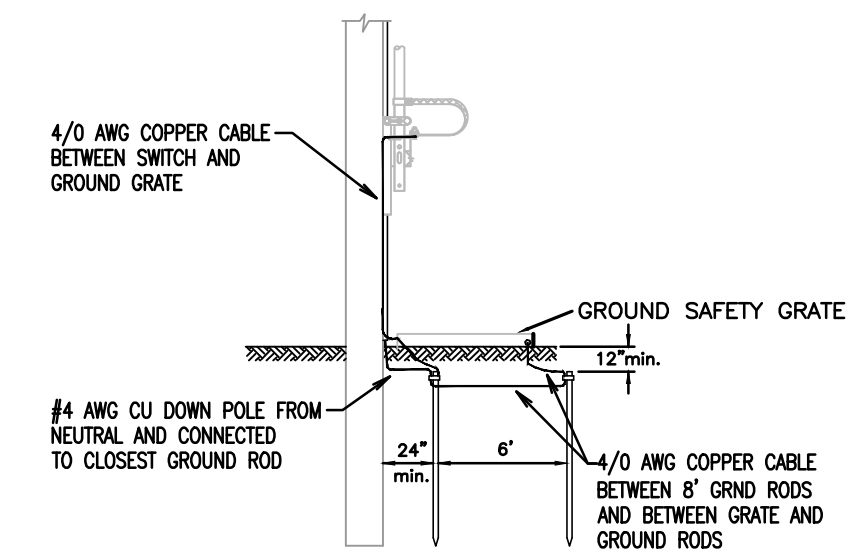
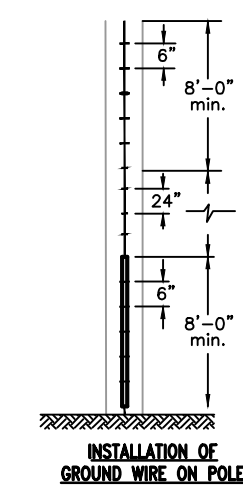
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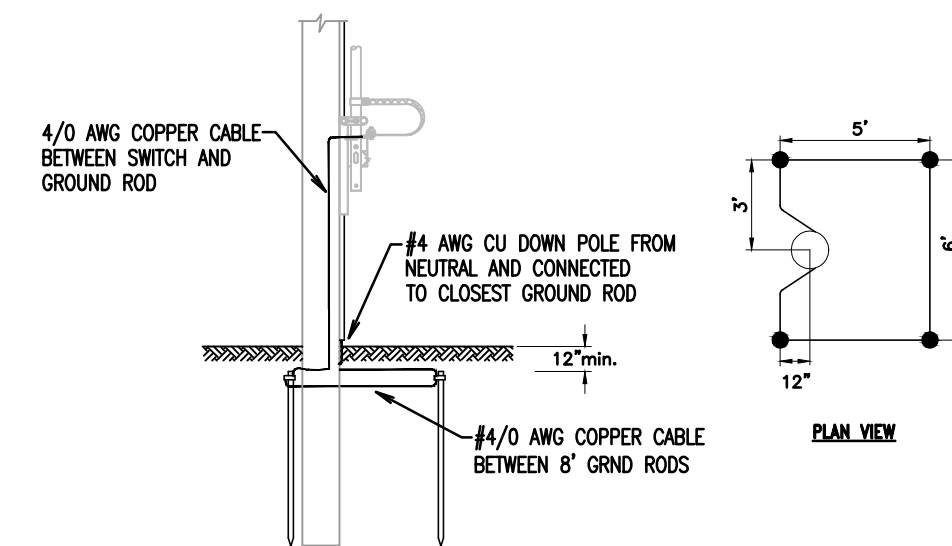
1 RECLOSER POLE DETAIL
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PLAN VIEW
SCALE: NONE

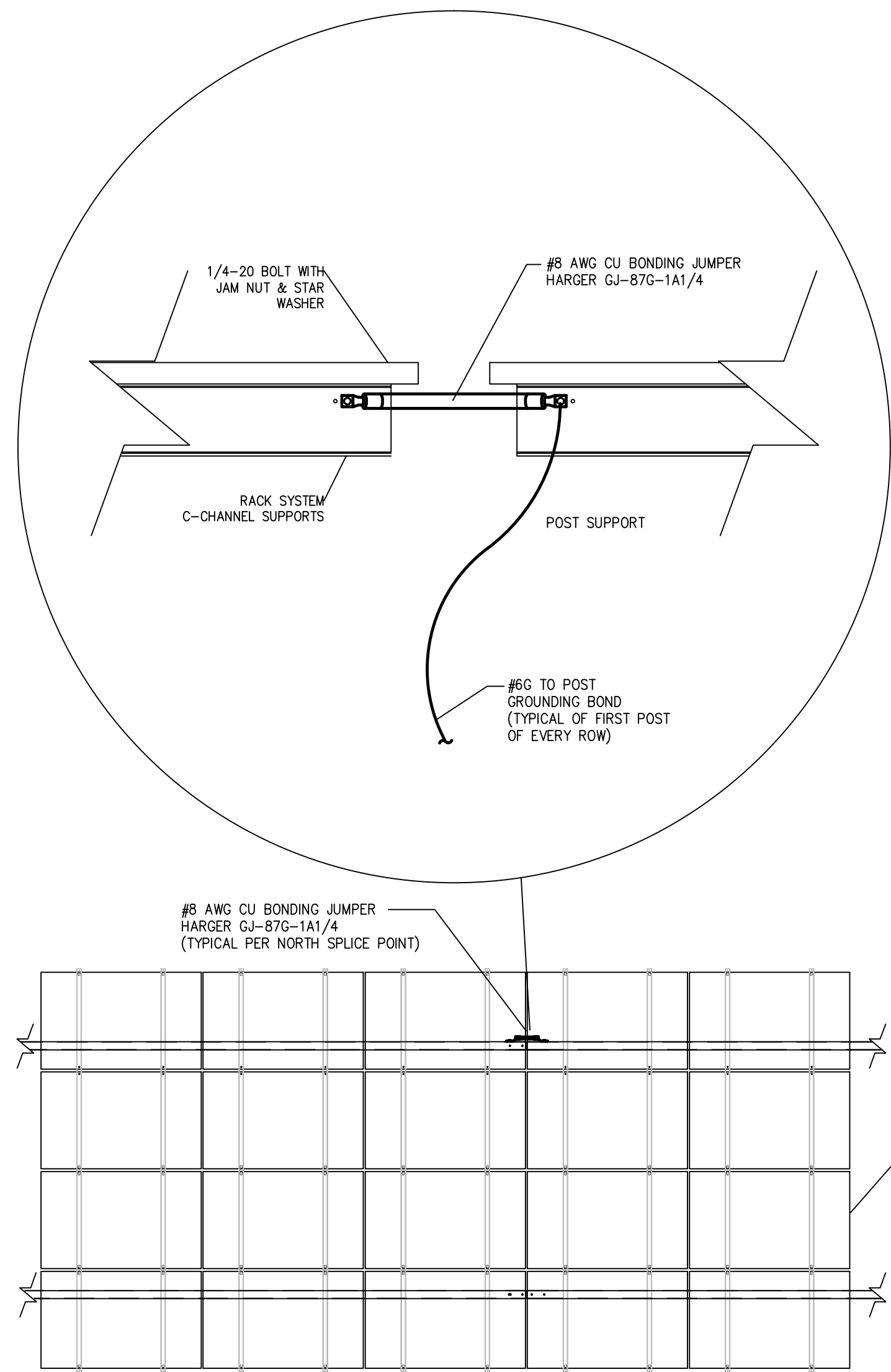


OR
USE FOUR ROD
TYPE

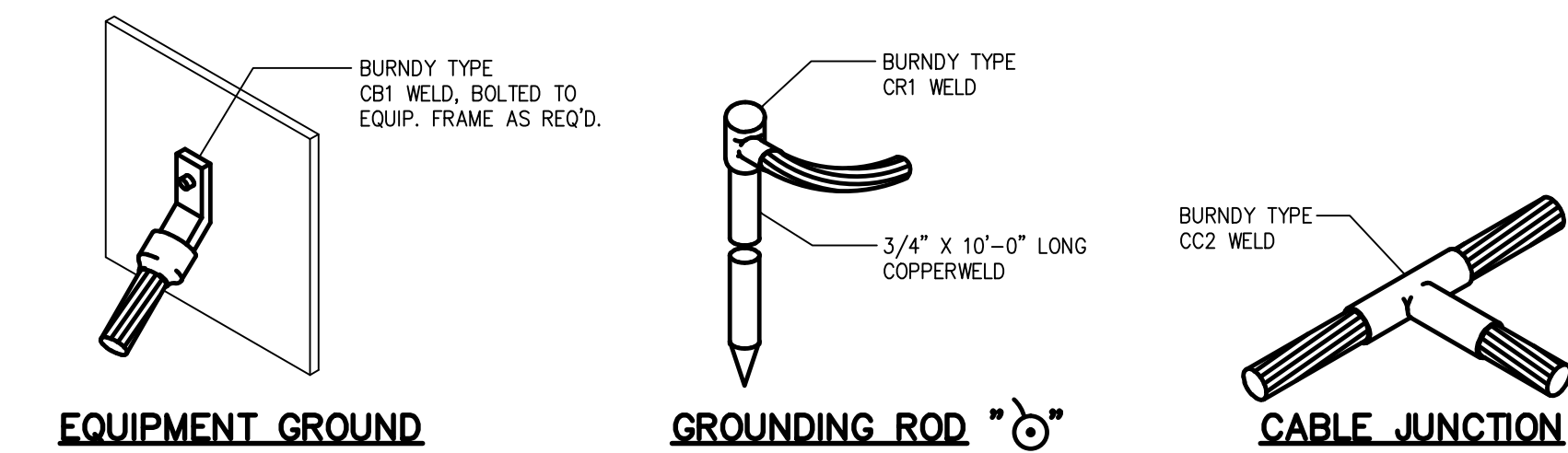


GROUNDING DETAILS
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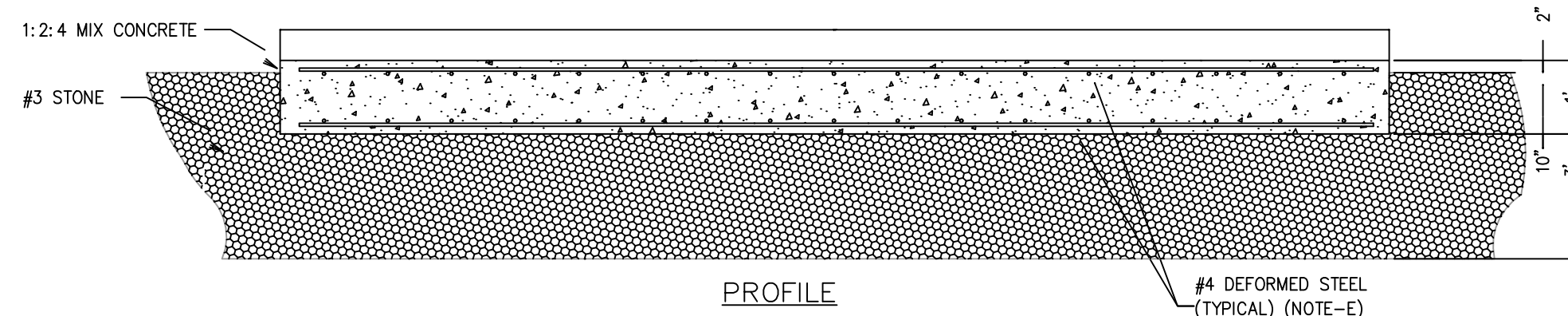
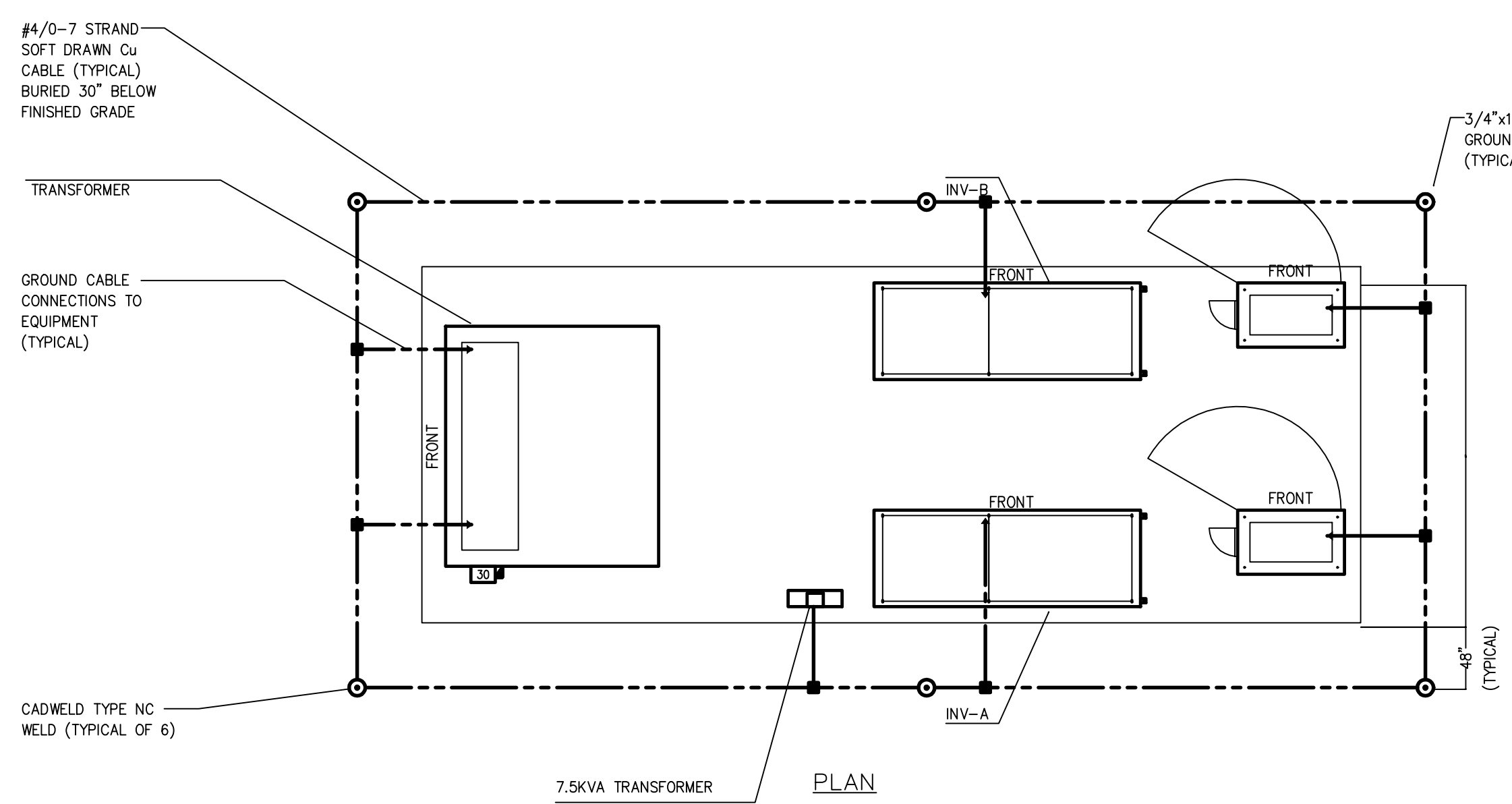
1 PHOTOVOLTAIC RACK BONDING DETAIL
N.T.S.



GROUNDING NOTES:

- GROUNDING CABLE SHALL BE LAID SLACK A MINIMUM OF 18\"/>
- GROUND RESISTANCE SHALL BE 3 OHMS MAXIMUM. ADDITIONAL RODS OR ROD EXTENSIONS SHALL BE DRIVEN TO OBTAIN THIS VALUE BY TEST.
- ALL GROUND CABLE SHALL BE A #4/-7 STRAND SOFT, BARE COPPER CABLE MINIMUM.
- ALL CONNECTIONS TO BE MADE BY THE THERMOLO PROCESS OF BURNDY OR CADWELD PROCESS OF ERICO PRODUCTS INC.

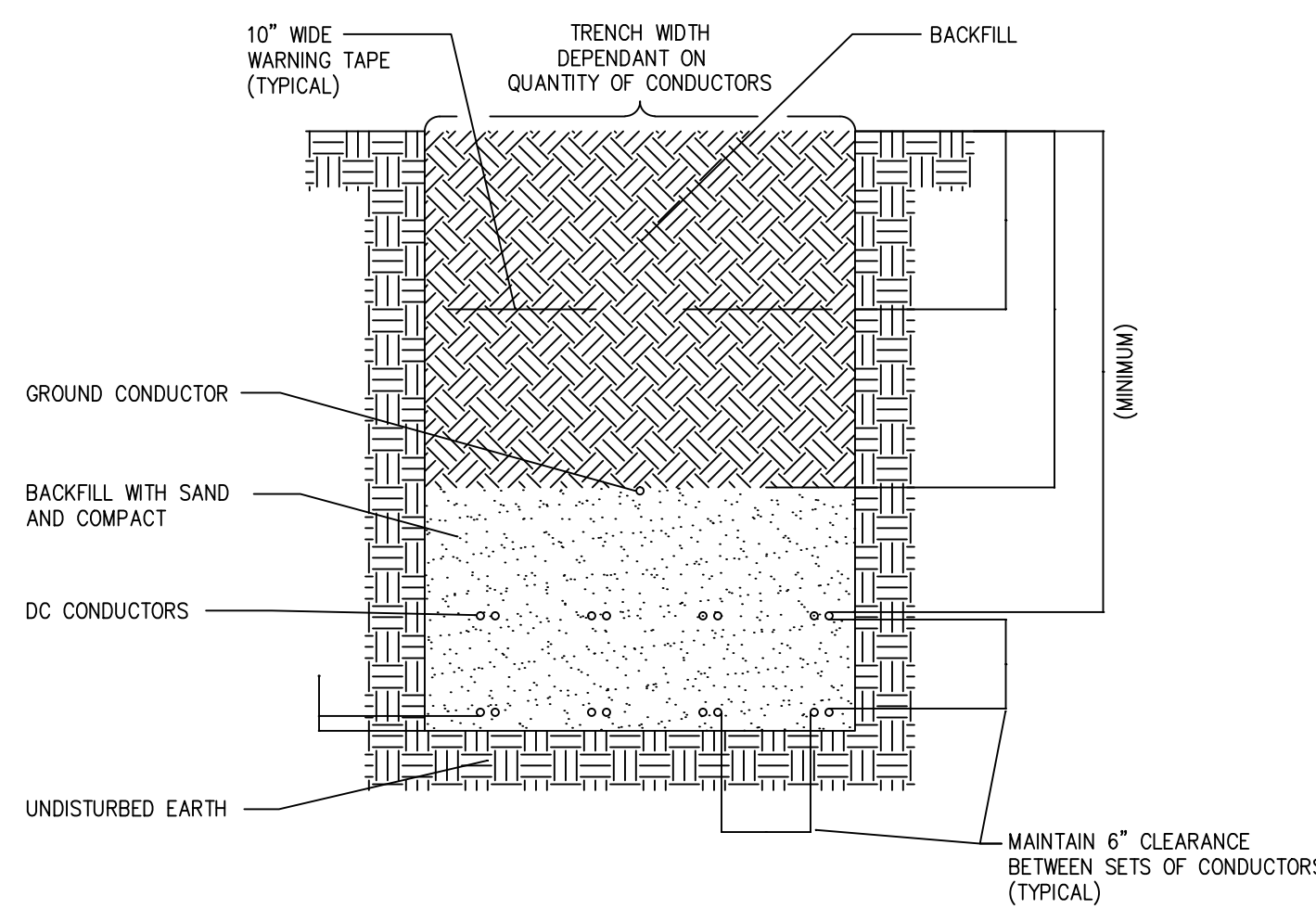
2 GROUNDING DETAILS
N.T.S.



TRANSFORMER PAD DETAIL NOTES:

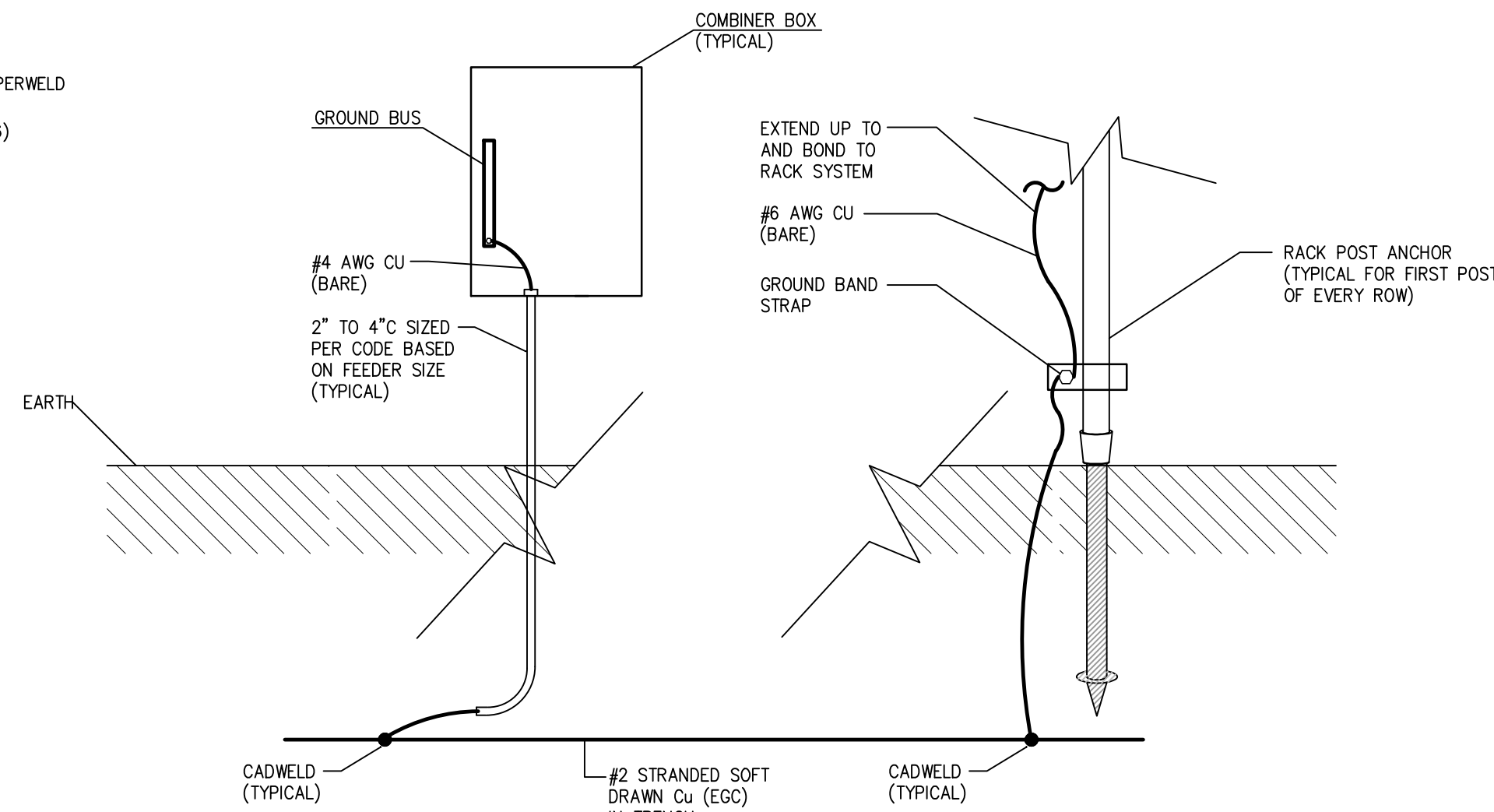
- CONDUITS SHALL BE INSTALLED WITH THE TOP OF THE CONDUITS EVEN WITH OR BELOW THE CONCRETE PAD SURFACE.
- CONDUIT OPENINGS FOR EQUIPMENT SHALL BE FRAMED AS INDICATED AND REMAIN OPEN AFTER CONCRETE POUR. PRIMARY CONDUITS SHALL BE INSTALLED ON THE LEFT SIDE OF THE CABLE OPENING. VERIFY OPENINGS WITH EQUIPMENT SPECIFICATIONS.
- CONCRETE SHALL BE PORTLAND CEMENT TYPE 3 OR 3A (1:2:4 MIX). CONCRETE SHALL BE 3000psi STRENGTH IN SEVEN DAYS. TRANSFORMER SHALL BE INSTALLED ON PAD AFTER THE PAD HAS CURED TO FULL STRENGTH.
- CONCRETE PAD SHALL BE INSTALLED LEVEL. REGRADE AND PREPARE BASE AS REQUIRED. STONE BASE SHALL BE COMPACTED PRIOR TO CONCRETE POUR.
- TWO LAYERS OF REINFORCING RODS 10\"/>
- PROVIDE 1/2\"/>

3 TRANSFORMER AND INVERTER CONCRETE PAD DETAIL
N.T.S.

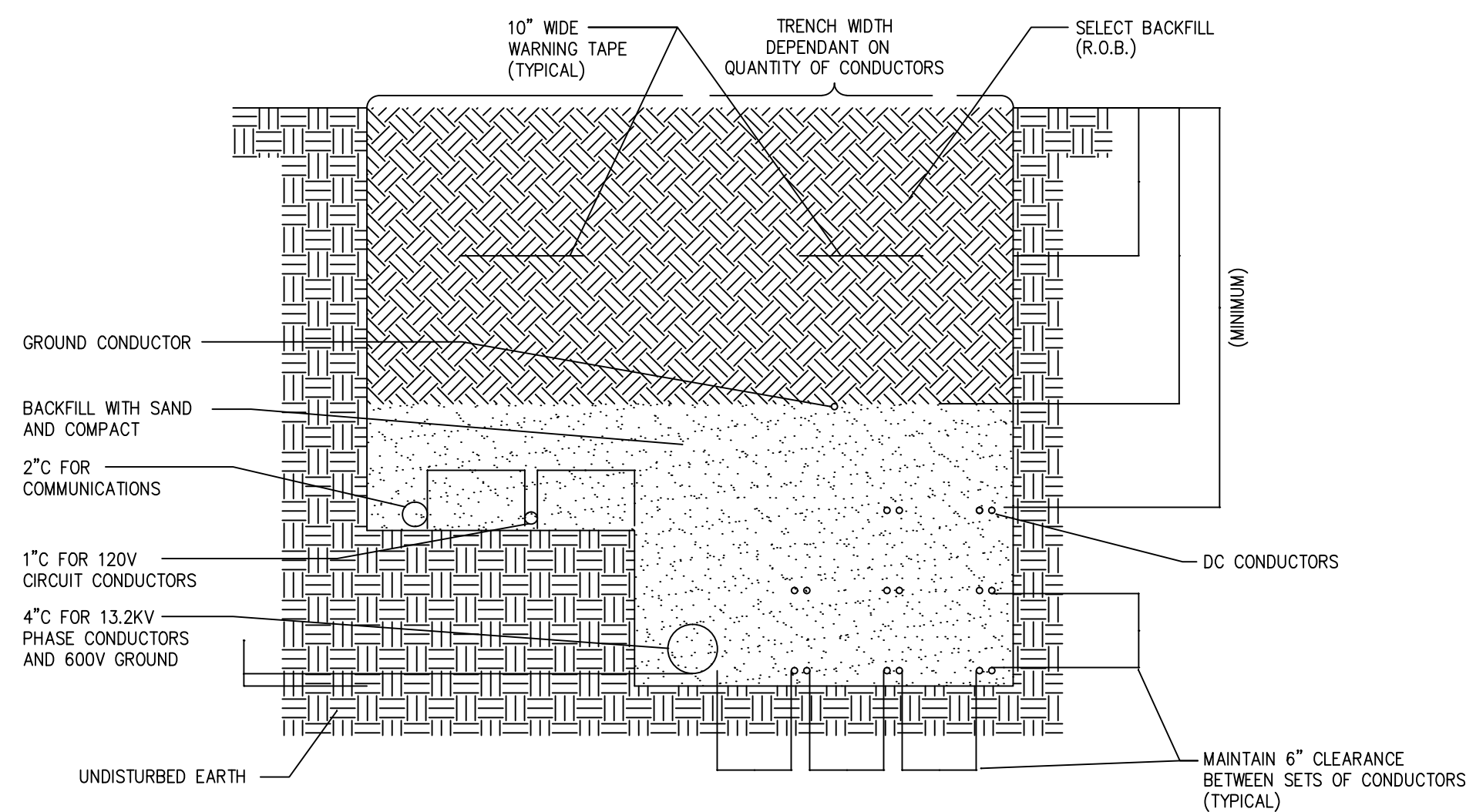


NOTE:
CONDUITS FOR COMMUNICATION WIRING SHALL MAINTAIN A MINIMUM OF 12\"/>

5 TRENCH DETAIL 'B'
N.T.S.

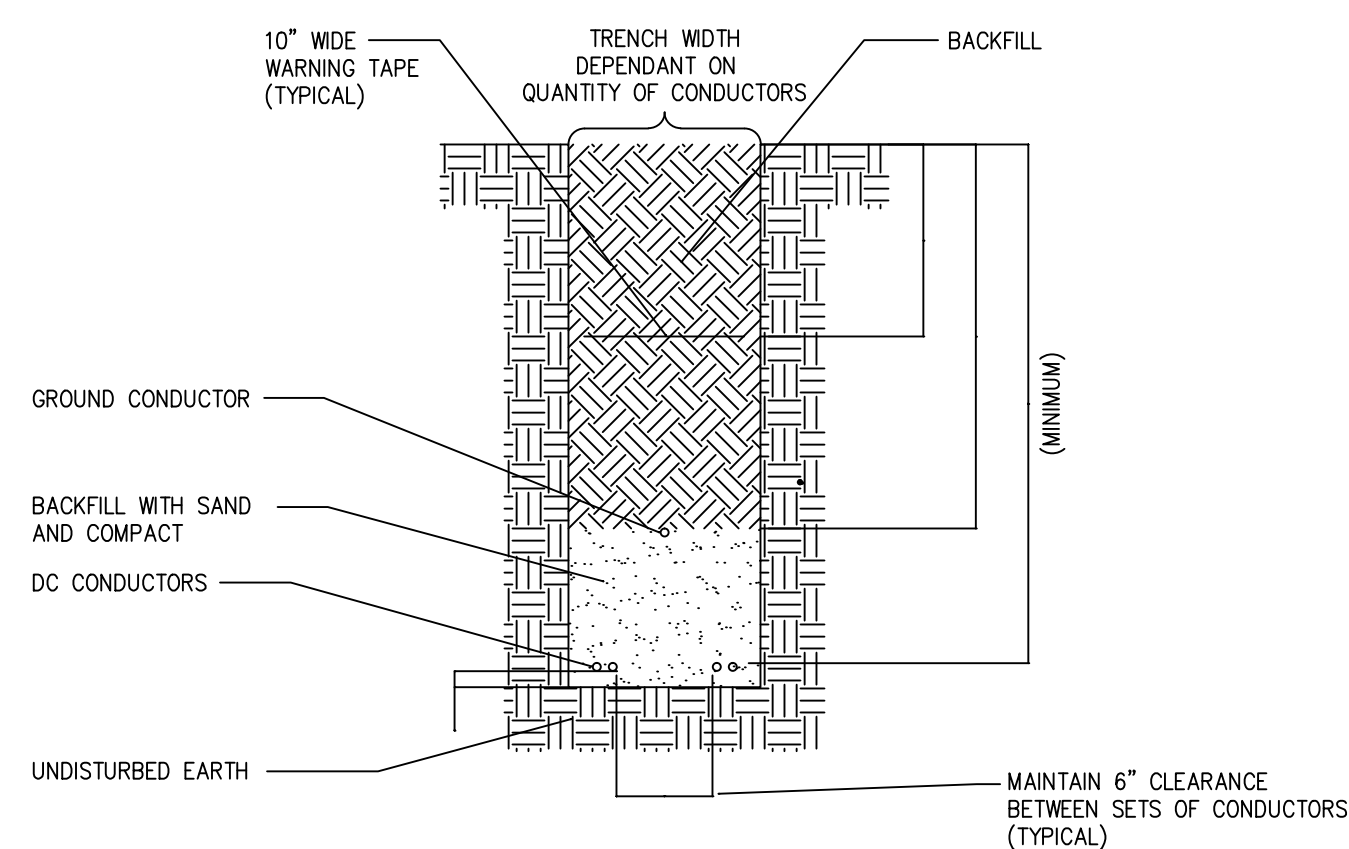


3 COMBINER BOX & RACK BONDING DETAIL
N.T.S.



NOTE:
CONDUITS FOR COMMUNICATION WIRING SHALL MAINTAIN A MINIMUM OF 12\"/>

4 TRENCH DETAIL 'A'
N.T.S.



NOTE:
CONDUITS FOR COMMUNICATION WIRING SHALL MAINTAIN A MINIMUM OF 12\"/>

5 TRENCH DETAIL 'C'
N.T.S.

REV #	DATE	REMARKS:	ISSUE #	DATE	ISSUED FOR:
<div>1/8" 1/4" 1/2" 0 1" 2"</div> REFERENCE SCALE					
UNAUTHORIZED ALTERATION OR ADDITION TO A PLAN BEARING A LICENSED PROFESSIONAL ENGINEER'S SEAL IS A VIOLATION OF SECTION 7209, SUB-DIVISION 2 OF THE N.Y. STATE EDUCATION LAW.					
<div><div>FELLENZERENGINEERING LLP</div><div>22 Mulberry St., Suite 2A, Middletown, NY 10940 1 845-343-1481 fx 845-343-4986</div><div>181 Church St., Suite 100, Poughkeepsie, NY 12601 1 845-454-9704 fx 855-320-8735</div></div>					
PROJECT TITLE: JOHNSON FARM PHOTOVOLTAIC ARRAY 121 JOHNSON ROAD, CHESTER, NY 10918					
DRAWING TITLE: GROUNDING & TRENCH DETAILS					
DESIGNED BY: RDF	DRAWN BY: SAR	APPROVED BY P.E.: ACL	APPROVED BY P.E.: MDF	DRAWING #: C-906	
DATE: 09/15/15	SCALE: AS SHOWN	FE PROJECT #:	15-255	PAGE 9 OF 9	