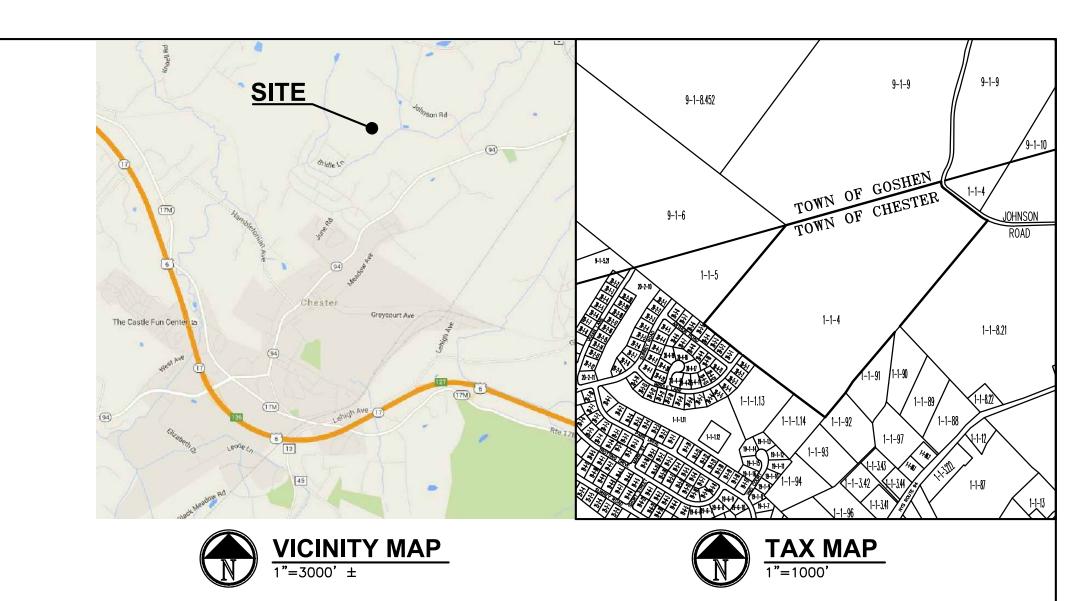
JOHNSON FARM PHOTOVOLTAIC ARRAY

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 * AS REQUIRED BY THE APPROPRIATE REGULATORY AGENCY 121 JOHNSON ROAD CHESTER, NEW YORK 10918 TAX MAP
SECTION 1, BLOCK 1, LOT 4 JOHNSON REALTY 112 JOHNSON ROAD CHESTER, NEW YORK 10918 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:

SHE	ET NO.	<u>DRAWING NO.</u>	<u>TITLE</u>		
	1	C-101	SITE PI	AN	
	2	C-102	EXTEND	ED TOP	POGRAPHY MAP
	3	C-800	3 LINE	SCHEM	ATIC DIAGRAM
	4	C-901	DETAILS	;	
	5	C-902	RACK D	ETAILS	
	6	C-903	RACK D	ETAILS	
	7	C-904	LATERA	L & MI	ETER POLE DETAILS
	8	C-905	RECLOS	ER POI	E DETAILS
	9	C-906	GROUNI	OING &	TRENCH DETAILS
REV#	DATE	REMARKS:	ISSUE#	DATE	ISSUED FOR:

SHALL RETURN THE LAND TO ITS PRE-CONSTRUCTION

TOWN OF CHESTER PLANNING BOARD APPROVAL

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.

15-255

22 Mulberry St., Suite 2A, 181 Church St., Suite 100, Poughkeepsie, NY 12601 t 845-454-9704 fx 855-320-8735 Middletown, NY 10940 t 845-343-1481 fx 845-343-4986

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

AS SHOWN

SITE PLAN
1"=150'±

SOLAR ARRAY AREA = 10.48 ACRES



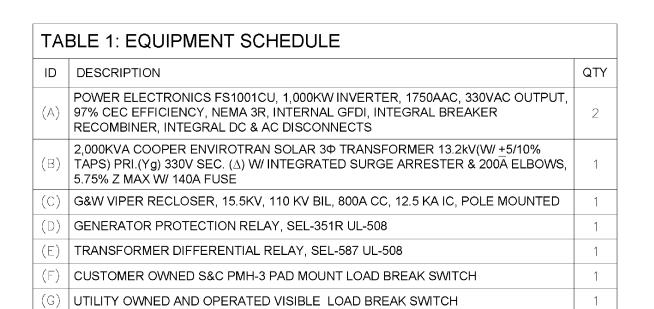
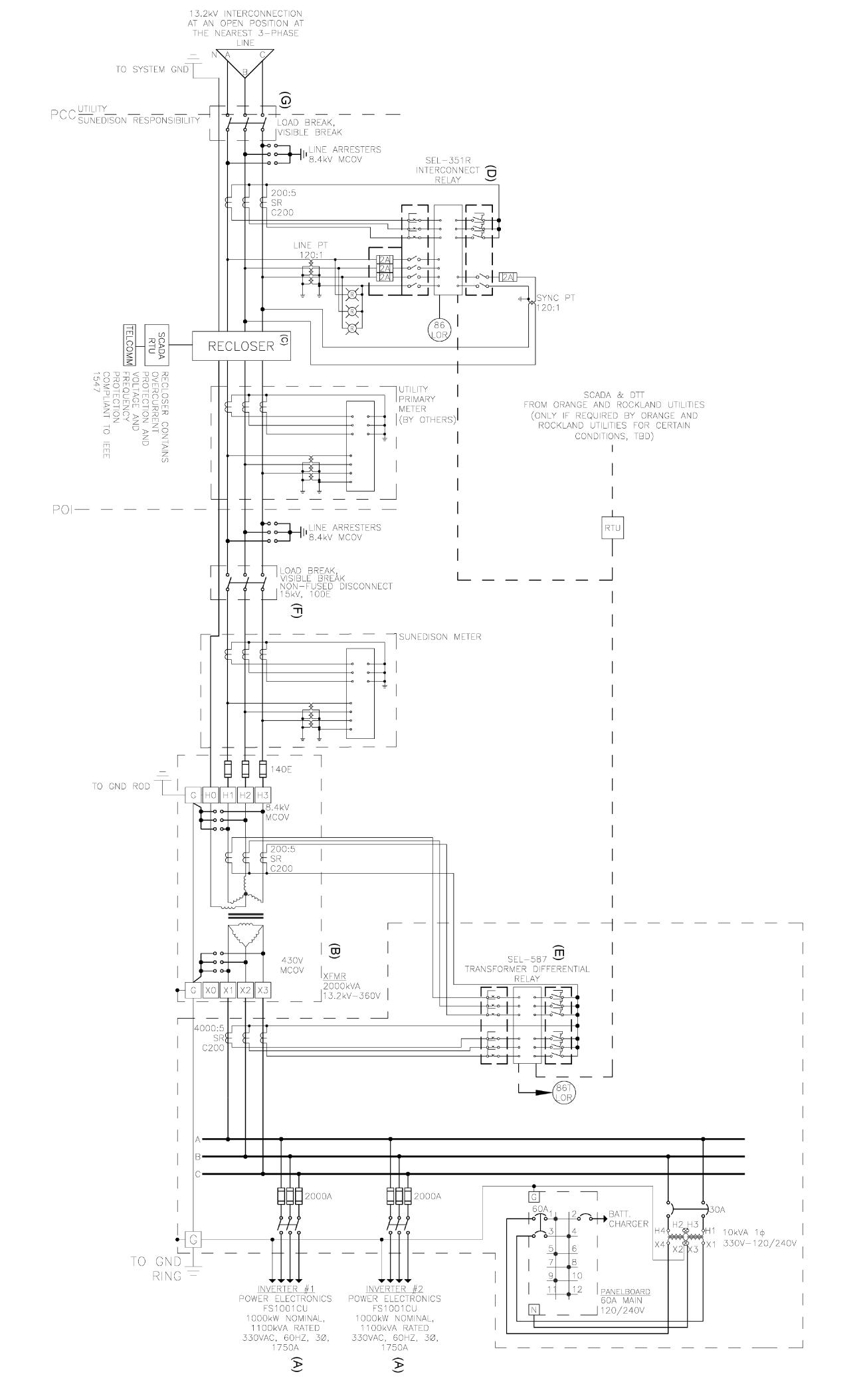


TABLE 2: SEL-351R RELAY SETTINGS NOMINAL VOLTAGE:13.2KV								
ELEMENT	PICKUP RANGE	TIME DELAY (SECONDS)						
UNDERVOLTAGE (27)	50% OF NOMINAL	0.16						
UNDERVOLTAGE (27)	88% OF NOMINAL	2.00						
OVERVOLTAGE (59)	110% OF NOMINAL	1.00						
OVERVOLTAGE (59)	120% OF NOMINAL	0.16						
UNDERFREQUENCY (81U)	57.0 Hz	0.16						
UNDERFREQUENCY (81U)	57.5 Hz	1.50						
UNDERFREQUENCY (81U)	58.5 Hz	100.00						
OVERFREQUENCY (810)	60.5 Hz	0.16						
OVERCURRENT (51C)	4000 A	PER IEC CURVE						



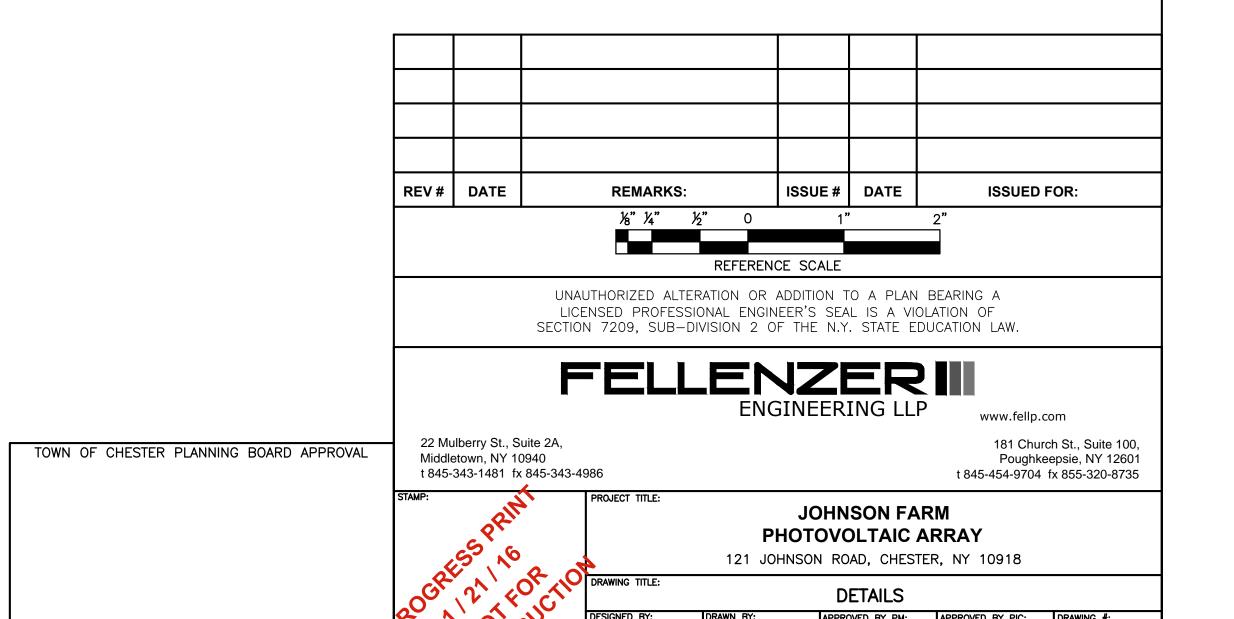


NOTES:

- POINT OF INTERCONNECTION VOLTAGE AND LOCATION SUBJECT TO INPUT FROM ORANGE AND ROCKLAND UTILITES.
- INVERTER DC INSTALLATION DESIGNED IN ACCORDANCE WITH ORANGE & ROCKLAND UTILITIES NY INTERCONNECTION STANDARDS FOR LOCATIONS LESS THAN 2MW.
- 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 86 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 IEE 485-1983.
- 8. CT'S SHALL HAVE A MINIMUM ACCURACY RATING OF C200.
- ALL EQUIPMENT BETWEEN INVERTER TERMINALS AND POINT OF INTERCONNECTION ASSUSMED TO BE INSTALLED ABOVE GROUND AND WITH AN OVERHEAD INTERCONNECTION.

PRELIMINARY

NOT FOR CONSTRUCTION FOR CONCEPTUAL PURPOSES ONLY



RDF

09/15/15

SAR

MDF

15-255

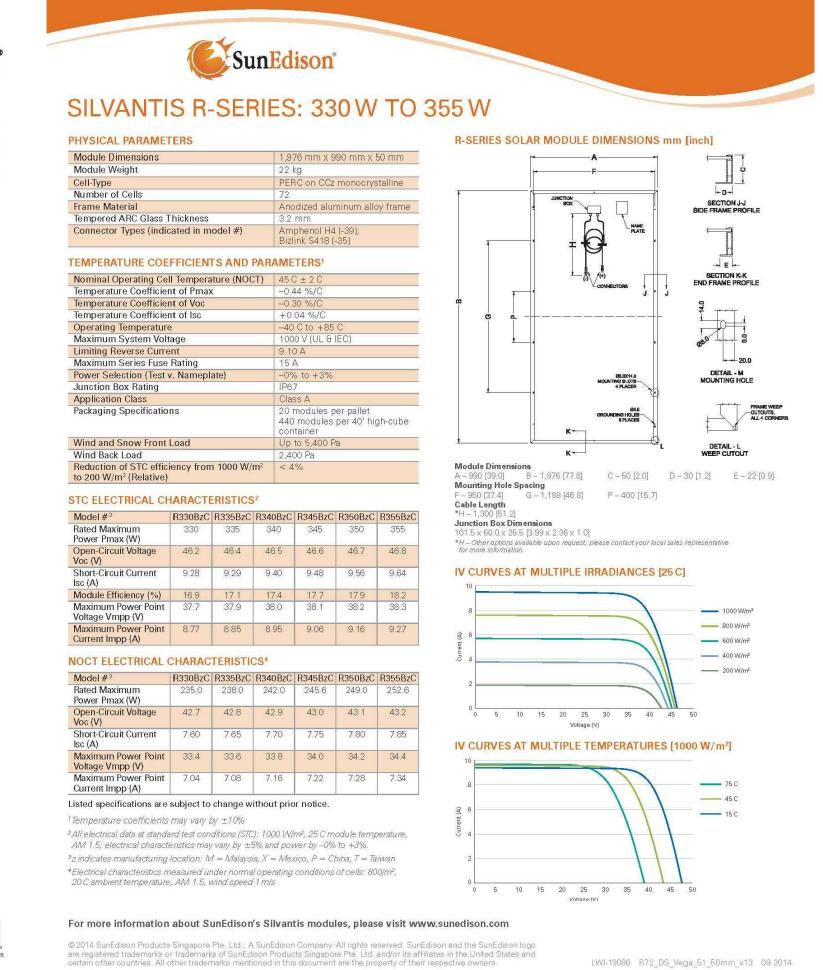
ACL

AS SHOWN

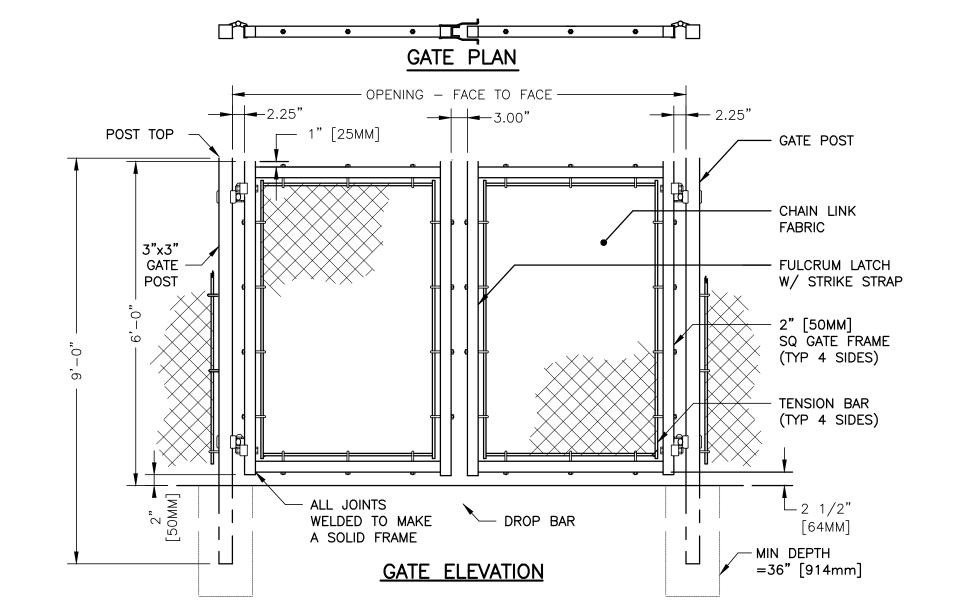
PRELIMINARY THREE LINE SCHEMATIC

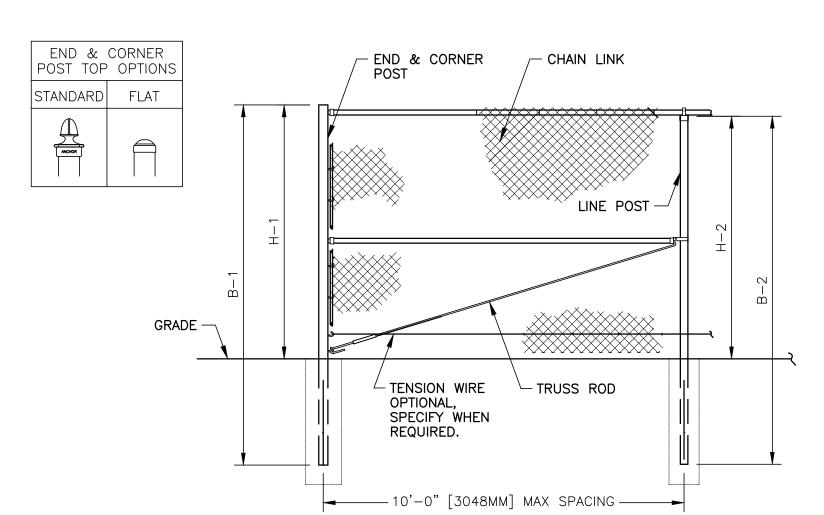
(FOR CONCEPTUAL PURPOSES ONLY - NOT FOR CONSTRUCTION)











TYPICAL FENCE SECTION ELEVATION

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

LWI-19086 R72_DS_Vega_51_50mm_v13 09 2014

1. METRIC DIMENSIONS ARE NOMINAL EQUIVALENTS TO U.S. DIMENSIONS. 2. FOOTING WIDTH TO BE (4)X POST WIDTH.

3. GATES MAY BE MANUALLY OR ELECTRICALLY OPERATED. HARDWARE WILL

VARY FOR ELECTRICALLY OPERATED GATES.

2 TYPICAL CHAIN LINK FENCE AND GATE
N.T.S.

ALL STRUCTURAL STEEL SHALL BE DESKINED, FABRICATED AND ERECTED IN ACCORDANCE MITH THE LATEST VERSION OF AISC "MANUAL OF STEEL CONSTRUCTION." LIGHT GAGE COLD—FORMED SECTIONS SHALL CONFORM TO LATEST VERSION OF AISI SPECIFICATIONS FO COLD—FORMED STEEL STRUCTURAL MEMBERS. 2. MATERIALS: ASTM ANNO OR A572 GRADE 50, $F_{\gamma} = 50$ KSI MINIMUM

A. ROLLED SHAPES: B. PLATER astm asoo grade b F_V = 50 kg minimum

SHEET METAL SCREWS, 48 & 410 TEKS — STAINLESS STEEL 412 TEKS — GALVANIZED

FIELD DONNECTIONS SHALL BE BULTED EXCEPT WHERE WELDED CONNECTIONS ARE MOKATED ON THE STRUCTURAL DRAWINGS. ALL BOLTED CONNECTIONS SHALL BE INSTALLED TO THE "SNUG TIGHT" CONDITION DEFINED AS THE FULL EFFORT OF A MAN USING A NORMAL SPUD WRENCH OR A FEW IMPACTS OF AN IMPACT WRENCH. THE "SNUG TIGHT" CONDITION WILL ENSURE THE PLIES OF CONNECTED MATERIAL ARE IN FIRM CONTACT. ALL WELDING OF STEEL SHALL BE BONE IN ACCORDANCE WITH THE LATEST VERSION OF THE AMERICAN WELD SOCIETY'S SPECIFICATIONS — AWE D1.1. ELECTRODES SHALL BE E70 SERIES LINLESS NOTED OTHERWISE.

5. GALVANIZING SHALL BE PER CONTRACT DOCUMENTS.

A. ALUMINUM SHAPES: ALLOY 6063-T6, 6061-T6 & 6005-T6

14" AND LARGER - SAE 1429 GRADE 5 16" AND SMALLER - STAINLESS STEEL SHEET METAL SCREWS, 48 & 410 TEKS — STAINLESS STEEL 412 TEKS — GALVANIZED D. SCREWS:

ALL SPECIAL INSPECTORS SHALL BE RETAINED BY OMNER/CUSTOMER. THE EXTENT OF THE INSPECTION SHALL COMPLY WITH THE CONTRACT DOCLAMENTS, THE BUILDING CODE REQUIREMENTS AND LOCAL JURISDICTION. IT IS THE OWNER/CUSTOMER'S RESPONSIBILITY TO GIVE PROPER NOTIFICATION TO THE SPECIAL INSPECTOR AND PROCEED WITH THE WORK ONLY AFTER THE SPECIAL INSPECTOR'S APPROVAL. 2. FAILURE TO NOTIFY THE SPECIAL INSPECTOR MAY RESULT IN OWNER/CUSTOMER HAVING TO REMOVE WORK FOR THE PURPOSE OF INSPECTION AT THE OWNER/CUSTOMER'S EXPENSE.

4. 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 HORMAL 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.

PREMATURE NOTIFICATION FOR INSPECTION WILL RESULT IN AN ADDITIONAL INSPECTION WITH ALL EXPENSES AND FEES PAID BY THE OWNER/CUSTOMER.

= XX PSF (FLAT ROOF SNOW)

4. SPECIAL INSPECTORS SHALL KEEP RECORDS OF ALL INSPECTIONS. RECORDS SHALL BE FURNISHED TO THE OWNER, ENGINEER OF RECORD AND LOCAL JURISDICTION AS REQUIRED. ANY AND ALL DISCREPANCIES SHALL IMMEDIATELY BE BEEN A FINAL REPORT OF INSPECTIONS CONTRACTOR. CORRECTIONS SHALL BE MADE AND 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.

6. MINIMUM REQUIRED INSPECTIONS: 5.1. STRUCTURAL STEEL/ALUMINUM

5.1. CONCRETE CONSTRUCTION

SPECIAL FELD INSPECTION:

3. SNOW LOAD:

EXPOSURE: C
DCCUPANCY CATEOGRY: X

 $S_1 = 0.000$ $S_{d1} = 0.000$

Leg = XX
STE CLASS: D
DESIGN CATEGORY: X
SEISNIC FORCE RESISTING SYSTEM = BRACED FRAME

DCCUPANCY CATEOGRY: X

5. SEISMIC: S₂ = 0.XXX

FABRICATION

MATERIAL IDENTIFICATION

HIGH STRENGTH BOLTS — MATERIAL IDENTIFICATION OF BOLTS, NUTS AND MELD FILLER MATERIALS — IDENTIFICATION AND CONFIRMATION OF COMPLIANCE WITH DESIGN DOCUMENTS

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

WEETELLANGOUS FASTENER MOTES

1. ALL BOLTS SHALL BE THE TYPE AND SIZE INDICATED ON DRAWINGS. ALL HOLES SHALL BE BOLT DIAMETER + 1/16" MAX.

ALL ELECTRICAL WORK INCLUDING WIRING, CONDUIT, PANELS AND LIGHTS TO BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR. 3. GROUNDING REQUIREMENTS.

A. BEARING CAPACITY: B. LATERAL BEARING CAPACITY: X PSF/FT

C. SIGN FRICTION: THE ABOVE VALUES ARE ASSUMED VALUES OR BASED ON GEOTECHNICAL REPORT PREPARED BY X DATED: X.

OWNER/CUSTOMER/GENERAL CONTRACTOR IS RESPONSIBLE FOR VERIFYING SOIL CONDITIONS ARE CONSISTENT WITH FINDINGS INCLUDED IN GEOTECH REPORT. VARIATIONS IN SOIL CONDITIONS SHALL BE REPORTED TO GEDTECH ENGINEER AND ENGINEER OF RECORD RESPONSIBLE FOR FOUNDATION DESIGN PRIOR TO INSTALLATION OF ANY FOUNDATION MATERIALS.

1. CONCRETE COMPRESSIVE STRENGTH FOR FOUNDATIONS SHALL BE 3000 PSI & 28 DAYS.

4. DEFORMED BAR REINFORCEMENT SHALL BE ASTM AS15 GRADE BO ($F_{\gamma} = 60$ KSI)

INSTALLER/CONTRACTOR SHALL COORDINATE PLACEMENT OF FOUNDATIONS AND/OR ANCHOR BOLTS PER DESIGN DRAWINGS.

REV# DATE ISSUE # DATE **REMARKS: ISSUED FOR:** %" ¼" ½" O 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

22 Mulberry St., Suite 2A, 181 Church St., Suite 100, Poughkeepsie, NY 12601 t 845-454-9704 fx 855-320-8735 JOHNSON FARM PHOTOVOLTAIC ARRAY 121 JOHNSON ROAD, CHESTER, NY 10918 **DETAILS**

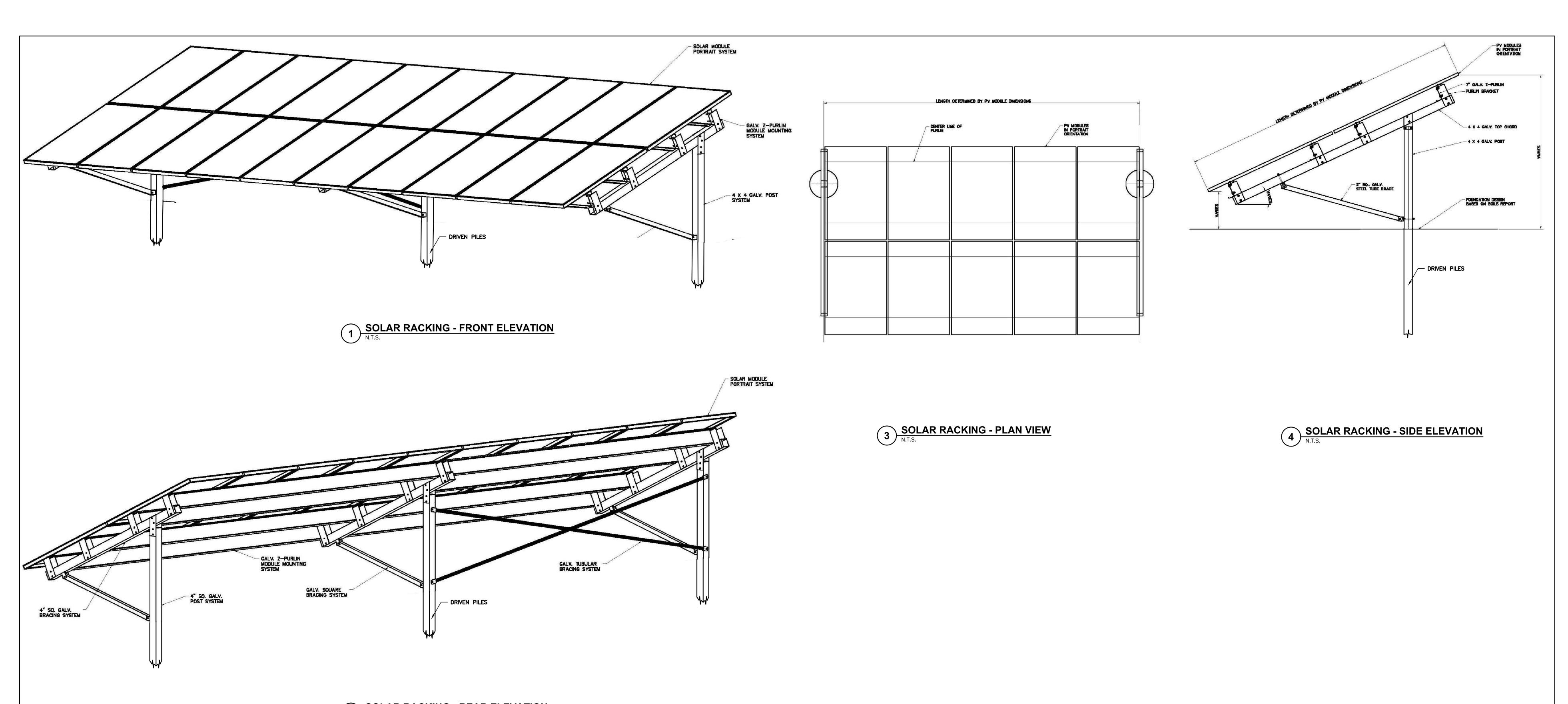
TOWN OF CHESTER PLANNING BOARD APPROVAL

Middletown, NY 10940 t 845-343-1481 fx 845-343-4986

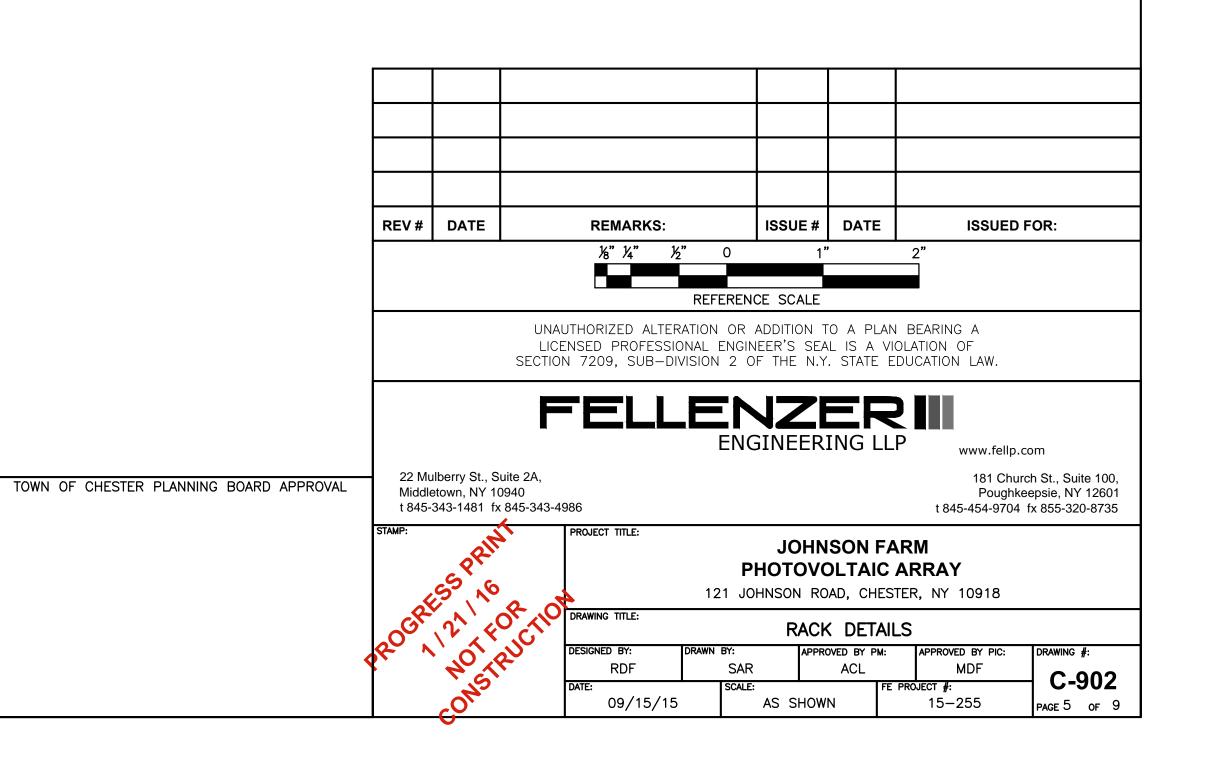
RDF

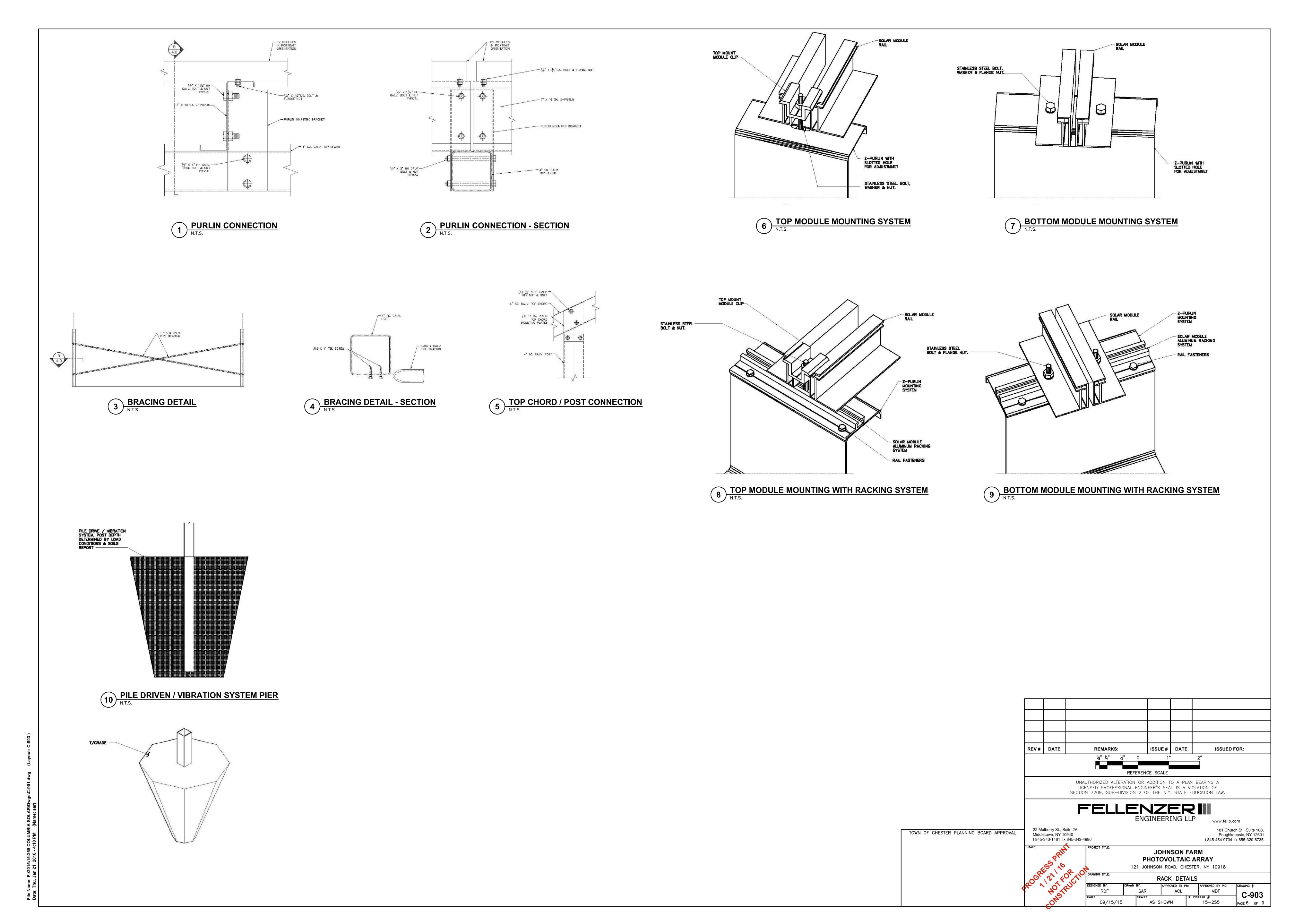
09/15/15

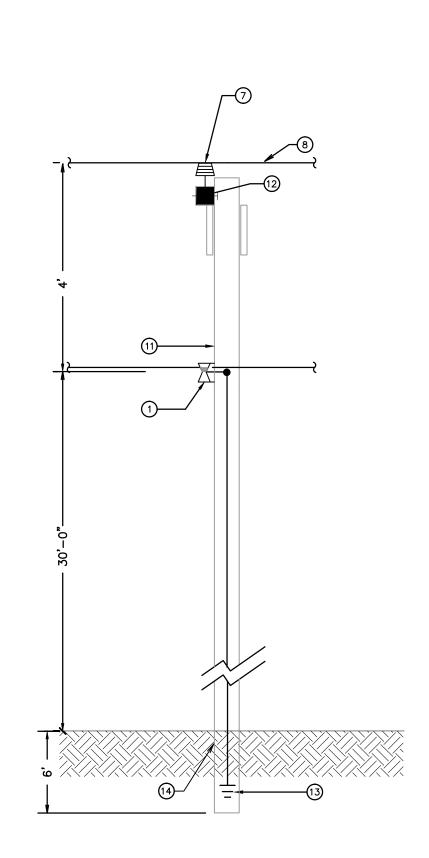
SAR ACL AS SHOWN 15-255



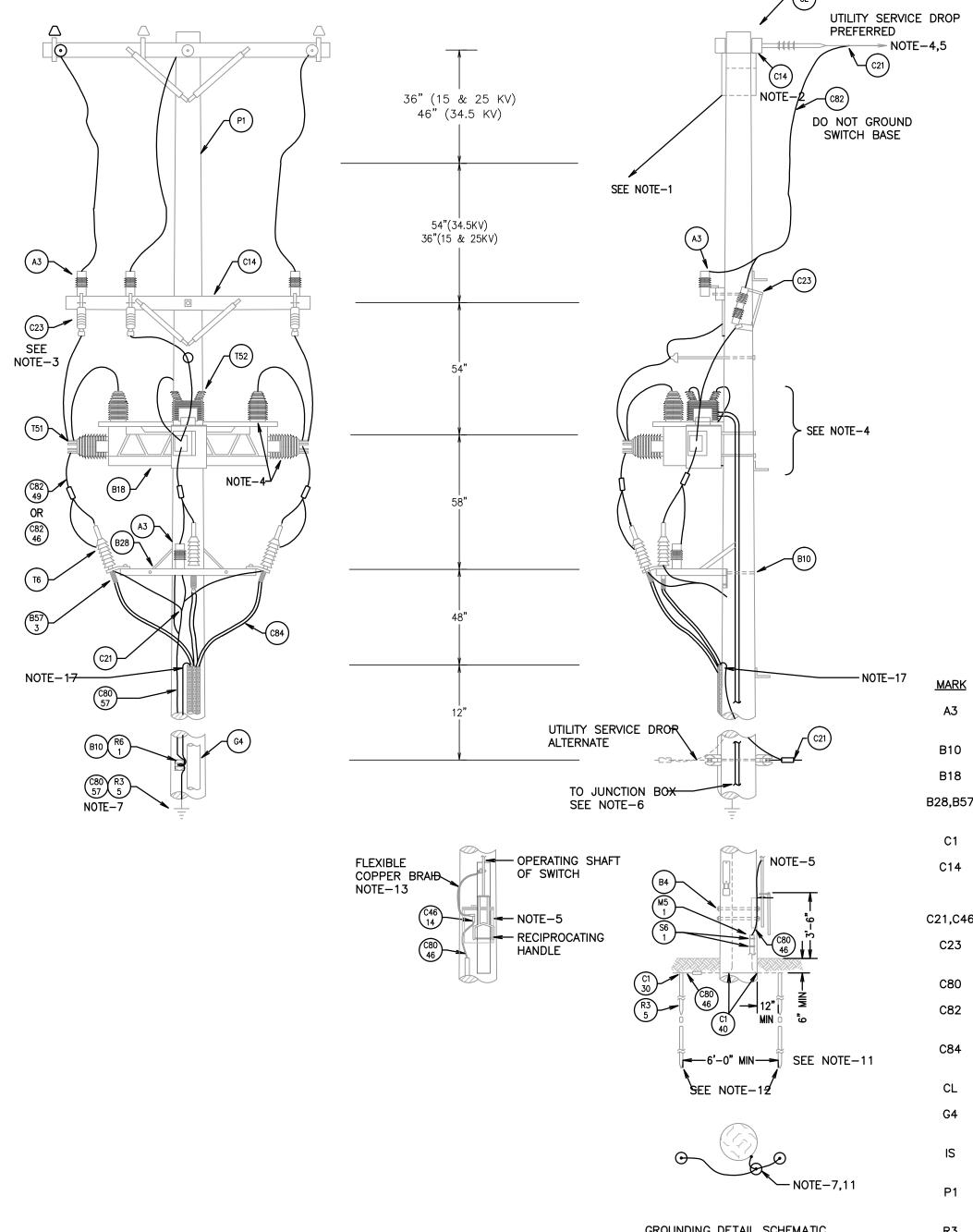
2 SOLAR RACKING - REAR ELEVATION N.T.S.







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



GROUNDING DETAIL SCHEMATIC

LOAD SIDE VIEW SOURCE SIDE HANDLE VIEW

METER POLE DETAIL

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

- 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.
- 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. <u>DO NOT COIL A WIRE UNDER A BOLT.</u>
- 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:

<u>MARK</u>

DESCRIPTION

- 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.
- 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-5 (PTC).
- 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.

- 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
- PROVIDE INSULATED #2 SOLID CU DOWN GROUND STAPLED EVERY 5' WITH GROUND RODS PER DETAIL. NOTE-11
- PROVIDE 1/O ACSR-RAVEN OR (MEDUIM-HARD DRAWN TEMPER) COPPER AND COMPRESSION CONNECTORS WITH INHIBITOR (OR
- MATCH ELECTRIC UTILITY CONDUCTOR IF LARGER). 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). PIN INSULATORS TANGENT TYPE 15KV & 95KV BIL PP366-S PP2045-S 34.5KV 125KV BIL (VICTOR OR EQUAL).
- 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)
- PROVIDE DEAD END (POLYMER) STRAIN TYPE INSULATOR & O-B; PDI +15(KV)#4010150215 OR PDI-35(KV) #4010350215
- (OR EQUAL) GALVANIZED CLEVÍS BOLT, EYELET SHACKLE OR DEAD END CLEVIS, ÜNLESS PROVIDED BY UTILITÝ Co. 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 PÓLE HEIGHT & ARM SPACING WITH LOCAL UTILITY Co.
- COPPER GROUND RODS 3/4" DIAMETER, 10'-0" LENGTH.
- PROVIDE INSULATED CLEVIS FOR NEUTRAL: (CHANCE OR JOSLYN)
- STAPLE 1/2" RGS CONDUIT TO POLE, FOR GROUND WIRE PROTECTION.
- PROVIDE OUTDOOR TERMINATOR 15KV JOSLYN JPT15W/K1 BRACKET 3M 5630 SERIES W/BRACKET 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)
- CT BY ELECTRICAL CONTRACTOR.
- PT BY ELECTRICAL CONTRACTOR.

