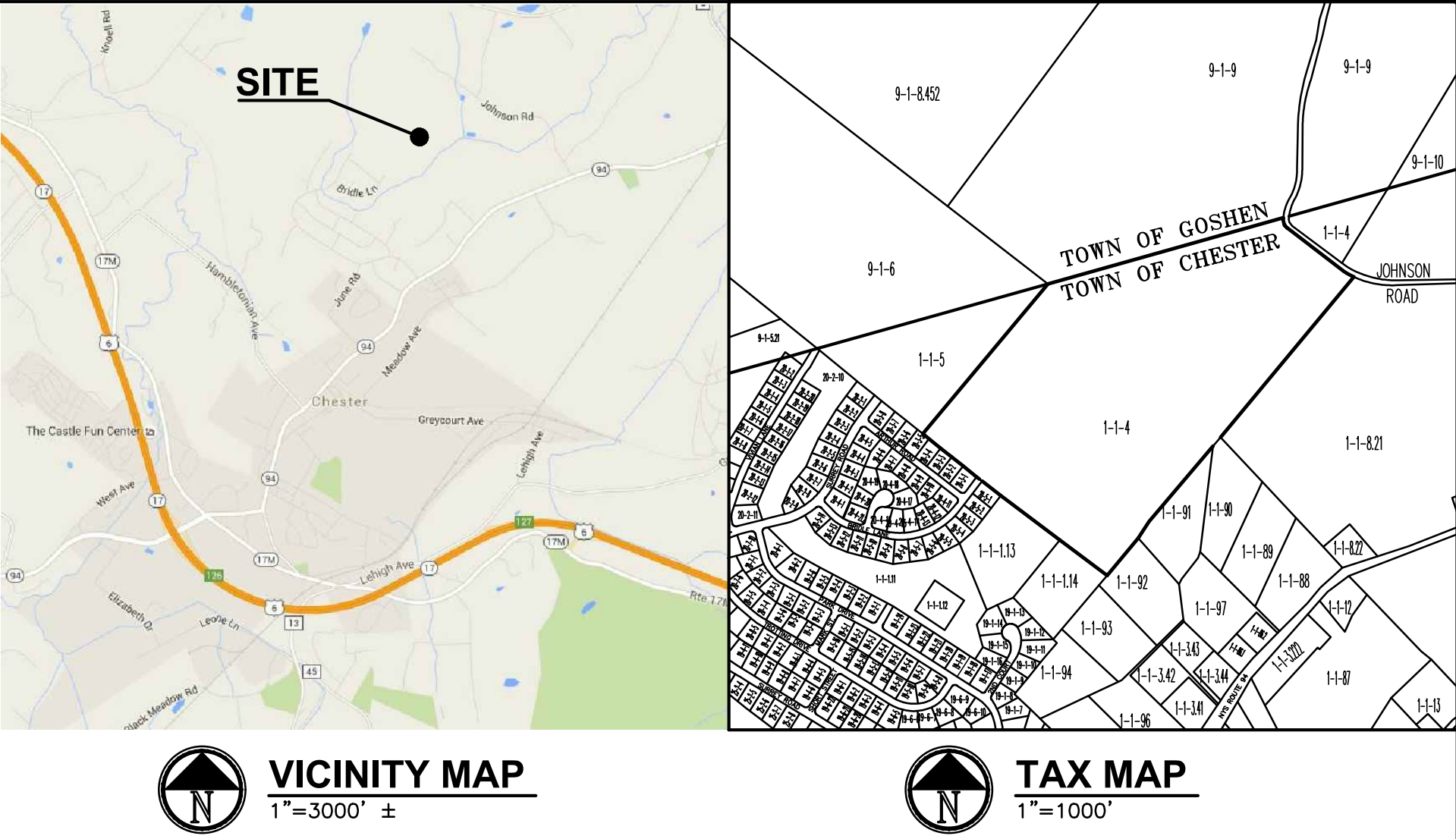


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Date: Tue, Feb 23, 2016 11:27 AM (Name: jsc)

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	PROVIDED	VARIANCE
BULK ITEM	REQUIRED		
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			

SCHEDULE OF DRAWINGS:

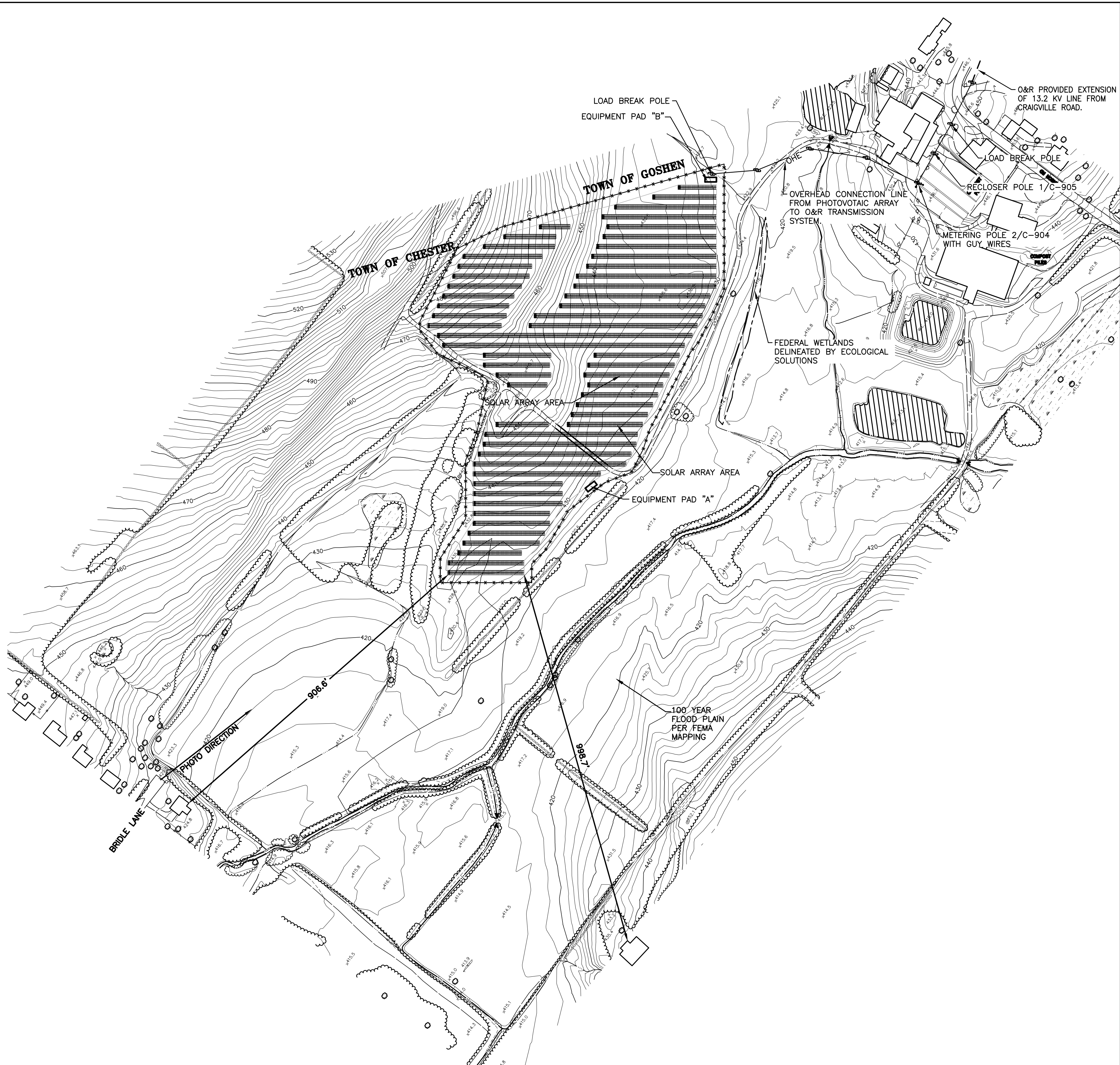
SHEET NO.	DRAWING NO.	TITLE
1	C-000	TITLE SHEET
2	C-101	SITE PLAN
3	C-102	EXTENDED TOPOGRAPHY MAP
4	C-800	3 LINE SCHEMATIC DIAGRAM
5	C-901	DETAILS
6	C-902	RACK DETAILS
7	C-903	RACK DETAILS
8	C-904	LATERAL & METER POLE DETAILS
9	C-905	RECLOSER POLE DETAILS
10	C-906	GROUNDING & TRENCH DETAILS

TOWN OF CHESTER PLANNING BOARD APPROVAL

REV #	DATE	REMARKS:	ISSUE #	DATE	ISSUED FOR:
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					
22 Mulberry St., Suite 2A, Middletown, NY 10940 t 845-343-1481 fx 845-343-4986		181 Church St., Suite 100, Poughkeepsie, NY 12601 t 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: RDF	DRAWN BY: SAR	APPROVED BY P.E.: ACL	APPROVED BY P.E.: MDF	C-000	
DATE: 09/15/15	SCALE: AS SHOWN	FE PROJECT #: 15-255	PAGE 1 OF 10		



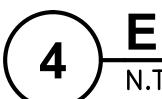
1 PREVIOUS SOLAR ARRAY LAYOUT (JAN 5, 2016 PUBLIC HEARING)
1"=150'±



2 PROPOSED SOLAR ARRAY LAYOUT (SCHEDULED MARCH 2, 2016 PUBLIC HEARING)
1"=150'±



3 PHOTO VIEW FROM END OF BRIDLE LANE
N.T.S.

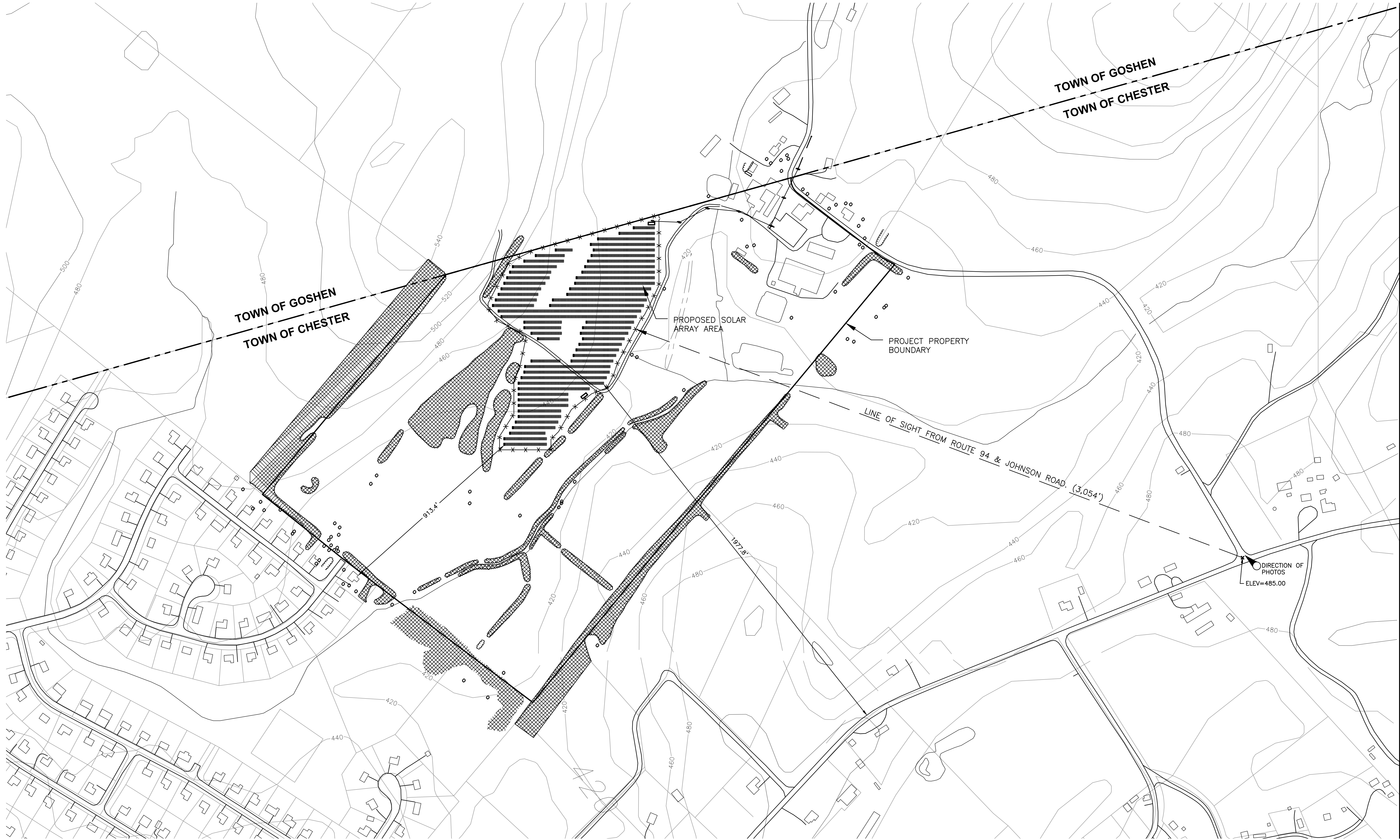


4 ENLARGED PORTION OF VIEW FROM BRIDLE LANE
N.T.S.

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.

TOWN OF CHESTER PLANNING BOARD APPROVAL

REV #	DATE	REMARKS	ISSUE #	DATE	ISSUED FOR:
1/2" 3/4" 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.					
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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: SOLAR ARRAY OPTIONS					
DESIGNED BY: RDF	DRAWN BY: SAR	APPROVED BY P.E.: ACL	APPROVED BY P.E.: MDF	DRAWING #: C-101	
DATE: 09/15/15	SCALE: AS SHOWN	FE PROJECT #: 15-255	PAGE 2 OF 10		



1 EXTENDED TOPOGRAPHY MAP
1"=200' ±



ZOOM 2



ZOOM 1



PHOTO


REV #	DATE	REMARKS:	ISSUE #	DATE	ISSUED FOR:
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181 Church St., Suite 100, Poughkeepsie, NY 12601 1 845-454-9704 fx 855-320-8735					
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 3 OF 10		

PROGRESS PRINT
2/23/16
NOT FOR
CONSTRUCTION

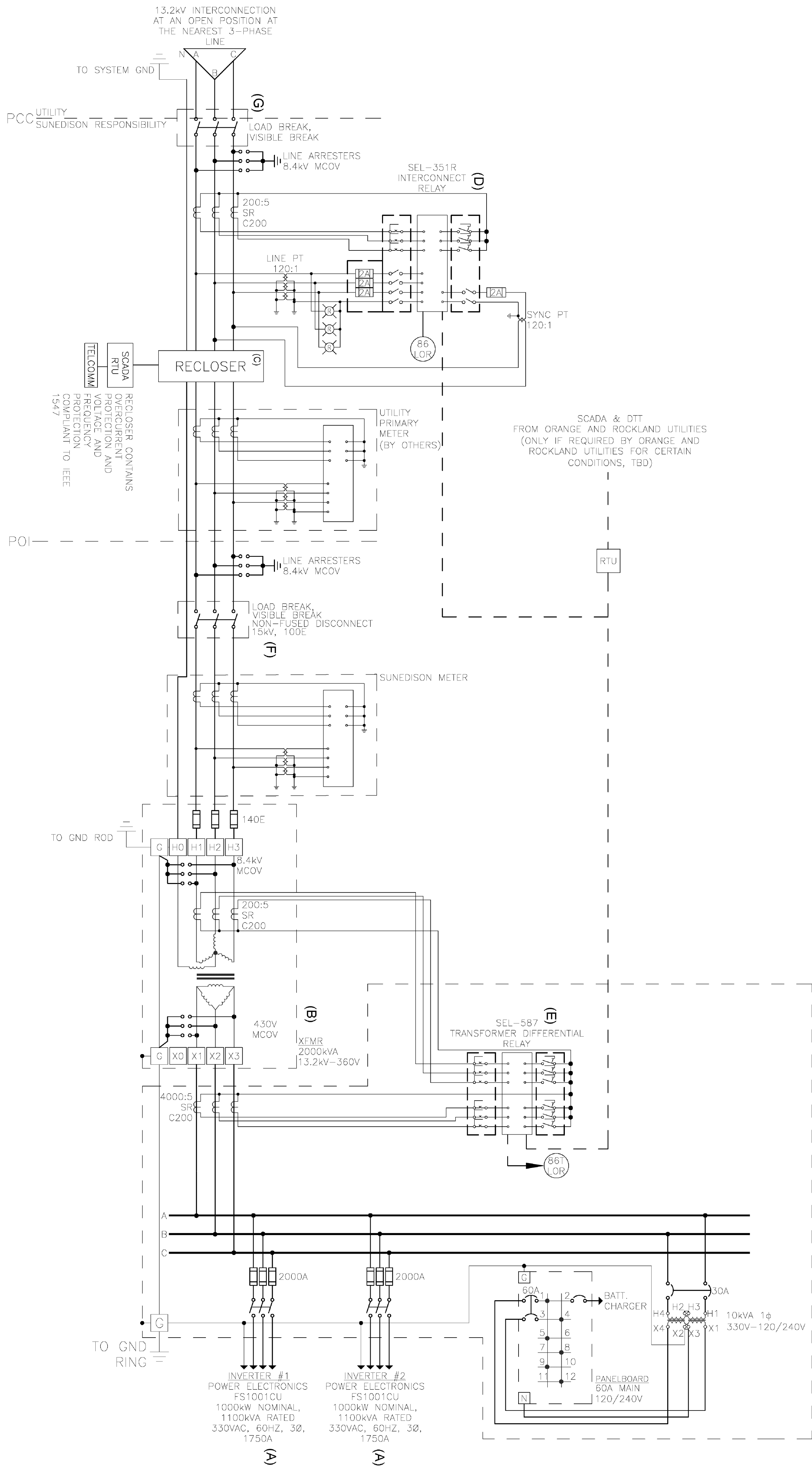
TOWN OF CHESTER PLANNING BOARD APPROVAL

TABLE 1: EQUIPMENT SCHEDULE		
ID	DESCRIPTION	QTY
(A)	POWER ELECTRONICS FS1001CU, 1,000kW INVERTER, 1750AAC, 330VAC OUTPUT, 97% CEC EFFICIENCY, NEMA 3R, INTERNAL GFD, INTEGRAL BREAKER RECOMBINER, INTEGRAL DC & AC DISCONNECTS	2
(B)	2,000KVA COOPER ENVIROTRAN SOLAR 3Ø TRANSFORMER 13.2V(W +5/10% TAPS) PRI (Yg) 330V SEC. (Δ) W/ INTEGRATED SURGE ARRESTER & 200A ELBOWS, 5.75% Z MAX W/ 140A FUSE	1
(C)	G&W VIPER RECLOSER, 15.5KV, 110 KV BIL, 800A CC, 12.5 KA IC, POLE MOUNTED	1
(D)	GENERATOR PROTECTION RELAY, SEL-351R UL-508	1
(E)	TRANSFORMER DIFFERENTIAL RELAY, SEL-587 UL-508	1
(F)	CUSTOMER OWNED S&C PMH-3 PAD MOUNT LOAD BREAK SWITCH	1
(G)	UTILITY OWNED AND OPERATED VISIBLE LOAD BREAK SWITCH	1

TABLE 2: SEL-351R RELAY SETTINGS		
NOMINAL VOLTAGE:13.2KV		
ELEMENT	PICKUP RANGE	TIME DELAY (SECONDS)
UNDERVOLTAGE (27)	50% OF NOMINAL	0.15
UNDERVOLTAGE (27)	88% OF NOMINAL	2.00
OVERVOLTAGE (59)	110% OF NOMINAL	1.00
OVERVOLTAGE (59)	120% OF NOMINAL	0.15
UNDERFREQUENCY (81U)	57.0 Hz	0.15
UNDERFREQUENCY (81U)	57.5 Hz	1.50
UNDERFREQUENCY (81U)	58.5 Hz	100.00
OVERFREQUENCY (81O)	60.5 Hz	0.15
OVERCURRENT (51C)	4000 A	PER IEC CURVE


600 Clipper Drive
Belmont, CA 94002
650-453-5600

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NOTES:

1. POINT OF INTERCONNECTION VOLTAGE AND LOCATION SUBJECT TO INPUT FROM ORANGE AND ROCKLAND UTILITIES.
2. INVERTER DC INSTALLATION DESIGNED IN ACCORDANCE WITH ORANGE & ROCKLAND UTILITIES NY INTERCONNECTION STANDARDS FOR LOCATIONS LESS THAN 2MW.
3. ISOLATION TRANSFORMER GROUNDED WYE MAY BE INSTALLED WITH A CURRENT LIMITING REACTOR IF REQUIRED BY ORANGE AND ROCKLAND UTILITIES.
4. SCADA RTU, IF REQUIRED WILL BE PROVIDED BY ORANGE AND ROCKLAND UTILITIES, BUT PURCHASED BY SUNEDISON.
5. SCADA SHALL BE ABLE TO DTT MAIN RECLOSER, IF REQUIRED.
6. SEL-351R RELAY ALARM SHALL TRIP B6 LOCKOUT RELAY AND TRIP/BLOCK CLOSE THE RECLOSER.
7. INSTALL DC BATTERY SYSTEM TO POWER RELAY, RTU AND RECLOSER TRIP/CLOSE. BATTERY SHALL BE SIZED TO AN 8 HOUR DUTY CYCLE PER IEEE 485-1983.
8. CT'S SHALL HAVE A MINIMUM ACCURACY RATING OF C200.
9. ALL EQUIPMENT BETWEEN INVERTER TERMINALS AND POINT OF INTERCONNECTION ASSUMED TO BE INSTALLED ABOVE GROUND AND WITH AN OVERHEAD INTERCONNECTION.

PRELIMINARY
NOT FOR CONSTRUCTION FOR
CONCEPTUAL PURPOSES ONLY

1 PRELIMINARY THREE LINE SCHEMATIC
(FOR CONCEPTUAL PURPOSES ONLY - NOT FOR CONSTRUCTION)

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181 Church St., Suite 100, Poughkeepsie, NY 12601 1 845-454-9704 fx 855-320-8735					
STAMP: PROGRESS PRINT 2 / 23 / 16 NOT FOR CONSTRUCTION					
PROJECT TITLE: JOHNSON FARM PHOTOVOLTAIC ARRAY 121 JOHNSON ROAD, CHESTER, NY 10918					
DRAWING TITLE: DETAILS					
DESIGNED BY: RDF	DRAWN BY: SAR	APPROVED BY PM: ACL	APPROVED BY PG: MDF	DRAWING #: C-800	
DATE: 09/15/15	SCALE: AS SHOWN	FE PROJECT #: 15-255	PAGE 4 OF 10		

SILVANTIS® R-SERIES: 330 W TO 355 W 72-Cell High Wattage Modules

SunEdison introduces the next generation of high performance solar modules based on innovative Continuous Crystalline Silicon technology. Best in class efficiency coupled with durability and superior design elements provide products with maximum long term investment performance. At the same time the 15-year, no-deductible cost insured throughout the product lifecycle, such as installation expense and overall operation and maintenance.

SunEdison is a leader in utility scale solar systems with over two and a half million Silvantis modules deployed in some of the world's harshest climates and most remote locations. The experience coupled with over 50 years of expertise in silicon technology and innovation enables SunEdison to design and produce highly advanced solar solutions.



SILVANTIS ADVANTAGE

- 18.2% module efficiency with positive power tolerance
- PID-free, multi-MPPT transformless inverter compatible
- Based on SunEdison's proprietary CzZ technology
- Higher return on investment with more watts-per-module
- Utility-grade manufacturing: ISO 14001, ISO 9001 and 100% EL inspection

QUALITY & SAFETY

- Industry leading PID test conditions:
 - 96 hours, 85°C, 85% relative humidity -1 kV
- IEC certified by TÜV SÜD:
 - 61215 long-term operation in a variety of climates, including snow loading up to 5400 Pa and hail testing
 - 61730 to ensure electrical safety
 - 61701 Level 1 salt mist corrosion resistant for marine regions
 - 62716 ammonia testing for agricultural environments
- CSA listed to UL 1703 for 1,000-V systems in the US and Canada
- MCS certified by BART for the UK
- Automotive grade TS 16949 & AQL Level II-D4 manufacturing quality

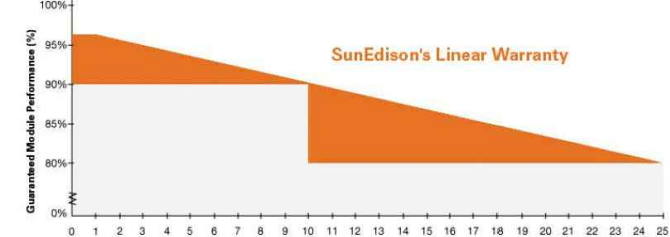


ROBUST DESIGN

- Reliability tested beyond international standards
- Proven field performance in harsh environments

SUNEIDSON WARRANTY

- 10-year limited warranty for materials and workmanship
- 25-year linear power warranty at STC:
 - Year 1: ± 5.5% of rated power
 - After year 1: ± 0.7% rated power degradation per year



SILVANTIS R-SERIES: 330 W TO 355 W

PHYSICAL PARAMETERS

Module Dimensions	1,876 mm x 990 mm x 50 mm
Module Weight	22 kg
Cell Type	PERC on CzZ monocrystalline
Number of Cells	72
Frame Material	Anodized aluminum alloy frame
Temper of AEC Glass Thickness	3.2 mm
Connector Types (indicated in model #)	Amphenol 14-L-50, 20-pin (4-18-135)

TEMPERATURE COEFFICIENTS AND PARAMETERS

Nominal Operating Cell Temperature (NOCT)	45°C ± 2.0
Temperature Coefficient of Pmax	-0.44 %/°C
Temperature Coefficient of Isc	+0.30 %/°C
Temperature Coefficient of Voc	+0.04 %/°C
Operating Temperature	-40 to +85 °C
Maximum System Voltage	1,000 V (UL 916C)
Limiting Short-Circuit Current	9.10 A
Maximum Series Fuse Rating	15 A
Power Selection (Test V, Nameplate)	-0% to +3%
Junction Box Rating	1000
Application Class	Class A
Packaging Specifications	20 modules per pallet 440 modules per 40' high-cube container

Wind and Snow Front Load	150 to 5,400 Pa
Wind Back Load	150 to 5,400 Pa
Reduction of STC efficiency from 1000 W/m² (20.260 W/m² irradiance)	< 4%

STC ELECTRICAL CHARACTERISTICS*

Model #	R330B4C	R335B4C	R340B4C	R345B4C	R350B4C	R355B4C
Rated Maximum Power (W)	330	335	340	345	350	355
Open-Circuit Voltage (Voc (V))	40.1	40.4	40.5	40.6	40.7	40.8
Short-Circuit Current (Isc (A))	9.28	9.29	9.40	9.48	9.56	9.64
Module Efficiency (%)	16.9	17.1	17.4	17.7	17.9	18.2
Maximum Power Point Voltage (Vmp (V))	32.7	32.9	33.0	33.1	33.2	33.3
Maximum Power Point Current (Imp (A))	8.77	8.85	8.96	9.08	9.16	9.27

NOCT ELECTRICAL CHARACTERISTICS*

Model #	R330B4C	R335B4C	R340B4C	R345B4C	R350B4C	R355B4C
Rated Maximum Power (W)	255.0	259.0	262.0	265.0	268.0	272.0
Open-Circuit Voltage (Voc (V))	42.7	42.8	42.9	43.0	43.1	43.2
Short-Circuit Current (Isc (A))	7.80	7.85	7.90	7.95	7.98	7.98
Module Efficiency (%)	33.4	33.6	33.8	34.0	34.2	34.4
Maximum Power Point Voltage (Vmp (V))	7.04	7.08	7.16	7.22	7.26	7.34
Maximum Power Point Current (Imp (A))	7.04	7.08	7.16	7.22	7.26	7.34

*All electrical data at standard test conditions (STC): 1000 W/m², 25°C module temperature, AM 1.5, electrical characteristics may vary by ±5% and power by ±0.4% to ±0.6%.

*To indicate manufacturing location: M = Malaysia, T = Mexico, P = China, F = Taiwan.

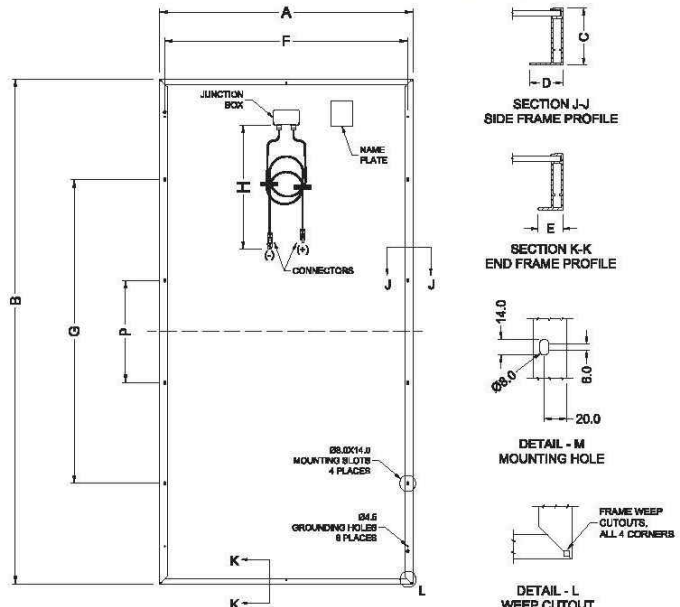
*Nominal operating cell temperature (NOCT) and nominal operating cell temperature (NOCT) are based on 20°C ambient temperature, AM 1.5, wind speed 1 m/s.

For more information about SunEdison's Silvantis modules, please visit www.sunedison.com

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LVN15088 RPT_05_1466_01_00mm_V13 08/2014

R-SERIES SOLAR MODULE DIMENSIONS mm [inch]



Module Dimensions: A=1,876 (73.9), B=990 (39.4), C=50 (2.0), D=50 (2.0), E=50 (2.0), F=50 (2.0), G=1,926 (75.8), H=1,000 (39.4), I=1,000 (39.4), J=1,000 (39.4), K=1,000 (39.4), L=1,000 (39.4), M=1,000 (39.4), N=1,000 (39.4), O=1,000 (39.4), P=1,000 (39.4), Q=1,000 (39.4), R=1,000 (39.4), S=1,000 (39.4), T=1,000 (39.4), U=1,000 (39.4), V=1,000 (39.4), W=1,000 (39.4), X=1,000 (39.4), Y=1,000 (39.4), Z=1,000 (39.4).

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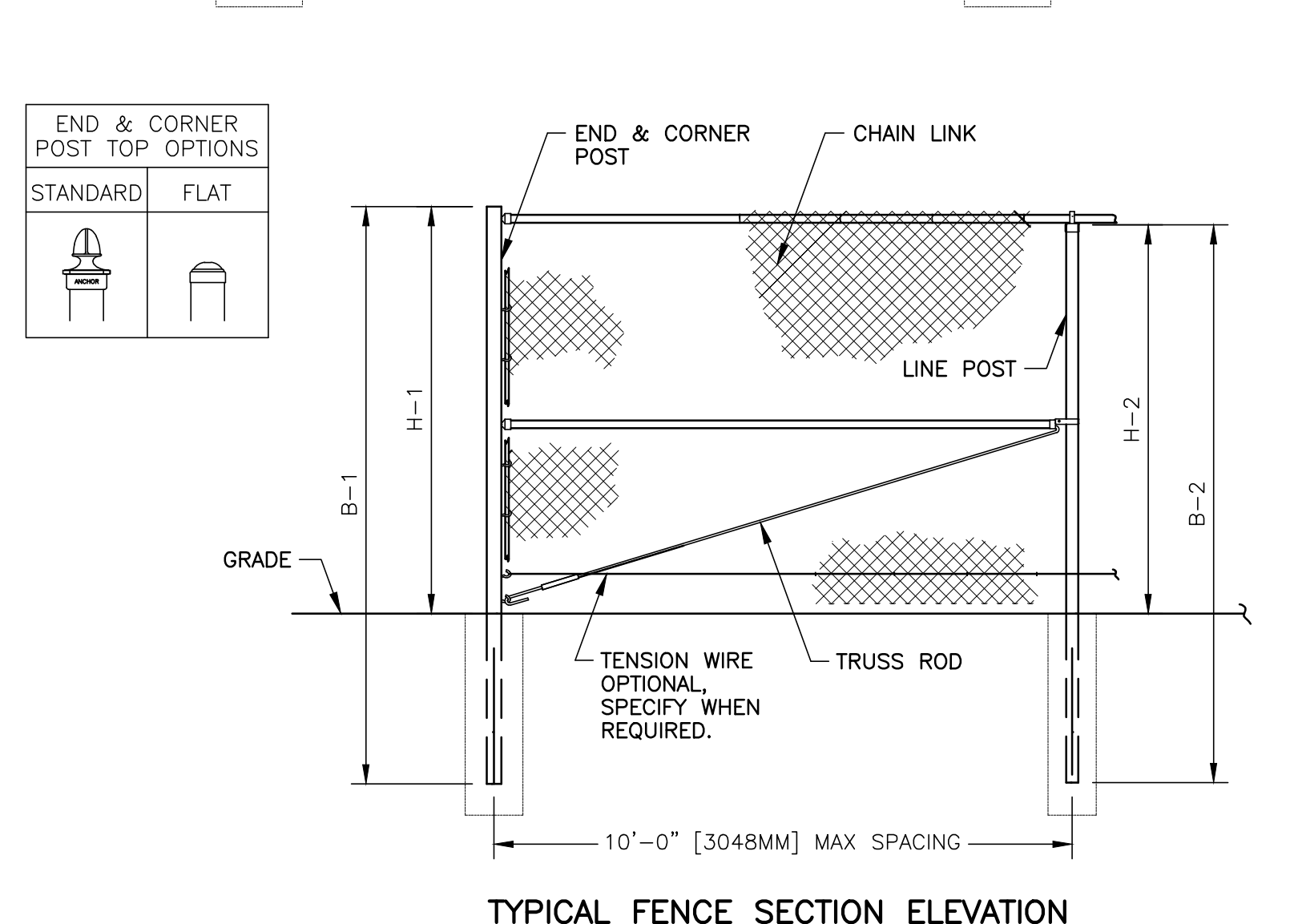
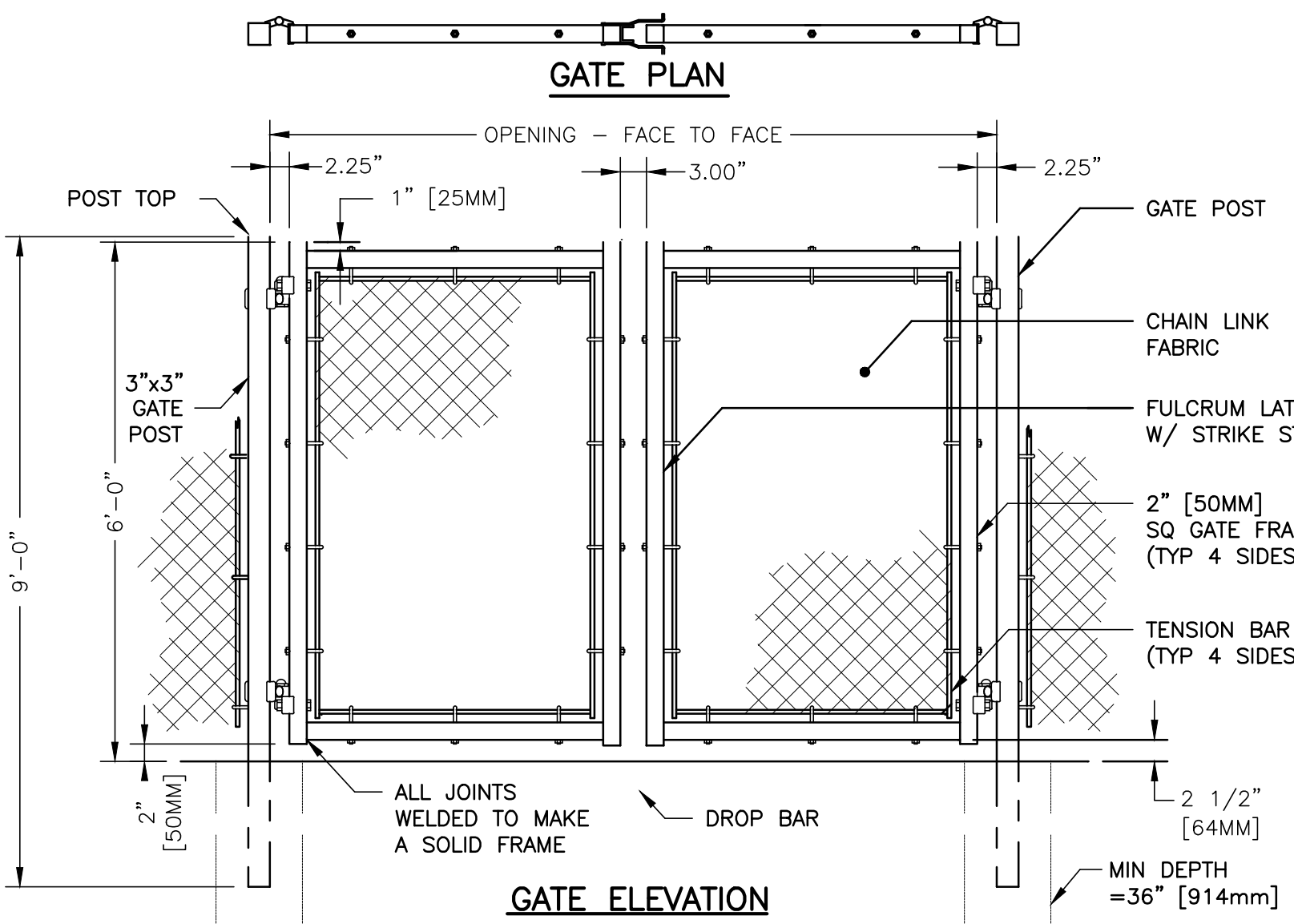
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FENCE HEIGHT	END & CORNER POSTS		LINE POSTS	
NOMINAL HEIGHT	B-1 BAR LENGTH	H-1 HEIGHT ABOVE GRADE	B-2 BAR LENGTH	H-2 HEIGHT ABOVE GRADE
0" [2438MM]	9'-0" [3353MM]	6'-0 5/8" [2454MM]	8'-8" [3251MM]	5'-8 7/8" [2359MM]

- NOTES:
- METRIC DIMENSIONS ARE NOMINAL EQUIVALENTS TO U.S. DIMENSIONS.
 - FOOTING WIDTH TO BE (4)X POST WIDTH.
 - GATES MAY BE MANUALLY OR ELECTRICALLY OPERATED. HARDWARE WILL VARY FOR ELECTRICALLY OPERATED GATES.

2 TYPICAL CHAIN LINK FENCE AND GATE

N.T.S.

NOTES

- MINIMUMS:**
- ALL STRUCTURAL STEEL SHALL BE DESIGNED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST VERSION OF AISC MANUAL OF STEEL CONSTRUCTION. LIGHT GAGE GALVANEAL SECTIONS SHALL CONFORM TO LATEST VERSION OF AISI SPECIFICATIONS FOR COLD-FORMED STEEL STRUCTURAL MEMBERS.
 - MATERIALS:**
 - ROLLED SHAPES: ASTM A992 OR A572 GRADE 50, $F_y = 50$ KSI MINIMUM
 - PLATES: ASTM A36
 - TUBULAR SHAPES: ASTM A500 GRADE B, $F_y = 50$ KSI MINIMUM
 - FIELD BOLTS (TYP. UNLS): SAE J429 GRADE 5
 - SCREWS: SHEET METAL SCREWS, #8 & #10 TENS - STAINLESS STEEL, #12 TENS - GALVANIZED
 - FIELD CONNECTIONS SHALL BE BOLTED EXCEPT WHERE WELDED CONNECTIONS ARE INDICATED ON THE STRUCTURAL DRAWINGS. ALL BOLTED CONNECTIONS SHALL BE INSTALLED TO THE "TIGHT TIGHT" CONDITION DEFINED AS THE FULL EFFORT OF A MAN USING A MANUAL SPREAD WRENCH OR A FOR IMPACTS OF AN IMPACT WRENCH. THE "TIGHT TIGHT" CONDITION WILL ENSURE THE PLUS OF CONNECTED MATERIAL ARE IN FIRM CONTACT.
 - ALL WELDING OF STEEL SHALL BE DONE IN ACCORDANCE WITH THE LATEST VERSION OF THE AMERICAN WELD SOCIETY'S SPECIFICATIONS - AISC 311. ELECTRODES SHALL BE E70 SERIES UNLESS NOTED OTHERWISE.
 - GALVANIZING SHALL BE PER CONTRACT DOCUMENTS.
- ALUMINUM:**
- ALL STRUCTURAL ALUMINUM SHALL BE DESIGNED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST VERSION OF THE SPECIFICATIONS AND GUIDELINES FOR ALUMINUM STRUCTURES.
 - MATERIALS:**
 - ALUMINUM SHAPES: ALLOY 6063-T5, 6061-T5 & 6062-T5
 - ALUMINUM SHEET: ALLOY 5052-H34 & 5053-H32
 - FIELD BOLTS (TYP. UNLS): 1/2" AND LARGER - SAE J429 GRADE 5, 3/8" AND SMALLER - STAINLESS STEEL
 - SCREWS: SHEET METAL SCREWS, #8 & #10 TENS - STAINLESS STEEL, #12 TENS - GALVANIZED

- CONSTRUCTION AND DETAILS:**
- ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE APPLICABLE CONSTRUCTION CODE AND THE PROJECT SPECIFICATIONS.
 - ENGINEER SHALL NOT BE RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OF CONSTRUCTION SELECTED BY CONTRACTOR.
 - CONTRACTOR SHALL FIELD MEASURE AND VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. ANY UNEXPECTED CONDITIONS OR DISCREPANCIES WITH THE DESIGN DOCUMENTS SHALL BE REPORTED TO THE ENGINEER PRIOR TO INSTALLATION OR ERECTION OF MATERIALS.
 - THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. WHEN ON SITE, THE ENGINEER IS RESPONSIBLE FOR HIS OWN SAFETY BUT HAS NO RESPONSIBILITY FOR THE SAFETY OF OTHER PERSONNEL OR SAFETY CONDITION AT THE SITE.

CONCRETE FOUNDATION:

- ALL SPECIAL INSPECTORS SHALL BE RETAINED BY OWNER/CUSTOMER. THE EXTENT OF THE INSPECTION SHALL CONFORM WITH THE CONTRACT DOCUMENTS. THE BUILDING CODE REQUIREMENTS AND LOCAL JURISDICTION. IT IS THE OWNER/CUSTOMER'S RESPONSIBILITY TO OBTAIN PROPER NOTIFICATION TO THE SPECIAL INSPECTOR AND PROCEED WITH THE WORK ONLY AFTER THE SPECIAL INSPECTOR'S APPROVAL.
- FAILURE TO NOTIFY THE SPECIAL INSPECTOR MAY RESULT IN OWNER/CUSTOMER HAVING TO RE-DO WORK FOR THE PURPOSE OF INSPECTION AT THE OWNER/CUSTOMER'S EXPENSE.
- PREMATURE NOTIFICATION FOR INSPECTION WILL RESULT IN AN ADDITIONAL INSPECTION WITH ALL EXPENSES AND FEES PAID BY THE OWNER/CUSTOMER.
- SPECIAL INSPECTORS SHALL KEEP RECORDS OF ALL INSPECTIONS. RECORDS SHALL BE FURNISHED TO THE OWNER/CUSTOMER OF RECORD AND LOCAL JURISDICTION AS REQUIRED. ANY AND ALL DISCREPANCIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR. CORRECTIONS SHALL BE MADE AND A FINAL REPORT OF INSPECTIONS SHALL BE PROVIDED NOTING COMPLETION OF INSPECTIONS AND CORRECTIONS OF DISCREPANCIES. FAILURE TO CORRECT DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER OF RECORD AND THE LOCAL JURISDICTION AND MAY RESULT IN REMOVAL OF COMPLETED WORK AND ADDITIONAL WORK TO CORRECT DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.

MINIMUM REQUIRED INSPECTIONS:

- STRUCTURAL STEEL/ALUMINUM

- FABRICATION
 - MATERIAL IDENTIFICATION
 - HIGH STRENGTH BOLTS - MATERIAL IDENTIFICATION OF BOLTS, NUTS AND WASHERS
 - WELD FILLER MATERIALS - IDENTIFICATION AND CONFIRMATION OF COMPLIANCE WITH DESIGN DOCUMENTS
- ERECTION
 - MATERIAL IDENTIFICATION
 - INSTALLATION OF HIGH STRENGTH BOLTS
 - WELDED CONNECTIONS
 - MEMBER SIZES AND PLACEMENT
 - GENERAL CONFORMANCE WITH DESIGN DOCUMENTS

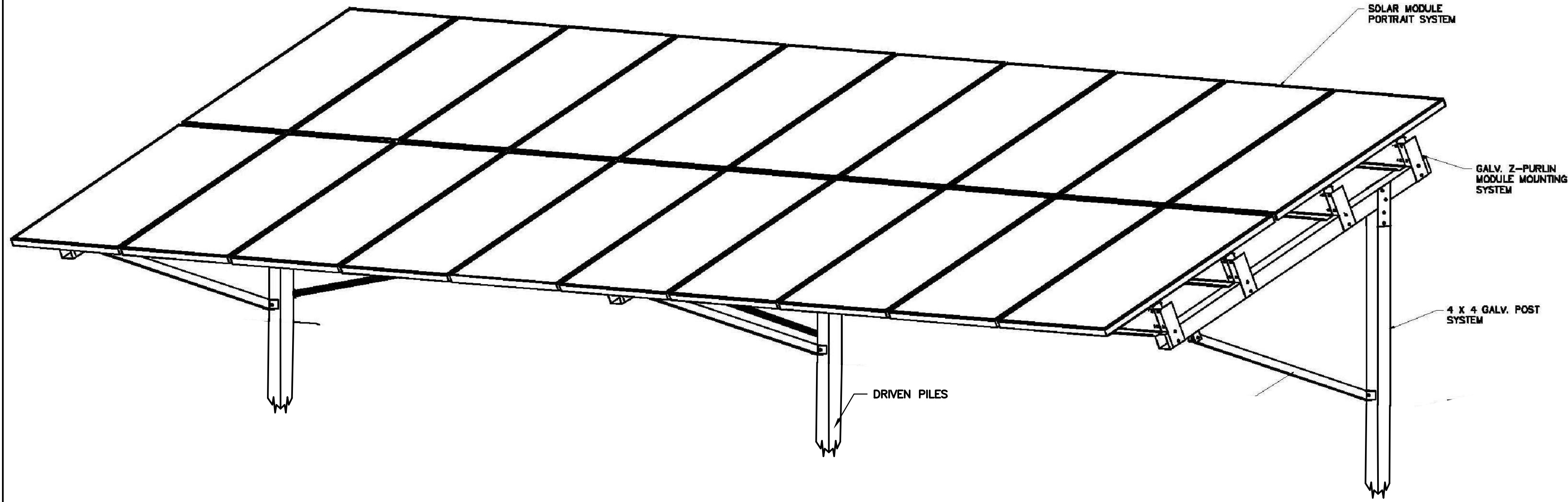
CONCRETE CONSTRUCTION:

- MATERIAL IDENTIFICATION
- MAX DESIGN VERIFICATION
- SIZE AND PLACEMENT OF REINFORCING STEEL
- PLACEMENT OF CONCRETE USING PROPER TECHNIQUES
- CONCRETE SAMPLES FOR SLUMP, AIR CONTENT, TEMPERATURE, STRENGTH TESTS, ETC. IN ACCORDANCE WITH ACI 318
- PROPER MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES

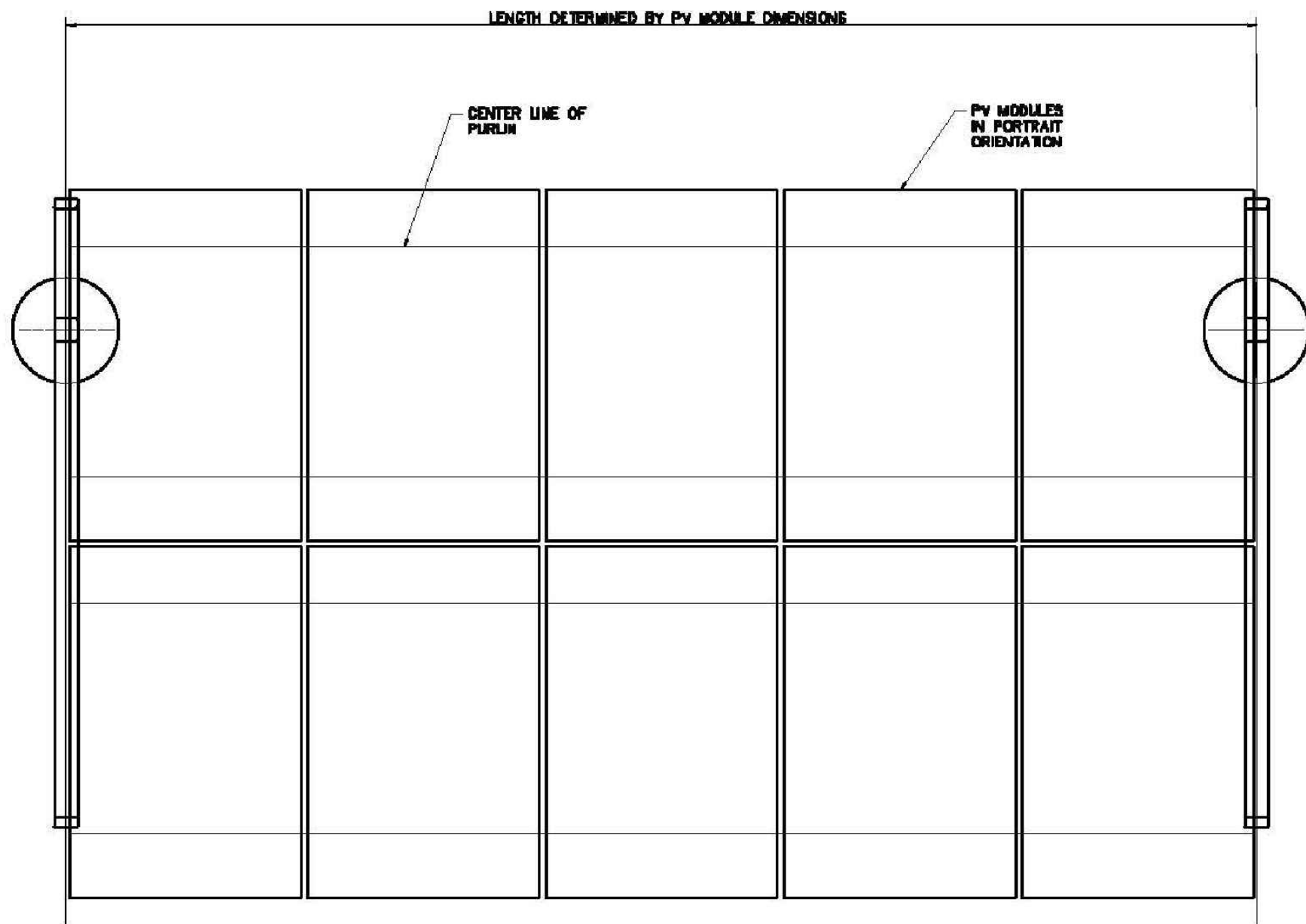
FOUNDATIONS:

- SIZE AND LOCATION OF FOUNDATION EXCAVATIONS
- PLACEMENT OF REINFORCING STEEL AS REQUIRED

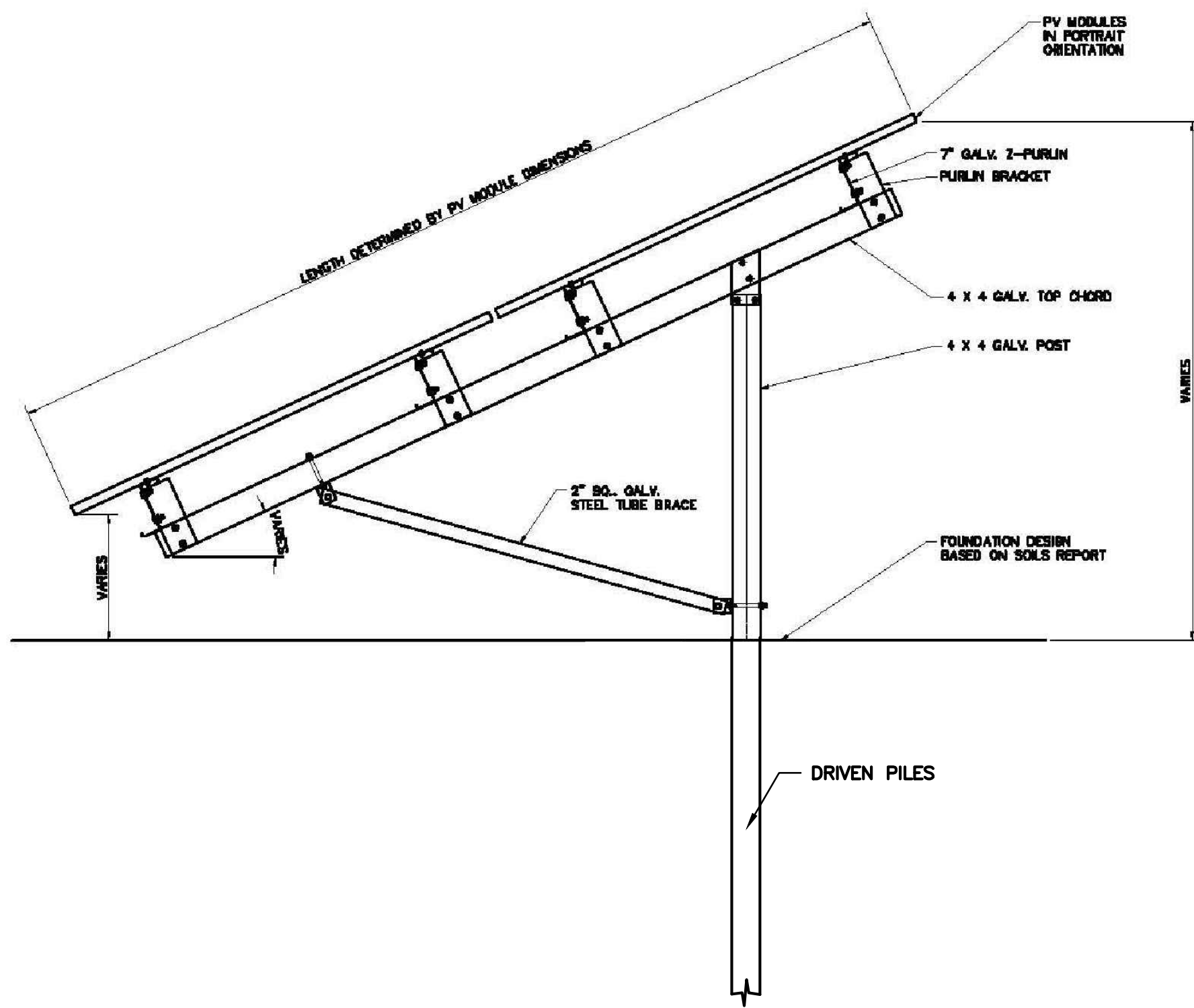
MINIMUMS



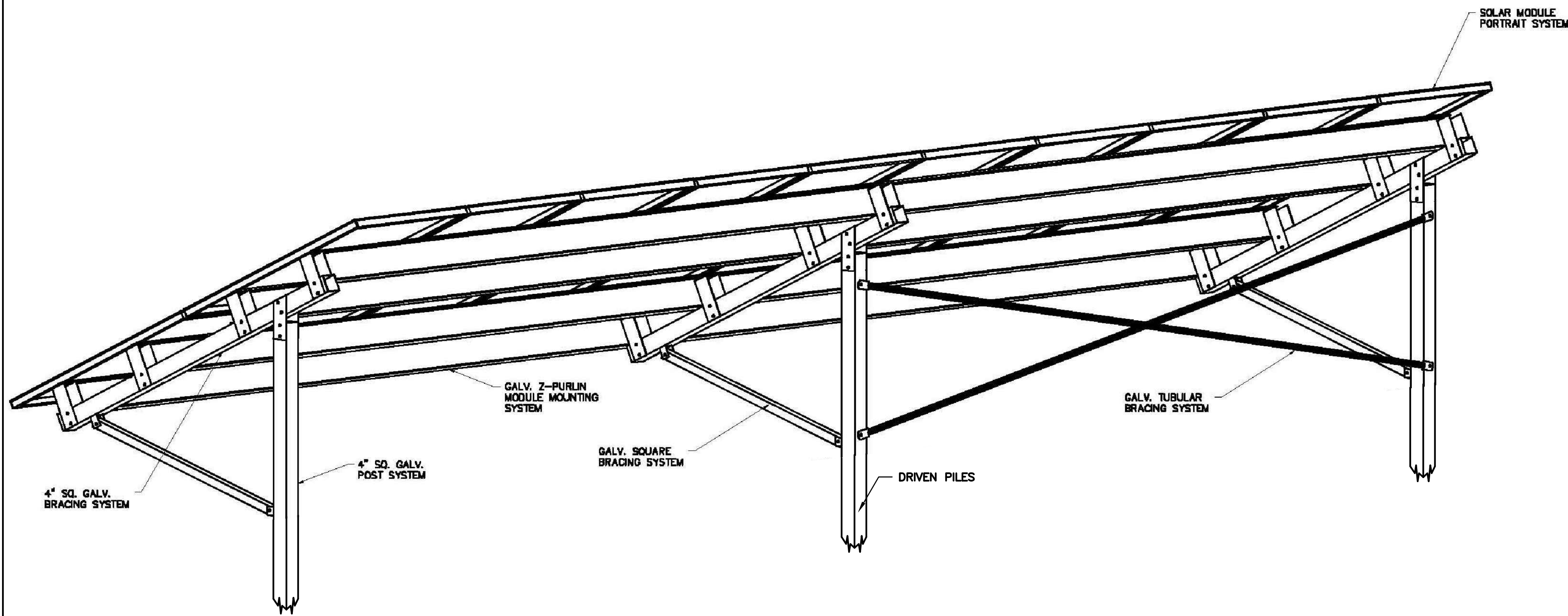
1 SOLAR RACKING - FRONT ELEVATION
N.T.S.



3 SOLAR RACKING - PLAN VIEW
N.T.S.



4 SOLAR RACKING - SIDE ELEVATION
N.T.S.

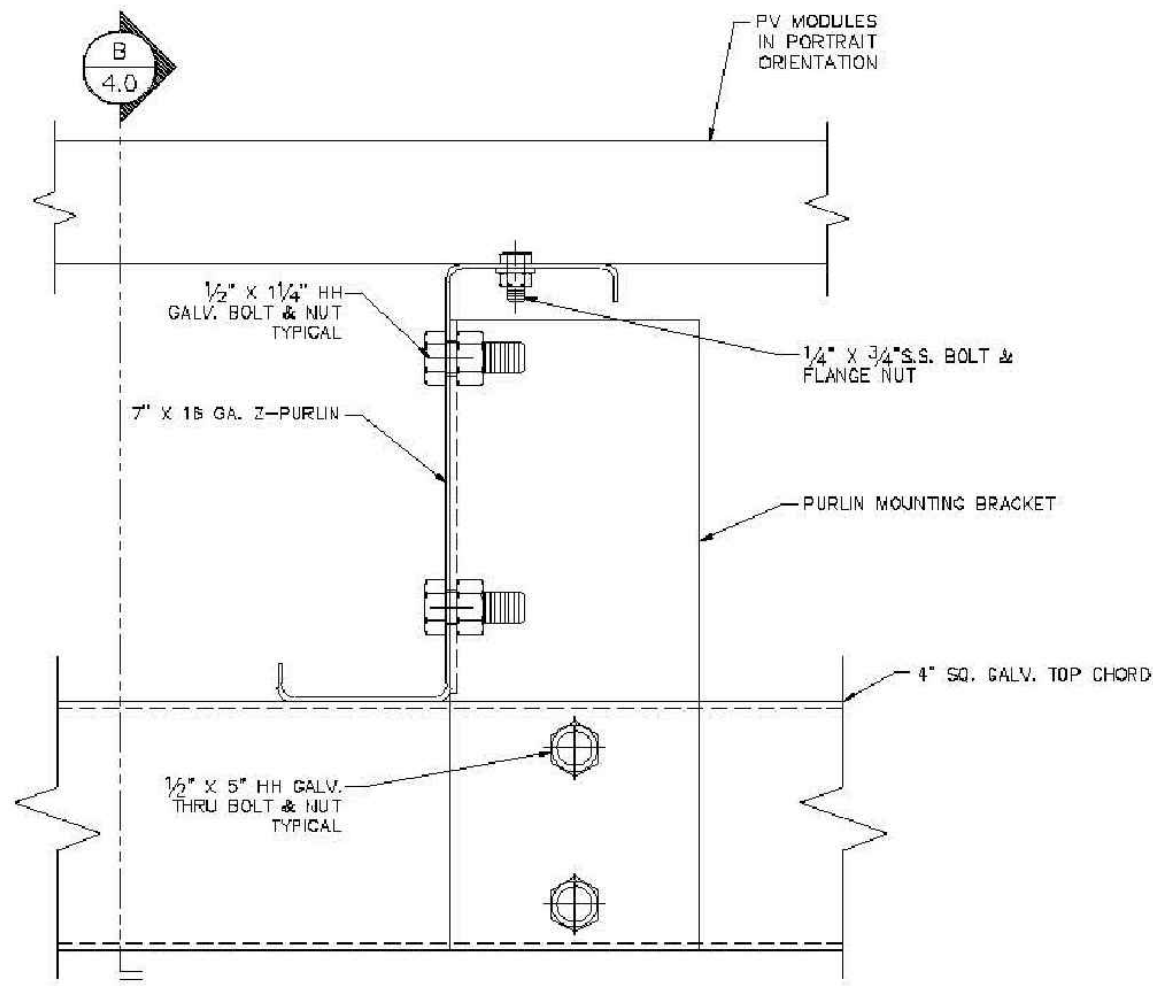


2 SOLAR RACKING - REAR ELEVATION
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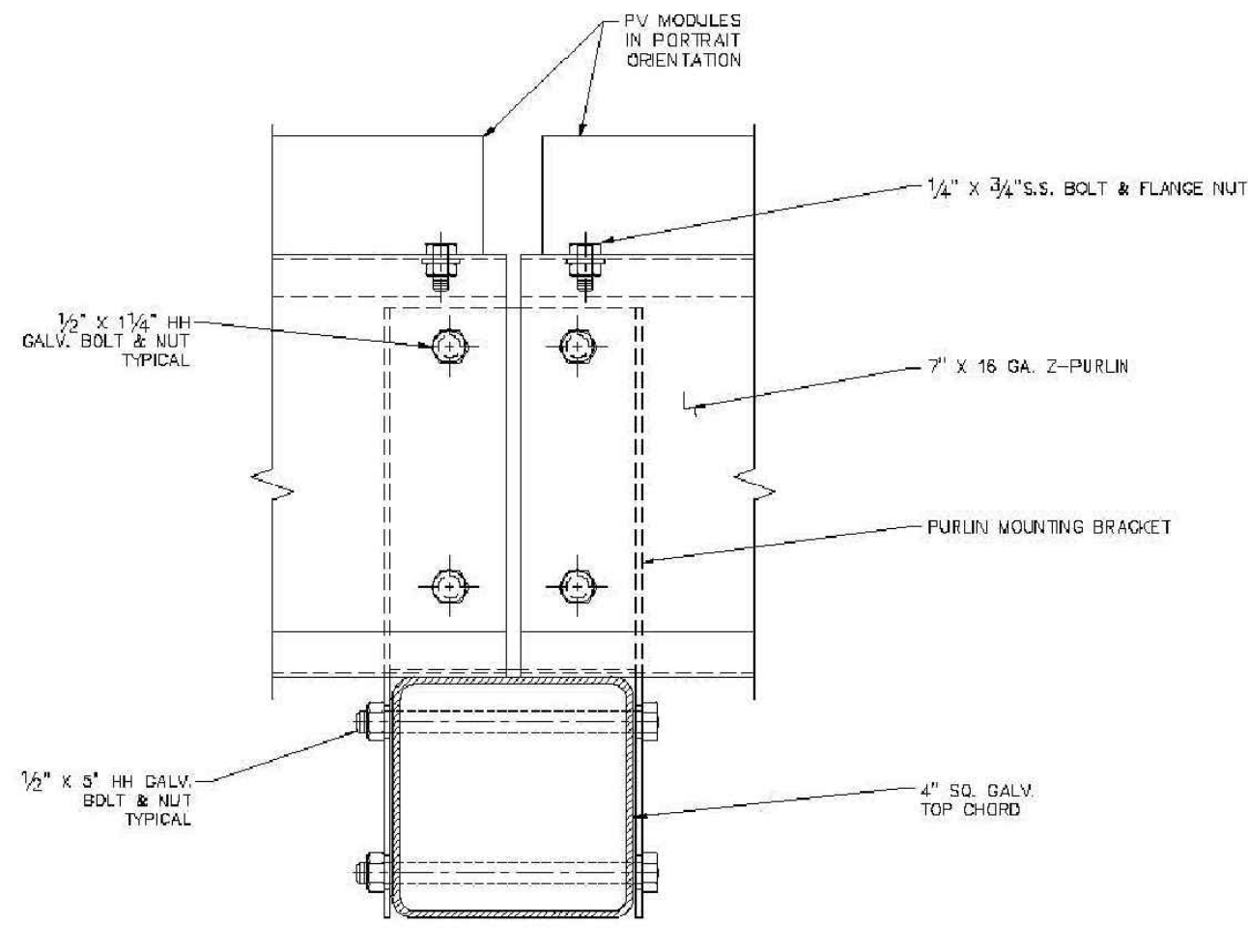
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UNAUTHORIZED ALTERATION OR ADDITION TO A PLAN BEARING A LICENSED PROFESSIONAL ENGINEER'S SEAL IS A VIOLATION OF SECTION 7209, SUB-DIVISION 2 OF THE N.Y. STATE EDUCATION LAW.					
<div><div><div><div><div><div>FELLENZER</div><div>ENGINEERING LLP</div><div>www.fellp.com</div></div></div><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></div></div></div>					
STAMP:		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-902	
DATE: 09/15/15	SCALE: AS SHOWN	FE PROJECT #: 15-255	PAGE 6 OF 10		

PROGRESS PRINT
2/23/16
NOT FOR
CONSTRUCTION

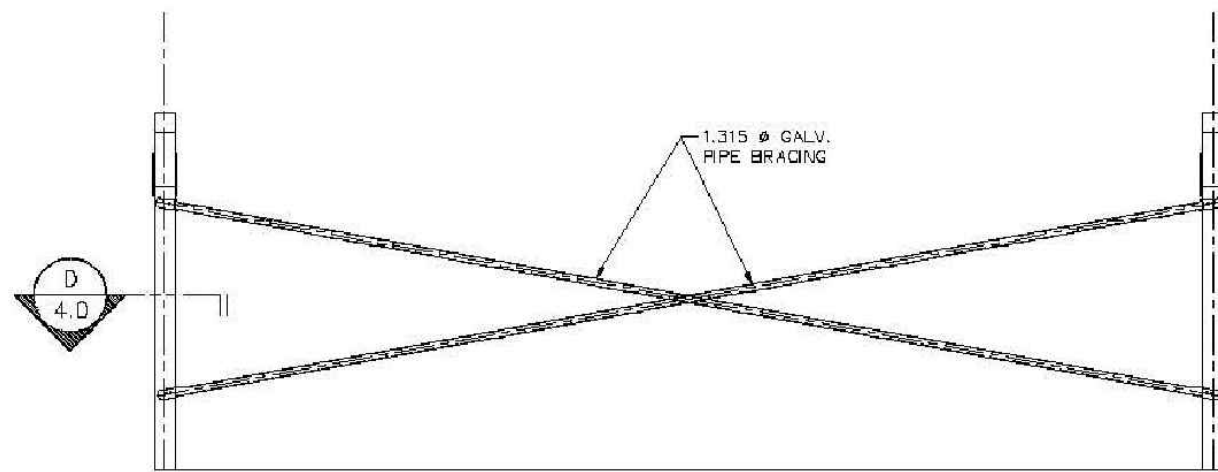
TOWN OF CHESTER PLANNING BOARD APPROVAL



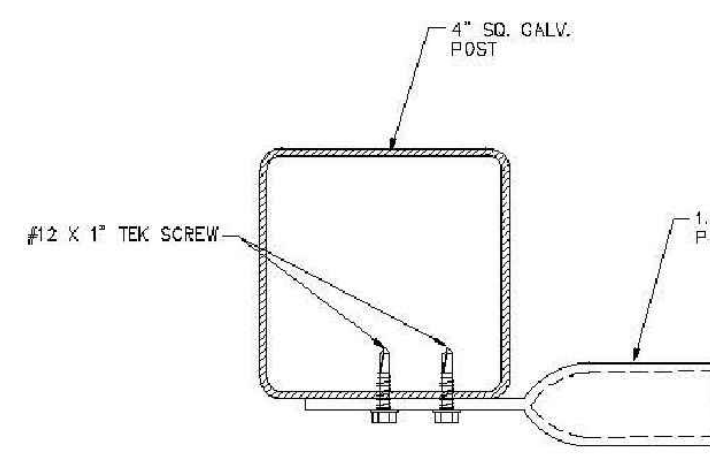
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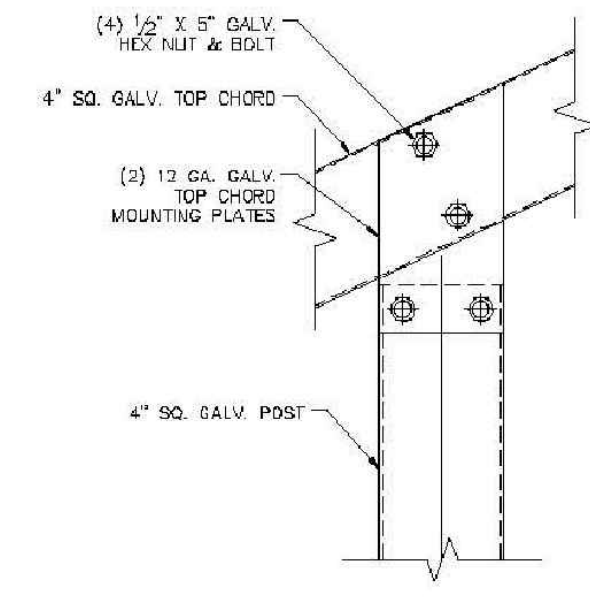
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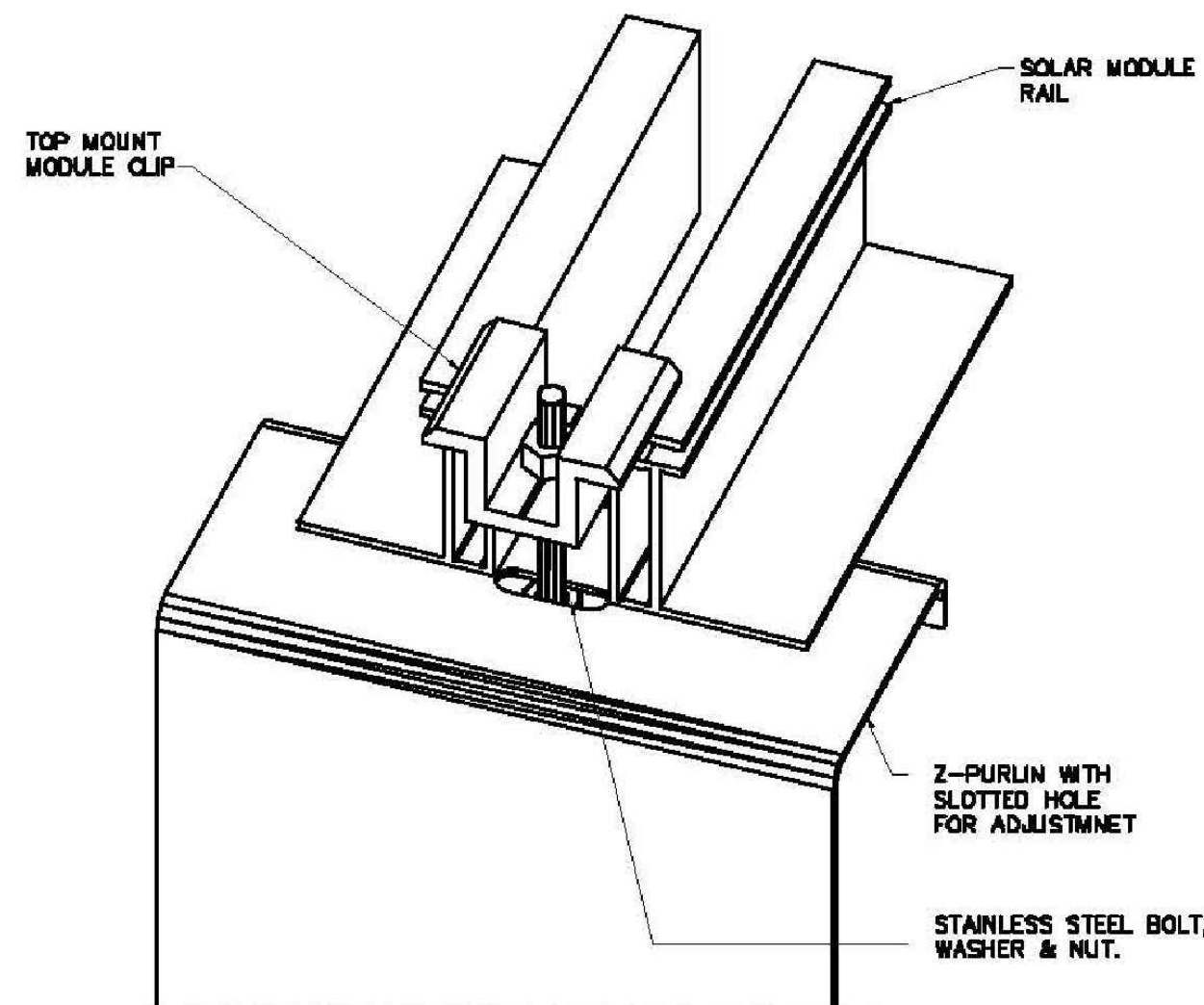
3 BRACING DETAIL
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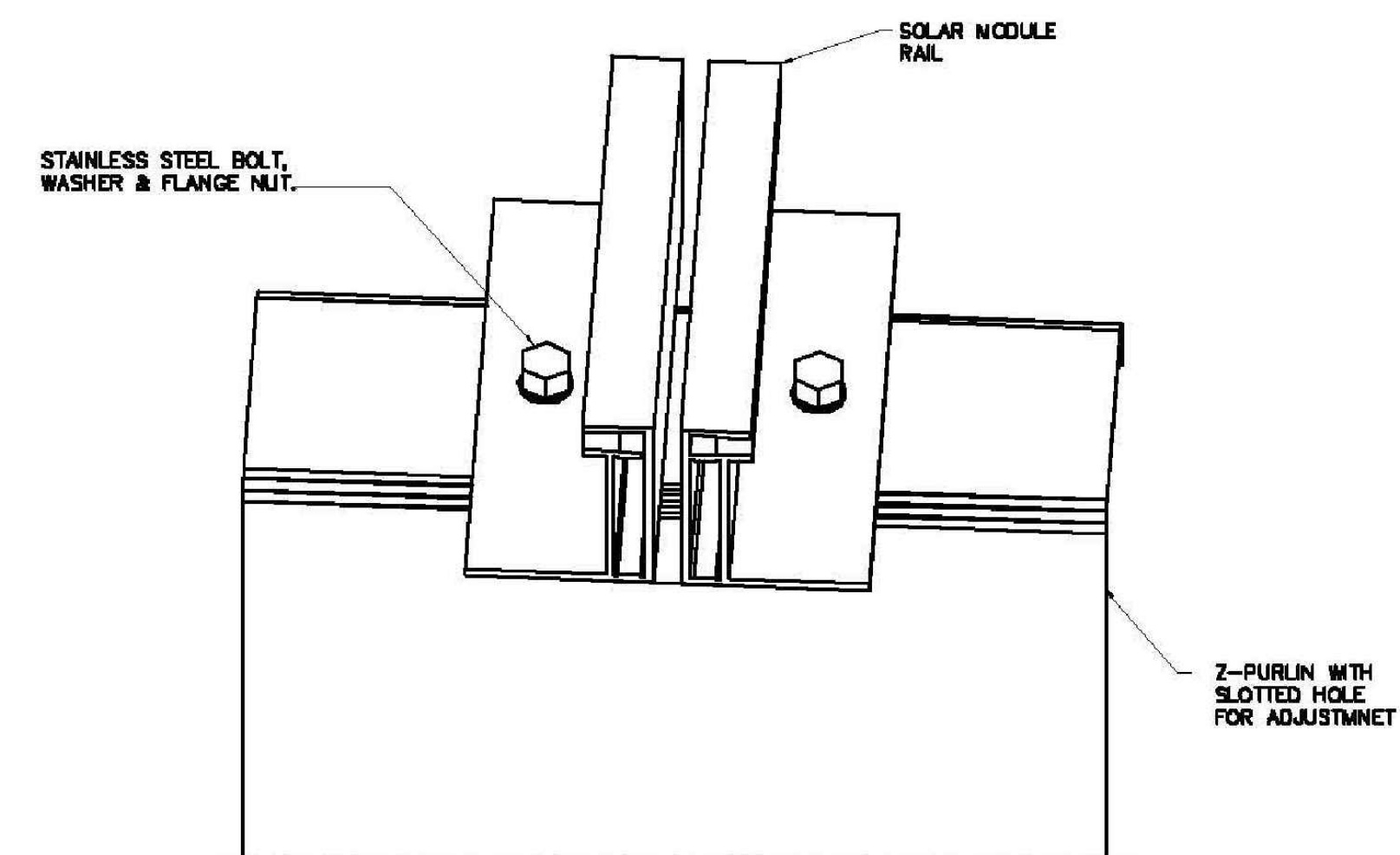
4 BRACING DETAIL - SECTION
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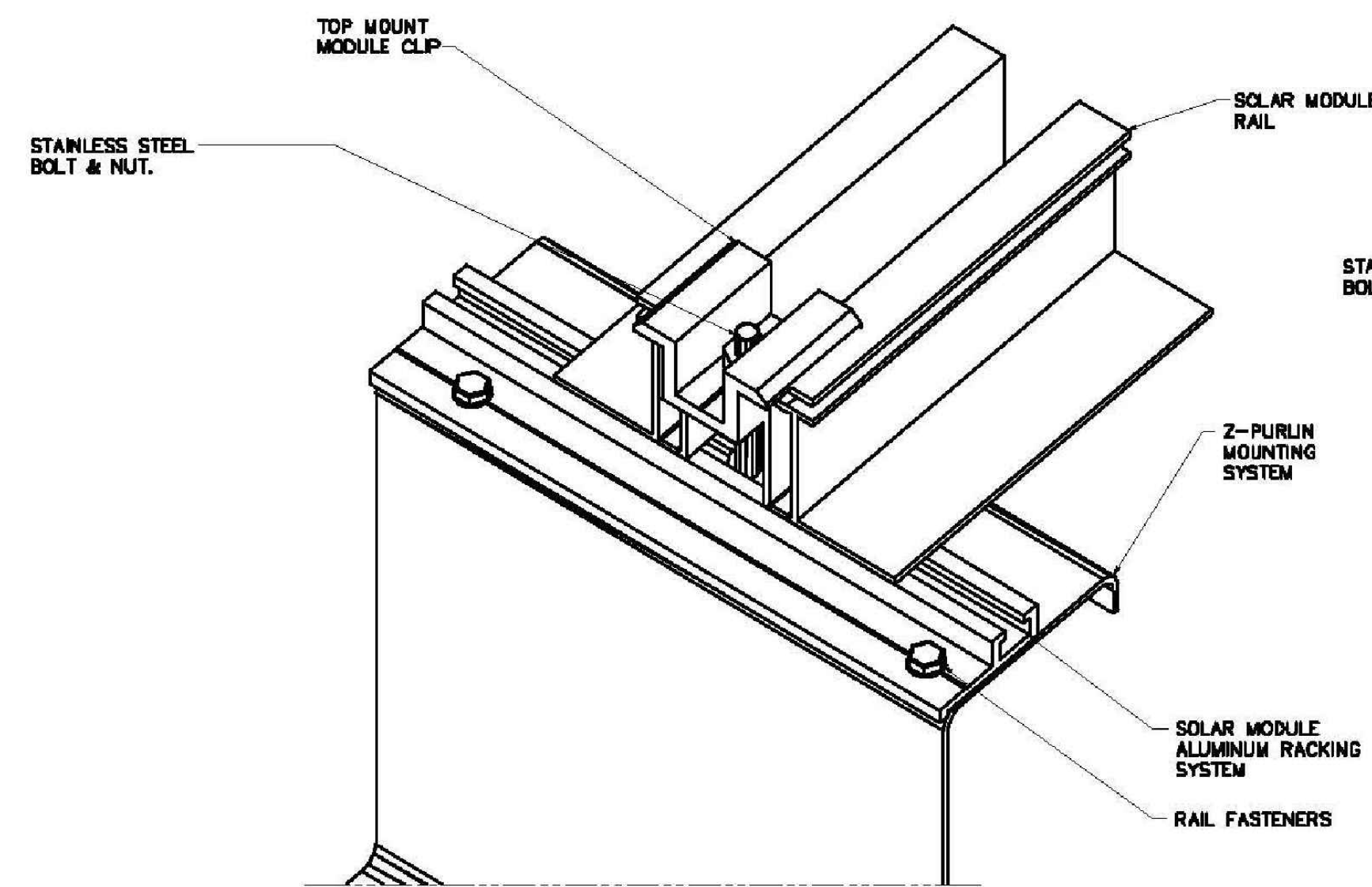
5 TOP CHORD / POST CONNECTION
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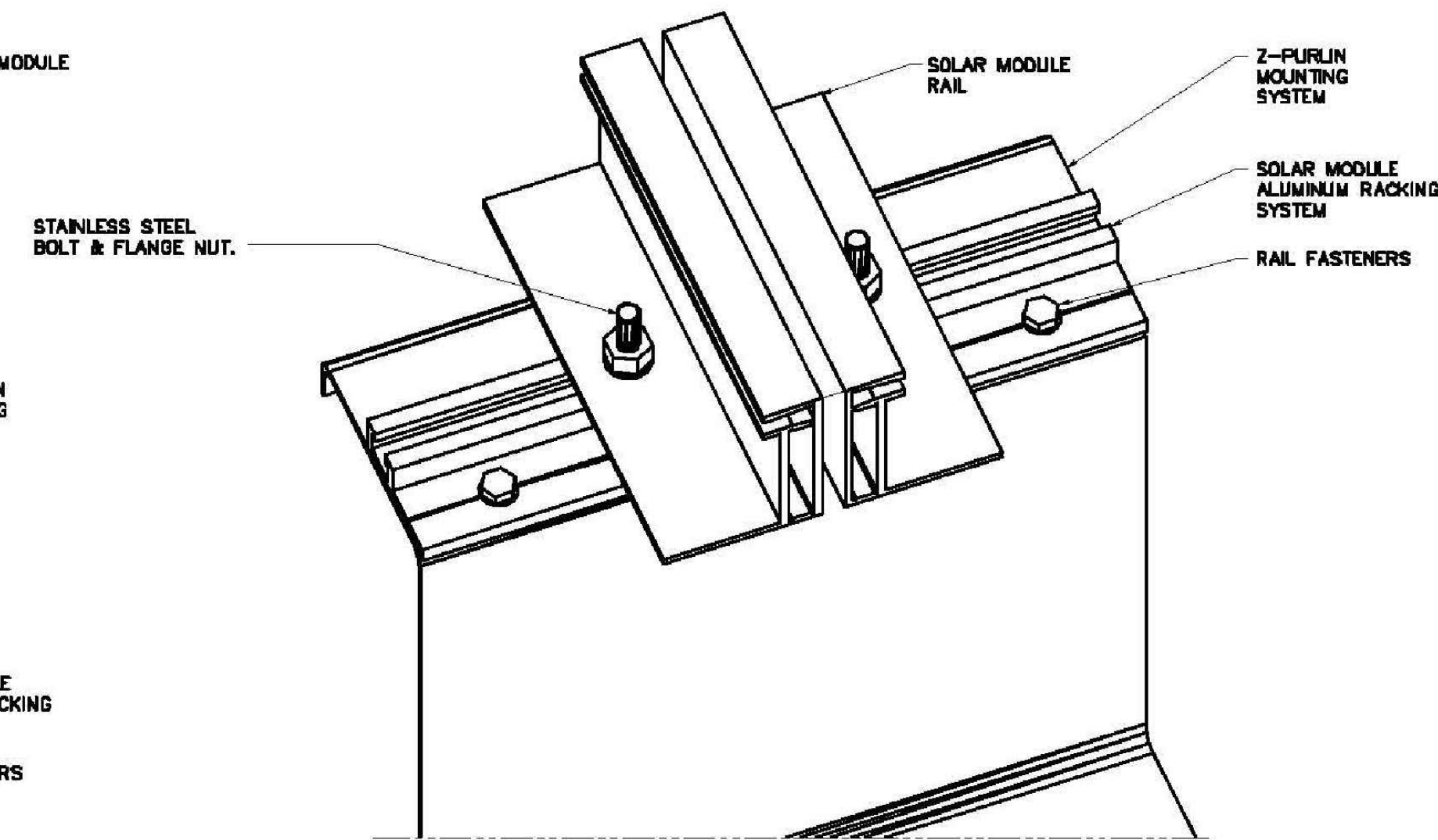
6 TOP MODULE MOUNTING SYSTEM
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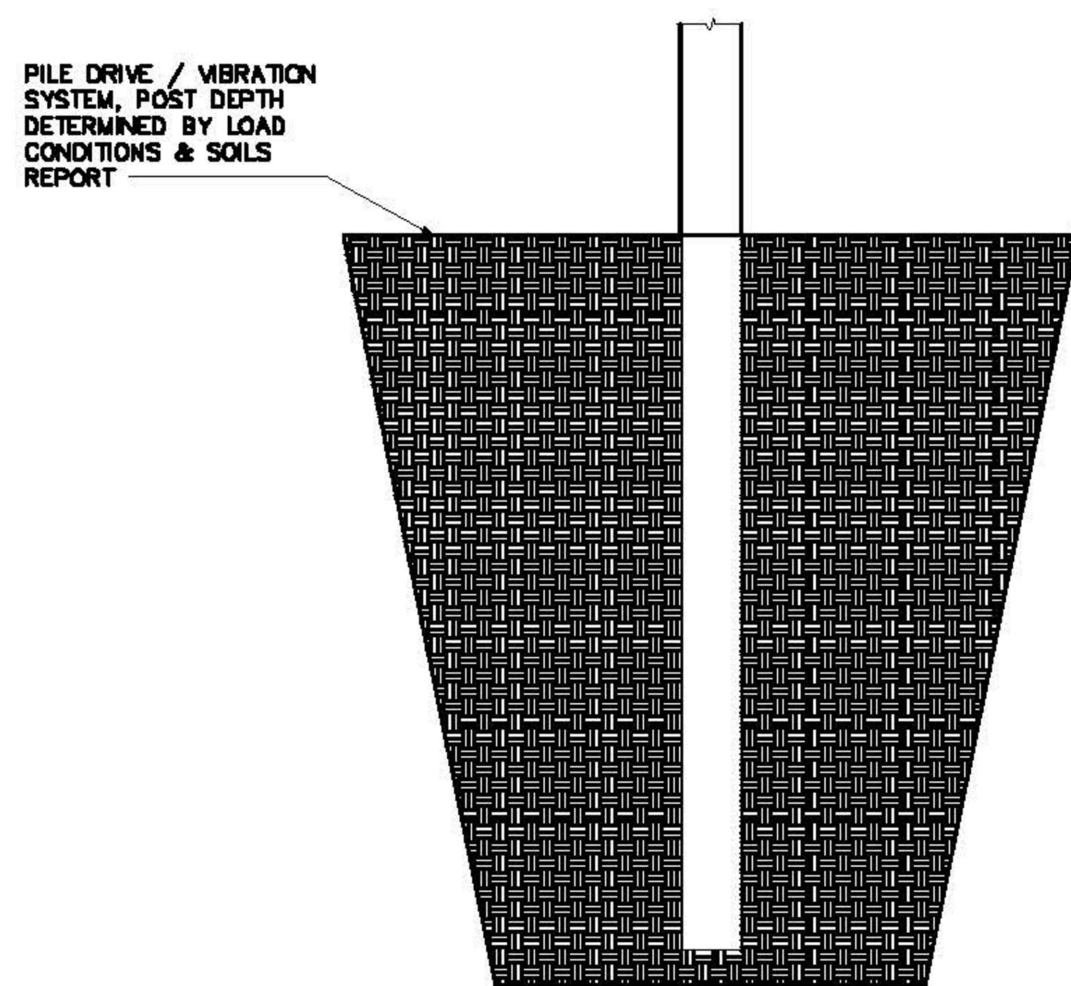
7 BOTTOM MODULE MOUNTING SYSTEM
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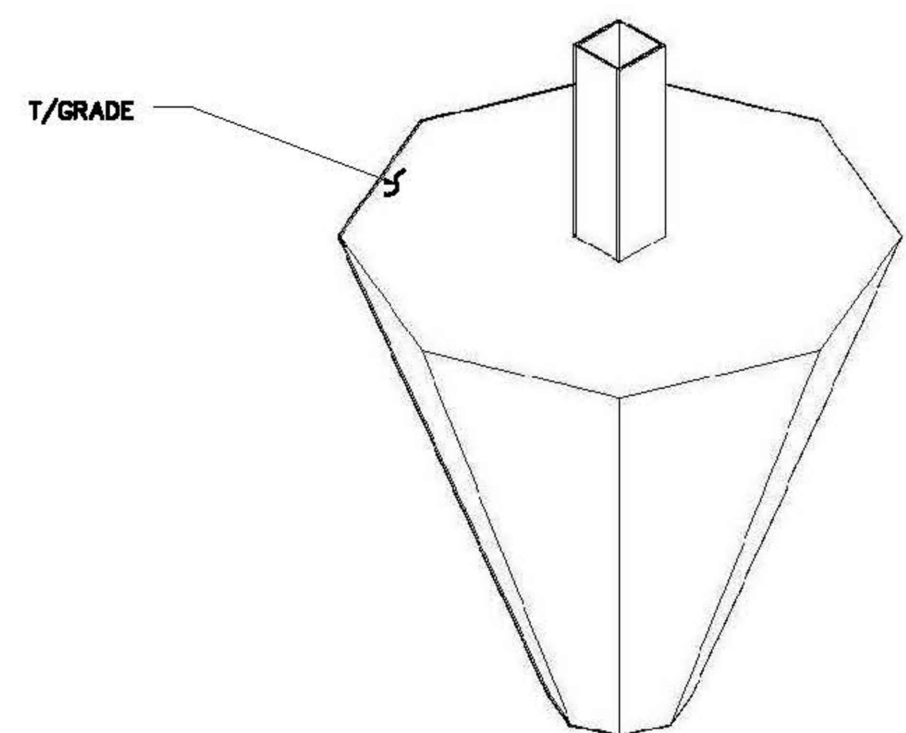
8 TOP MODULE MOUNTING WITH RACKING SYSTEM
N.T.S.



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

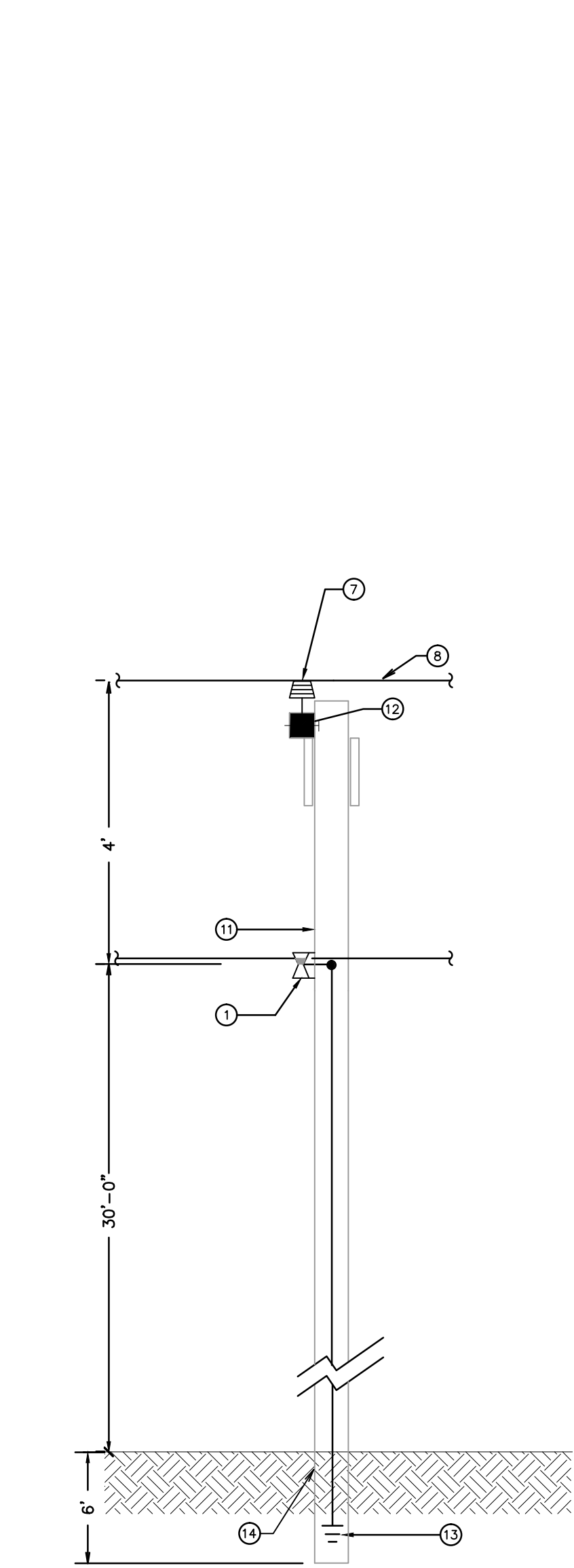


10 PILE DRIVEN / VIBRATION SYSTEM PIER
N.T.S.



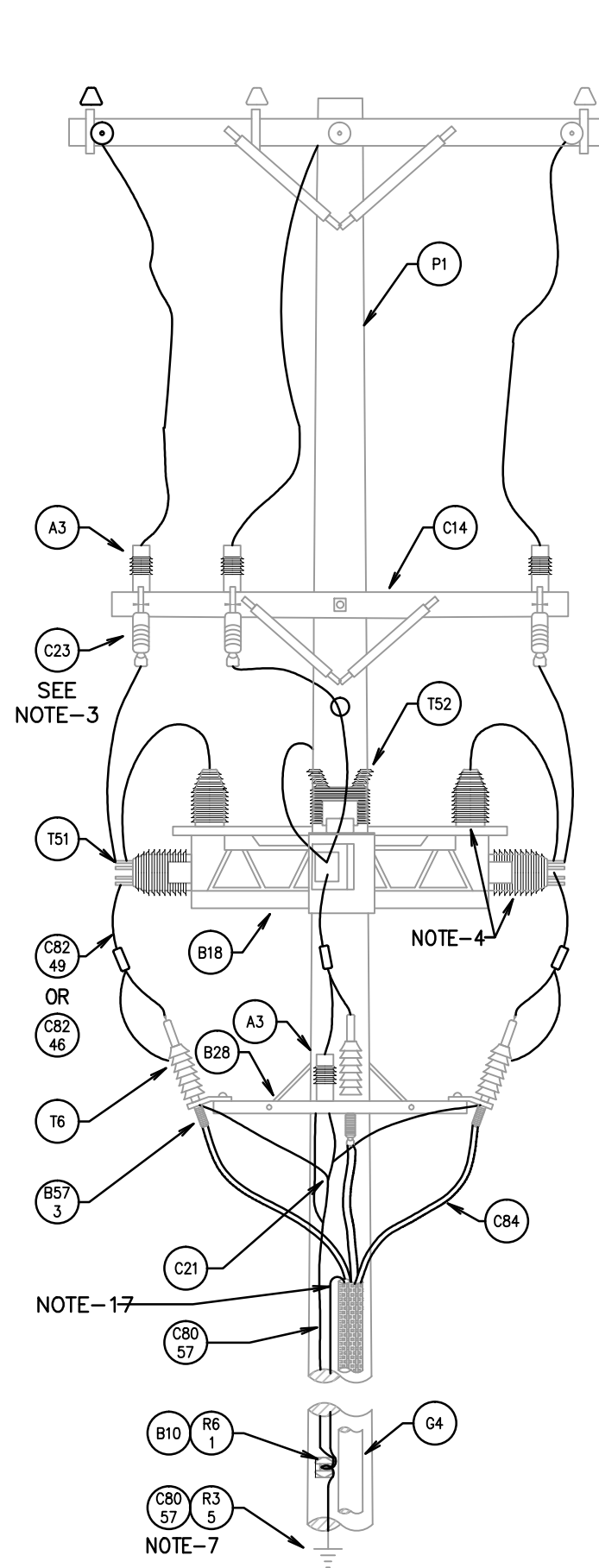
TOWN OF CHESTER PLANNING BOARD APPROVAL

REV #	DATE	REMARKS:	ISSUE #	DATE	ISSUED FOR:
<div>1/8" 1/4" 1/2" 0 1" 2"</div> REFERENCE SCALE					
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<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: RACK DETAILS					
DESIGNED BY: RDF	DRAWN BY: SAR	APPROVED BY: ACL	APPROVED BY: PG: MDF	DRAWING #: C-903	
DATE: 09/15/15	SCALE: AS SHOWN	FE PROJECT #: 15-255	PAGE 7 OF 10		

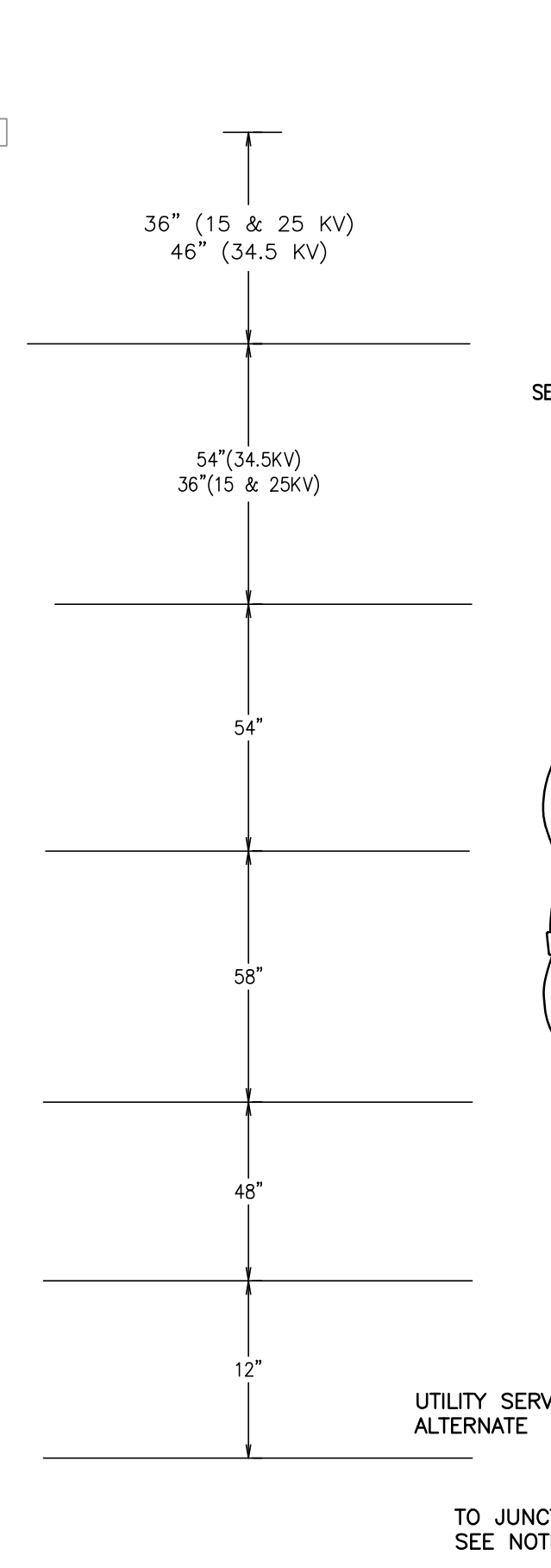


- ① CLEVIS FOR NEUTRAL.
② 3-1/4" "U" GUARD (CARLON) AND/OR CONDUIT.
③ PIN TYPE INSULATORS 15KV CLASS.
④ #1 ALUMINUM 133% INSULATION LEVEL OF EPR 15KV CLASS TAPE SHIELDED ANIXTER 3-FE-1011 OR EQUIVALENT WITH 1#1 INSULATED (600V) GROUND.
⑤ NEW POLE 40' CLASS 4 DOUGLAS FIR (PENTH CHLOR) TREATED.
⑥ TREATED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

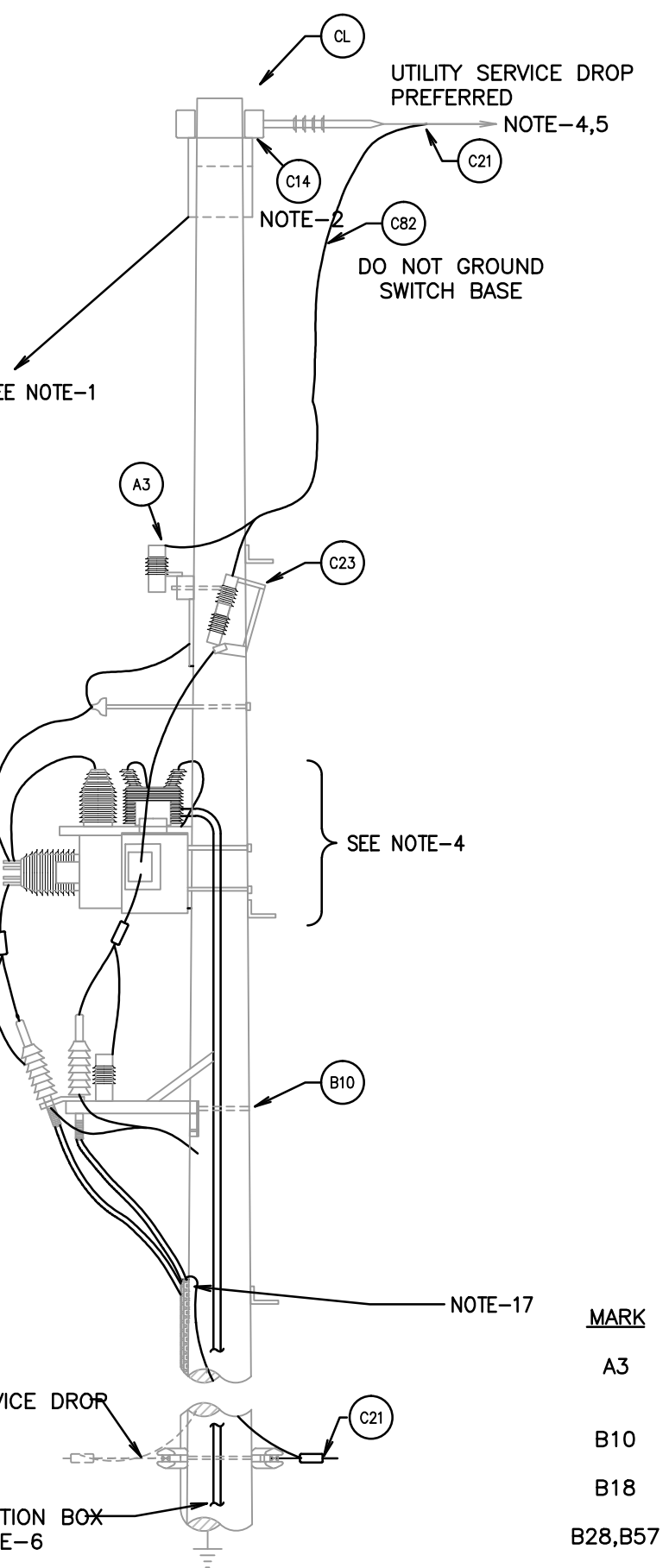
1 TYPICAL PRIMARY MID SPAN LATERAL POLE
N.T.S.



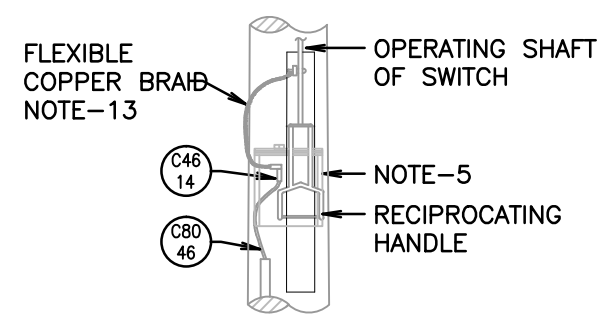
LOAD SIDE VIEW



SOURCE SIDE HANDLE VIEW



SIDE VIEW



GROUNDING DETAIL SCHEMATIC

NOTES:

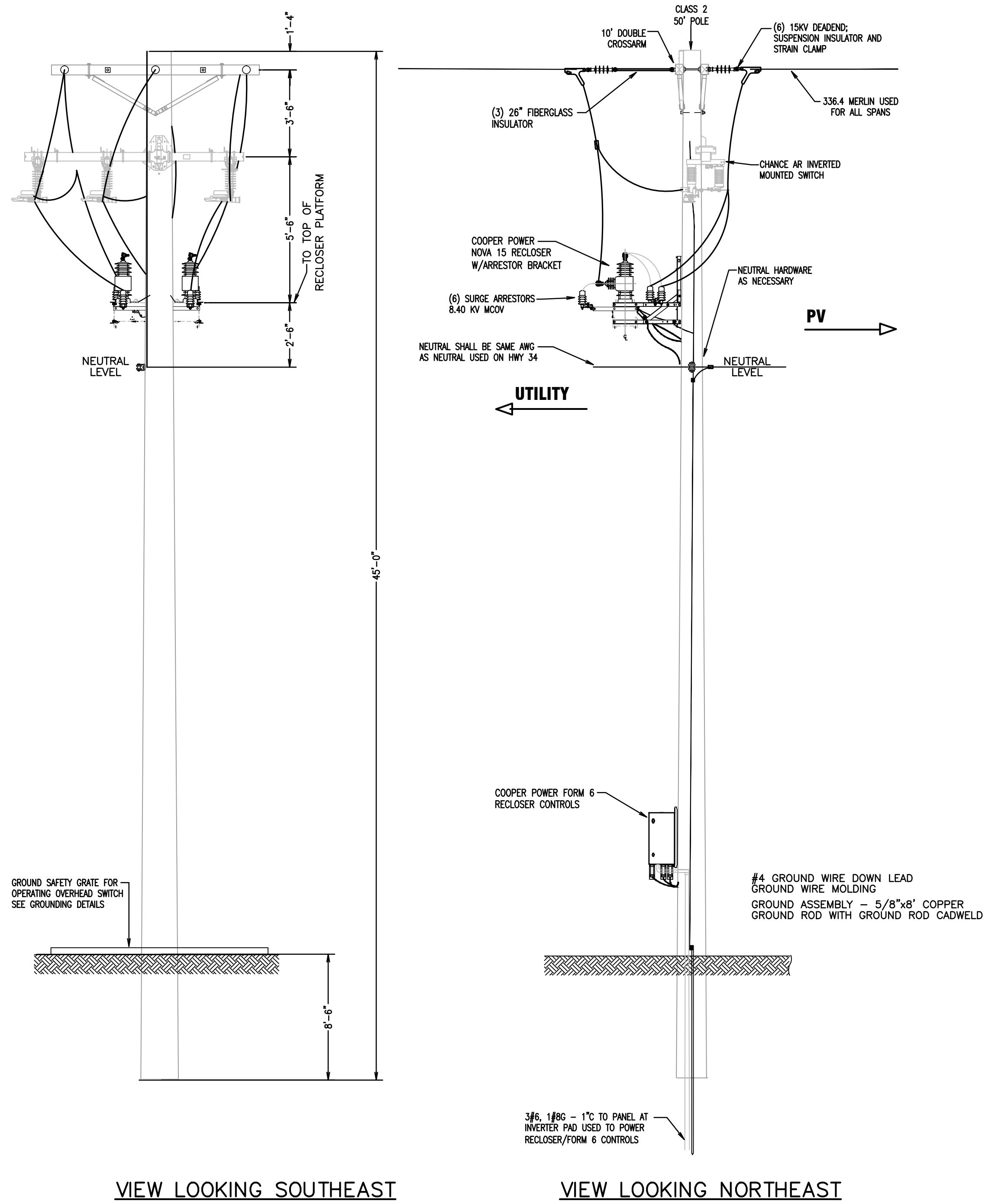
1. GUY AS REQUIRED. PROVIDE 3/8" EHS PRIMARY GALVANIZED DOWN GUY, WITH 54" FIBERGLASS STRAIN INSULATOR GRIPS AND 8" SCREW ANCHOR WITH GALVANIZED THIMBLE EYE BOLTS 2" SQ. FLAT OR CURVED CAST WASHER, SQUARE NUT AND GRIPS OR GUY CLAMPS AND GUY MARKERS (CHANCE, JOSLYN, OR MACLEAN). PROVIDE 1/4" EHS GALVANIZED 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:

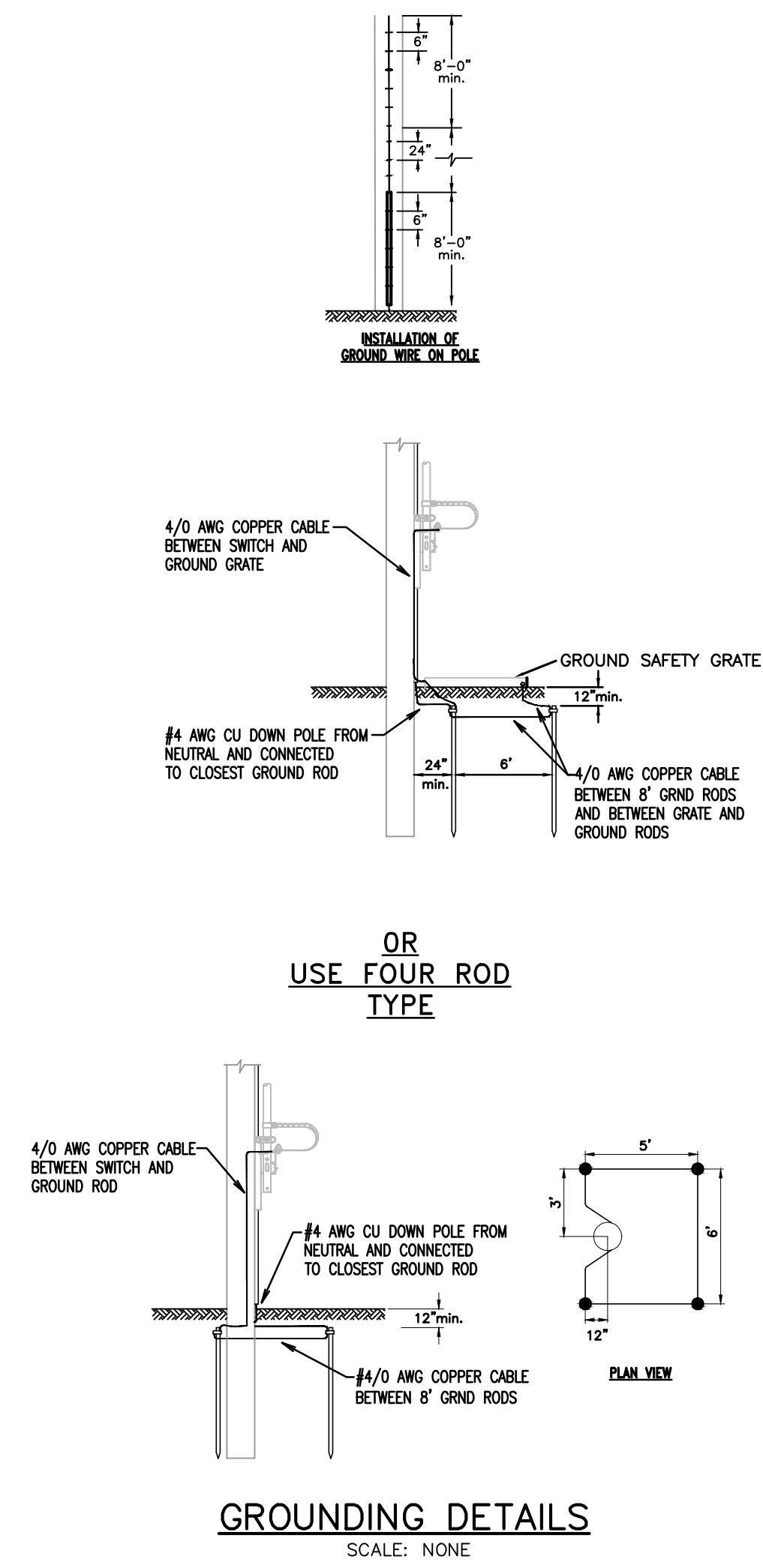
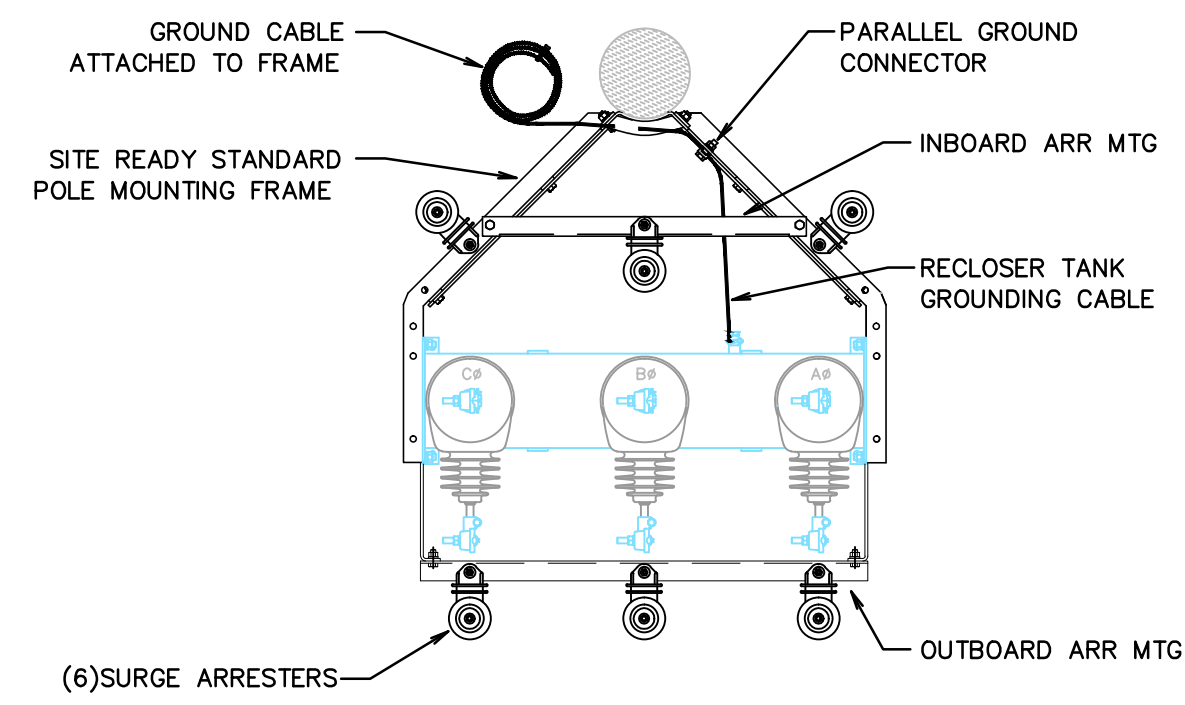
MARK	DESCRIPTION
A3	PROVIDE 10KV MCOV NON GAPPED POLYMER SURGE ARRESTOR 15KV CLASS OB PDV65 #217560. 35KV CLASS OB PDV65 #213279, 29MCOV (OR EQUAL BY COOPER)
B10	BOLTS AS REQUIRED WITH SQUARE CURVED WASHERS AND SQUARE NUTS GALVANIZED.
B18	PROVIDE BRACKET FOR METERING ALUMAFORM PMM-6 3 POSITION FOR INSTRUMENT 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" 4" 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 2/23/16 NOT FOR CONSTRUCTION		DRAWING TITLE: LATERAL & METER POLE DETAILS			
DESIGNED BY: RDF		DRAWN BY: SAR		APPROVED BY P.E.: ACL	
DATE: 09/15/15		SCALE: AS SHOWN		FE PROJECT #: 15-255	
				C-904 PAGE 8 OF 10	

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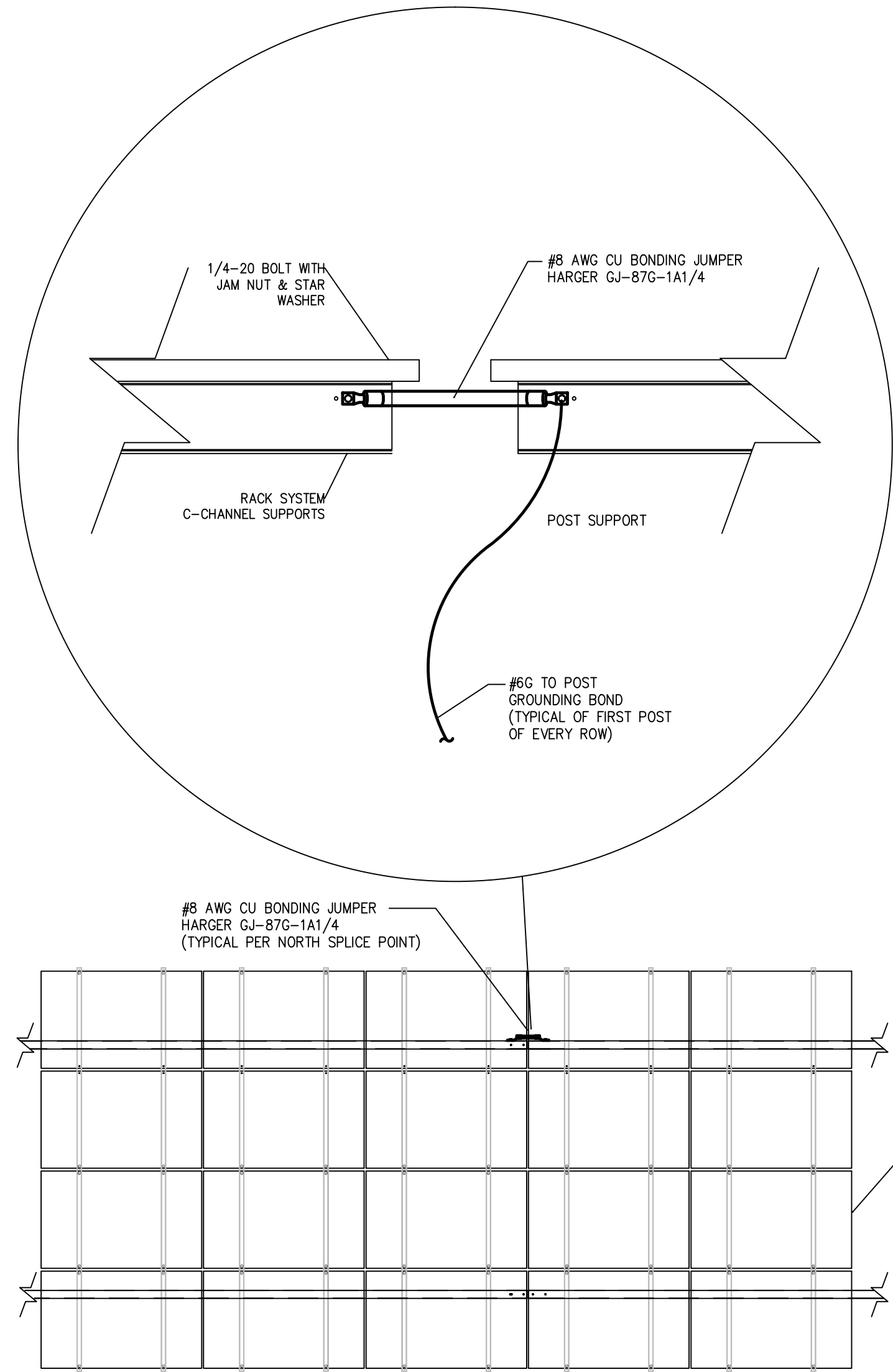


1 RECLOSER POLE DETAIL
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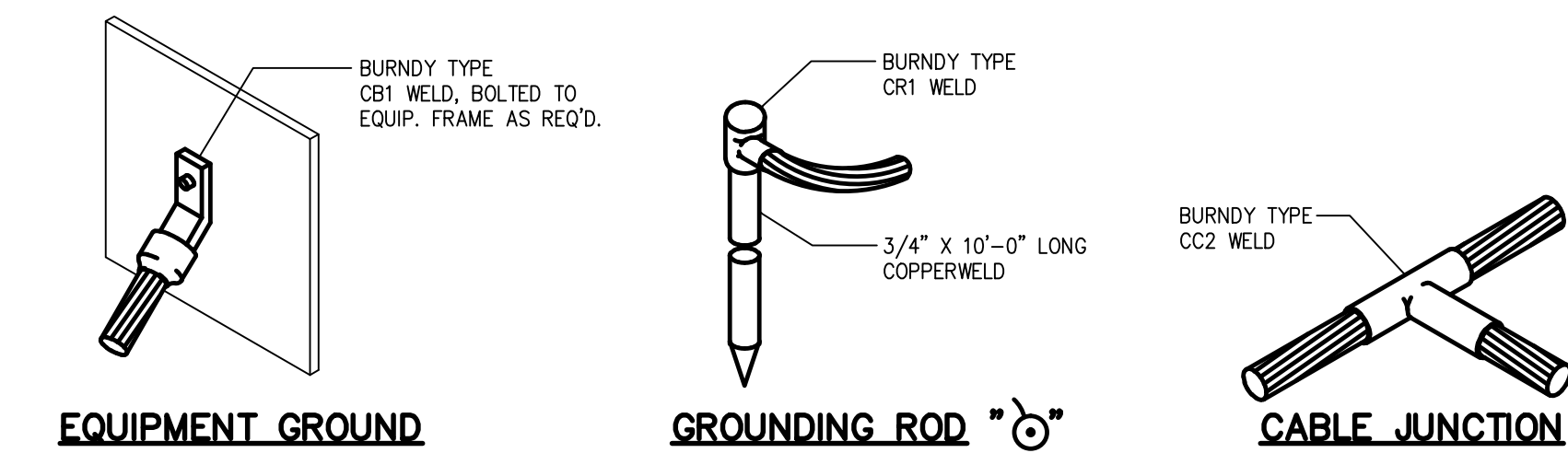


TOWN OF CHESTER PLANNING BOARD APPROVAL

REV #	DATE	REMARKS:	ISSUE #	DATE	ISSUED FOR:
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FELLENZER ENGINEERING III www.fellp.com					
22 Mulberry St., Suite 2A, Middletown, NY 10940 1 845-343-1481 fx 845-343-4986					
181 Church St., Suite 100, Poughkeepsie, NY 12601 1 845-454-9704 fx 855-320-8735					
PROJECT TITLE: JOHNSON FARM PHOTOVOLTAIC ARRAY 121 JOHNSON ROAD, CHESTER, NY 10918					
DRAWING TITLE: RECLOSURE POLE DETAILS					
DESIGNED BY: RDF	DRAWN BY: SAR	APPROVED BY: ACL	APPROVED BY: MDF	DRAWING #: C-905	
DATE: 09/15/15	SCALE: AS SHOWN	FE PROJECT #: 15-255	PAGE 9 OF 10		



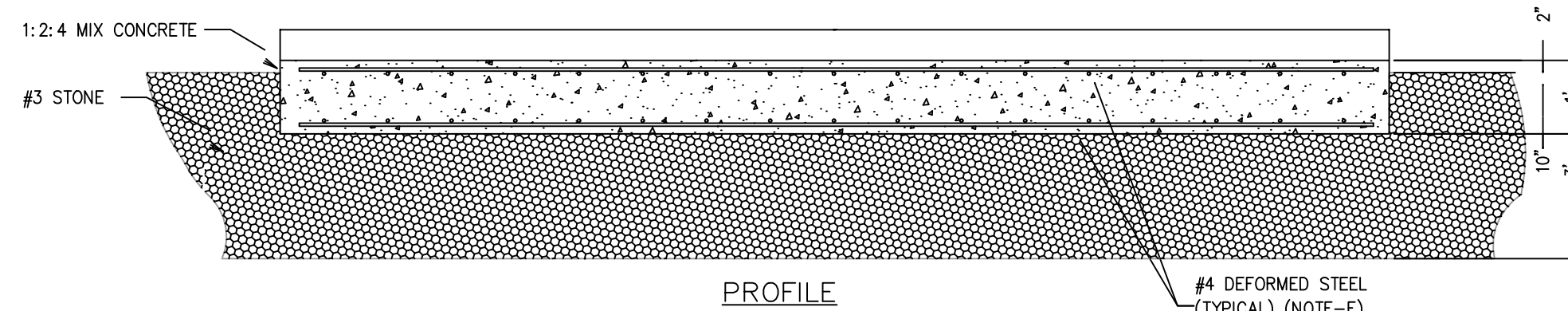
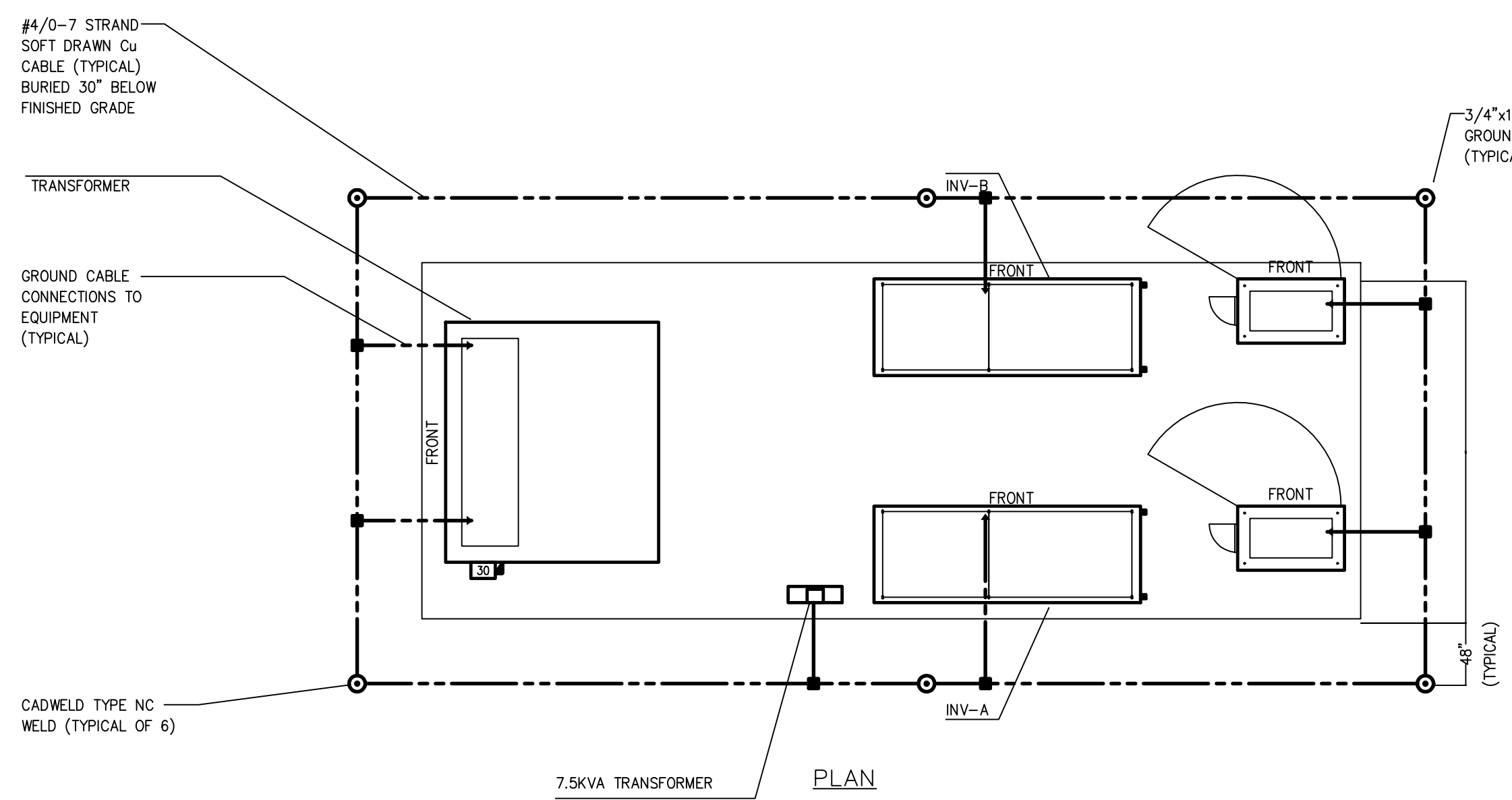
1 PHOTOVOLTAIC RACK BONDING DETAIL
N.T.S.



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 THERMOLOD PROCESS OF BURNDY OR CADWELD PROCESS OF ERICO PRODUCTS INC.

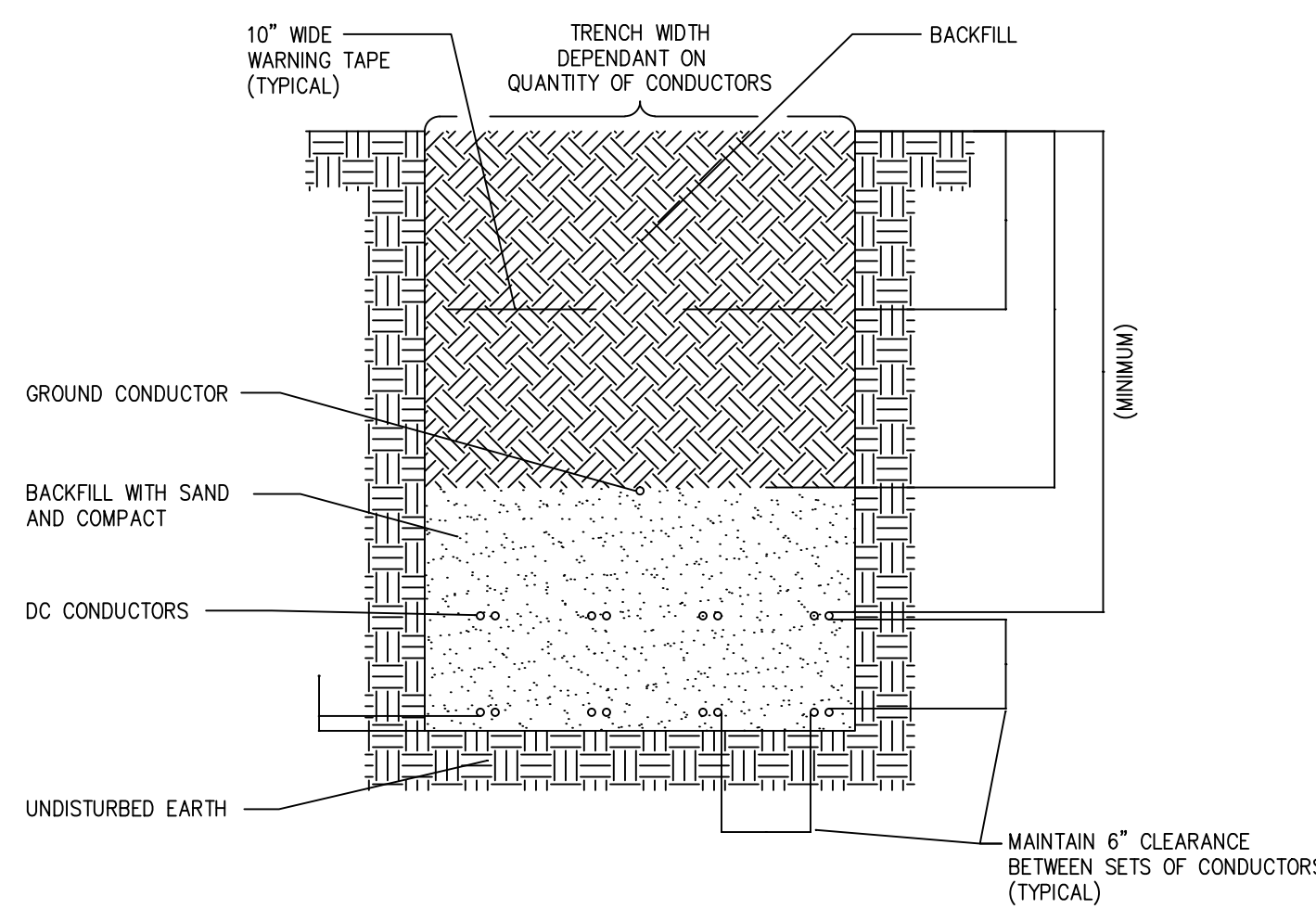
2 GROUNDING DETAILS
N.T.S.



TRANSFORMER PAD DETAIL NOTES:

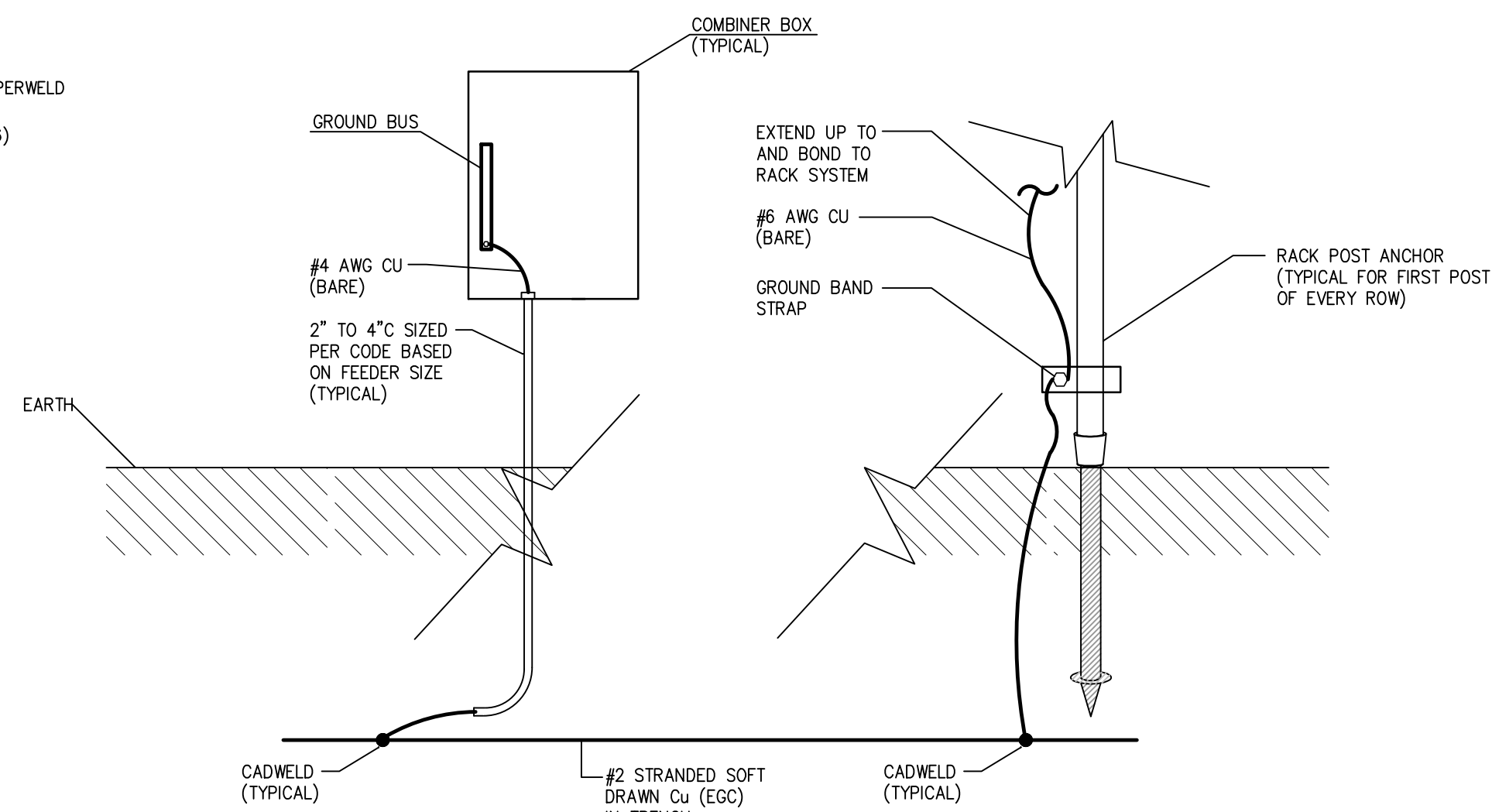
- CONDUITS SHALL BE INSTALLED WITH THE TOP OF THE CONDUITS EVEN WITH OR BELOW THE CONCRETE PAD SURFACE.
- CONDUIT OPENINGS FOR EQUIPMENT SHALL BE FRAMED AS INDICATED AND REMAIN OPEN AFTER CONCRETE POUR. PRIMARY CONDUITS SHALL BE INSTALLED ON THE LEFT SIDE OF THE C-BUS OPENING. VERIFY OPENINGS WITH EQUIPMENT 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.

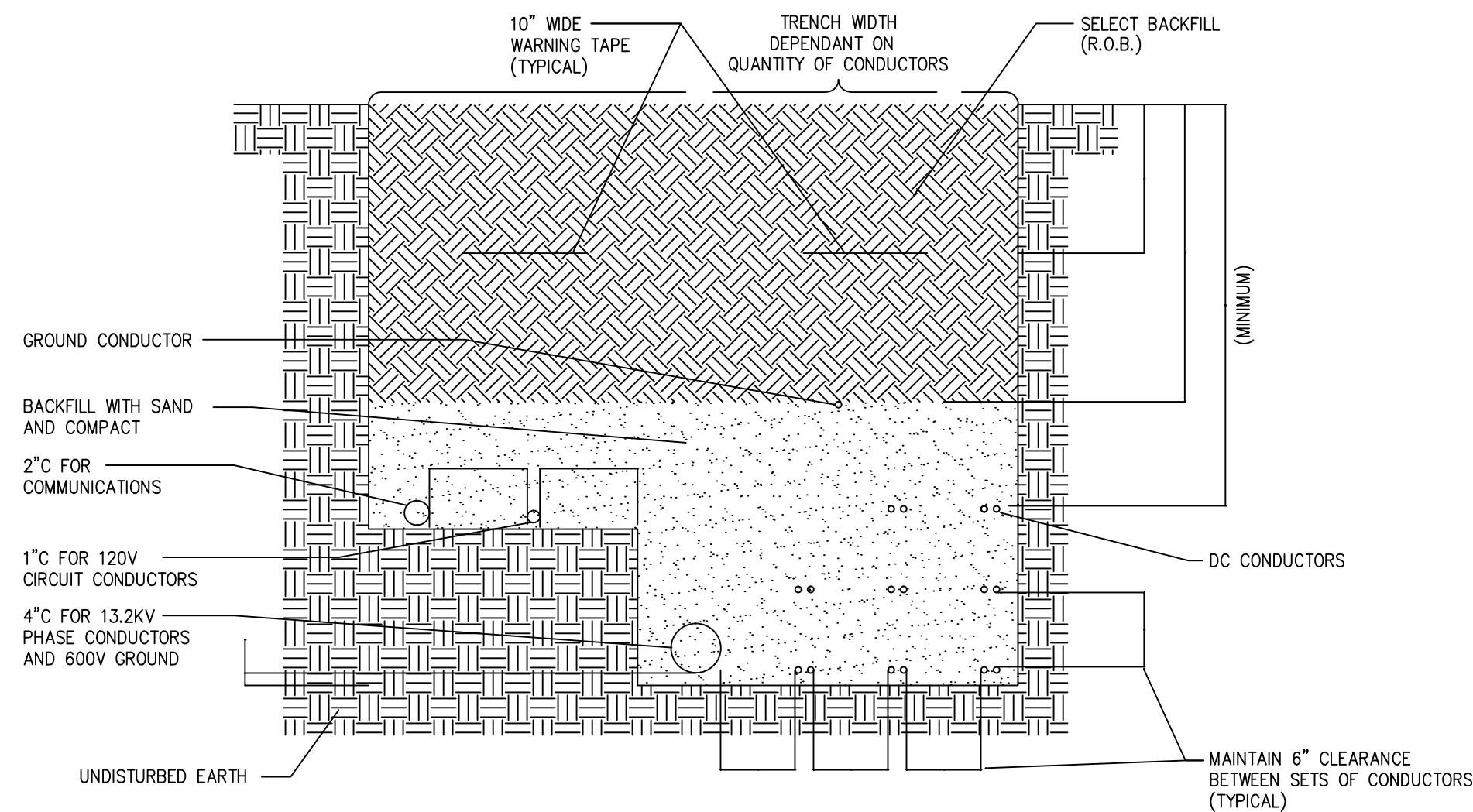


NOTE:
CONDUITS FOR COMMUNICATION WIRING SHALL MAINTAIN A MINIMUM OF 12\"/>

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

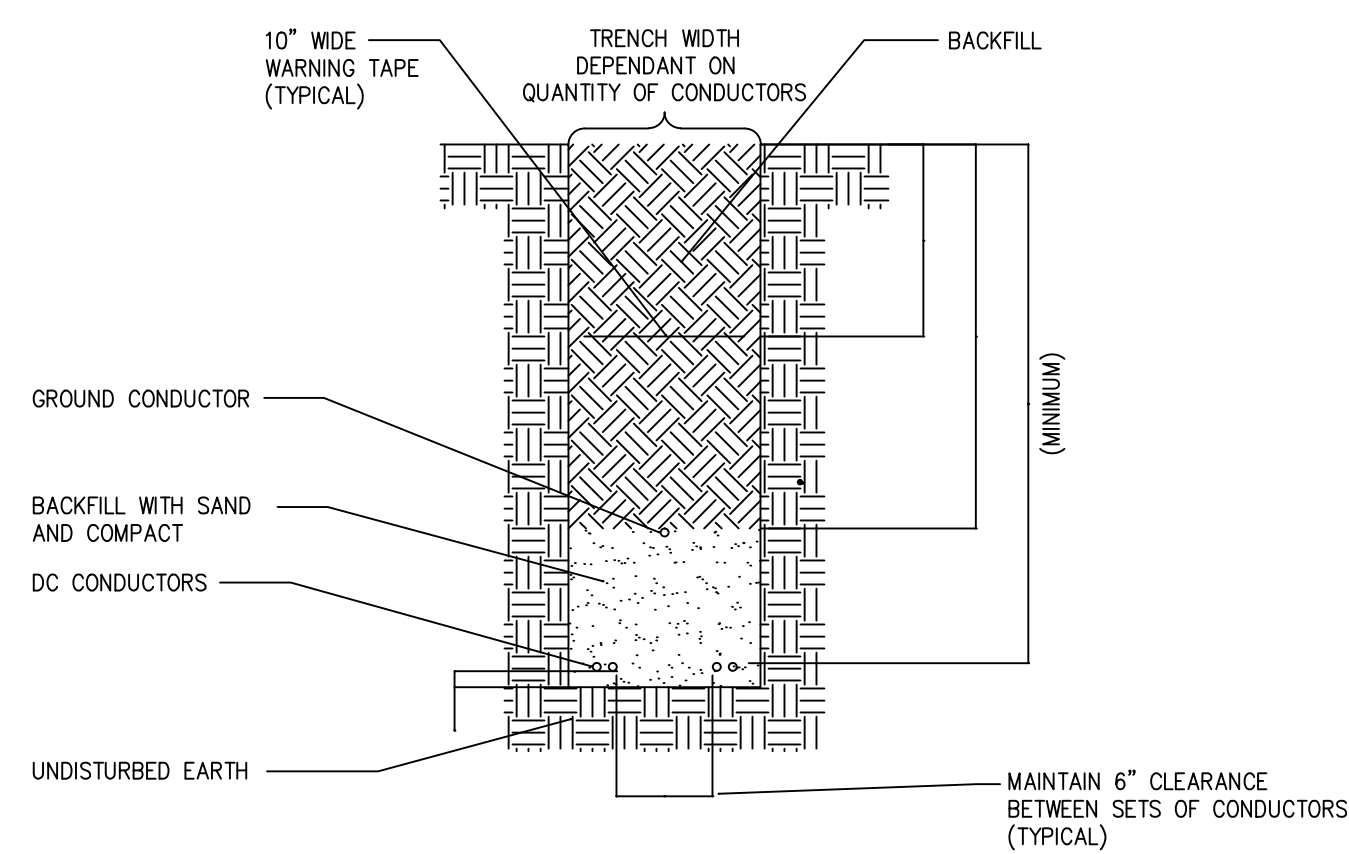


3 COMBINER BOX & RACK BONDING DETAIL
N.T.S.



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>					
TOWN OF CHESTER PLANNING BOARD APPROVAL					
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 10 of 10		