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CODES AND REGULATIONS

IEEE C2 NATIONAL ELECTRICAL SAFETY CODE
NFPA 70, NATIONAL ELECTRICAL CODE - 2017 EDITION
NATIONAL GRID ELECTRIC SYSTEM BULLETINS

PROJECT TEAM CONTACT INFORMATION

ENGINEERING	UTILITY
LABELLA ASSOCIATES, DPC 300 STATE STREET, SUITE 201 ROCHESTER, NY 14614	NATIONAL GRID

ENGINEERS OF RECORD:
CIVIL:
REUBEN HULL
NYS PE# 086826
439-8235
RHULL@LABELLAPC.COM

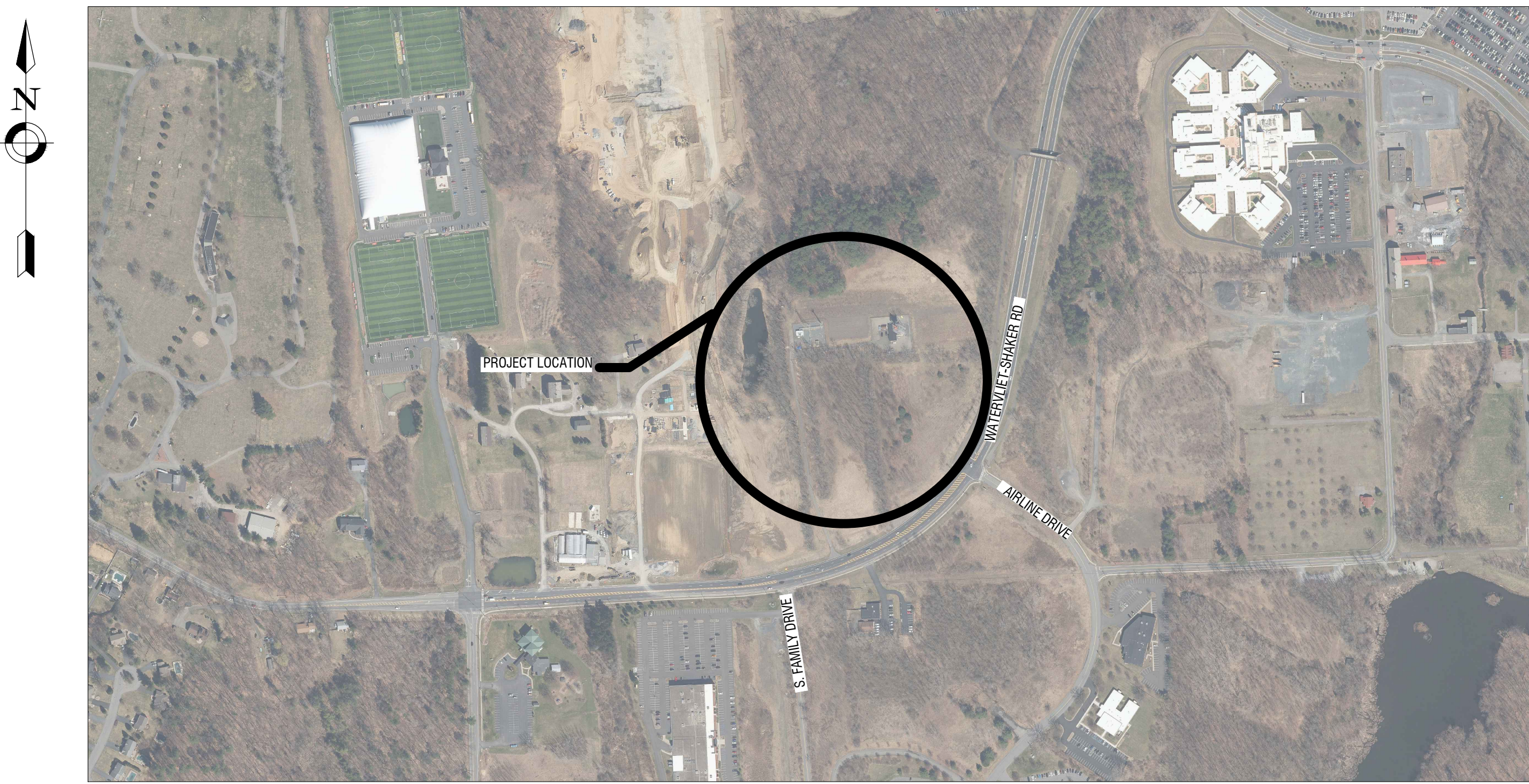
ELECTRICAL:
BRIAN BEHNKE
NYS PE# 098073
(315) 278-4402
BBEHNKE@LABELLAPC.COM

STRUCTURAL:
LANSON COSH
NYS PE# 088970
(518) 266-7329
LCOSH@LABELLAPC.COM

ALBANY RADAR TOWER
SOLAR ARRAY

SITE COORDINATES:
42.741013, -73.820589
ALBANY COUNTY

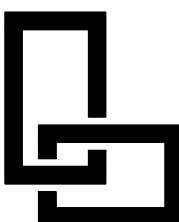
SITE DATA
SYSTEM PRODUCTION SUMMARY
AC PLANT PEAK PRODUCTION: 1.50 MW
DC PLANT PEAK PRODUCTION: 2.065 MW
DC/AC POWER RATIO: 1.38
PV MODULE NOMINAL DC POWER: 580 W
TOTAL PV MODULE QUANTITY: 3,560
TOTAL INVERTER QUANTITY: 14



PROJECT LOCATION MAP



1.50MW GROUND-MOUNTED PV DESIGN
897 WATERVLIET SHAKER ROAD
LATHAM, NY 12110
PROJECT NO: 2212336
JULY 2022



LaBella
Powered by partnership.

4 British American Blvd.
Latham, NY 12110
518-439-8235
labellapc.com

PROJECT DATA	
PARCEL INFORMATION	
APPLICANT	SIEMENS SMART INFRASTRUCTURE
PARCEL ADDRESS	925 WATERVLIT SHAKER RD ALBANY NY, 12205
TAX NUMBER	30.00-2-18
GPS COORDINATES	N: 42.74067° N W: 73.82056° W
AVERAGE SITE ELEVATION	345'
PARCEL AREA	± 34.5 ACRES
DISTURBANCE AREA	±5.73 ACRES
EQUIPMENT PAD AREA	±380 SF
FENCED AREA	±5.16 ACRES
DRIVEN POST CROSS SECTIONAL AREA	4 SF
DRIVEN POST QUANTITY	±255
DRIVEN POST CROSS SECTIONAL AREA (TOTAL)	±1,020
SILT FENCE	±1,105 FT
CHAIN LINK FENCE	± 2,125 FT
GATE COUNT	2 - 20' WIDE DOUBLE SWING GATE

SYSTEM SUMMARY (TOTAL)	
SYSTEM AC SIZE (MW)	1.54
SYSTEM DC SIZE (MW)	2.06
MODULE COUNT	3,560
INVERTER COUNT	14
SWITCH GEAR COUNT	1
TRANSFORMER COUNT	1
EQUIPMENT PAD COUNT	1
UTILITY POLE COUNT	3

ZONING INFORMATION		
	REQUIRED	PROPOSED
CODE APPLIED	TOWN OF COLONIE	
WEBSITE	HTTPS://ECODE360.COM/10402450	
CLASSIFICATION	COMMERCIAL OFFICE (CO)	
FRONT SETBACK	25 FT	25 FT
SIDE SETBACK	20 FT	63 FT
REAR SETBACK	20 FT	>1300 FT
RADAR SETBACK	250 FT	250 FT
MAX FENCE HEIGHT	8 FT	8 FT
LOT COVERAGE	50%	6%

DRAWING INDEX

C001 GENERAL NOTES, LEGEND, AND DRAWING INDEX

CD101 EXISTING CONDITIONS AND DEMOLITION PLAN

C201 SITE AND UTILITY PLAN

C401 EROSION CONTROL PLAN

C501 CONSTRUCTION DETAILS

C502 CONSTRUCTION DETAILS

C503 CONSTRUCTION DETAILS

L100 LANDSCAPE PLAN

L101 LANDSCAPE PLAN

L102 LANDSCAPE DETAILS

GENERAL NOTES

- THE CONTRACTOR ALONE SHALL BE RESPONSIBLE TO LOCATE UTILITIES OUTSIDE THE RIGHT-OF-WAY INCLUDING PRIVATE ROADS.
- SITE DRAINAGE, INCLUDING THE PROJECT SITE AND ADJACENT PRIVATE AND PUBLIC ROADWAYS, DRIVES, PARKING AREAS OR PROPERTIES SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING ALL MATERIALS, TOOLS AND EQUIPMENT, INCLUDING SPECIAL CUTTING DEVICES, NECESSARY TO PERFORM THE WORK CONTAINED IN THIS CONTRACT.
- THE SIZES AND MATERIAL OF CONSTRUCTION OF WATER MAINS, SANITARY SEWERS AND STORM SEWERS TO REMAIN ARE REPUTED. THE CONTRACTOR SHALL VERIFY SIZES OF ALL UTILITIES WHERE CONNECTIONS TO SAID EXISTING UTILITIES ARE REQUIRED. EXCAVATION TO VERIFY THESE UTILITIES SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL PROTECT ALL EXISTING SITE AMENITIES NOT DESIGNATED FOR REMOVAL.
- UNLESS OTHERWISE INDICATED ON THE PLANS OR DIRECTED BY THE ARCHITECT/ENGINEER, THE CONTRACTOR IS RESPONSIBLE FOR PRESERVING AND PROTECTING FROM DAMAGE ALL TREES, SHRUBS AND PLANTS IN THE VICINITY OF THE PROPOSED WORK.
- THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL EXISTING UTILITIES DESIGNATED TO REMAIN FOR THE DURATION OF THE CONTRACT.
- ANY SITE AMENITY, UTILITY, STREET APPURTENANCE, OR OTHER ITEM WHICH BECOMES DAMAGED AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED IN-LAND BY THE CONTRACTOR AS DETERMINED BY THE PROJECT MANAGER OR ARCHITECT/ENGINEER AND AT NO ADDITIONAL COST TO THE OWNER.

SURVEY NOTES

- CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BID. NO ALLOWANCE WILL BE MADE FOR ADDITIONAL COSTS DUE TO CONTRACTOR'S FAILURE TO VERIFY EXISTING CONDITIONS.
- THE CONTRACTOR SHALL LOCATE, MARK, SAFEGUARD AND PRESERVE ALL SURVEY MARKERS AND RIGHT-OF-WAY MARKERS IN THE AREA OF CONSTRUCTION.
- ANY IRON PINS, MONUMENTS OR OTHER ITEMS DEFINING PROPERTY LINES WHICH ARE DISTURBED BY CONSTRUCTION OPERATIONS SHALL BE PROPERLY TIED AND ACCURATELY RESET BY A NYS LICENSED SURVEYOR UPON COMPLETION OF THE WORK.
- HORIZONTAL DATUM BASED OFF NORTH AMERICAN DATUM 83 (NAD83) STATE PLANE NEW YORK EAST.
- VERTICAL BASED OFF OF NORTH AMERICAN DATUM 88 (NAVD88).

DEMOLITION NOTES

- CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BID. NO ALLOWANCE WILL BE MADE FOR ADDITIONAL COSTS DUE TO CONTRACTOR'S FAILURE TO VERIFY EXISTING CONDITIONS AND DIMENSIONS.
- PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY DIG SAFE NEW YORK AT 811 TO REQUEST UTILITY STAKEOUT OF ALL PUBLIC UTILITIES.
- WORK ASSOCIATED WITH THIS CONTRACT WILL OCCUR AT AN ACTIVE AND FUNCTIONAL FACILITY. CONTRACTOR SHALL COORDINATE WITH THE OWNER TO MINIMIZE DISRUPTION TO THE OPERATIONS OF THE FACILITY. CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO PROVIDE A SAFE WORK SITE AND TO PROTECT THE PUBLIC, VISITORS AND EMPLOYEES FROM HARM AS A RESULT OF HIS CONSTRUCTION ACTIVITIES.
- THE HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING ABOVE GROUND AND BELOW GROUND UTILITIES, STRUCTURES, AND APPURTENANCES SHOWN ON THE PLANS ARE APPROXIMATE AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES, STRUCTURES, AND APPURTENANCES IN THE PATH OF AND ADJACENT TO THE PROPOSED WORK.
- SITE DRAINAGE, INCLUDING THE PROJECT SITE AND ADJACENT PRIVATE AND PUBLIC ROADWAYS, DRIVES, PARKING AREAS OR PROPERTIES SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
- CONTRACTOR SHALL PROTECT AND SUPPORT ALL EXISTING UTILITIES DESIGNATED TO REMAIN FOR THE DURATION OF THE CONTRACT.
- THE CONTRACTOR SHALL NOTIFY THE LOCAL GOVERNMENT, LOCAL FIRE DEPARTMENT AND THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) AS NECESSARY AND SHALL OBTAIN ANY REQUIRED PERMITS PRIOR TO BEGINNING WORK. COPIES OF ANY REQUIRED PERMITS SHALL BE PROVIDED TO THE OWNER PRIOR TO BEGINNING THE WORK.
- CONTRACTOR SHALL REMOVE FROM SITE, MATERIALS NOT INDICATED TO BE SALVAGED INCLUDING ALL DEBRIS. ALL REMOVED MATERIALS SHALL BECOME THE PROPERTY OF CONTRACTOR WHO SHALL LEGALLY DISPOSE OF SAME.
- ALL TREES, SHRUBS AND PLANTS DESIGNATED TO REMAIN AND DISTURBED BY CONSTRUCTION OPERATIONS, SHALL BE REPLACED IN-KIND AS DIRECTED BY THE ARCHITECT/ENGINEER AND/OR OWNER'S DESIGNATED REPRESENTATIVE AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL MAINTAIN SAFE VEHICULAR AND PEDESTRIAN ACCESS TO THE EXISTING BUILDINGS FOR THE DURATION OF THE CONTRACT.
- WHEN EXISTING CONSTRUCTION WHICH IS TO REMAIN IS DAMAGED DURING THE COURSE OF CONSTRUCTION AS A RESULT OF CONTRACTORS WORK, IT SHALL BE REPAIRED AND/OR REPLACED WITH SIMILAR OR LIKE MATERIALS AS MUCH AS POSSIBLE, AT NO COST TO THE OWNER. ALL REPAIRS AND/OR REPLACEMENTS WILL BE SUBJECT TO OWNERS APPROVAL.
- COORDINATE LOCATION OF TEMPORARY CONSTRUCTION FENCE AND TEMPORARY STONE STAGING AREA WITH OWNER

SITE NOTES

- WELL COMPACTED SUBGRADE SHALL BE UTILIZED UNDERNEATH CONSTRUCTION OF PAVEMENT AND CONCRETE BASES.
- ALL STAKEOUT FOR THE PROPOSED SITE IMPROVEMENTS SHALL BE COMPLETED BY A NEW YORK STATE LICENSED LAND SURVEYOR.
- IF ANY DISCREPANCIES ARE NOTED BETWEEN THESE CONSTRUCTION DOCUMENTS AND INFORMATION PROVIDED OR AN ERROR IS SUSPECT, IT SHALL BE IMMEDIATELY REPORTED TO THE CONSTRUCTION MANAGER AND LABELLA ASSOCIATES PROJECT MANAGER IN WRITING.
- ANY PROOF-ROLLING OF EXPOSED SUBBASE BY A MINIMUM 10 TON SMOOTH DRUM ROLLER SHALL BE DONE UNDER THE GUIDANCE OF, AND OBSERVED BY, QUALIFIED ENGINEERING PERSONNEL PRIOR TO PLACEMENT OF SUBBASE MATERIAL. THE ROLLER SHOULD BE OPERATED IN THE STATIC MODE AND COMPLETE AT LEAST TWO (2) PASSES OVER THE EXPOSED SUBGRADES.
- PARCEL LINES AS SHOWN BY ALBANY COUNTY GIS DATABASE, FOR THE TOWN OF COLONIE.

UTILITY NOTES

- CONTRACTOR SHALL COORDINATE INSTALLATION OF WATER MAIN / WATER SERVICE WITH MONROE COUNTY WATER AUTHORITY (MCWA) AND THE MONROE COUNTY HEALTH DEPARTMENT (MCOHD). NO WORK SHALL BEGIN ON THE WATER MAIN / WATER SERVICE WITHOUT MCWA AND MCOHD SIGNATURES ON THE UTILITY PLAN.
- CONTRACTOR SHALL COORDINATE INSTALLATION OF SANITARY MAIN / SANITARY SERVICE WITH MONROE COUNTY PURE WATERS (MCPW). NO WORK SHALL BEGIN ON THE SANITARY MAIN / SANITARY SERVICE WITHOUT MCPW SIGNATURE ON THE UTILITY PLAN.

GRADING NOTES

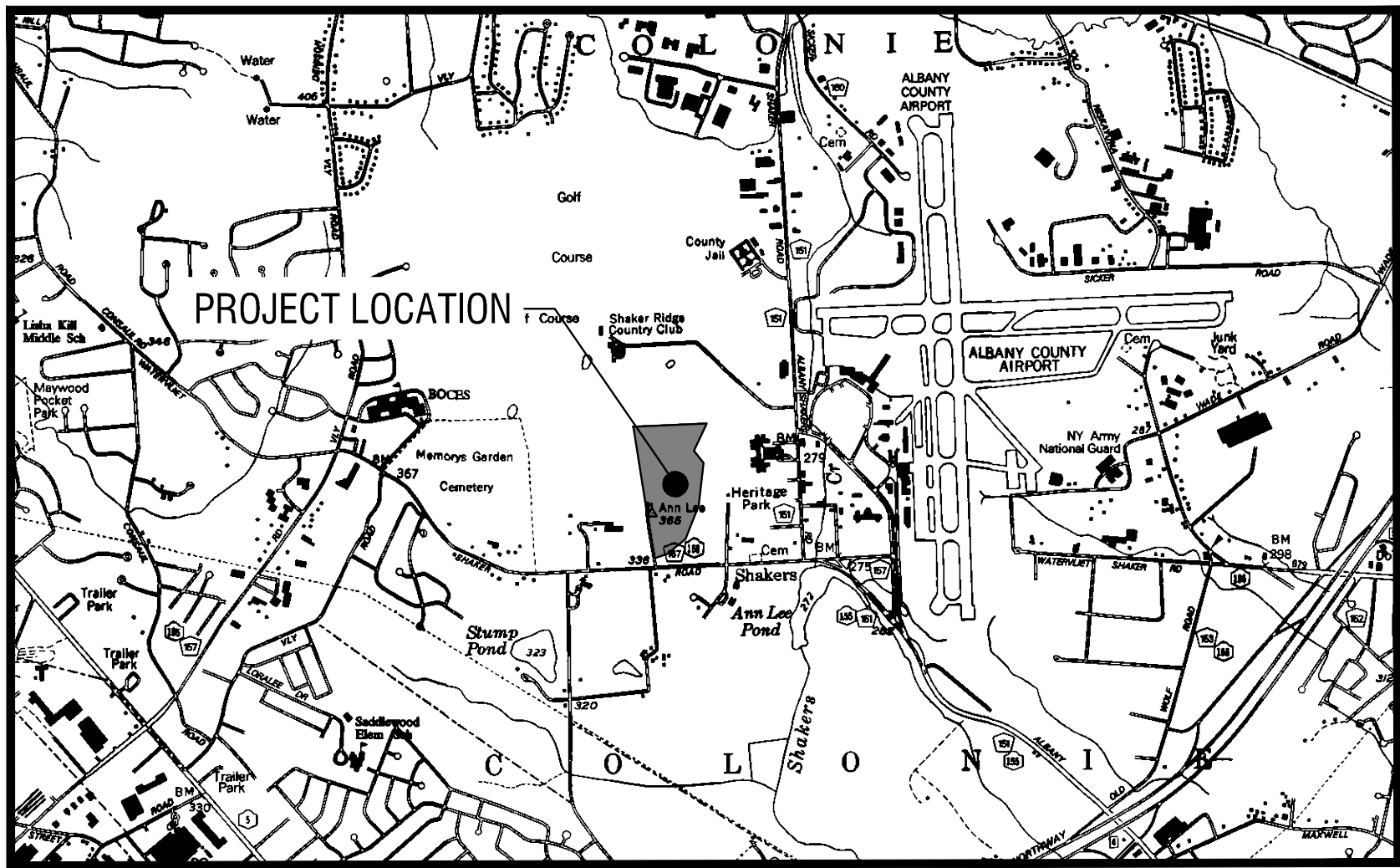
- THE CONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF OSHA, AND ANY OTHER AGENCY HAVING JURISDICTION WITH REGARD TO SAFETY PRECAUTIONS WITH TRENCHING OPERATIONS. THE REQUIREMENTS SET FORTH HEREIN ARE INTENDED TO SUPPLEMENT REQUIREMENTS ESTABLISHED BY THESE AGENCIES. IN THE CASE OF A CONFLICT BETWEEN REQUIREMENTS OF OTHER JURISDICTIONAL AGENCIES AND THESE DOCUMENTS, THE MORE STRINGENT REQUIREMENT ON THE CONTRACTOR SHALL APPLY.
- SHEETING, IF REQUIRED DURING CONSTRUCTION, IS CONSIDERED TO BE PART OF THIS CONTRACT AND SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- ALL TRENCHES THROUGH PAVEMENT SHALL BE SAW CUT PRIOR TO EXCAVATION AND AGAIN PRIOR TO PAVEMENT RESTORATION.
- CONTRACTOR SHALL ADJUST THE RIMS OF ALL MANHOLES, CATCH BASINS, VALVE BOXES AND OTHER UTILITY SITE STRUCTURES TO MEET FINISHED GRADE IN AREAS REQUIRING REPAVING OR REGRADES AS PART OF THE WORK, INCLUDING THOSE THAT MAY NOT BE SHOWN ON THE PLANS.
- VOIDS LEFT BY UTILITY OR STRUCTURE REMOVAL OR GRUBBING OPERATIONS SHALL BE BACKFILLED AND PROPERLY COMPACTED WITH STRUCTURAL FILL (NYSDOT ITEM 304.12) IN AREAS UNDER AND WITHIN 5 FEET HORIZONTALLY OF ALL STRUCTURES, BUILDINGS AND PAVEMENTS. IN GRASSED AREAS, VOIDS LEFT SHALL BE FILLED AND PROPERLY COMPACTED WITH SUITABLE ON-SITE OR IMPORTED EARTHEN BACKFILL. ALL DISTURBED AREAS SHALL BE RESTORED.
- THE CONTRACTOR SHALL DEWATER ALL EXCAVATIONS TO PREVENT THE INTRODUCTION OF GROUNDWATER INTO THE TRENCHES/EXCAVATIONS. PROVIDE ALL EQUIPMENT NECESSARY TO MAINTAIN THE GROUNDWATER LEVEL AS NECESSARY.
- THE CONTRACTOR SHALL PLACE AT MINIMUM 6 INCHES OF CLEANED SCREENED TOPSOIL IN ALL DISTURBED AREAS PRIOR TO SEEDING.

EROSION AND SEDIMENT CONTROL NOTES

- ALL EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL, AND LOCAL GOVERNING SOIL AND WATER CONSERVATION AGENCY RECOMMENDATIONS AND STANDARDS. CONTRACTOR SHALL SUBMIT PROPOSED EROSION CONTROL PLAN INCLUDING SEQUENCING OF WORK TO THE ENGINEER FOR REVIEW PRIOR TO START OF WORK.
- UTILIZE CONSTRUCTION METHODS/TECHNIQUES, WHICH WILL LIMIT THE EXPOSED EARTHEN AREAS AND MINIMIZE THE EFFECT OF EARTH DISTURBANCE ACTIVITIES ON SOIL EROSION. THE AREA OF DISTURBANCE SHALL BE LIMITED TO A MAXIMUM OF 5 ACRES UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- ALL SEDIMENTATION BARRIERS AND OTHER TEMPORARY OR PERMANENT MEASURES SHALL BE IN PLACE PRIOR TO THE START OF CONSTRUCTION. PLANS SHOW THE SUGGESTED MINIMUM MEASURES REQUIRED.
- REMOVAL OF ALL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE COMPLETED AT THE APPROVAL OF THE OWNER AND ENGINEER. THE COST OF REMOVING THESE MEASURES SHALL ALSO BE INCLUDED IN THE BID PRICE.
- FOR THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL PROTECT ALL ON-SITE, ADJACENT AND/OR DOWNSTREAM STORM/SANITARY SEWERS, AND/OR OTHER WATER COURSES FROM CONTAMINATION BY WATER BORNE SILTS, SEDIMENTS, FUELS, SOLVENTS, LUBRICANTS OR OTHER POLLUTANTS ORIGINATING FROM ANY WORK DONE ON, OR IN SUPPORT OF THIS PROJECT.
- DURING CONSTRUCTION NO WET OR FRESH CONCRETE OR LEACHATE SHALL BE ALLOWED TO ESCAPE INTO STORM/SANITARY SEWERS, DITCHES OR OTHER WATERS OF NEW YORK STATE, NOR SHALL WASHINGS FROM CONCRETE TRUCKS, MIXERS OR OTHER DEVICES BE ALLOWED TO ENTER ANY STORM/SANITARY SEWERS, DITCHES, RIVERS, OR WATER COURSES.
- ALL EXCAVATED OR IMPORTED EARTHEN STOCKPILES SHALL BE SUITABLY STABILIZED AND PROTECTED BY SILT FENCE SO THAT IT CANNOT REASONABLY ENTER ANY WATER BODY, OR STORM OR SANITARY SEWER.
- ALL METHODS AND EQUIPMENT PROPOSED BY THE CONTRACTOR TO ACCOMPLISH THE WORK FOR EROSION AND POLLUTION CONTROL SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
- THE CONTRACTOR SHALL BE REQUIRED TO TREAT TRAVELED AREAS TO CONTROL DUST. WATER SHALL BE APPLIED TO SUCH TRAVELED AREAS AS THE ARCHITECT/ENGINEER OR OWNERS DESIGNATED REPRESENTATIVE MAY DESIGNATE. THE NUMBER OF APPLICATIONS AND THE AMOUNT OF WATER SHALL BE BASED UPON FIELD AND WEATHER CONDITIONS.
- ALL AREAS OF SOIL DISTURBANCE RESULTING FROM THIS PROJECT WHICH WILL NOT BE SUBJECT TO FURTHER EARTHWORK OR CONSTRUCTION ACTIVITIES SHALL BE PERMANENTLY SEEDED TO ESTABLISH GRASS, AND MULCHED WITH HAY OR STRAW WITHIN ONE WEEK OF FINAL DISTURBANCE. MULCH SHALL BE MAINTAINED UNTIL A SUITABLE VEGETATIVE COVER IS ESTABLISHED.
- CONTRACTOR STAGING AREAS AND CONSTRUCTION ENTRANCE LOCATIONS SHALL BE COORDINATED WITH THE OWNER PRIOR TO START OF CONSTRUCTION. STABILIZED CONSTRUCTION ENTRANCE(S), AS SHOWN ON THE PLANS SHALL BE PROVIDED. ALL DISTURBED AREAS SHALL BE RESTORED.
- ALL CATCH BASINS/DRAINAGE INLETS SHALL HAVE STONED INLET PROTECTION AROUND THEM AND GEOTEXTILE FABRIC OVER THE GRATE TO PREVENT SEDIMENTATION FROM ENTERING THE STORM SYSTEM.
- TILL ALL COMPACTED SOILS LOCATED IN LAWN AREAS TO RESTORE THE ORIGINAL PROPERTIES OF THE SOIL PRIOR TO SEEDING.

LEGEND

EXISTING	PROPOSED	DESCRIPTION	EXISTING	PROPOSED	DESCRIPTION
		PROJECT BENCHMARK / CONTROL POINTS			END SECTION
		WETLAND			CATCH BASIN
		WETLAND BUFFER			DRAIN BASIN
		BORING LOCATIONS			INLET MANHOLE
		OBJECT REMOVAL			MANHOLE (SOLID COVER)
		OBJECT REMOVAL_2			INLET DRYWELL
		OBJECT REMOVAL_3			CLEAN OUT
		- REMOVAL UTILITY			DOWN SPOUT
		- REMOVAL FENCE			HYDRANT
		SAWCUT			VALVE
		PROTECTION (OBJECT)			SAMPLING TAP
		TREE PROTECTION			(OTHER) FLOW ARROW
		FENCE, CHAIN LINK			CATV
		FENCE, TYPE 1			COMMUNICATIONS
		FENCE, TYPE 2			FIBER OPTICS
		FENCE, GUIDE RAIL			SIGNAL LINE
		TREE/VEGETATION LIMIT			TELEPHONE LINE
		BUILDING/STRUCTURE			OVERHEAD ELECTRIC
		PROPERTY LINE			POWER LINE
		SETBACK LINE			UNDERGROUND ELECTRIC
		EASEMENTS			GAS LINE
		RIGHT-OF-WAY			SANITARY LINE
		RETAINING WALL			SANITARY FORCEMAIN
		BOLLARD			STORM LINE
		FLAG POLE			STORM UNDERDRAIN PIPE
		SIGN			WATER FIRE SERVICE LINE
		DECIDUOUS TREE			WATER LINE
		CONIFEROUS TREE			COMBINED SANITARY AND STORM
		TREE STUMP			FUEL LINES (DIESEL/UNLEADED)
		OUTLET PROTECTION			MAJOR CONTOUR
		BIORETENTION			MINOR CONTOUR
		BOLLARD LIGHT POLE			E OF DRAINAGE SWALE
		LIGHT POLE SINGLE			EROSION FENCE
		LIGHT POLE DOUBLE			FLOW/SLOPE DIRECTION
		LIGHT POLE TRIPLE			SILT SOCK INLET PROTECTION
		LIGHT POLE QUAD			SILT FENCE INLET PROTECTION
		UTILITY POLE			CHECK DAM
		UTILITY POLE WITH LIGHT			STABILIZED CONSTRUCTION ENTRANCE (TEMPORARY)
		HANDHOLE			
		MANHOLE			



LOCATION MAP

N.T.S.

4 British American Blvd.
Latham, NY 12110
518-439-8235

labelapp.com



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SIEMENS SMART INFRASTRUCTURE

6 BRITISH AMERICAN BLVD
LATHAM, NY 12110

SIEMENS

ALBANY RADAR TOWER SOLAR

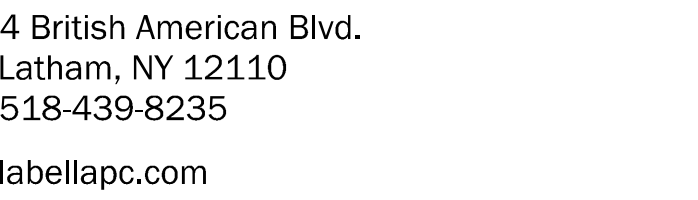
897 WATERVLIT SHAKER ROAD
ALBANY, NY 12205

NO.	DATE:	DESCRIPTION:
Revisions		
PROJECT NUMBER: 2222708		
DRAWN BY: CEC		
REVIEWED BY: RFH		
ISSUED FOR: PERMIT ONLY		
DATE: 08/05/2022		
DRAWING NAME:		

GENERAL NOTES LEGEND AND DRAWING INDEX

DRAWING NUMBER:

C001



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6 BRITISH AMERICAN BLVD
LATHAM, NY 12110

897 WATERVLIT SHAKER ROAD
ALBANY, NY 12205

DRAWING NAME: _____

DRAWING NUMBER: _____

VERSION 19.0
6/3/2010 8:47:56 AM



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**SIEMENS SMART
INFRASTRUCTURE**

6 BRITISH AMERICAN BLVD
LATHAM, NY 12110

SIEMENS

ALBANY RADAR TOWER SOLAR

897 WATERVLIT SHAKER ROAD
ALBANY, NY 12205

NO.	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2222708

DRAWN BY: CEC

REVIEWED BY: RFH

ISSUED FOR: PERMIT ONLY

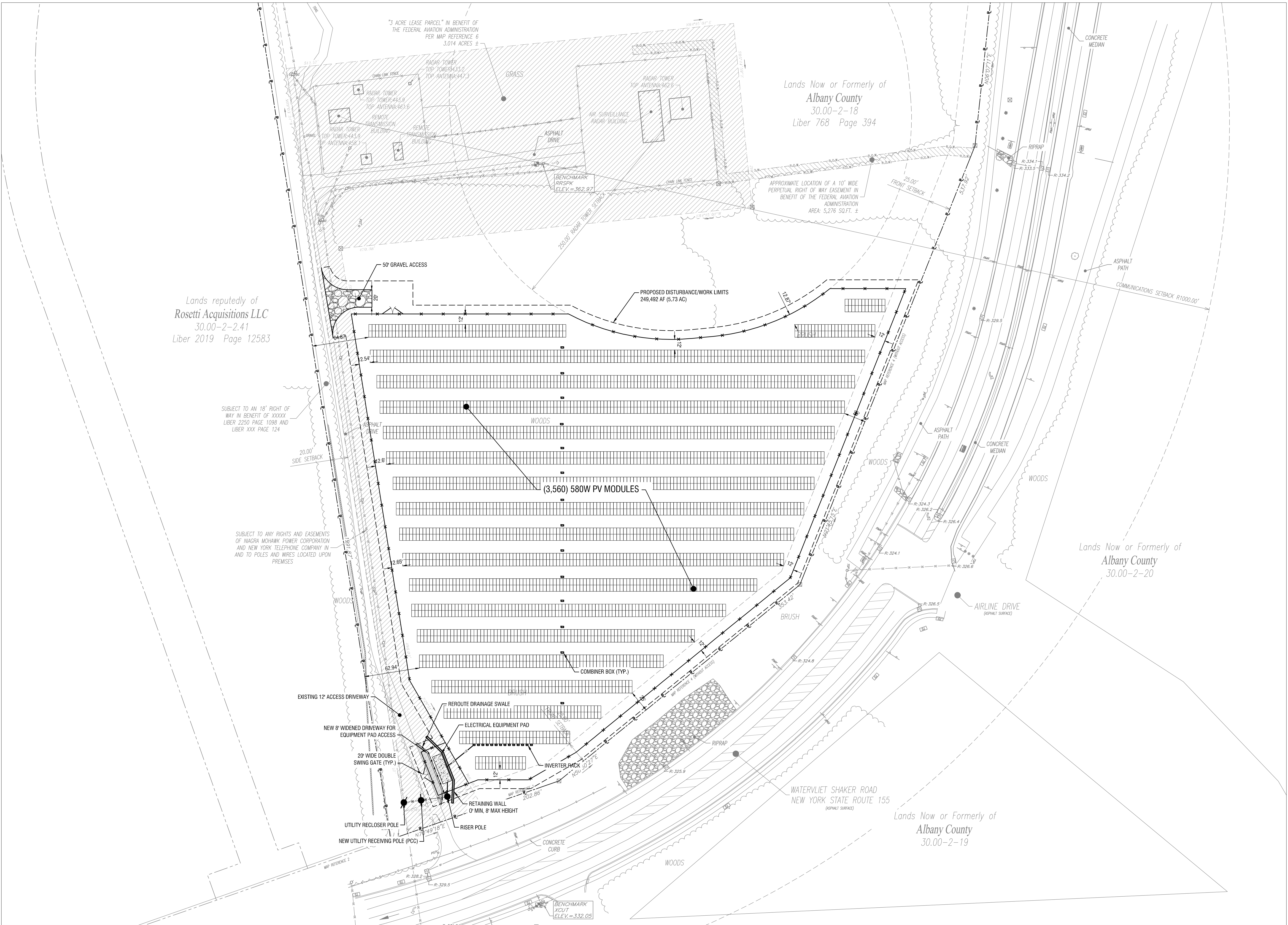
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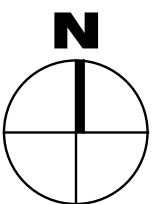
SITE AND UTILITY PLAN

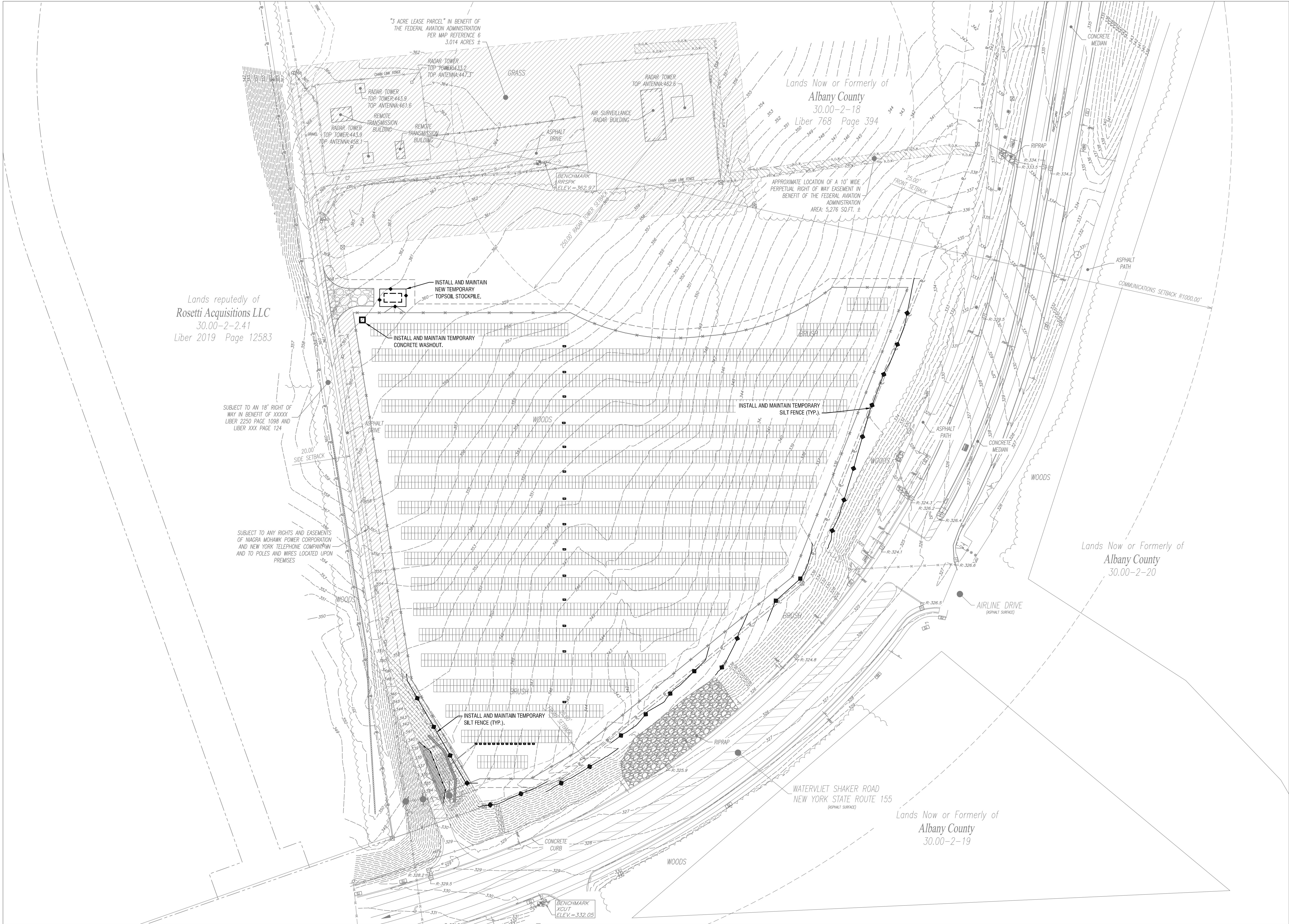
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C201

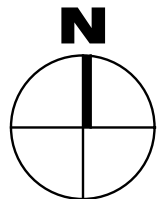


1 SITE AND UTILITY PLAN
SCALE: 1" = 50'





1 EROSION CONTROL PLAN
C401 SCALE: 1" = 50'



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**SIEMENS SMART
INFRASTRUCTURE**

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ALBANY RADAR TOWER SOLAR

897 WATERVLIET SHAKER ROAD
ALBANY, NY 12205

NO.	DATE:	DESCRIPTION:
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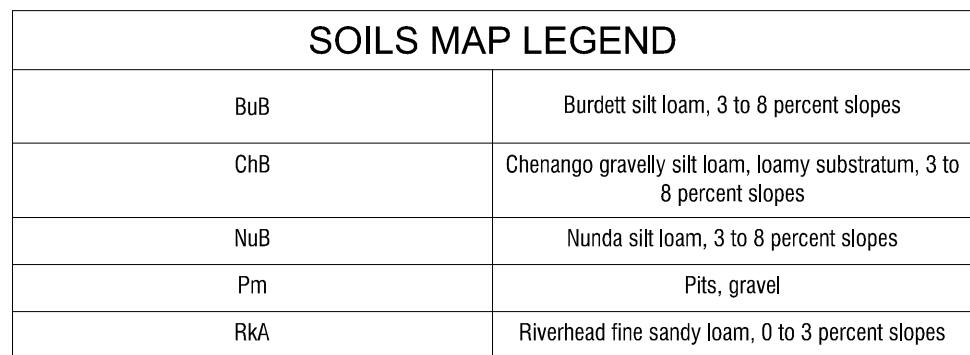
DATE: 08/05/2022

DRAWING NAME:

EROSION CONTROL PLAN

DRAWING NUMBER:

C401



8
C501

N.T.S.



C501

NYS DEC DETAIL: COMPOST FILTER SOCK



NOTES:

- 2
C501

2
C501

NYS DEC DETAIL: SILT FENCE



1. CAN BE TWO STACKED BALES OR PARTIALLY EXCAVATED TO REACH 3 FT DEPTH

CONSTRUCTION SPECIFICATIONS

- 6

6

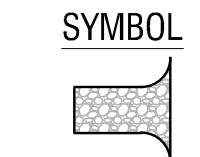
N.T.S.



- 5
C50

C50

N.T.S.



CONSTRUCTION SPECIFICATIONS:

- 1
C501

1
C501

N.Y.S DEC DETAIL: STABILIZED CONSTRUCTION ACCESS



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DRAWING NAME:

CONSTRUCTION DETAILS

DRAWING NUMBER:

C501



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SIEMENS SMART INFRASTRUCTURE

6 BRITISH AMERICAN BLVD
LATHAM, NY 12110

SIEMENS

ALBANY RADAR TOWER SOLAR

897 WATERVLIT SHAKER ROAD
ALBANY, NY 12205

NO.	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2222708

DRAWN BY: CEC

REVIEWED BY: RFH

ISSUED FOR: PERMIT ONLY

DATE: 08/05/2022

DRAWING NAME:

CONSTRUCTION DETAILS

DRAWING NUMBER:

C502

WARNING

WARNING : 35 KVA
DIRECT BURIED LINE
APPROXIMATE DEPTH 60"

WARNING

ANYONE DAMAGING, VANDALIZING, OR
INTERFERING WITH THE OPERATION OF
THIS FACILITY IS IN VIOLATION OF TITLE
18. UNITED STATES CODE SECTION 1366
AND PUNISHABLE BY 10 YEARS
IMPRISONMENT AND \$50,000 FINE.

DANGER

**HIGH
VOLTAGE.
KEEP OUT**

WARNING

THESE FACILITIES ARE
MONITORED BY VIDEO &
ELECTRONIC SECURITY
EQUIPMENT

NOTICE

IN CASE OF
EMERGENCY
CALL
XXX-XXX-XXXX

**ALBANY RADAR
SOLAR ARRAY**

SIEMENS ENERGY
24HR EMERGENCY CONTACT
NAME (XXX) XXX-XXXX
ADDRESS

**NO
TRESPASSING**

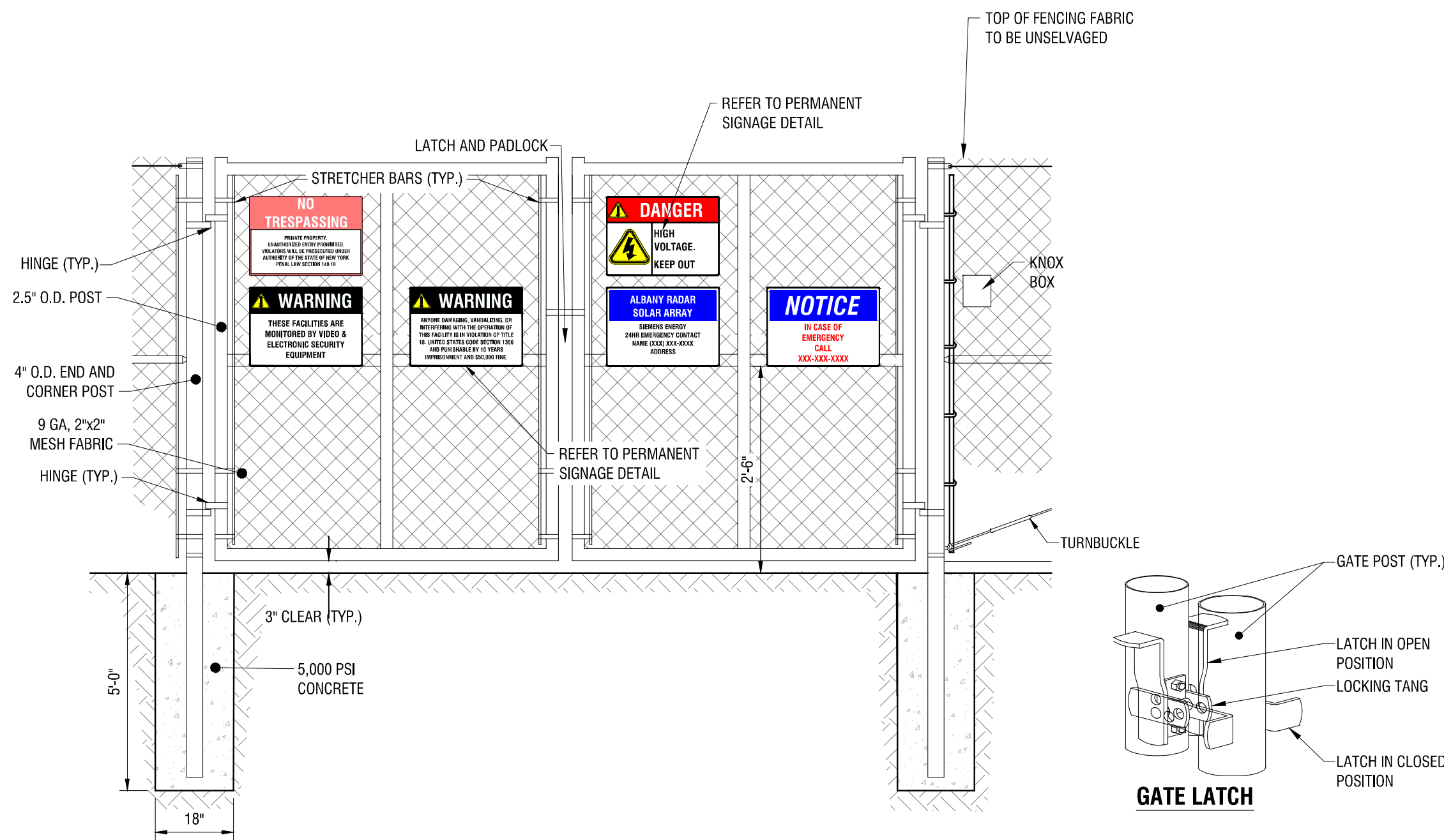
PRIVATE PROPERTY.
UNAUTHORIZED ENTRY PROHIBITED.
VIOLATORS WILL BE PROSECUTED UNDER
AUTHORITY OF THE STATE OF NEW YORK
PENAL LAW SECTION 140.10

NOTES:

- ALL SIGNS TO BE 18" x 24" IN SIZE
- SIGNS SHALL BE UV RESISTANT AND IN COLOR. SIGN MATERIAL SHALL BE HDPE OR LIGHT GAGE GALVANIZED STEEL.
- SIGNS TO BE ATTACHED TO FENCING WITH PERMANENT FASTENERS OR INSTALLED IN SIGN POST

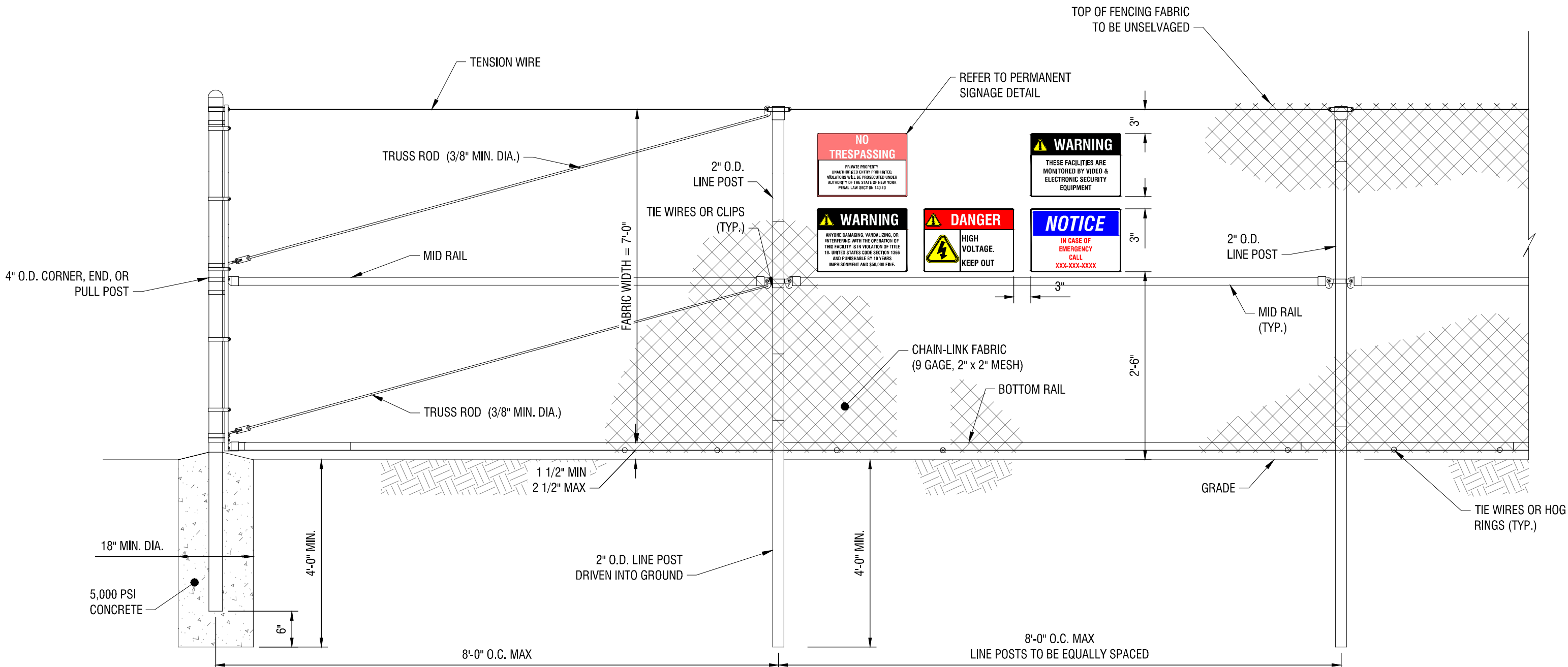
PERMANENT SIGNAGE

N.T.S.



7' TALL 20' WIDE DOUBLE SWING GATE

N.T.S.

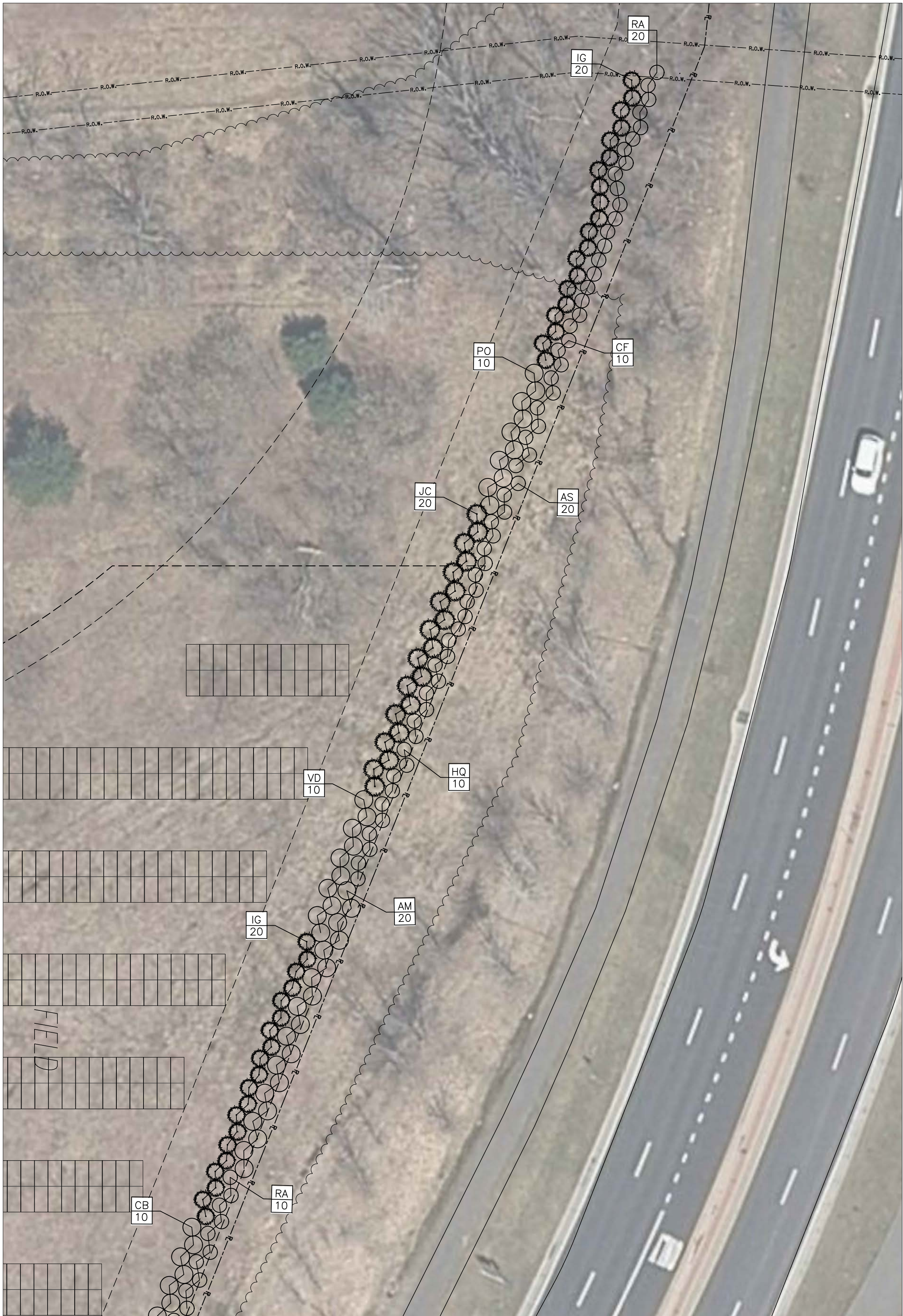
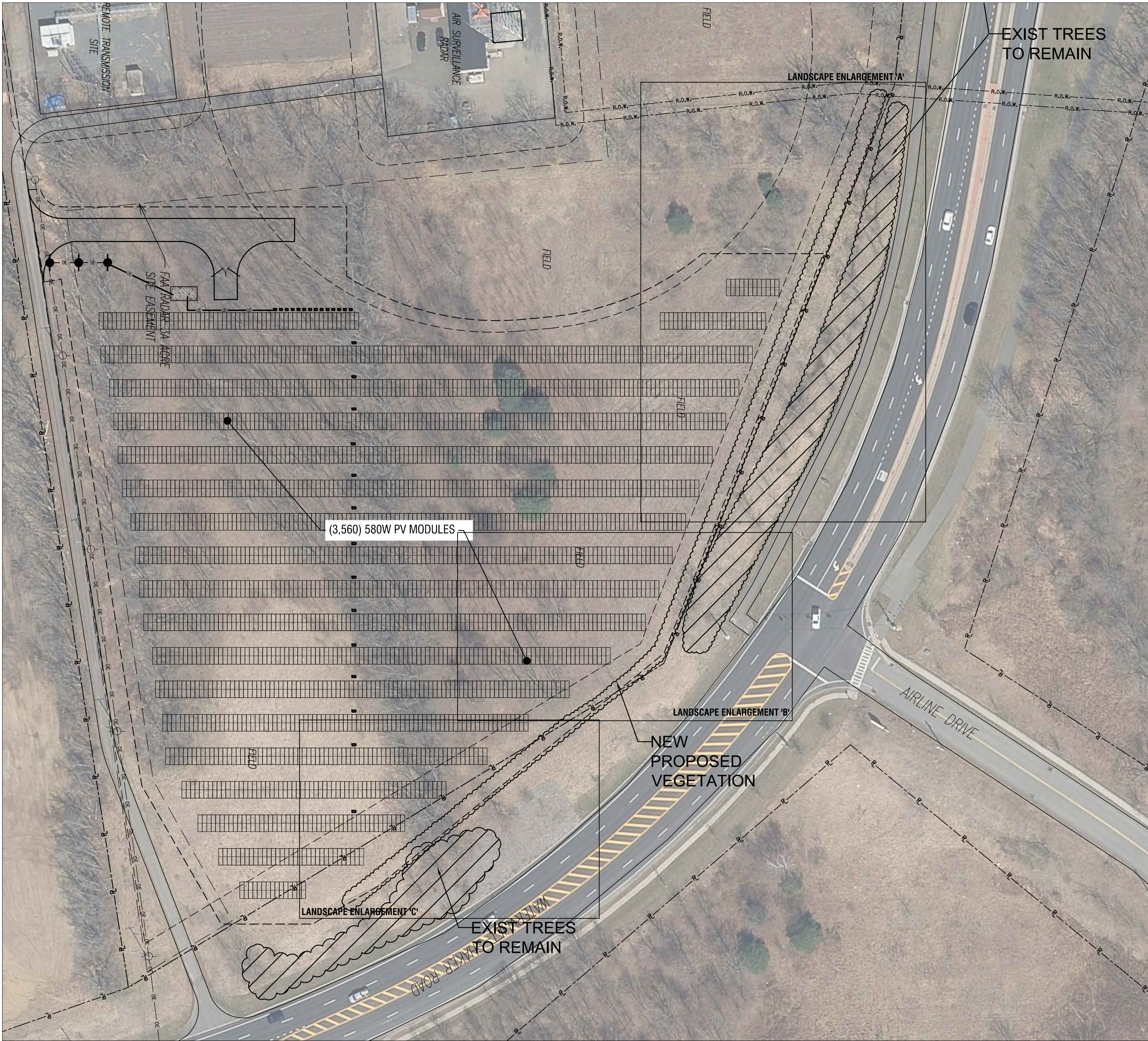


NOTES:

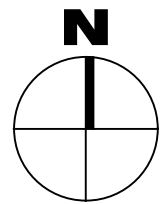
- SIGNS SHALL BE INSTALLED IN GROUPS EVERY 300'.

7' HIGH SECURITY FENCE

N.T.S.



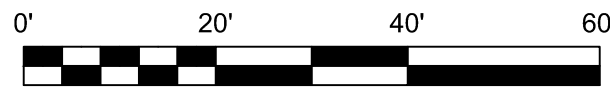
1
L100
OVREALL LANDSCAPE PLAN
SCALE: 1" = 60'



PLANT LIST							
QUANT.	KEY	LATIN NAME	COMMON NAME	CAL.	ROOTS	HT. OR SP.	REMARKS
80	IG	Ilex glabra	Inkberry		B&B	24"	5' O.C.
60	JC	Juniperus communis	Common Juniper		B&B	3' Ht.	6' O.C.
30	AM	Aronia melanocarpa	Black Chokeberry		#3 cont.	24"	5' O.C.
50	AS	Amelanchier stolonifera	Running Serviceberry		B&B	5' Ht.	4' O.C.
10	CB	Cornus sericea "Bailey"	Red-twig Dogwood		B&B	24"	5' O.C.
40	CF	Cornus sericea "Flaviramea"	Yellow-twig Dogwood		B&B	24"	4' O.C.
35	HQ	Hydrangea quercifolia	Oakleaf Hydrangea		#5 cont.	24"	4' O.C.
10	IT	Ilex virginica	Virginia Sweetgum		#3 cont.	24"	5' O.C.
10	MP	Myrica pensylvanica	Northern Bayberry		B&B	30"	5' O.C.
20	PO	Physocarpus opulifolius	Eastern Ninebark		B&B	24"	5' O.C.
50	RA	Rhus aromatica	Fragrant Sumac		#3 cont.	24"	4' O.C.
10	VD	Viburnum dentatum	Arrowwood Viburnum		#2 cont.	24"	5' O.C.

LEGEND: B&B Balled & Burlapped Sp. Spread #2 2 Gallon Container Spr. Spring Planting Only
BR Bare Root Ht. Height Cal. Caliper O.C. On Center

3
L100
LANDSCAPE PLAN ENLARGEMENT 'A'
SCALE: 1" = 20'



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SIEMENS
6 BRITISH AMERICAN BLVD
LATHAM, NY 12110

SIEMENS

ALBANY RADAR TOWER SOLAR
897 WATERLIET SHAKER ROAD
ALBANY, NY 12205

1	05/06/2022	CAPACITY DOWNSIZE
NO.	DATE:	DESCRIPTION:

Revisions

PROJECT NUMBER: 2212336

DRAWN BY: LAH

REVIEWED BY: DCM

ISSUED FOR: PERMIT ONLY

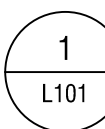
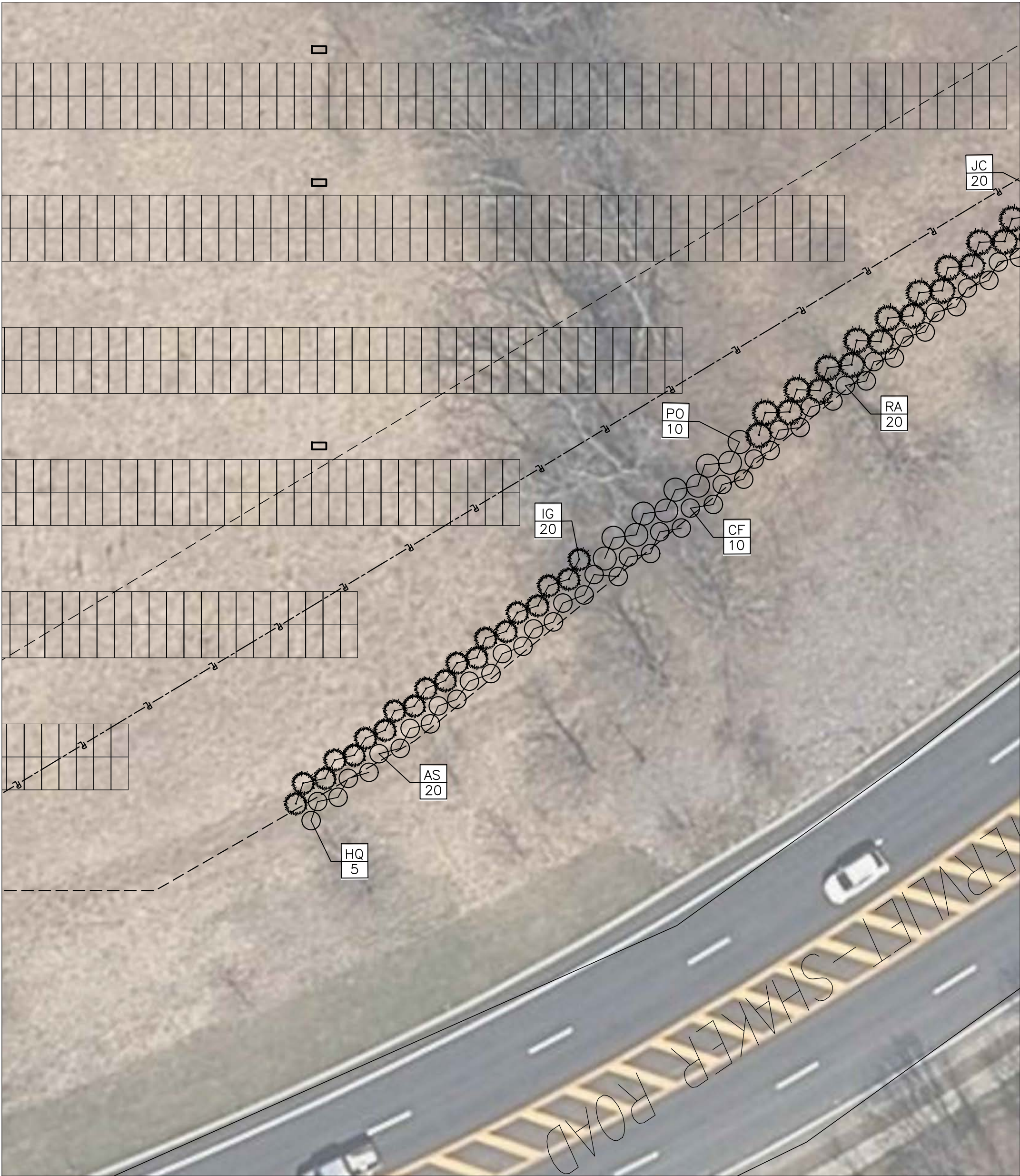
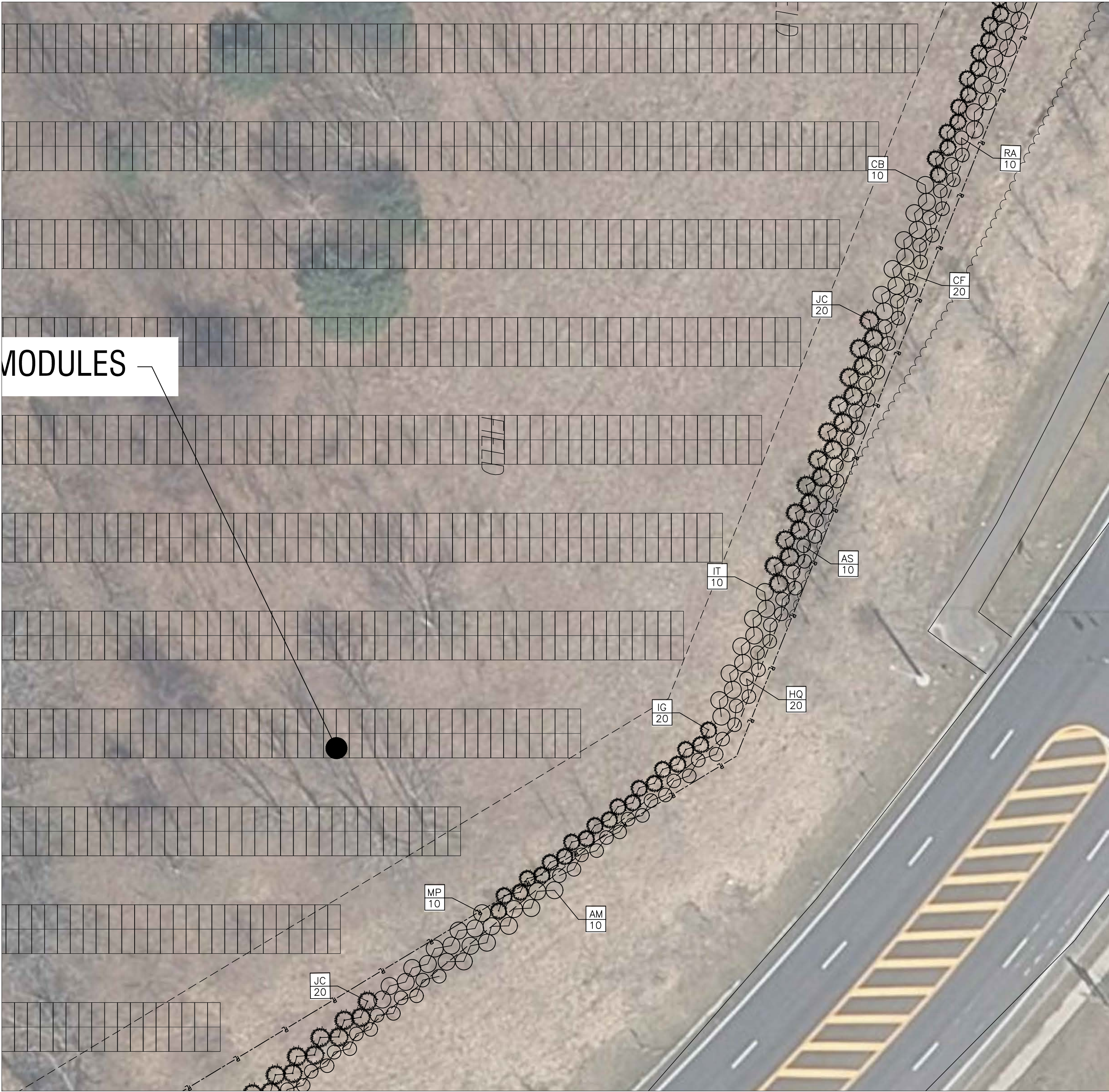
DATE: 06/24/2022

DRAWING NAME:

LANDSCAPE PLAN

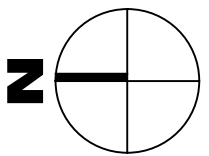
DRAWING NUMBER:

L100



LANDSCAPE PLAN ENLARGEMENT 'C&D'

SCALE: 1" = 20'



0' 20' 40' 60'



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LATHAM, NY 12110

SIEMENS

ALBANY RADAR TOWER SOLAR

897 WATERVLJET SHAKER ROAD
ALBANY, NY 12205

1	05/06/2022	CAPACITY DOWNSIZE
NO.	DATE:	DESCRIPTION:

PROJECT NUMBER: 2212336

DRAWN BY: LAH

REVIEWED BY: DCM

ISSUED FOR: PERMIT ONLY

DATE: 06/24/2022

DRAWING NAME:

LANDSCAPE PLAN

DRAWING NUMBER:

L101

LANDSCAPE NOTES

1. ALL PLANTS SHALL MEET OR EXCEED THE MINIMUM REQUIREMENTS AS NOTED IN THE LATEST EDITION OF AMERICAN STANDARD FOR NURSERY STOCK BY AMERICAN ASSOCIATION OF NURSERYMEN, ANSI Z60.1. ALL PLANTS AND MATERIALS SHALL MEET OR EXCEED THE MINIMUM REQUIREMENTS OF SECTION 611 OF THE NYSDOT STANDARD SPECIFICATIONS. ALL LAWNS, GROUND VEGETATION INCLUDING PREPARATION, ESTABLISHMENT AND MANAGEMENT MATERIALS AND METHODS SHALL MEET OR EXCEED THE MINIMUM REQUIREMENTS OF SECTION 610 OF THE NYSDOT STANDARD SPECIFICATIONS. PRUNING AND REMOVING OF VEGETATION MATERIALS AND METHODS SHALL MEET OR EXCEED THE MINIMUM REQUIREMENTS OF SECTION 610 OF THE NYSDOT STANDARD SPECIFICATIONS.
2. REPLACE, IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS, ALL PLANTS THAT ARE MISSING, DEAD, OR DO NOT DEVELOP FROM PLANTING STOCK, OR AS DETERMINED BY THE CLIENT ARE IN UNHEALTHY OR UNSIGHTLY CONDITION, AND HAVE LOST THEIR NATURAL SHAPE DUE TO DEAD BRANCHES OR OTHER CAUSES DUE TO THE CONTRACTORS NEGLIGENCE. CONTRACTOR SHALL BEAR THE COST OF COMPLETE REPLACEMENT(S), IN CASE OF ANY QUESTIONS REGARDING THE CONDITION AND SATISFACTORY ESTABLISHMENT OF A REJECTED PLANT, THE LANDSCAPE ARCHITECT'S DECISION IS FINAL. PROVIDE A GUARANTEE FOR ALL REPLACEMENT PLANTS FOR AT LEAST ONE FULL GROWING SEASON.
3. REMOVE AND IMMEDIATELY REPLACE ALL PLANTS, AS DETERMINED BY THE CLIENT TO BE UNSATISFACTORY DURING THE INITIAL PLANTING INSTALLATION.
4. CONTRACTOR SHALL RETAIN FOR INSPECTION ALL RECEIPTS FOR PLANTING MATERIAL. PLANTING STOCK IS TO BE MADE AVAILABLE IN ORIGINAL PACKAGING AND LABELING FOR INSPECTION BY THE CLIENT PRIOR TO INSTALLATION.
5. SHRUBS SHALL MEET THE REQUIREMENTS FOR HEIGHT INDICATED IN THE PLANT LIST. THE MEASUREMENTS FOR HEIGHT SHALL BE TAKEN FROM THE GROUND LEVEL TO THE AVERAGE HEIGHT OF THE TOP BRANCHES OF THE PLANT, AND NOT THE LONGEST BRANCH. SINGLE STEMMED OR THIN PLANTS WILL NOT BE ACCEPTED. SIDE BRANCHES SHALL BE GENEROUS, WELL TWIGGED, AND THE PLANT AS A WHOLE WELL SEATED IN THE GROUND. PLANTS SHALL BE IN A MOIST, VIGOROUS CONDITION, FREE FROM DEAD WOOD, BRUISES, OR OTHER ROOT OR BRANCH INJURIES.
6. PLANTED AREAS WILL BE INSPECTED AT COMPLETION OF INSTALLATION AND ACCEPTED SUBJECT TO COMPLIANCE WITH SPECIFIED MATERIALS AND INSTALLATION REQUIREMENTS. INSPECTION TO DETERMINE FINAL ACCEPTANCE OF PLANTED AREAS WILL BE MADE BY THE CLIENT UPON CONTRACTORS REQUEST, PROVIDE NOTIFICATION AT LEAST 10 WORKING DAYS BEFORE REQUESTED INSPECTION DATE. PLANTED AREAS WILL BE ACCEPTED PROVIDED ALL MATERIALS ARE ALIVE AND IN A HEALTHY, VIGOROUS CONDITION. UPON FINAL ACCEPTANCE, THE OWNER WILL ASSUME MAINTENANCE.
7. ONE YEAR GUARANTEE SHALL BE PROPERTY ON ALL NEW AND RELOCATED PLANT MATERIALS FROM DATE OF FINAL ACCEPTANCE TO THE OWNER.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS OWN QUANTITY TAKEOFF.
9. THE CONTRACTOR SHALL PERFORM A ROUGH FIELD STAKE OUT OF ALL PLANT MATERIAL AND SHRUB BEDS. CONTACT THE LANDSCAPE ARCHITECT FOR INSPECTION AND APPROVAL. LOCATIONS SHOWN ON THE PLAN CONVEY DESIGN INTENT ONLY. ACTUAL LOCATIONS WILL BE AS DIRECTED BY THE LANDSCAPE ARCHITECT AT THE TIME OF INSTALLATION.
10. NAMES OF WOODY PLANT MATERIAL MUST COMPLY WITH "STANDARDIZED PLANT NAMES" AS ADOPTED BY THE LATEST EDITION OF THE AMERICAN JOINT COMMITTEE OF HORTICULTURAL NOMENCLATURE. PROVIDE STOCK TRUE TO BOTANICAL NAME AND LEGIBLY TAGGED.
11. THE CONTRACTOR IS HEREBY NOTIFIED THAT UNDERGROUND UTILITIES EXIST AND HE SHOULD OBTAIN CURRENT UTILITY RECORD MAPS AND NOTIFY ALL UTILITY COMPANIES PRIOR TO COMMENCING WORK.
12. SHOULD LOCATION OF TREES BE WITHIN 5' OF UNDERGROUND UTILITIES, RELOCATE SAID TREES TO MIN. OF 5' FROM ROOT BALL TO UTILITIES.
13. SHOULD LOCATIONS OF TREES BE WITHIN 20' OF OVERHEAD WIRES, RELOCATE SAID TREES TO MIN. OF 20' TO WIRES.
14. STAKE AND WRAP TREES IMMEDIATELY AFTER PLANTING. STAKES AND WRAPPING ARE TO BE REMOVED BY THE CONTRACTOR AT THE END OF THE GUARANTEE PERIOD.
15. MULCH ALL BEDS WITH 3 INCHES DOUBLE GROUND HARDWOOD BARK MULCH. COLOR: BLACK UNLESS OTHERWISE DIRECTED BY LANDSCAPE ARCHITECT.
16. PLANTING BACK FILL MIXTURE: 4 PARTS TOP SOIL; 1 PART APPROVED ORGANIC MATERIAL; 1/2 PART WELL ROTTED MANURE; 10 LBS. 10-10-10 PLANTING FERTILIZER THOROUGHLY MIXED PER CUBIC YARD.
17. TOPSOIL SHALL BE FURNISHED FROM THE STOCKPILED ON-SITE MATERIAL. IF AN INSUFFICIENT QUANTITY EXISTS, FURNISH FROM OFF-SITE SOURCES IN QUANTITIES SUFFICIENT TO COMPLETE THE REQUIREMENTS AS SPECIFIED. TOPSOIL SHALL BE NATURAL, FRIABLE, FERTILE SOIL, CHARACTERISTIC OF PRODUCTIVE SOIL IN THE VICINITY, REASONABLE FREE FROM STONES, CLAY LUMPS, ROOTS AND OTHER FOREIGN MATTER WITH AN ACIDITY BETWEEN 6.0 AND 6.8 PH. PROPOSED TOPSOIL MATERIAL FROM OFF-SITE SOURCES SHALL BE SUBJECT TO APPROVAL BY THE LANDSCAPE ARCHITECT. SUBMIT A 1 GALLON SAMPLE WITH LABORATORY RESULTS (SIEVE, PH, ORGANIC) FOR APPROVAL.
18. A MINIMUM OF 18" OF PREPARED TOPSOIL SHALL BE PROVIDED IN ALL PROPOSED SHRUB BEDS. ALL EXISTING SOIL AND OTHER MNATERIAL WITHIN THE SHRUB BED AREA IS TO BE REMOVED COMPLETELY FROM THE SITE AND DISPOSED OF IN A LEGAL MANNER.
19. ANTIDESSICANT: PROTECTIVE FILM EMULSION, PROVIDING A PROTECTIVE FILM OVER PLANT SURFACES, BUT PERMEABLE TO PERMIT TRANSPIRATION. MIXED AND APPLIED IN ACCORDANCE WITH MANUFACTURE'S INSTRUCTIONS. APPLY TO ALL BROADLEAF EVERGREEN SHRUBS PER MANUFACTURER'S RECOMMENDATIONS.
20. LANDSCAPE MATERIALS SHALL BE INSTALLED BY LOCAL COMPANIES FAMILIAR WITH THE CONDITIONS IN THIS AREA THAT EMPLOY NYS CERTIFIED NURSERY PROFESSIONALS.
21. STACK PLANTS AS INDICATED OR AS APPROVED IN THE FIELD. IF OBSTRUCTIONS ARE ENCOUNTERED THAT ARE NOT SHOWN ON THE DRAWINGS, DO NOT PROCEED PLANTING OPERATIONS UNTIL ALTERNATIVE PLANT LOCATIONS HAVE BEEN SELECTED.
22. MAINTAIN PLANTS UNTIL COMPLETION AND FINAL ACCEPTANCE OF THE ENTIRE PROJECT. MAINTENANCE SHALL INCLUDE PRUNING, CULTIVATING, EDGING, REMULCHING, FERTILIZING, WEEDING, WATERING AS REQUIRED FOR HEALTHY GROWTH, AND APPLICATION OF APPROPRIATE INSECTICIDES AND FUNGICIDES NECESSARY TO MAINTAIN PLANTS FREE OF INSECT AND DISEASE. RESET SETTLED PLANTS TO PROPER GRADE AND POSITION, RESTORE PLANTING SAUCER AND REMOVE DEAD MATERIAL. TIGHTEN AND REPAIR GUIDE WIRES AND DEFICIENCIES WITHIN THE FIRST 24 HOURS OF INITIAL PLANTING, AND NOT LESS THAN TWICE PER WEEK UNTIL FINAL ACCEPTANCE.
23. A MINIMUM OF 6" OF TOPSOIL SHALL BE PROVIDED ON ALL AREAS TO BE SEEDED.
24. LAWN SEED MIXTURE- APPLY TO ALL DISTURBED AREAS NOT PAVED, PLANTED, DESIGNATED TO REMAIN NATURAL OR OTHERWISE SEEDED. MIX SHALL CONSIST OF THE FOLLOWING:

	% WEIGHT	% PURITY	% GERMINATION
KEYSTONE PERENNIAL RYE GRASS	25	85	85
CHARISMATIC PERENNIAL RYE GRASS	25	85	85
CINDY LOU CREEPING RED FESCUE	20	85	80
COMMON KENTUCKY BLUEGRASS	30	97	80

SEEDING RATE: 200 LBS. PER ACRE
FERTILIZER: 18-24-3 GRANULAR RATE: 1,000 LBS. PER ACRE
MULCH ALL SEEDED AREAS WITH APPROVED STRAW AT A RATE OF 4,000 LBS. PER ACRE.



Ilex Glabra- Inkberry



Juniperus communis- Common Juniper



Aronia Melanocarpa- Black Chokeberry



Amelanchier Stolonifera- Serviceberry



Cornus Sericea 'Baileyi'-
Red-Twig Dogwood



Cornus Sericea 'Flaviramea'-
Yellow-Twig Dogwood



Hydrangea Quercifolia- Oakleaf Hydrangea



Itea Virginica- Virginia Sweetspire



Myrica Pensylvanica- Northern Bayberry



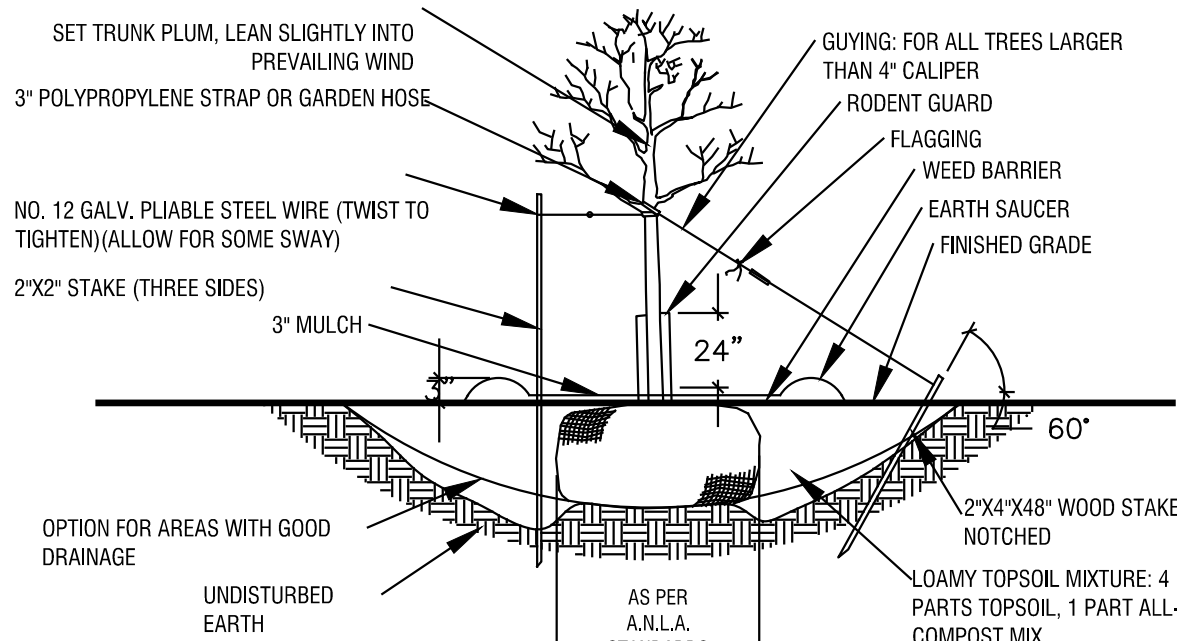
Physocarpus Opulifolius- Eastern Ninebark



Rhus Aromatica- Fragrant Sumac

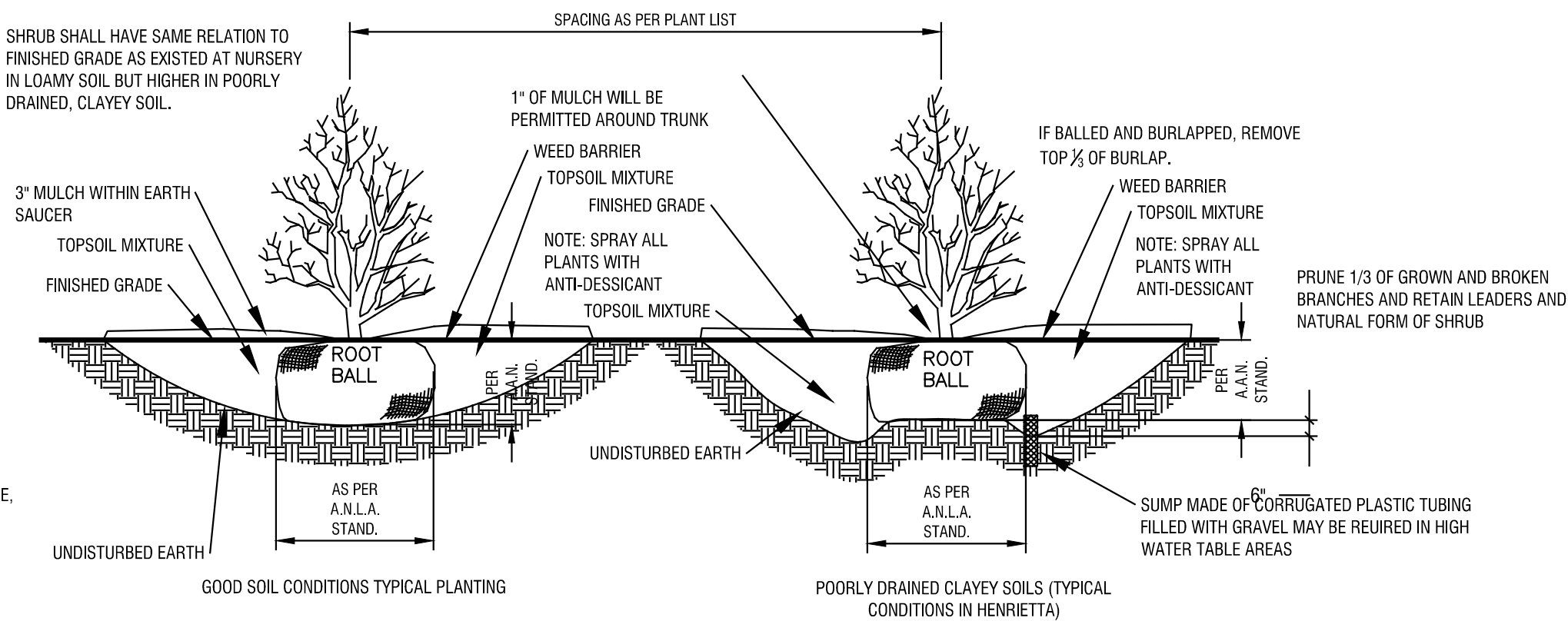


Viburnum Dentatum- Arrowwood Viburnum

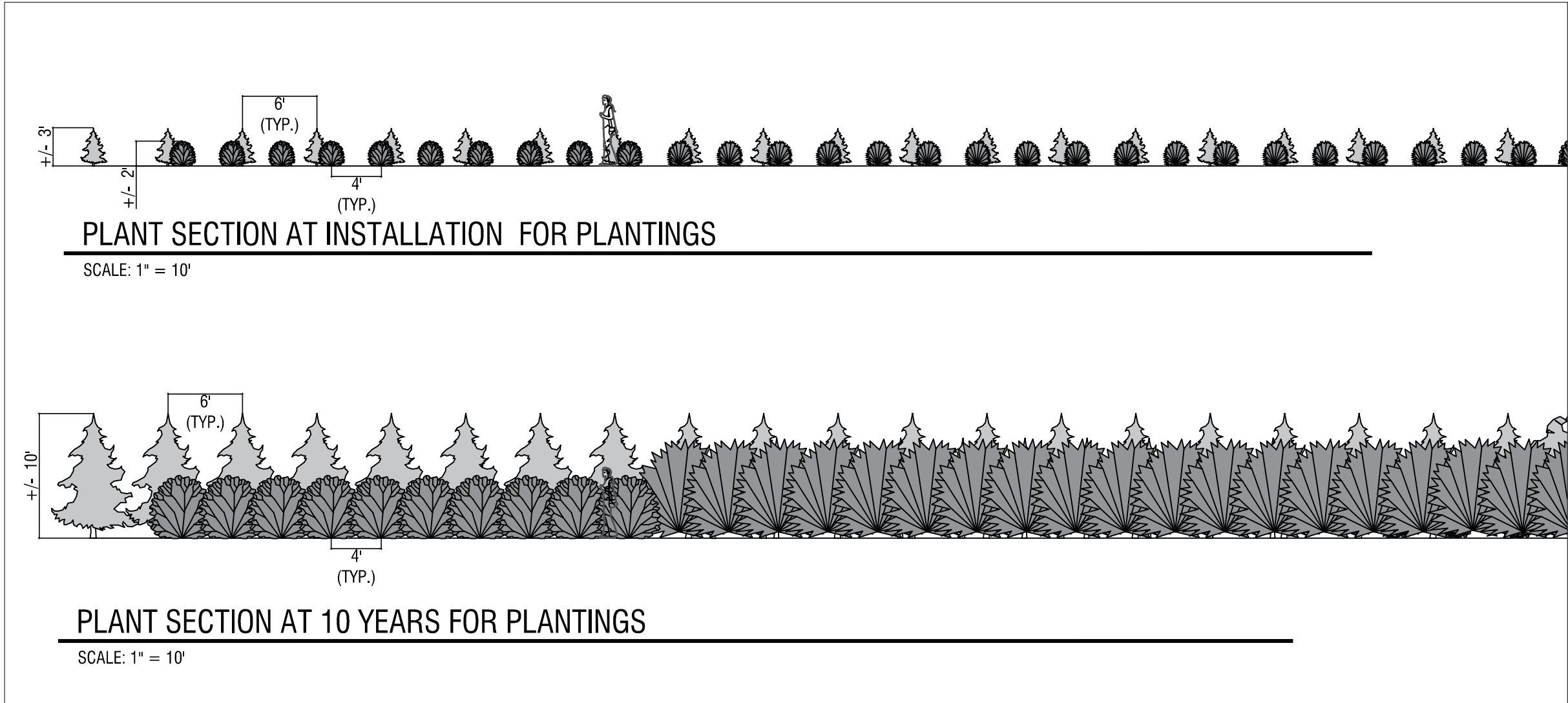


- NOTES:
- 1) STAKING: FOR ALL TREES 4" CALIPER OR LESS AND EVERGREENS 5'-12' HT., REMOVE STAKES ONE YEAR AFTER PLANTING.
 - 2) USE 8" STAKES DRIVE 4" BELOW GROUND SURFACE.
 - 3) GUYING: FOR ALL EVERGREEN TREES AND ALL TREES TALLER THAN 12". USE SAME WIRE AS FOR STAKING. USE THREE PER TREE, EQUALLY SPACED. DO NOT TWIST WIRE TO TIGHTEN- USE 1.5"x6" TURNBUCKLE.
 - 4) ROOT COLLAR TO BE SLIGHTLY ABOVE SURROUNDING GRADE.
 - 5) MULCH CAN NOT BE MORE THAN 1" THICK AT ROOT COLLAR EXTENDING OUT AT LEAST 6" FROM THE BARK, THEN IT CAN BE THICKENED.
 - 6) MULCH IS TO BE PLACED 3 TO 6 INCHES AWAY FROM THE TRUNK.
 - 7) KRAFT WRAP PAPER SHALL NOT BE PERMITTED FOR RODENT GUARD.

1
L-102
N.T.S.



2
L-102
N.T.S.



PLANT SECTION AT 10 YEARS FOR PLANTINGS
SCALE: 1" = 10'

4 British American Blvd,
Latham, NY 12110
518-439-8235

labellapp.com



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ALBANY RADAR TOWER SOLAR
897 WATERVLIT SHAKER ROAD
ALBANY, NY 12205

1	05/06/2022	CAPACITY DOWNSIZE
NO.	DATE:	DESCRIPTION:

Revisions

PROJECT NUMBER: 2212336

DRAWN BY: LAH

REVIEWED BY: DCM

ISSUED FOR: PERMIT ONLY

DATE: 06/24/2022

DRAWING NAME:

LANDSCAPE DETAILS

DRAWING NUMBER:

L102

GENERAL ELECTRICAL NOTES

- 1. THE INVERTER FOR THE PROPOSED SOLAR ELECTRIC SYSTEM MUST BE IDENTIFIED AND LISTED FOR USE IN SOLAR PHOTOVOLTAIC SYSTEMS. ALL SOURCE CIRCUITS MUST HAVE INDIVIDUAL SOURCE CIRCUIT PROTECTION FOR TESTING (SUCH AS AN ACCESSIBLE TERMINAL BLOCK OR DISCONNECT) AND ISOLATION.
- 2. INVERTERS MUST BE EQUIPPED WITH DC GROUND FAULT PROTECTION TO REDUCE FIRE HAZARDS.
- 3. ALL DISCONNECTING COMBINERS, PULL/SPICE BOXES, AND ENCLOSURES MUST BE LISTED AND LABELED FOR ITS PURPOSE.
- 4. ALL METALLIC CONDUIT FITTINGS MUST INCLUDE INTERNAL OR EXTERNAL BONDING TO ENSURE CONTINUITY, INCLUDING METALLIC EXPANSION FITTINGS.
- 5. ANY METAL SHAVINGS RESULTING FROM SITE WORK MUST BE CLEANED FROM ENCLOSURE INTERIORS, TOP SURFACES OF ENCLOSURE, ROOF SURFACE, AND ANY ADDITIONAL AREAS WHERE OXIDATION OR CONDUCTIVE METAL SHAVINGS MAY CAUSE RUST, ELECTRICAL SHORT CIRCUIT OR OTHER DAMAGE.

WIRING AND WIRING METHODS

- 1. ALL WIRING METHODS AND INSTALLATION PRACTICES MUST CONFORM TO THE NATIONAL ELECTRIC CODE, LOCAL STATE CODES, AND OTHER APPLICABLE LOCAL CODES.
- 2. EXPOSED PV SOLAR MODULE WIRING WILL BE 2000 PV WIRE, 90°C, WET RATED AND UV RESISTANT.
- 3. ALL FREE-AIR CABLES, SUCH AS MODULE LEADS MUST BE SECURED WITHIN 12" OF CONNECTION POINTS, AND EVERY 24" THEREAFTER, BY A STAINLESS STEEL OR PLASTIC-COATED STAINLESS STEEL CLIP OR TRAY. THE USE OF PLASTIC ZIP TIES IS NOT AN APPROVED METHOD TO SUPPORT OR ATTACH WIRE TO A STRUCTURE. PLASTIC ZIP TIES ARE ONLY PERMITTED FOR SUPPLEMENTAL GROUPING OR BUNDLING OF CONDUCTORS INSIDE OF EQUIPMENT. PV-SPECIFIC STAINLESS STEEL CLIPS AND VINYL JACKETED STEEL CABLE TIES OR AN APPROVED EQUAL ARE ALLOWED FOR USE IN THIS APPLICATION.
- 4. WIRE COLOR SPECIFICATIONS:
 - A. 120 TO 208VAC WIRING:
 - I. PHASE : (A) BLACK, (B) RED, (C) BLUE
 - II. NEUTRAL: WHITE OR GREY
 - B. 600VAC CLASS WIRING (300 TO 600VAC):
 - I. PHASE: (A) BROWN, (B) ORANGE, (C) YELLOW
 - II. NEUTRAL: WHITE OR GREY
 - C. EXPOSED EXTERIOR DC WIRING, 600VDC TO 1500VDC
 - I. POSITIVE (NON-ISOLATED): RED
 - II. NEGATIVE (NON-ISOLATED): BLACK
 - III. POSITIVE (ISOLATED): BLACK W/ RED MARKINGS AT TERMINATIONS
 - IV. NEGATIVE (ISOLATED): BLACK
- 5. COLORED PHASE MARKINGS MUST BE MADE WITH HOT OR COLD SHRINK TUBING, AT LEAST 12" LONG.
- 6. STRING AND COMBINER CABLE LABELS IN EXTERIOR LOCATIONS MUST BE RATED FOR EXTERIOR USE AND PROTECTED BY SHRINK TUBING.
- 7. PV STRING HOME RUNS MUST BE LABELED ON BOTH ENDS, AT ARRAY AND AT COMBINER.
- 8. COMBINER OUTPUT CONDUCTORS MUST BE LABELED AT BOTH ENDS, AT COMBINER AND AT DISCONNECT.
- 9. LIQUID TIGHT FLEXIBLE METALLIC CONDUIT IS SUITABLE FOR INSTALLATION IN WET AND DRY LOCATIONS. SUPPORTS MUST BE NO MORE THAN 12 INCHES FROM BOXES (JUNCTION BOX, CABINETS, OR CONDUIT FITTING) AND NO MORE THAN 54 INCHES APART (NEC 350.30) MUST BE APPROPRIATELY BONDED.
- 10. LIQUID TIGHT FLEXIBLE NON-METALLIC IS NOT APPROVED.
- 11. THE PHOTOVOLTAIC SOURCE CIRCUITS AND PHOTOVOLTAIC OUTPUT CIRCUITS OF THIS PROPOSED SOLAR SYSTEM MUST NOT BE CONTAINED IN THE SAME RACEWAY, CABLE TRAY, CABLE, OUTLET BOX, JUNCTION BOX, OR SIMILAR FITTING AS FEEDERS OR BRANCH CIRCUITS OF OTHER SYSTEMS UNLESS THE CONDUCTORS OF THE DIFFERENT SYSTEMS ARE SEPARATED BY A PARTITION OR ARE CONNECTED TOGETHER.
- 12. UNLESS MARKED AS UV RESISTANT, PVC IS NOT APPROVED FOR INSTALLATION IN LOCATIONS SUBJECTED TO DIRECT SUNLIGHT.
- 13. LONG STRAIGHT EXPOSED METAL CONDUIT (RMC, GRC, EMT) RUNS, 100 FEET OR MORE, MUST HAVE EXPANSION FITTINGS INSTALLED PER NEC 300.7(B). EXPANSION FITTINGS MUST ALSO BE USED WHEN CONDUIT SPANS A ROOF EXPANSION JOINT.
- 14. FUSES AND WIRES SUBJECT TO TRANSFORMER INRUSH CURRENT MUST BE SIZED ACCORDINGLY.
- 15. RMC, IMC OR EMT CONDUIT, USE 20 MIL PIPE WRAP TAPE HALF-LAPPED FROM 6" PAST TRANSITION POINT ON PVC TO 6" ABOVE GROUND ON METALLIC CONDUIT. AN EXPANSION JOINT MUST BE USED IN THE TRANSITION TO ABOVE GROUND CONDUIT WHEN REQUIRED BY NEC 300.5(J).
- 16. CONDUITS LONGER THAN 200 FT WITH NEGATIVE SLOPE TOWARD ELECTRICAL EQUIPMENT MUST HAVE A PULL BOX OR VAULT ADJACENT TO THE ENTRY POINT INTO THE ELECTRICAL EQUIPMENT.
- 17. WHEN TRANSITIONING FROM FREE AIR TO CONDUCTORS IN CONDUIT A LISTED STRAIN RELIEF FITTING MUST BE USED TO SUPPORT CONDUCTORS. CONDUIT DUCT SEAL MAY BE USED TO PREVENT MOISTURE INGRESS. SPRAY FOAM IS NOT AN APPROVED CONDUIT SEALING METHOD.
- 18. L AND T CONNECTOR BODIES ARE NOT APPROVED FOR DC SYSTEMS OR INVERTER OUTPUT CIRCUITS.
- 19. ALL AC AND DC COPPER TERMINATIONS MUST HAVE AN ANTI-OXIDANT COMPOUND, KOPR-SHIELD OR EQUIVALENT APPLIED.

- 20. MEGGER TESTING MUST BE PERFORMED AND DOCUMENTED AT 1000 VDC FOR ALL AC CIRCUITS 600V OR BELOW AND DC CIRCUITS 600V OR BELOW. MEGGER TESTING WILL BE PERFORMED AT 1500 VDC FOR DC CIRCUITS IN 1000 VDC SYSTEMS. DO NOT MEGGER THE PV MODULES AS HIGH VOLTAGES CAN DAMAGE PV MODULES.
- 21. CONTINUITY TESTING TO BE PERFORMED AND DOCUMENTED ON ALL INSTALLED DC AND AC POWER CABLES.
- 22. CONDUIT BENDS MUST NOT DAMAGE THE RACEWAY OR SIGNIFICANTLY CHANGE THE INTERNAL DIAMETER OF RACEWAY PER TABLE 2 OF THE NEC.
- 23. SUPPORT CONDUCTORS IN VERTICAL CONDUITS IN ACCORDANCE WITH THE REQUIREMENTS OF NEC 300.19.
- 24. TORQUE ALL ELECTRICAL CONNECTORS PER DEVICE LISTING, OR MANUFACTURERS RECOMMENDATIONS. CONNECTORS MUST BE MARKED WITH PERMANENT MARKING PAINT AFTER TORQUEING.
- 25. ALL BARE CU WIRES MUST BE INSTALLED IN A MANNER THAT PROTECTS THEM FROM CONTACT WITH DISSIMILAR METALS, PARTICULARLY ALUMINUM.
- 26. SPLICES AND CONNECTORS MUST BE INSULATED AND WILL REQUIRE PROJECT ENGINEER APPROVAL. ELECTRICAL TAPE ALONE IS NOT SUITABLE AS THE ONLY INSULATION MEANS. FOLLOW MANUFACTURERS INSTRUCTIONS FOR INSTALLATION, AND APPLICATION OF INSULATING PRODUCT.
- 27. SPLICES MUST BE AVOIDED WHEREVER POSSIBLE. WHEN NECESSARY DUE TO SPOOL-LENGTH LIMITATIONS, SPLICES MUST BE MADE IN AN ENCLOSURE, PULL BOX OR HAND-HOLE BOX, AND MUST NOT BE BURIED, MADE INSIDE CONDUIT, OR BE OTHERWISE INACCESSIBLE.
- 28. ALL LV AC WIRING WILL BE TYPE THWN-2 RATED AT 90°C. XHHW-2 IS AN APPROVED ALTERNATE. THIS NOTE WILL BE SUPERCEDED BY ANY INVERTER SPECIFICATIONS REQUIRING LV AC WIRE TO MEET HIGHER VOLTAGE OR INSULATION STANDARDS.
- 29. USE MEYERS-TYPE HUBS LISTED TO PROVIDE MOISTURE PROTECTION FOR CONDUIT ENTRANCES IN ALL APPLICABLE LOCATIONS AS REQUIRED BY NEC 314.15.
- 30. PROTECT WIRE FROM SHARP EDGES WITH UV RATED SPIRAL WRAP, EDGE-GUARD, OR SPLIT LOOM.
- 31. MODULE LEAD CONNECTORS MUST BE INSTALLED SUCH THAT THEY ARE EASILY ACCESSIBLE AND PROTECTED FROM EXPOSURE TO DIRECT SUNLIGHT OR RAIN. THEY MUST NOT BE INSTALLED WITHIN TUBING, CONDUIT OR MODULE GAPS, OR IN DIRECT CONTACT WITH THE MODULE BACKSHEET.
- 32. STRING SOURCE CIRCUIT WIRING MUST BE SUPPORTED ADEQUATELY IN LENGTHS NOT TO EXCEED 24". THE MODULE TO MODULE INTERCONNECTION LEADS MUST BE SUPPORTED AT A MINIMUM OF 12" FROM THE J-BOX AND THE MODULE TO MODULE CONNECTION POINT.
- 33. MODULE TO SOURCE CIRCUIT CONNECTORS MUST BE OF THE SAME MAKE AND MODEL AS THE MODULE TO MODULE CONNECTORS. THE CONNECTION TO SOURCE CIRCUITS MUST BE PER THE MODULE MANUFACTURER AND CONNECTOR MANUFACTURER INSTRUCTIONS. CONTRACTOR TO VERIFY THAT THE STRING CONDUCTOR DIAMETER IS COMPATIBLE WITH THE STRING CIRCUIT HOME-RUN CONNECTORS.
- 34. ALL EMT MUST USE LISTED AND APPROVED RAIN TIGHT FITTINGS WHEN INSTALLED OUTDOORS OR IN A WET LOCATION.
- 35. ALL ABOVE GROUND PVC CONDUIT TO BE SCHEDULE 80. ALL BELOW GROUND PVC CONDUIT TO BE SCHEDULE 40 EXCEPT WHERE PASSING UNDER ROADWAYS, IN WHICH CASES SCHEDULE 80 IS TO BE USED.

ALUMINUM CONDUCTOR INSTALLATION NOTES

- 1. MINIMUM WIRE SIZE FOR CURRENT CARRYING ALUMINUM CONDUCTORS IS 1/0 STRANDED, COMPACT ELECTRICAL GRADE AA-8000 SERIES ALLOY.
- 2. ALUMINUM POWER CABLE, WIRE CONNECTORS, AND INSULATING AND CODING TAPE MANUFACTURERS SHALL BE APPROVED BY OWNER PRIOR TO USAGE.
- 3. WHERE BOLTED CONNECTIONS ARE NOT POSSIBLE, MECHANICAL SCREW STYLE LUGS AND TERMINATIONS ARE APPROVED ONLY WHEN USED IN CONJUNCTION WITH A LISTED COPPER PISTAL COMPRESSION ADAPTOR (SOLID CORE PIN ADAPTERS ARE NOT ALLOWED).
- 4. USE OF A "ONE-SHOT" CRIMPER OR "DIE-LESS CRIMPERS" WILL NOT BE ALLOWED.
- 5. TERMINAL CONNECTIONS TO BE MADE PER GUIDELINES BELOW. CONNECTION HARDWARE SHALL BE RATED FOR, AT A MINIMUM, THE MAXIMUM VOLTAGE OF THE SYSTEM.
 - A. MUST BE PRE-FILLED WITH OXIDE INHIBITOR.
 - B. WIRE STRIPPING AND BRUSHING OF CONDUCTOR IN ACCORDANCE WITH VENDOR SPECS IS REQUIRED IMMEDIATELY PRIOR TO LUG INSTALLATION
 - C. OXIDE INHIBITOR MUST BE APPLIED TO EXPOSED CONDUCTOR IMMEDIATELY AFTER STRIPPING AND BRUSHING AND IMMEDIATELY PRIOR TO INSTALLATION OF THE LUG.
 - D. USE COMPRESSION TOOL LISTED FOR USE WITH SELECTED COMPRESSION CONNECTOR.
 - E. A MINIMUM 9" LENGTH OF COLD OR HEAT SHRINK WITH A VOLTAGE RATING EQUAL TO OR EXCEEDING THE CONDUCTOR RATING MUST BE APPLIED TO COVER THE CONNECTION BETWEEN CRIMP AND THE CONDUCTOR BEGINNING AT THE STRAIGHT SECTION OF THE CRIMP.
 - F. ALL CONNECTORS AND CORRESPONDING CRIMPING TOOLS MUST BE LISTED FOR THE APPLICATION.
- 6. INSULATING AND COLOR CODING MARKINGS MUST BE HOT OR COLD SHRINK TUBING.
- 7. FOR ALUMINUM MV CONDUCTORS, WHERE USED, THE GUIDELINES IN THIS SECTION PLUS GENERAL REQUIREMENTS FOR MV CONDUCTOR INSTALLATION APPLY.
- 8. DIRECT LANDING OF ALUMINUM CONDUCTORS IS ONLY ALLOWED TO BREAKERS WHICH ARE SPECIFICALLY RATED FOR ALUMINUM CONDUCTORS.

GROUNDING NOTES

SEE ELECTRICAL DIAGRAM AND ELECTRICAL DETAILS FOR MORE GROUNDING INFORMATION.

- 1. GROUND RESISTANCE TESTING TO BE PEROMED AND DOCUMENTED AT ALL EQUIPMENT (INVERTERS, COMBINER BOXES, DISCONNECTS, ETC..) AND AT THE RACKING SYSTEM (MINIMUM OF 10 LOCATIONS PER 5MW SITE, EVENLY DISTRIBUTED THROUGHOUT THE FIELD). MAXIMUM MEASURED RESISTANCE NOT TO EXCEED 0.25 OHMS.
- 2. EQUIPMENT GROUNDING CONDUCTORS AND SYSTEM GROUNDING CONDUCTORS WILL HAVE AS SHORT A DISTANCE TO GROUND AS POSSIBLE AND A MINIMUM NUMBER OF TURNS.
- 3. NON-CURRENT CARRYING METAL PARTS WILL BE CHECKED FOR PROPER GROUNDING. NOTE THAT TERMINAL LUGS BOLTED ON A FINISHED ENCLOSURE SURFACE MAY BE INSULATED BECAUSE OF PAINT/FINISH. PAINT/FINISH AT POINT OF CONTACT MUST BE PROPERLY REMOVED.
- 4. RACKING COMPONENTS AND STRUCTURAL SUPPORTS MUST BE ELECTRICALLY BONDED.
- 5. MODULES MUST BE GROUNDED WITH EQUIPMENT GROUNDING METHODS APPROVED BY THE MANUFACTURER WITH A MEANS OF BONDING LISTED FOR THIS PURPOSE, INCLUDING THE USE OF UL 2703 LISTED RACKING SYSTEMS.
- 6. THE CONNECTION TO THE MODULE MUST BE ARRANGED SUCH THAT REMOVAL OF A MODULE OR A PANEL FROM THE PHOTOVOLTAIC SOURCE CIRCUIT DOES NOT INTERRUPT A GROUNDED CONDUCTOR TO ANOTHER PHOTOVOLTAIC SOURCE CIRCUIT.
- 7. WHERE USED, LAY-IN GROUND LUGS SHALL BE RATED FOR DIRECT BURIAL (DB RATED).
- 8. ALL METALLIC RACEWAYS AND ENCLOSURES REQUIRE A PHYSICAL CONNECTION TO THE GROUNDING ELECTRODE CONDUCTOR (GEC) CONTAINED WITHIN.

DISCONNECTING MEANS NOTES

- 1. MEANS MUST BE PROVIDED TO DISCONNECT ALL CURRENT CARRYING CONDUCTORS OF THE PHOTOVOLTAIC POWER SOURCE FROM ALL OTHER EXISTING CONDUCTORS.
- 2. ALL CIRCUIT BREAKERS INSTALLED THAT ARE SUBJECT TO REVERSE POWER FLOW MUST BE LISTED AND LABELED AS BACKFEED COMPATIBLE.
- 3. THE GROUNDED CONDUCTOR MAY HAVE A BOLTED OR TERMINAL DISCONNECTING MEANS TO ALLOW MAINTENANCE OR TROUBLESHOOTING BY QUALIFIED PERSONNEL.
- 4. UNLESS A DISCONNECT IS SERVICING A SUPPLY-SIDE CONNECTION, THE DISCONNECTING MEANS IS NOT REQUIRED TO BE SUITABLE AS SERVICE EQUIPMENT AND SHALL BE RATED IN ACCORDANCE WITH NEC 690.17.
- 5. EQUIPMENT SUCH AS PHOTOVOLTAIC SOURCE CIRCUITS, OVERCURRENT DEVICES, AND BLOCKING DIODES ARE PERMITTED ON THE PHOTOVOLTAIC SIDE OF THE PHOTOVOLTAIC DISCONNECTING MEANS.
- 6. PROVIDE MEANS TO DISCONNECT EQUIPMENT SUCH AS INVERTERS, BATTERIES, CHARGE CONTROLLERS, AND ANY OTHER ENERGY SOURCES FROM ALL UNGROUNDED CONDUCTORS. IF THE EQUIPMENT IS ENERGIZED FROM MORE THAN ONE SOURCE, THE DISCONNECTING MEANS MUST BE GROUPED AND IDENTIFIED.
- 7. A SINGLE DISCONNECTING MEANS IS PERMITTED FOR THE COMBINED AC OUTPUT OF ONE OR MORE INVERTERS IN AN INTERACTIVE SYSTEM, PROVIDED EACH INVERTER ASSOCIATED WITH THE DISCONNECT HAS ITS OWN INTERNAL AC DISCONNECT, AND THAT THE COMMON DISCONNECTING MEANS IS READILY ACCESSIBLE FROM THE SAME LOCATION AS THE INVERTERS.
- 8. PROVIDE MEANS TO DISCONNECT FUSES FROM ALL SOURCES OF SUPPLY IF THE FUSE IS ENERGIZED FROM BOTH DIRECTIONS SUCH A FUSE IN A PHOTOVOLTAIC SOURCE CIRCUIT SHALL BE CAPABLE OF BEING DISCONNECTED INDEPENDENTLY OF FUSES IN OTHER PHOTOVOLTAIC SOURCE CIRCUITS.
- 9. ALL DISCONNECTS AND COMBINERS MUST BE SECURED FROM UNAUTHORIZED AND UNQUALIFIED PERSONNEL BY EITHER LOCK OR LOCATION.

DAMAGE PROTECTION

- 1. ENCLOSURES MUST BE SECURED TO EQUIPMENT RACKS IN ACCORDANCE WITH THE DESIGN DOCUMENTS, AND MUST BE SECURED IN SUCH A WAY AS TO PREVENT ENCLOSURE MOVEMENT OR SLIDING.
- 2. ALL NEMA 4 BOXES MUST BE EQUIPPED WITH LISTED DRAIN PLUGS INSTALLED TO ALLOW WATER TO DRAIN ANY MODIFICATION TO AS-MANUFACTURED EQUIPMENT SHOULD BE DONE IN SUCH A WAY AS TO MAINTAIN ALL LISTED RATINGS.
- 3. ALL NEMA 3 BOXES MUST BE EQUIPPED WITH A WEEP HOLE OR LISTED DRAIN PLUGS INSTALLED TO ALLOW WATER TO DRAIN.
- 4. ALL OUTDOOR ENCLOSURES REQUIRE AN APPROVED MEANS OF DRAINAGE AND VENTILATION.
- 5. ALL ELECTRICAL CONDUIT, EQUIPMENT AND COMPONENTS MUST BE ADEQUATELY PROTECTED FROM DAMAGE AND VANDALISM BY THE USE OF BOLLARDS, SHIELDS, GUARDS OR OTHER ACCEPTABLE MEANS.



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SIEMENS SMART
INFRASTRUCTURE

6 BRITISH AMERICAN BLVD
LATHAM, NY 12110

SIEMENS

ALBANY RADAR TOWER SOLAR

897 WATERLIET SHAKER ROAD
ALBANY, NY 12205

NO:	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2222708

DRAWN BY:

REVIEWED BY:

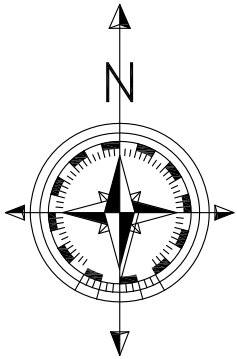
ISSUED FOR: PERMIT ONLY

DATE: 07/19/2022

DRAWING NAME:

ELECTRICAL NOTES

DRAWING NUMBER:



PROPERTY LINE

TO NATIONAL GRID OVERHEAD
3-PH 13.2KV LINE
SAND CREEK ROAD SUBSTATION
CKT#36_30_45252

1
E501
EQUIPMENT PAD WITH MAIN DISCONNECT,
MV STEP-UP XFMR, LV SWITCHBOARD,
GROUNDING TRANSFORMER, METERING
AND AUXILIARY EQUIPMENT

ACCESS ROAD
GROUND RING
NEW UTILITY RISER POLE
NEW UTILITY RECLOSER POLE
NEW UTILITY
RECEIVING POLE (PCC)

INVERTER RACK

AC-LV TRENCH

2
E505

3
E505
MV TRENCH

COMBINER BOX
(TYP.)

WATERLIET SHAKER RD

ARRAY FENCE

GENERAL NOTES:

- ALL INVERTERS TO BE MOUNTED ON FREE STANDING RACKING (INDEPENDENT OF PV TABLES) AS CALLED FOR IN DETAILS E506 AND STRUCTURAL ENGINEERING DETAILS.
- PROVIDE PULL CORDS IN ALL SPARE / EMPTY CONDUITS.
- TRENCHES AND OTHER EXCAVATIONS MAY BE CONSTRUCTED EITHER BEFORE OR AFTER RACKING SUPPORT POLE INSTALLATION. THE HORIZONTAL DISTANCE BETWEEN EXCAVATION AND PROPOSED RACKING SUPPORT POLE LOCATION SHOULD BE 24" OR GREATER.
- RACKING TABLES NOT SHOWN. REFER TO RACKING MANUFACTURER DRAWING FOR TABLE LOCATIONS AND CONFIGURATION.
- ELECTRICAL OVERHEAD POLES ARE NOT TO BE INSTALLED UNTIL PROPOSED LOCATIONS ARE REVIEWED AND APPROVED BY UTILITY.

SYMBOL LIST

	EXISTING DISTRIBUTION CIRCUIT
	NEW OVERHEAD DISTRIBUTION CIRCUIT
	NEW UNDERGROUND AC ELECTRICAL TRENCH
	NEW UNDERGROUND DC ELECTRICAL TRENCH
	EXISTING POLE TO REMAIN
	NEW POLE
	GUY ANCHOR
	DC COMBINER PANEL
	STRING INVERTER
	GROUND ROD LOCATION, REFER TO SHEET E702 FOR GROUNDING SYSTEM DETAILS.

SITE DATA

SYSTEM PRODUCTION SUMMARY	
AC PLANT PEAK PRODUCTION:	1.50 MW
DC PLANT PEAK PRODUCTION:	2.065 MW
DC/AC POWER RATIO:	1.38
INTERCONNECTING UTILITY INFORMATION	
UTILITY:	NATIONAL GRID
SUBSTATION:	SAND CREEK ROAD
CIRCUIT #:	36_30_45252
LINE VOLTAGE:	13.2 KV
EQUIPMENT SUMMARY	
SOLAR PV MODULE	MANUFACTURER: HANWHA OCELLS
	MODEL: Q.PEAK DUO XL-G11.3/8FG
	NOMINAL MAX. DC POWER: 580 W
	VOLTAGE (STC), VOC, VMPP: 53.56 V, 44.88 V
	CURRENT (STC), ISC, IMPP: 13.55 A, 12.92 A
	AZIMUTH: 180°
TOTAL PV MODULE QUANTITY: 3,560	
SOLAR INVERTER	MANUFACTURER: KACO
	MODEL: BLUEPLANET 110 TL3-US
	NOMINAL MAX. AC POWER: 110 KW / 110 KVA
	NOMINAL AC VOLTAGE: 480 V
	MAX. AC CURRENT: 132.3 A
	TOTAL INVERTER QUANTITY: 14
GENERATOR STEP-UP TRANSFORMER	MANUFACTURER: TBD
	MODEL: TBD
	TRANSFORMER SIZE: 3.2 MVA
	HIGH SIDE: 13.2 KV, GROUNDED WYE
	LOW SIDE: 480 V, GROUNDED WYE
	TOTAL TRANSFORMER QUANTITY: 1



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SIEMENS SMART INFRASTRUCTURE

6 BRITISH AMERICAN BLVD
LATHAM, NY 12110

SIEMENS

ALBANY RADAR TOWER SOLAR

897 WATERLIET SHAKER ROAD
ALBANY, NY 12205

NO.	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2222708

DRAWN BY:

BJB

REVIEWED BY:

SJB

ISSUED FOR:

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DATE:

08/05/2022

DRAWING NAME:

ELECTRICAL SITE PLAN

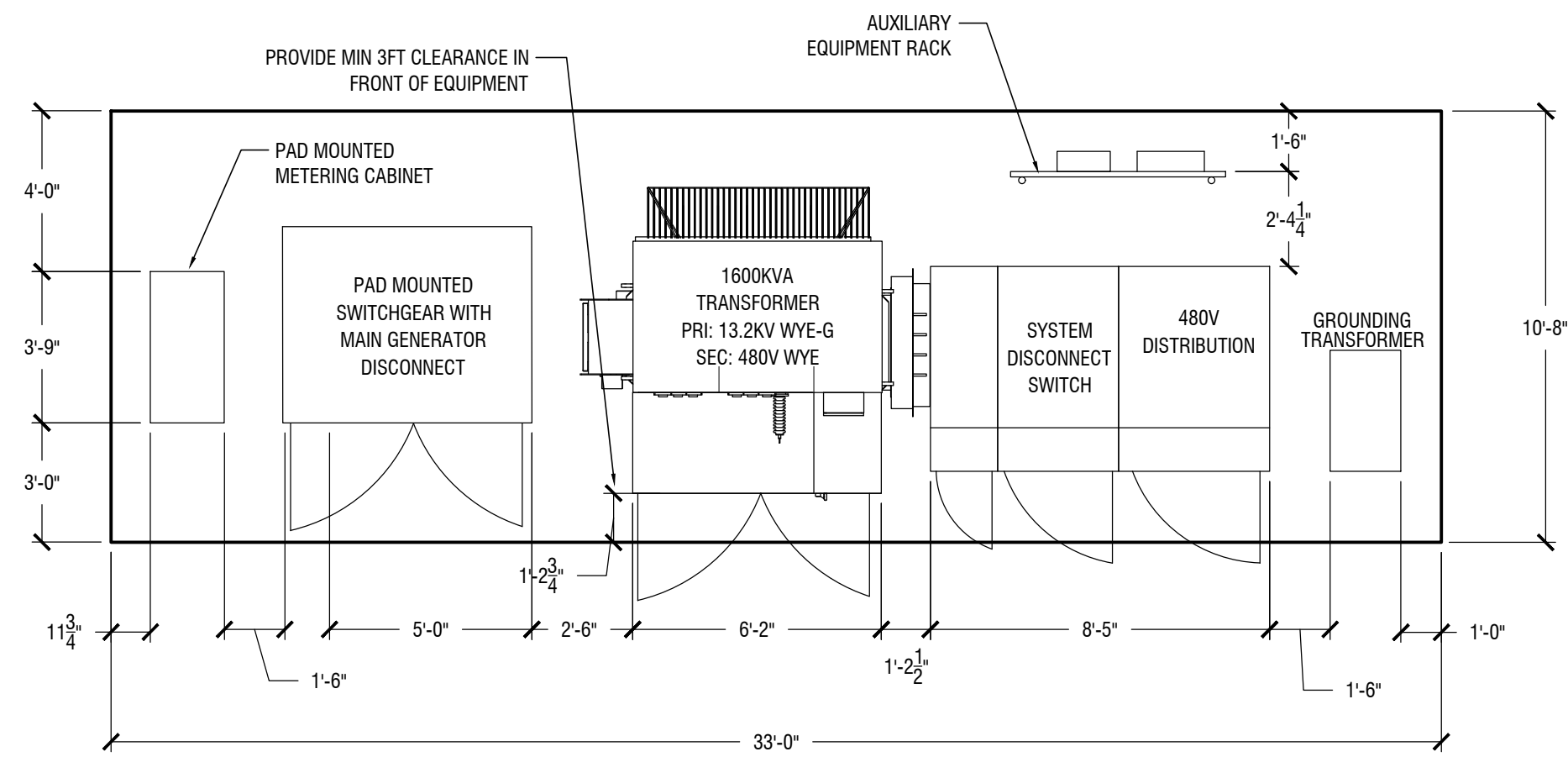
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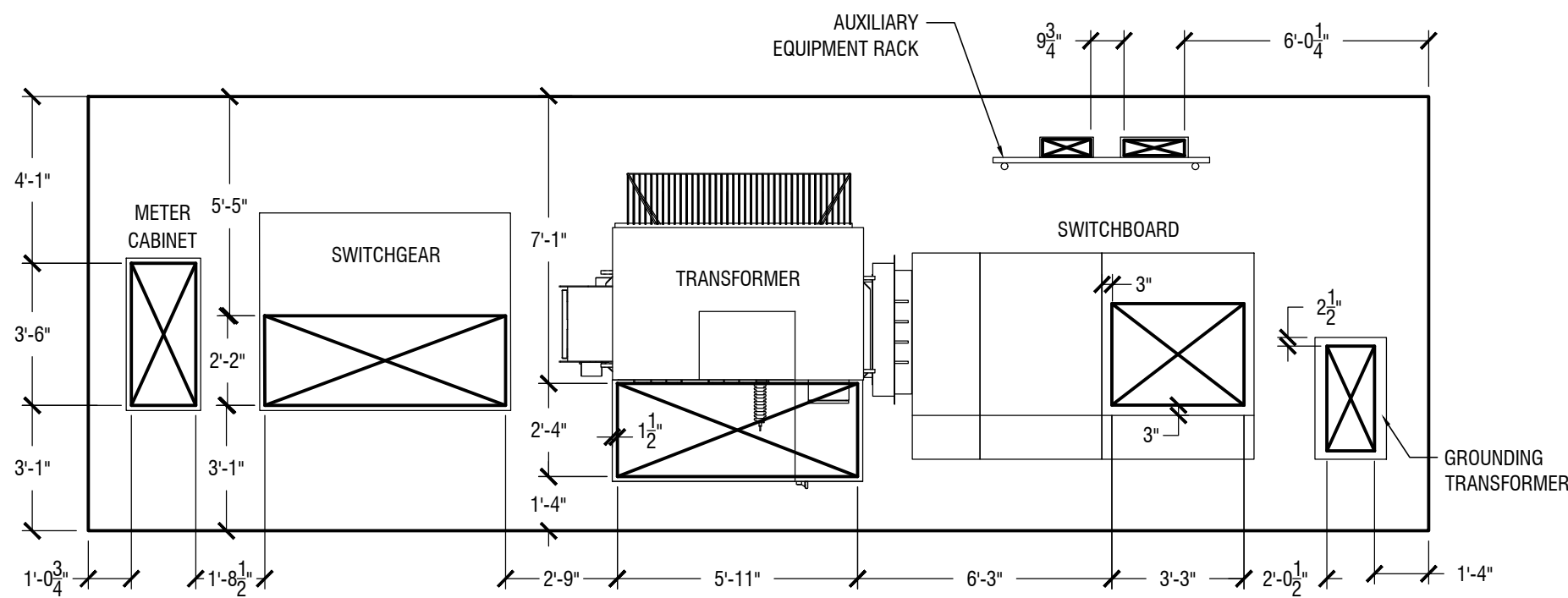
1 ELECTRICAL SITE PLAN

E-101 1"=40'

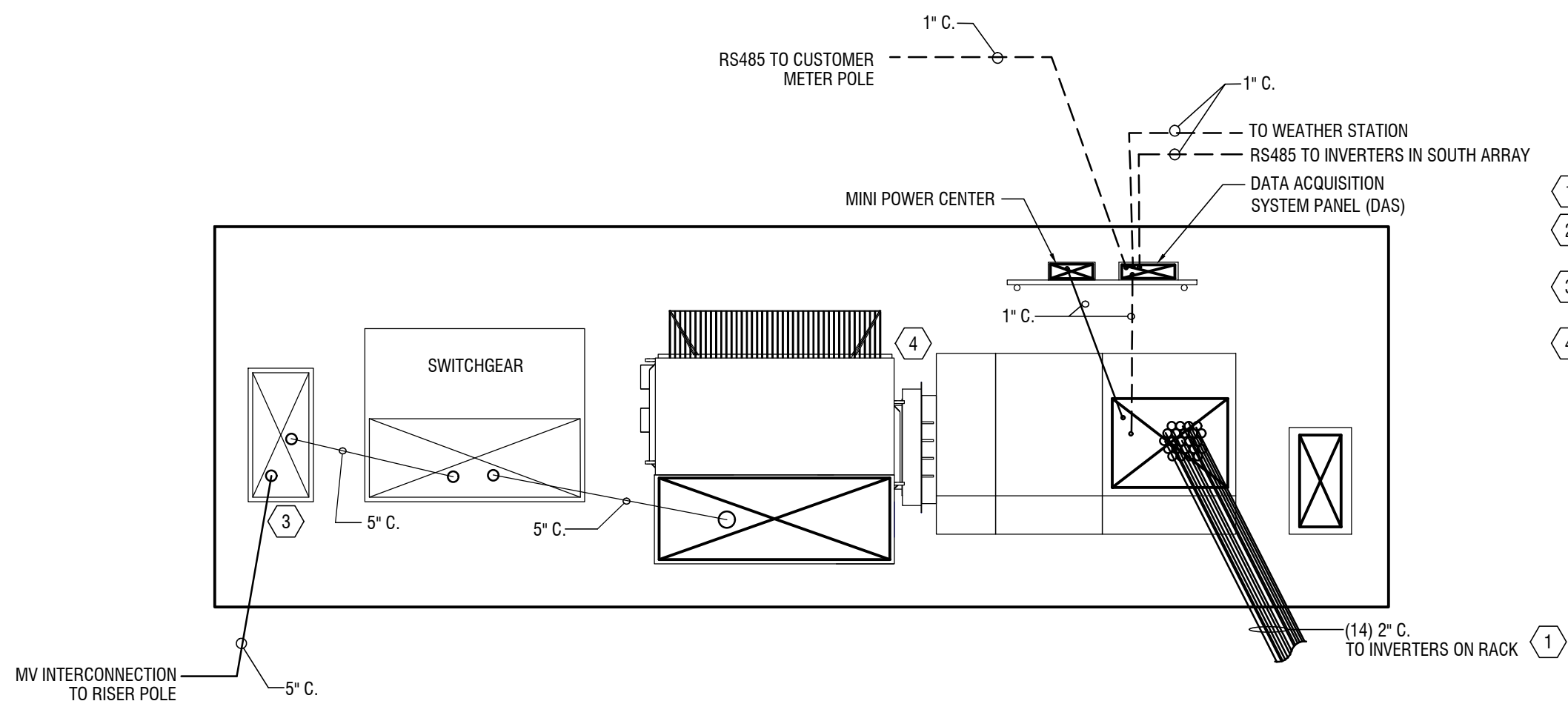
PRELIMINARY DESIGN - NOT FOR CONSTRUCTION



1 EQUIPMENT PADS - EQUIPMENT LOCATION
E501 1/4" = 1'-0"

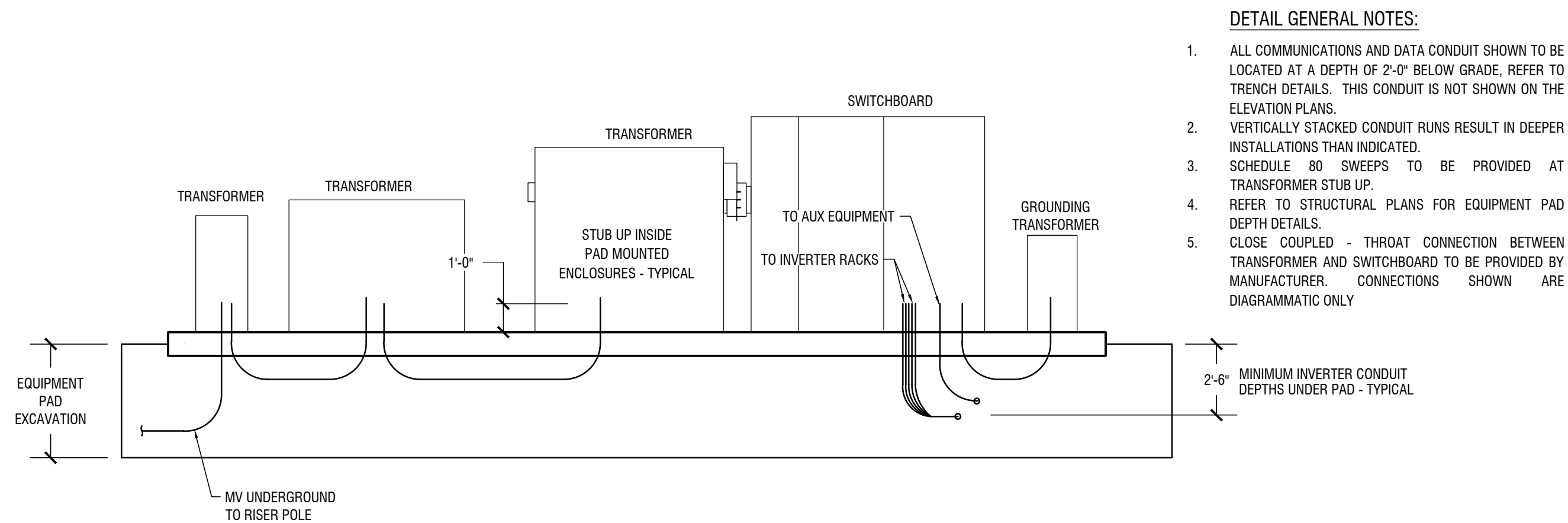


2 EQUIPMENT PAD - PENETRATION LOCATIONS
E501 1/4" = 1'-0"

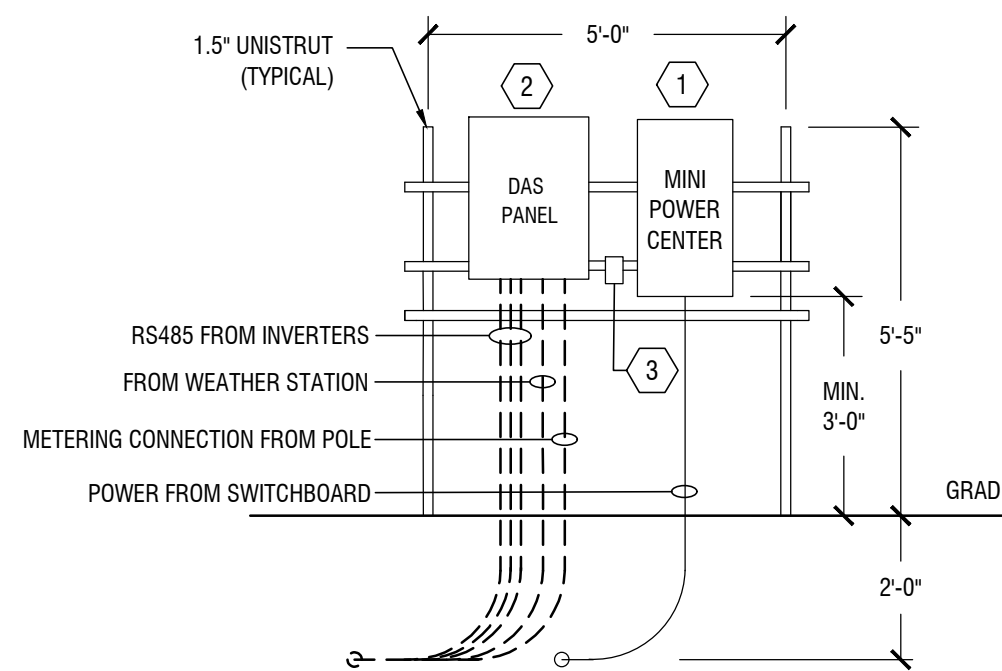


3 EQUIPMENT PAD UNDERGROUND CONNECTIONS
E501 1/4" = 1'-0"

- DETAIL KEY NOTES:**
- CONDUITS TO EXTEND 1'-0" BEYOND GROUND RING.
 - SEE AUXILIARY EQUIPMENT RACK DETAILS ON SHEET E-501.
 - PROVIDE SCHEDULE 80 SWEEPS IN EQUIPMENT STUB-UP CONNECTION FROM RISER POLE.
 - CLOSE COUPLED - THROAT CONNECTION BETWEEN TRANSFORMER AND SWITCHBOARD TO BE PROVIDED BY MANUFACTURER. CONNECTIONS SHOWN ARE DIAGRAMMATIC ONLY.
- LEGEND**
- DATA CONDUIT - 1" C
 - POWER CABLEING CONDUIT



4 EQUIPMENT PAD REAR ELEVATION
E501 1/4" = 1'-0"



5 AUXILIARY EQUIPMENT ELEVATION
E501 3/8" = 1'-0"

DRAWING GENERAL NOTES:

- REFER TO 3-LINE DIAGRAM ON FOR CABLE SIZES AND QUANTITIES OF POWER CABLES.
- REFER TO DRAWINGS PROVIDED BY OTHERS FOR PAD DIMENSIONS.
- ALL LOOSE CABLING INTO AND OUT OF ENCLOSURES TO BE INSTALLED WITH WEATHER-TIGHT FITTINGS WITH STRAIN RELIEF.
- ALL CONDUIT ENCASED CABLING INTO AND OUT OF ENCLOSURES TO BE INSTALLED WITH INSULATING BUSHINGS AND DUCT SEAL COMPOUND.
- PROVIDE A WEATHER HEAD ON EXPOSED CONDUIT ENDS FOR CONDUITS PENETRATING GRADE FROM UNDERGROUND. INSTALL CABLES WITH DUCT SEAL COMPOUND.
- REFER TO GROUNDING DETAILS SHEET FOR ADDITIONAL GROUNDING INFORMATION.
- PROVIDE EXPANSION JOINTS FOR ALL PVC CONDUITS PENETRATING GRADE.
- PROVIDE MINIMUM OF 6" SPACING BETWEEN POWER AND DATA CONDUITS.
- PROVIDE A PVC SLEEVE FOR ALL CONDUITS PENETRATING GRADE FROM UNDERGROUND IN AREA OF MOWING. SLEEVE TO EXTEND 1'-0" ABOVE GRADE SO AS TO PROVIDE PROTECTION FROM MOWING AND TRIMMING EQUIPMENT.



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**SIEMENS SMART
INFRASTRUCTURE**
6 BRITISH AMERICAN BLVD
LATHAM, NY 12110

SIEMENS

ALBANY RADAR TOWER SOLAR
897 WATERVLIET SHAKER ROAD
ALBANY, NY 12205

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Revisions		

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REVIEWED BY: SJB

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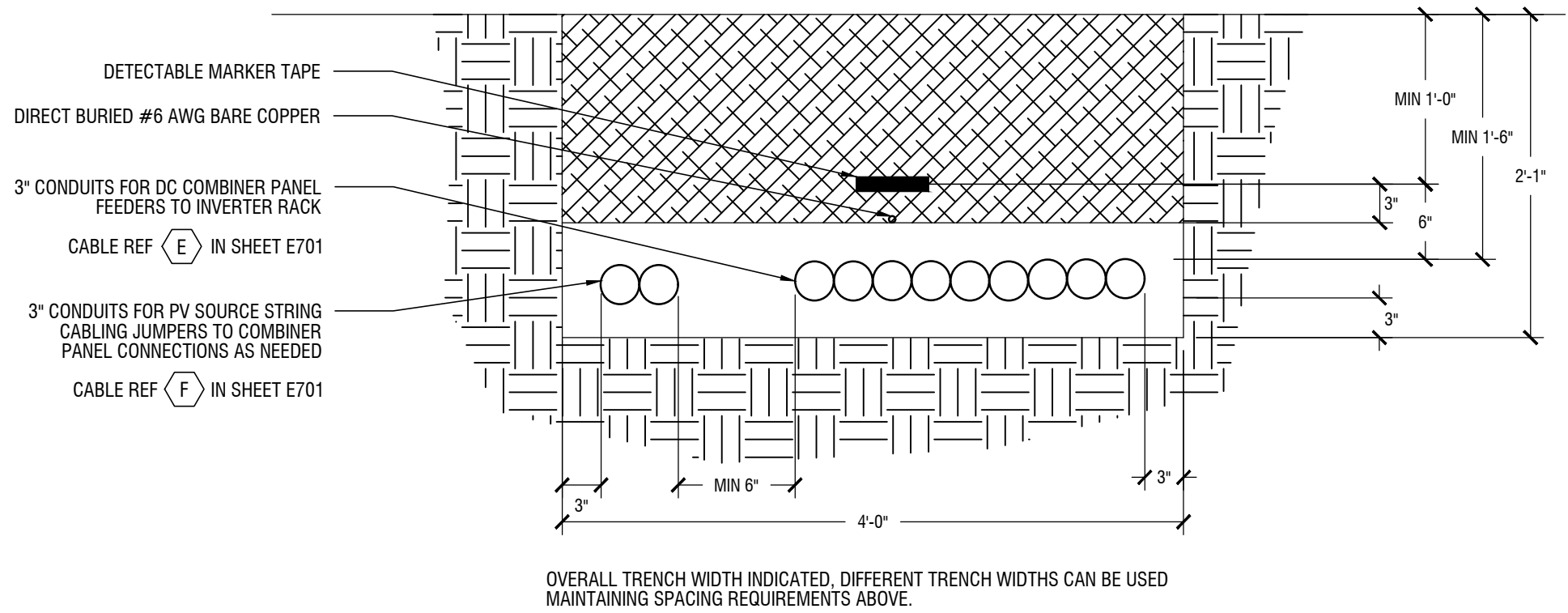
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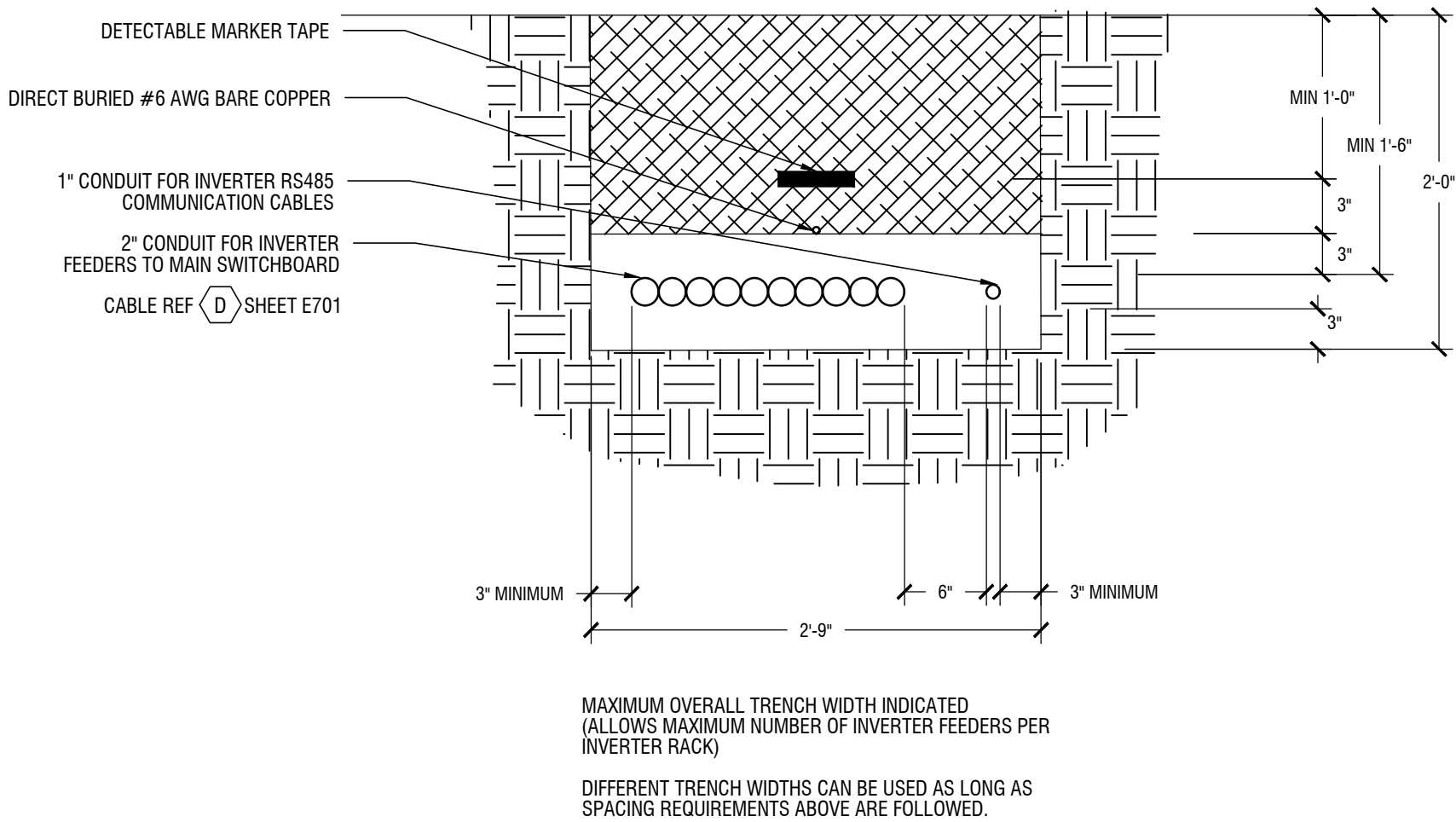
**EQUIPMENT PAD
DETAILS**

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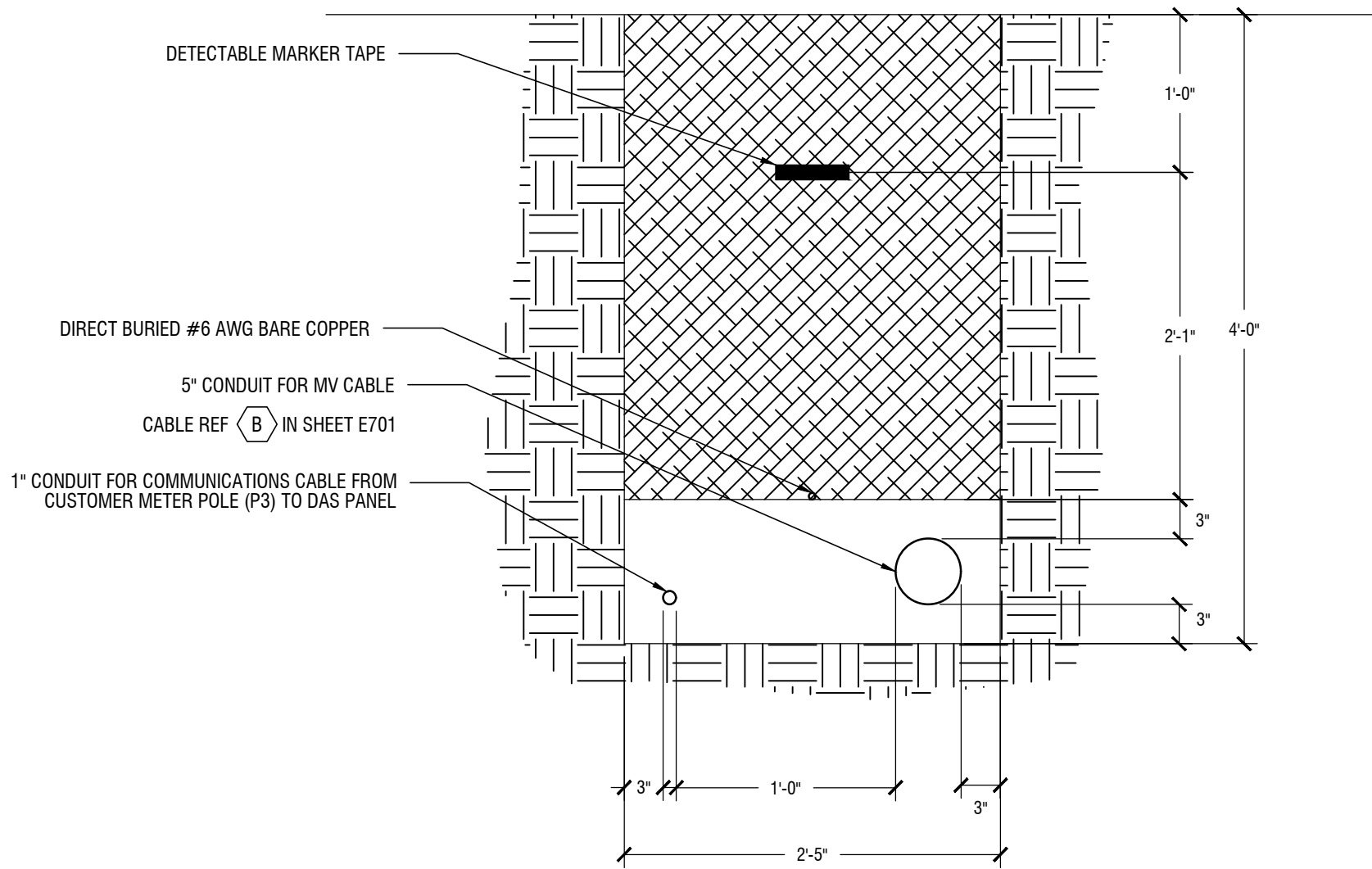
E501



1 TYPICAL STRING CABLE AND COMBINER PANEL FEED TRENCH DETAIL
E-505 1"=1'-0"



2 TYPICAL INVERTER FEEDS TRENCH DETAIL
E-505 1"=1'-0"



3 SERVICE TRENCH DETAIL
E-505 1"=1'-0"

TRENCH DETAIL GENERAL NOTES:

1. ALL TRENCHES PASSING UNDER ROADWAYS TO BE CONCRETE ENCASED AS SHOWN IN DETAILS.
2. TRENCHING MUST COMPLY WITH THE LATEST NYS BUILDING CODE AND NEC STANDARDS.
3. CLEAN FILL REQUIREMENTS: BEDDING SHALL BE SAND OR ROCK-FREE FILL SCREENED TO A MAXIMUM 1/4" SIZE AS A CUSHION (FREE OF SHARP EDGE MATERIAL, ROTTING WOOD OR ORGANIC MATTER THAT MIGHT ATTRACT INSECTS). THE CABLES SHALL BE COVERED WITH "CLEAN FILL" SAND OR SOFT EARTH, FREE FROM STONES, ROCKS OR OTHER MATERIAL THAT MAY DAMAGE THE CABLE DURING BACKFILL.
4. PROVIDE BACKFILLING MATERIAL WITH A MINIMUM BEARING CAPACITY OF 22,000 LB AXLE LOADING FOR ANY TRENCHING SECTIONS SUBJECT TO VEHICULAR TRAFFIC.
5. DIRECT BURIED CABLES TO BE INSTALLED SIDE-BY-SIDE, AS INDICATED ON DETAILS. CABLES ARE NOT TO BE OVERLAPPED OR BUNDLED.

- ☒ UNTREATED NATIVE SOIL
- ☐ CLEAN, DRY BACKFILL CUSHION
- ☒ EARTH UNDISTURBED
- ☒ CONCRETE



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SIEMENS SMART
INFRASTRUCTURE

6 BRITISH AMERICAN BLVD
LATHAM, NY 12110

SIEMENS

ALBANY RADAR TOWER SOLAR

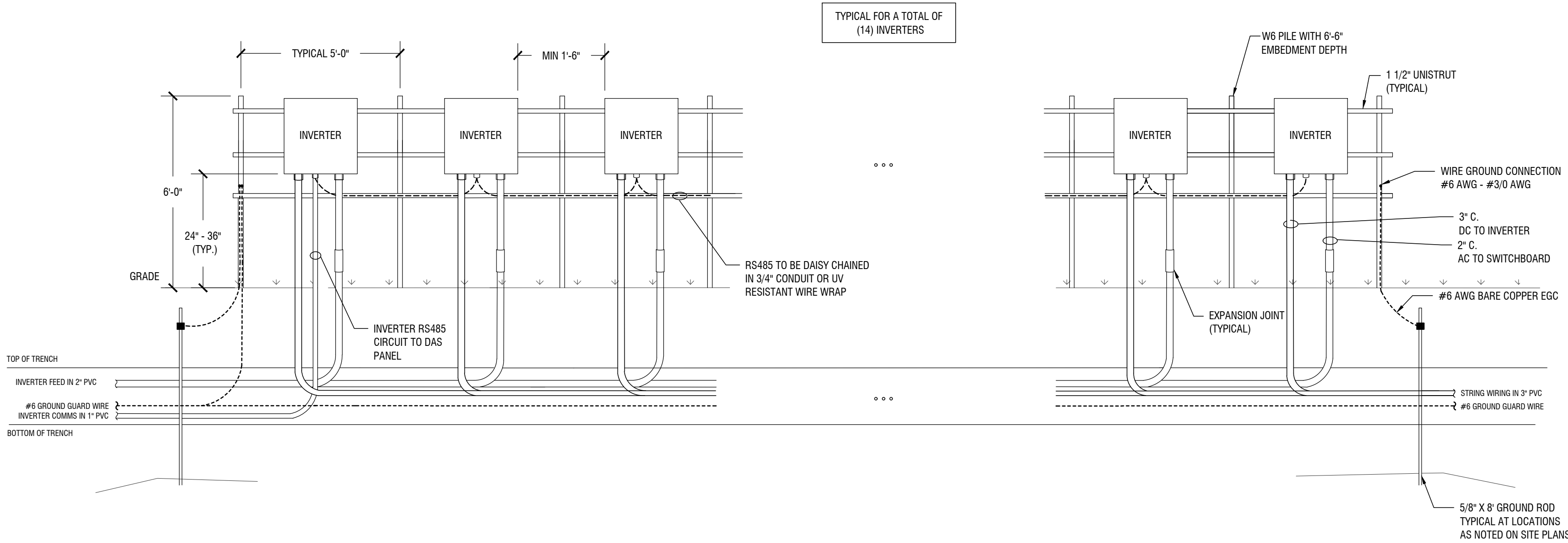
897 WATERVLIET SHAKER ROAD
ALBANY, NY 12205

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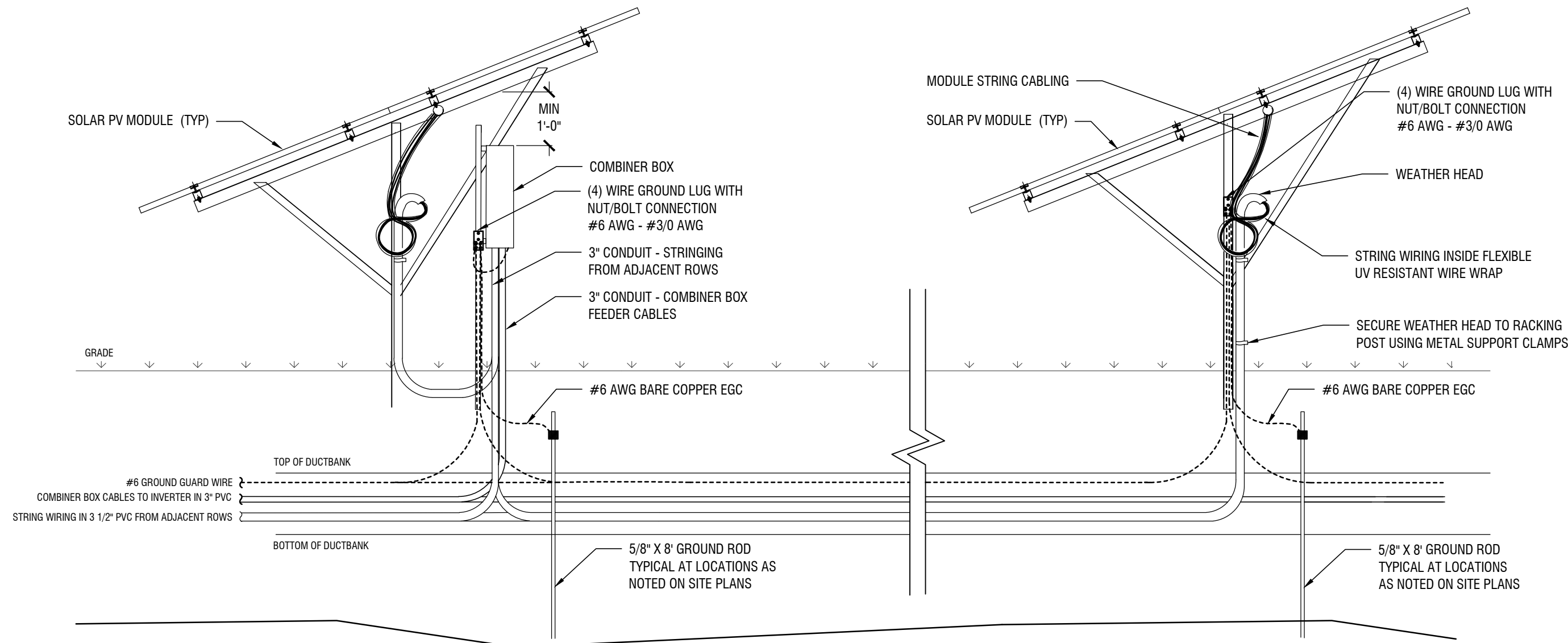
CABLING DETAILS

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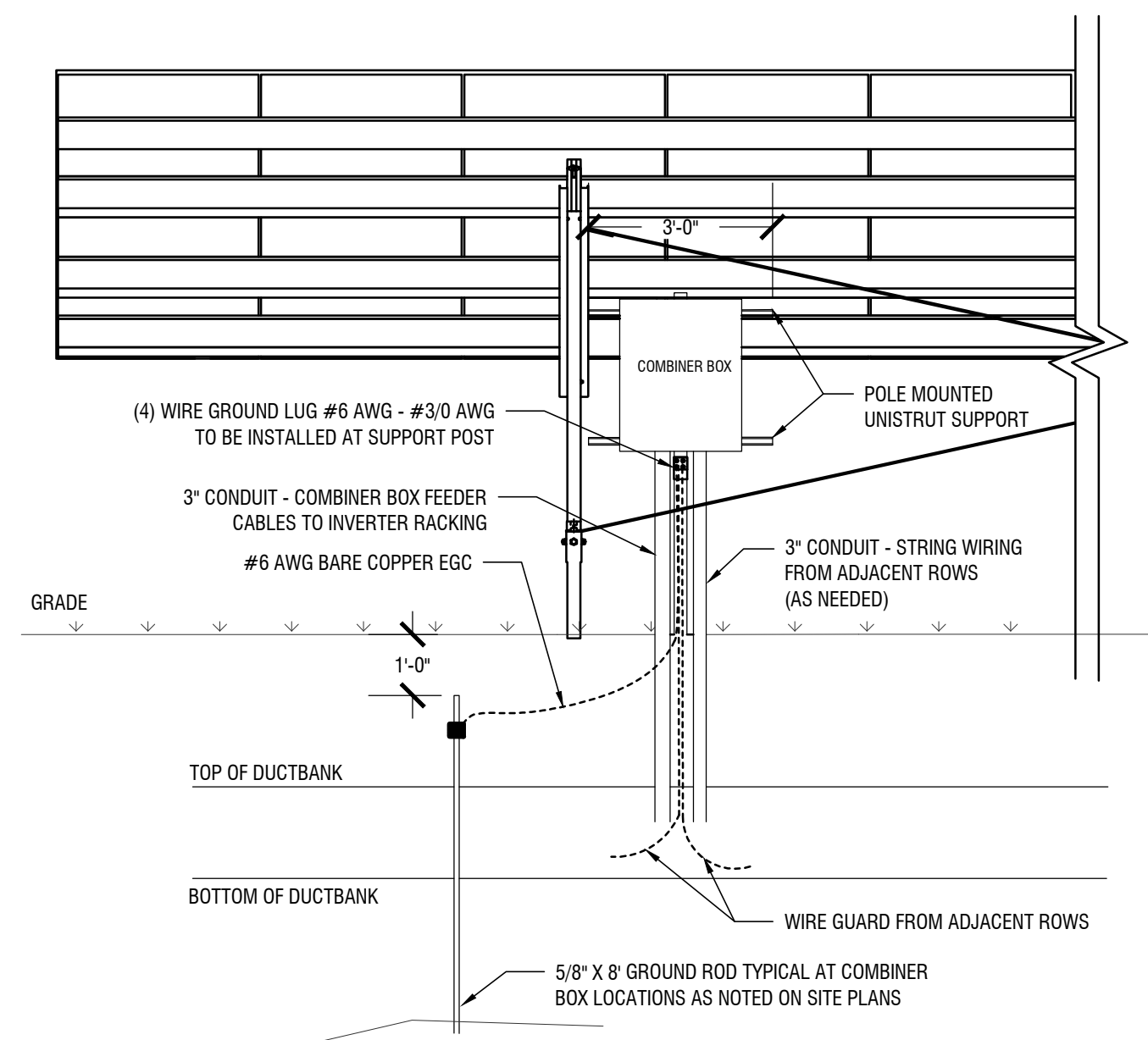
E505



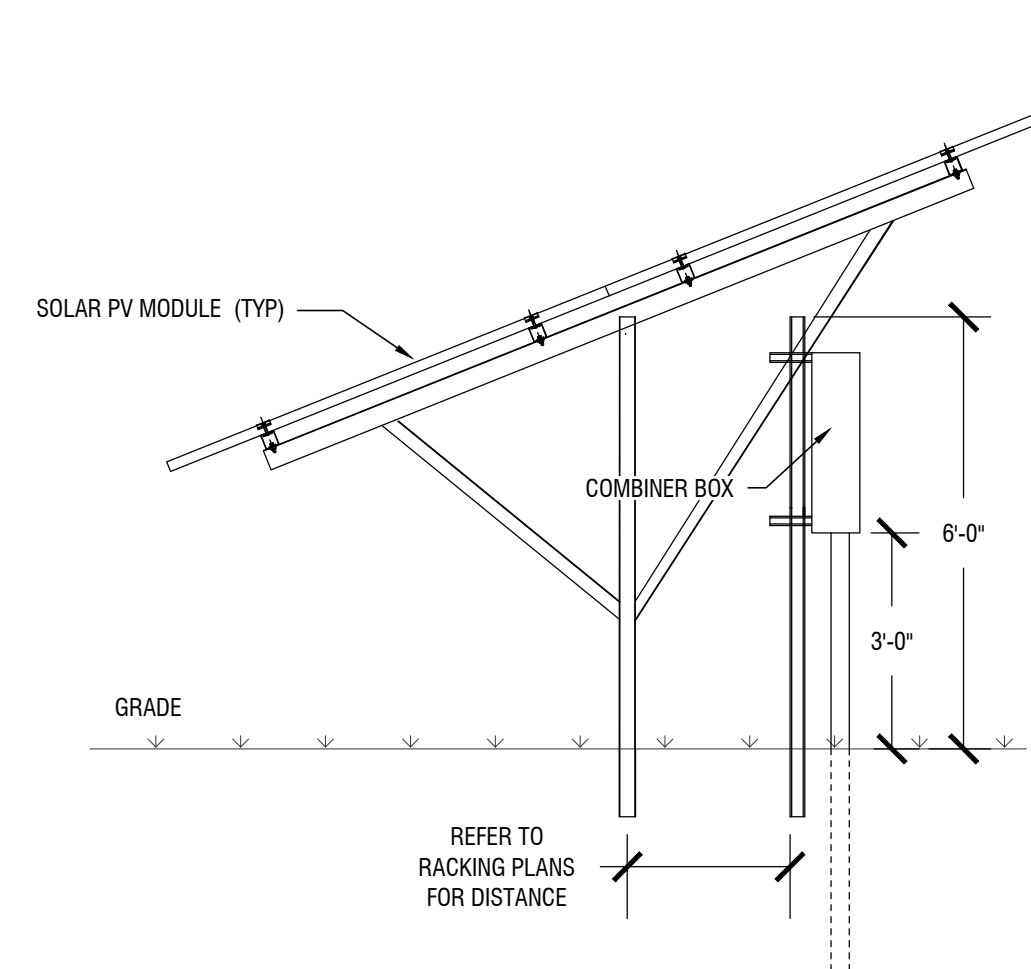
1 TYPICAL INVERTER RACKING AND CABLING DETAIL
E-506 3/8" = 1' 0"



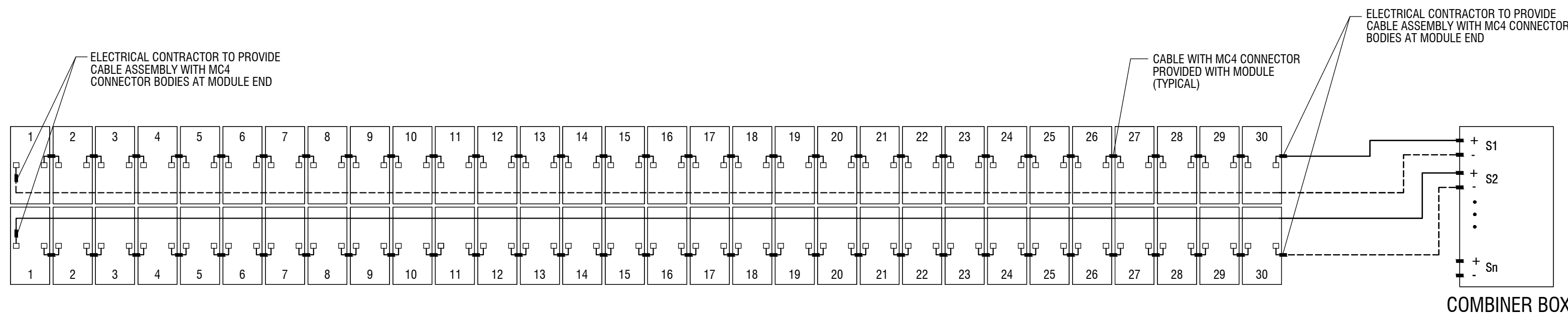
2 TYPICAL STRING CABLING AND RACKING DETAIL
E-506 3/8" = 1' 0"



3 TYPICAL COMBINER BOX RACKING AND CABLING DETAIL
E-506 3/8" = 1' 0"



4 TYPICAL COMBINER BOX SIDE ELEVATION DETAIL
E-506 3/8" = 1' 0"



5 TYPICAL 580W MODULES STRING WIRING DETAIL
E-506 NOT TO SCALE

DRAWING GENERAL NOTES

1. MODULE AND INVERTER RACKING DIAGRAMMATICALLY ONLY. REFER TO RACKING MANUFACTURER DRAWINGS FOR ACTUAL DIMENSIONS, CONFIGURATION AND MODULE TILTS.
2. REFER TO 3-LINE DIAGRAM FOR CABLE SIZES AND QUANTITIES OF POWER CABLES.
3. ALL LOOSE CABLING INTO AND OUT OF ENCLOSURES TO BE INSTALLED WITH WEATHER-TIGHT FITTINGS WITH STRAIN RELIEF.
4. ALL CONDUIT ENCASED CABLING INTO AND OUT OF ENCLOSURES TO BE INSTALLED WITH INSULATING BUSHINGS AND DUCT SEAL COMPOUND.
5. REFER TO GROUNDING DETAILS SHEET FOR ADDITIONAL GROUNDING INFORMATION.
6. REFER TO TRENCH DETAILS SHEET FOR CABLING TRENCHING DEPTHS.
7. PROVIDE PULL CORDS IN ALL SPARE/EMPTY CONDUITS.
8. PROVIDE WEATHER HEADS AT ALL UPRIGHT CONDUIT ENDS EXPOSED TO WEATHER. INSTALL WITH DUCT SEAL COMPOUND.
9. PROVIDE A PVC SLEEVE FOR ALL CONDUITS PENETRATING GRADE FROM UNDERGROUND, EXTENDING 1'-0" ABOVE GRADE TO PROVIDE PROTECTION FROM MOWING AND TRIMMING EQUIPMENT.
10. PROVIDE EXPANSION JOINTS FOR ALL PVC CONDUITS PENETRATING GRADE.
11. PROVIDE RIGID PVC CONDUIT FOR INVERTER COMMUNICATIONS RS485 AND SENSORS WIRING.
12. PROVIDE SHIELDED CABLE FOR NON FIBER OPTIC COMMUNICATIONS CABLE RUNNING INSIDE CHANNEL WITHOUT CONDUIT. ALLOW A MINIMUM OF 12" SEPARATION FROM LOW VOLTAGE CABLES.
13. GROUND LUG TO BE CONNECTED USING BOLT/NUTS. DO NOT USE TEK SCREWS.



It is a violation of New York Education Law Article 145 Sec.7209, for any person, unless acting under the direction of a licensed architect, professional engineer, or land surveyor, to alter an item in any way. If an item bearing the seal of an architect, engineer, or land surveyor is altered; the altering architect, engineer, or land surveyor shall affix to the item their seal and notation "altered by" followed by their signature and date of such alteration, and a specific description of the alteration.

SIEMENS SMART INFRASTRUCTURE

6 BRITISH AMERICAN BLVD
LATHAM, NY 12110

SIEMENS

ALBANY RADAR TOWER SOLAR

897 WATERVLIE SHAKER ROAD
ALBANY, NY 12205

NO.	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2222708

DRAWN BY:

REVIEWED BY:

ISSUED FOR: PERMIT ONLY

DATE: 07/19/2022

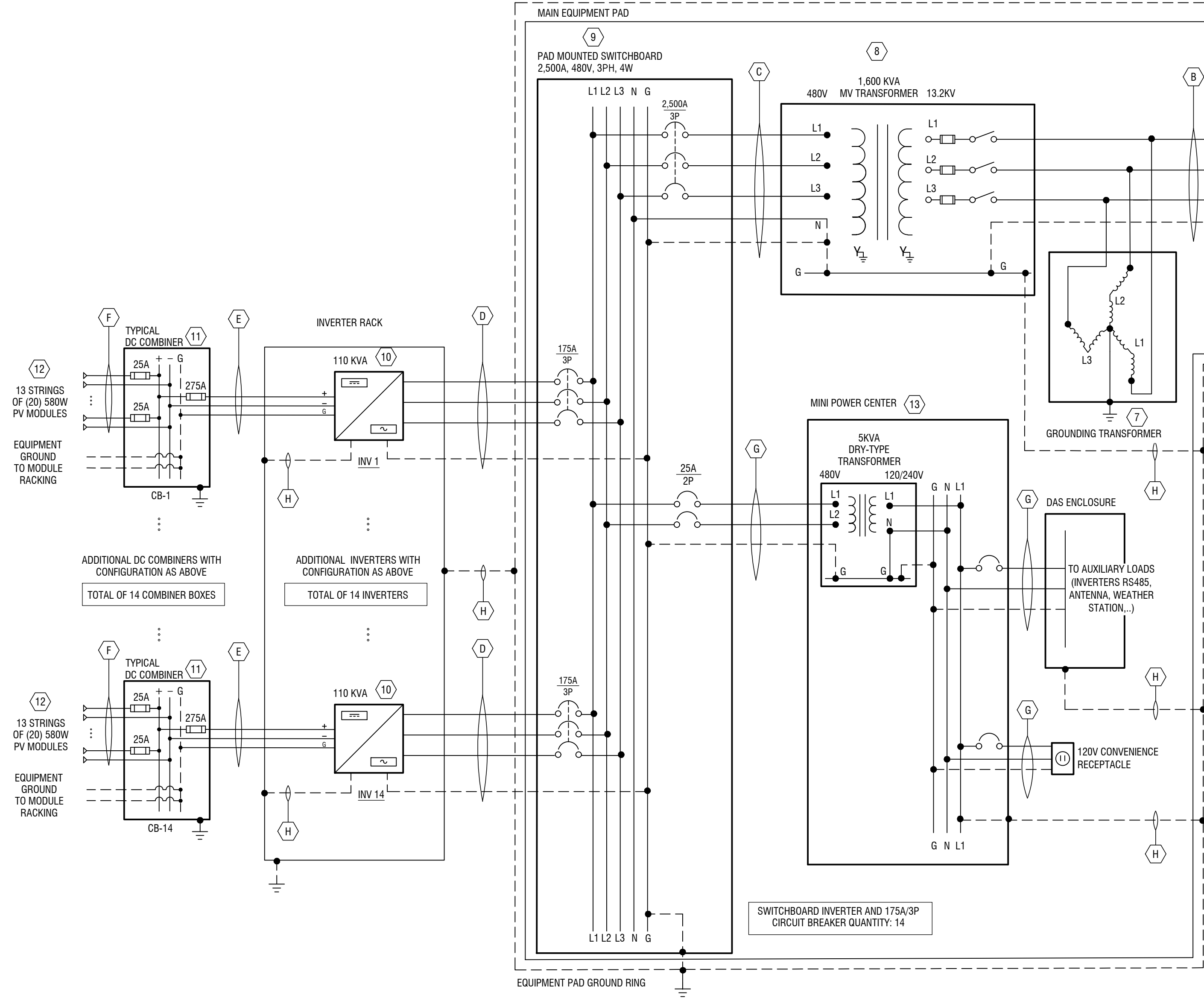
DRAWING NAME:

RACKING DETAILS

DRAWING NUMBER:

E506

STRINGING SUMMARY								
INVERTER NO.	INVERTER AC OUTPUT (KW)	INVERTER DC INPUT (KW)	INVERTER LOAD RATIO (DC/AC)	SOLAR MODULE MODEL	MODULE WATTAGE	MODULES PER STRING	STRINGS PER COMBINER BOX	STRING MIN FUSE SIZE
#1	110.0	150.8	1.37	HANVHA Q CELL Q.PEAK DUO XL-G11.3/BFG	580	13	20	25 A
#2	110.0	150.8	1.37	HANVHA Q CELL Q.PEAK DUO XL-G11.3/BFG	580	13	20	25 A
#3	110.0	150.8	1.37	HANVHA Q CELL Q.PEAK DUO XL-G11.3/BFG	580	13	20	25 A
#4	110.0	150.8	1.37	HANVHA Q CELL Q.PEAK DUO XL-G11.3/BFG	580	13	20	25 A
#5	110.0	150.8	1.37	HANVHA Q CELL Q.PEAK DUO XL-G11.3/BFG	580	13	20	25 A
#6	110.0	150.8	1.37	HANVHA Q CELL Q.PEAK DUO XL-G11.3/BFG	580	13	20	25 A
#7	110.0	150.8	1.37	HANVHA Q CELL Q.PEAK DUO XL-G11.3/BFG	580	13	20	25 A
#8	110.0	150.8	1.37	HANVHA Q CELL Q.PEAK DUO XL-G11.3/BFG	580	13	20	25 A
#9	110.0	150.8	1.37	HANVHA Q CELL Q.PEAK DUO XL-G11.3/BFG	580	13	20	25 A
#10	110.0	150.8	1.37	HANVHA Q CELL Q.PEAK DUO XL-G11.3/BFG	580	13	20	25 A
#11	110.0	150.8	1.37	HANVHA Q CELL Q.PEAK DUO XL-G11.3/BFG	580	13	20	25 A
#12	110.0	150.8	1.37	HANVHA Q CELL Q.PEAK DUO XL-G11.3/BFG	580	13	20	25 A
#13	110.0	150.8	1.37	HANVHA Q CELL Q.PEAK DUO XL-G11.3/BFG	580	13	20	25 A
#14	70.0	92.8	1.33	HANVHA Q CELL Q.PEAK DUO XL-G11.3/BFG	580	20	8	25 A
TOTAL	1,500.0	2,053.2	1.37	-	-	-	268	3560

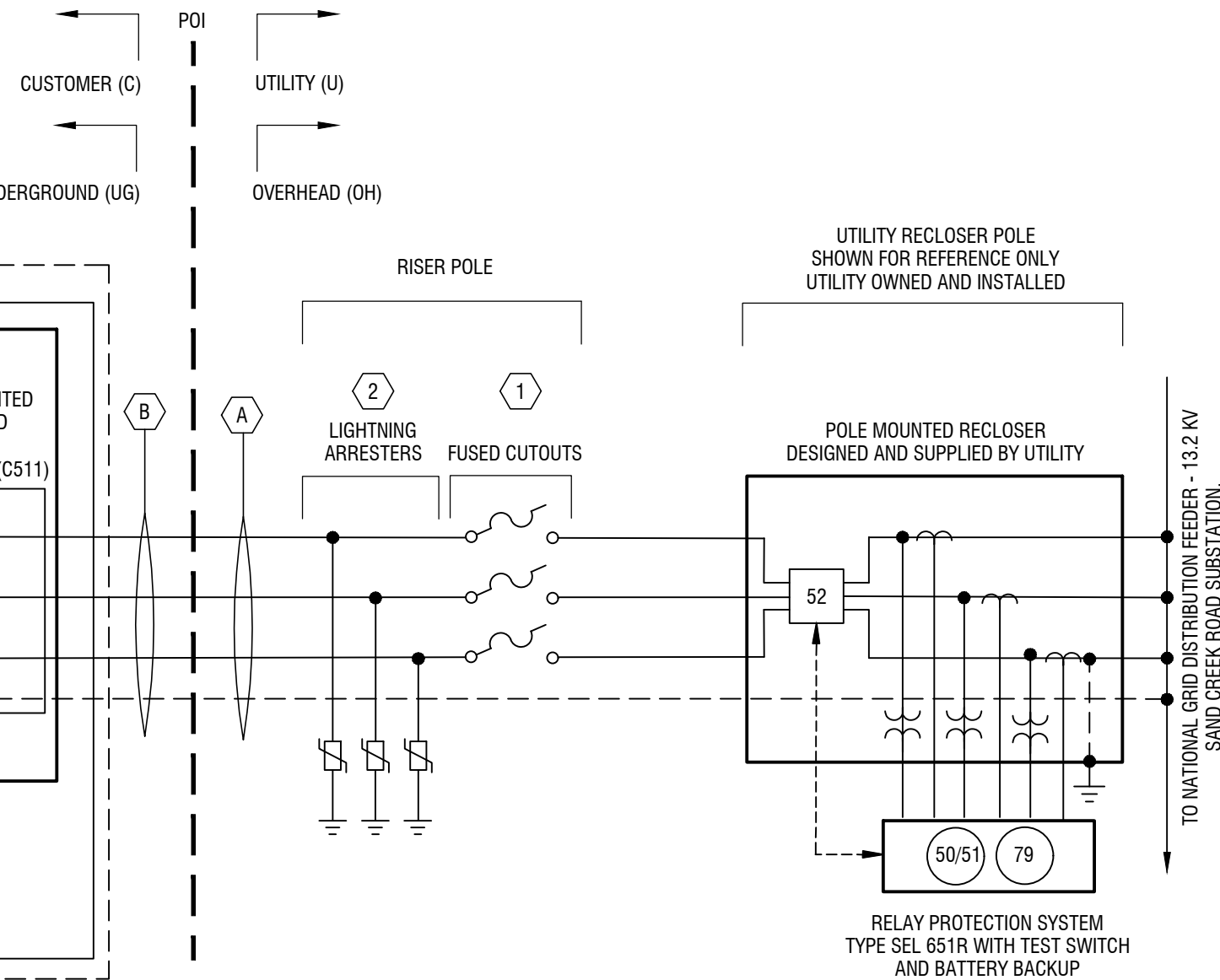


SITE SUMMARY		TOTAL
AC PLANT PEAK PRODUCTION:	1.50 MW	
DC PLANT PEAK PRODUCTION:	2.084 MW	
DC/AC POWER RATIO:	1.38	
INVERTER QTY:	14	
MODULE QTY:	3,560	
INVERTER RATED OUTPUT:	110 KW	
MODULE STC RATING:	580 W	

UTILITY INVERTER PROTECTION REQUIREMENTS				
DEVICE	VOLTAGE	HZ	TRIP TIME (SEC)	DESCRIPTION
81U-1	-	≤ 57.0	0.16	UNDER FREQUENCY
81U-2	-	≤ 59.0	300	
81O-1	-	≥ 60.5	0.5	OVER FREQUENCY
81O-2	-	-	-	
27-1	50%	-	0.16	UNDER VOLTAGE
27-2	88%	-	2.00	
59-1	110%	-	1.00	OVER VOLTAGE
59-2	120%	-	0.16	

EQUIPMENT SCHEDULE						
KEY	QTY	DESCRIPTION	MANUF.	PN	RATINGS	NOTES
1	3	FUSED LOAD BREAK CUTOFF	TBD	TBD	C513 15KV	POLE MOUNTED, CUSTOMER OWNED.
2	6	LIGHTNING ARRESTER	TBD	TBD	15KV, 7.65KV MCOV	POLE MOUNTED, CUSTOMER OWNED.
3	1	MAIN GENERATOR DISCONNECT SWITCH	TBD	TBD	15KV, 900A, 65KAIC, 110KV BIL	POLE MOUNTED LOAD BREAK DISCONNECT SWITCH: MANUAL, GROUP OPERATED, AIR BREAK, VISIBLE OPEN, LOCKABLE WITH 24/7 ACCESS. CUSTOMER OWNED AND INSTALLED. CUSTOMER AND UTILITY OPERATED.
4	1	FUSED LOAD BREAK SWITCH	TBD	TBD	SWITCH: 15KV, 150A, 110 KV BIL FUSE: 65T, 15KV, 110KV BIL	STANDARD PAD MOUNTED FUSED SWITCH.
5	1	UTILITY METERING EQUIPMENT	TBD	TBD	CT RATING: 70.5, PT RATING: 13.2KV/208V	PAD MOUNTED, UTILITY GRADE. CUSTOMER INSTALLED. UTILITY TO MAKE FINAL CONNECTION. UTILITY OWNED AND OPERATED.
6	1	CUSTOMER METERING	TBD	TBD	CT RATING: 70.5, PT RATING: 13.2V-120V.	CUSTOMER INSTALLED.
7	1	GROUNDING TRANSFORMER	TBD	TBD	125KVA ZIGZAG 15KV RATED %Z: 4.2 X/R: 4.5	DRY-TYPE, PAD MOUNTED, NEMA 3R
8	1	MV STEP-UP TRANSFORMER	TBD	TBD	1.60 MVA %Z: 5.75 X/R: 8 PRI: 13.2KV WYE-G SEC: 480V WYE	LIQUID-FILLED, PAD MOUNTED.
9	1	PAD MOUNTED SWITCHBOARD	TBD	TBD	2,500A, 480V, 3PH, 4W, WITH RATED 2500A MCB	PV AC SERVICE ENTRANCE SWITCHGEAR. ENCLOSURE NEMA 3R RATED.
10	14	PV INVERTER	KACO	BLUEPLANET 110 TL3-US	AC: 110KW, 132A, 480V, SET 1.0 PF, 110KW MAX OUTPUT.	INVERTERS ARE UL1741 LISTED, IEEE1547 COMPLIANT, RATED TO 1500 VDC. THE INVERTERS HAVE INTEGRAL, MANUAL DC DISCONNECTING MEANS. THE INVERTER IS EQUIPPED WITH UL1741 APPROVED GROUND FAULT DETECTION DEVICE THAT MEETS NFPA 70 ARTICLE 250.122 REQUIREMENTS FOR EQUIPMENT GROUNDING.
11	14	DC COMBINER PANEL	TBD	TBD	2,000V, 275A, 16 STRINGS MIN (1) 25A FUSE PER STRING	NEMA 3R, OUTDOOR RATED.
12	3,560	SOLAR MODULE	HANVHA QCELLS	Q.PEAK DUO XL-G11.3/BFG	580W Imp 12.92A Vmp 44.88V Isc: 13.55 Voc: 53.56V	MODULES ARE UL1703 LISTED, RATED TO 1500 VDC. EACH MODULE INCLUDES OUTDOOR RATED QUICK CONNECTS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND UL LISTING MAY BE INVALIDATED. QUICK CONNECTS SHALL COMPLY WITH NFPA 70 ARTICLE 680.33(C).
13	1	MINI POWER CENTER	TBD	TBD	PRI MAIN BREAKER: 480V TRANSFORMER: 480V / 120/240V 1PH SEC MAIN BREAKER: 120/240V 1PH	NEMA 3R ENCLOSURE. ENCAPSULATED SINGLE PHASE DRY-TYPE TRANSFORMER AND SECONDARY DISTRIBUTION LOAD CENTER.

WIRE AND CONDUIT SCHEDULE								
KEY	CONDUCTORS/ WIRE SCHEDULE	LENGTH (FT)	CABLE RATED AMPACITY (A)	DESIGN AMPACITY (A)	MIN CONDUCTOR INSULATION	CONDUIT SIZE (PER SET)	90° C RATED CABLE	NOTES
A	(3) #2 AWG (6/1) ASCR AL (SPARROW) + #8 AWG CU GROUND	90	184	67.4	-	IN FREE AIR	-	
B	(3) #4 AWG AL 133% MV-105 EPR WITH FULL CONCENTRIC NEUTRAL	40	98	67.4	15KV	(1) 5"	-	PROVIDE CONDUIT SWEEPS AT CABLE PENETRATIONS FROM BELOW TO ABOVE GRADE.
C	CLOSE-COUPLE CONNECTION BRAIDED COPPER CONNECTIONS SIZED BY EQUIPMENT SUPPLIER	TBD	-	-	15KV	IN CONNECTION ENCLOSURE	-	
D	(3) 3/0 AWG AL THWN-2 + #4 AL AWG GROUND	TBD	175	165.4	600V	(1) 2"	-	
E	(2) 350 KCMIL AL PV-WIRE + #4 AWG CU GROUND	TBD	280	254.1	2000V	(1) 3"	X	PROVIDE CONDUIT SWEEPS AT ALL CABLE PENETRATIONS FROM BELOW TO ABOVE GRADE. ONLY ONE (1) GROUND CABLE REQUIRED IN TRENCH. MAX BUNDLE SIZE: 3.
F	(2) #10 AWG CU PV WIRE	TBD	40	21.17	2000V	(1) 3"	X	CABLE TO BE LISTED FOR USE WITH PHOTOVOLTAIC SYSTEMS. CONDUIT SIZE INDICATED IS FOR USE BELOW GRADE. NO CONDUIT REQUIRED FOR RACK MOUNTED SECTIONS OF CABLE. MAX BUNDLE SIZE: 40 CABLES.
G	(2) #10 AWG CU THWN + #10 AWG CU GROUND	TBD	35	7.5	600V	(1) 1"	-	ALL BELOW GRADE CONDUIT LOCATED OUTSIDE THE EQUIPMENT PAD TO BE RIGID PVC AND A MINIMUM SIZE OF 1". SCH 80.
H	REFER TO GROUNDING DIAGRAM	TBD	-	-	-	-	-	VARIOUS GROUND CABLE TYPES AND SIZES
1. LISTED PIN ADAPTERS OR COMPRESSION LUGS SHALL BE PERMITTED FOR USE WITH ALUMINUM CONDUCTORS. CONDUCTOR SHALL BE PREPARED AND TERMINATED PER MANUFACTURERS GUIDELINES.								
2. ELECTRICAL CONTRACTOR SHALL IDENTIFY SOURCE WIRING WITH MARKING TAPE OR OTHER APPROVED METHOD. POSITIVE SHALL BE MARKED RED AND NEGATIVE MARKED BLACK. CONDUCTORS 4 AWG AND LARGER SHALL BE IDENTIFIED AT ALL TERMINATIONS. PROVIDE COMPRESSION LUGS AT BUS TERMINATIONS.								
3. ALL PARALLEL CABLE SETS TO BE INSTALLED WITH GROUND CONDUCTORS IN EACH CONDUIT.								
4. ALL CABLES EXPOSED TO SUNLIGHT TO BE RATED AS UV RESISTANT.								
5. UNLESS NOTED OTHERWISE, ALL UNDERGROUND CONDUIT TO BE PVC SCHEDULE 40; ABOVE GROUND CONDUITS TO BE PVC SCHEDULE 80.								
6. CABLES NOT SIZED FOR VOLTAGE DROP.								



LINETYPE LEGEND:

— EQUIPMENT ENCLOSURE

— POWER LINE

--- GROUND

- GENERAL NOTES:**
- "UTILITY" SHALL MEAN NATIONAL GRID.
 - ALL LOOSE CABLING INTO AND OUT OF ENCLOSURES TO BE INSTALLED WITH WEATHER-TIGHT FITTINGS WITH STRAIN RELIEF.
 - ALL CONDUIT ENCASED CABLING INTO AND OUT OF ENCLOSURES TO BE INSTALLED WITH INSULATING BUSHINGS AND DUCT SEAL COMPOUND.
 - REFER TO GROUNDING DETAILS SHEET FOR ADDITIONAL GROUNDING INFORMATION.
 - COMPLIANCE: NFPA 70, NEC 2017.
 - ELECTRICAL OVERHEAD POLES ARE NOT TO BE INSTALLED UNTIL PROPOSED LOCATIONS ARE REVIEWED AND APPROVED BY UTILITY.
 - CUSTOMER RESPONSIBLE FOR PROVIDING ADEQUATE GROUND REFERENCE FOR SITE, PER NEC.

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Latham, NY 12110
518-439-8235
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**SIEMENS SMART
INFRASTRUCTURE**
6 BRITISH AMERICAN BLVD
LATHAM, NY 12110



ALBANY RADAR TOWER SOLAR
897 WATERLIET SHAKER ROAD
ALBANY, NY 12205

NO.	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2222708

DRAWN BY: BJB

REVIEWED BY: SJB

ISSUED FOR: PERMIT ONLY

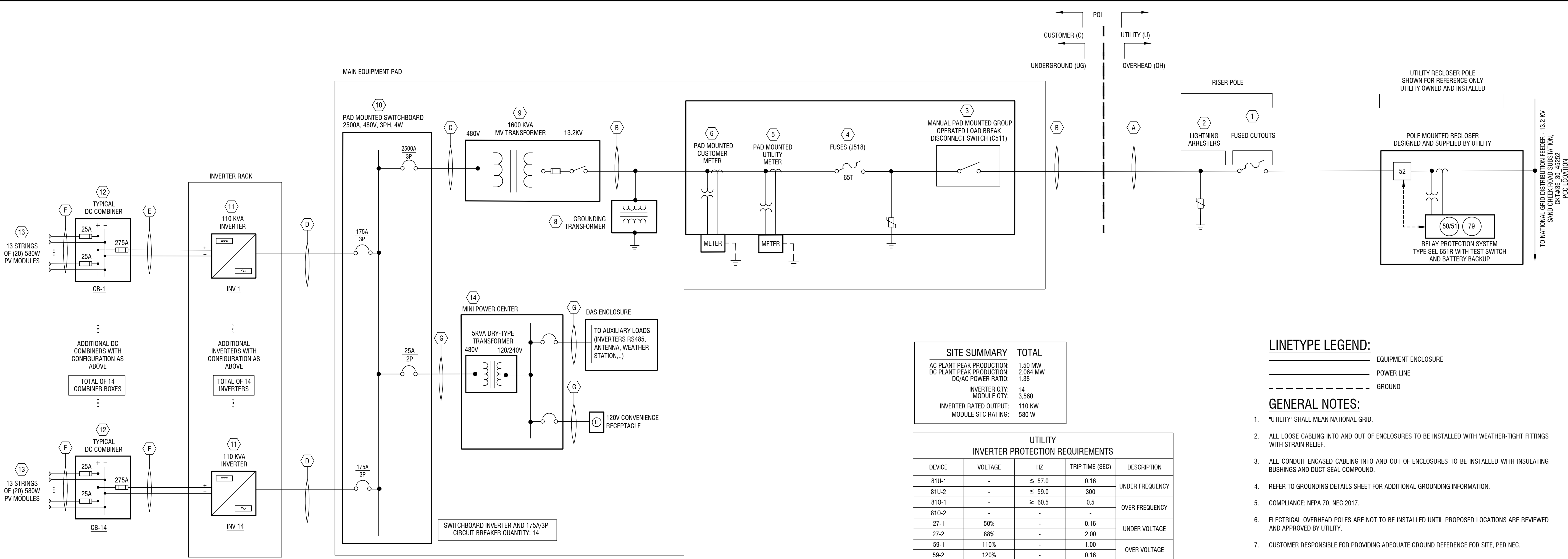
DATE: 07/19/2022

DRAWING NAME:

THREE LINE DIAGRAM

DRAWING NUMBER:

E701



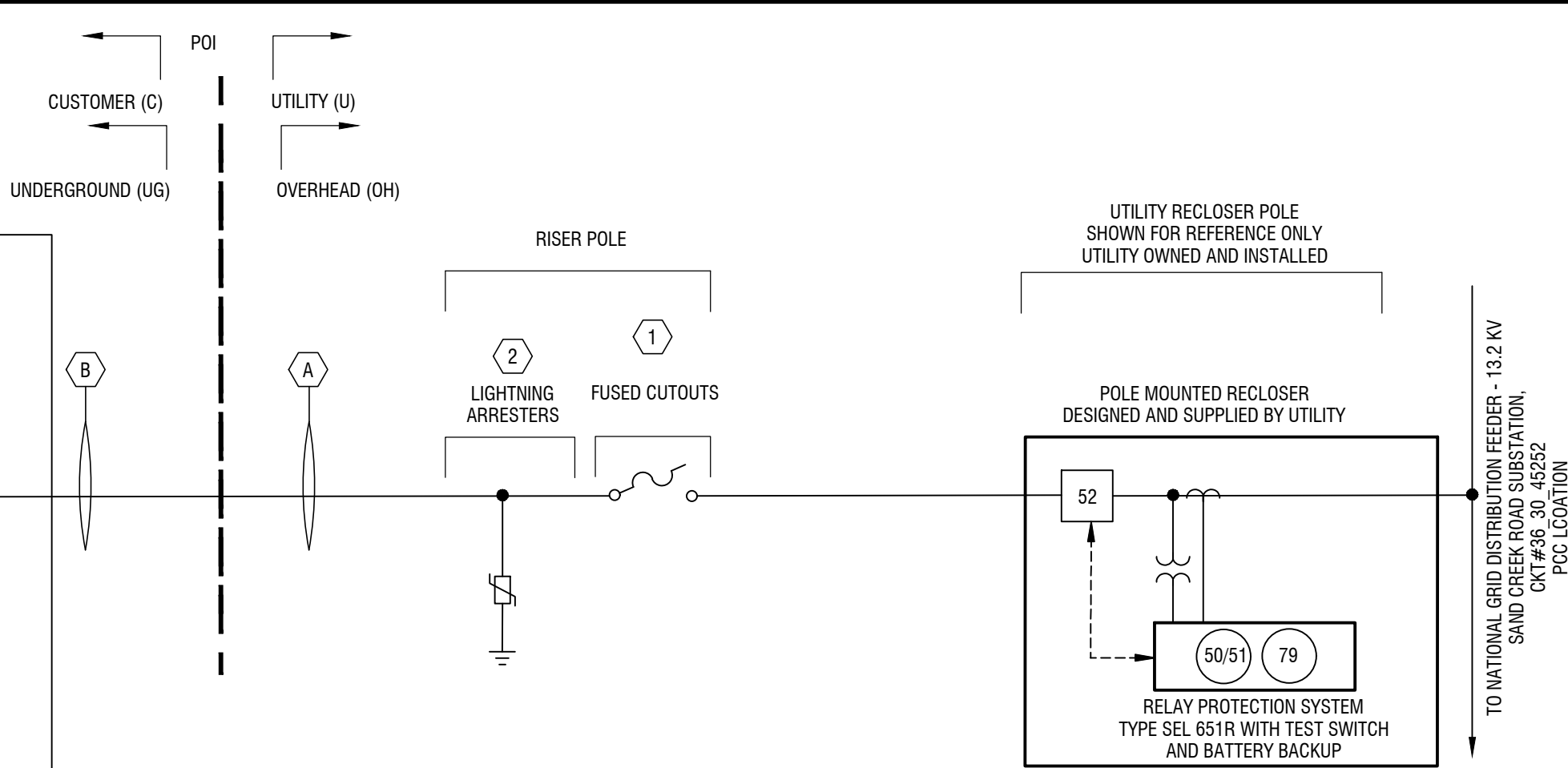
SITE SUMMARY	TOTAL
AC PLANT PEAK PRODUCTION:	1.50 MW
DC PLANT PEAK PRODUCTION:	2.064 MW
DC/AC POWER RATIO:	1.38
INVERTER QTY:	14
MODULE QTY:	3,560
INVERTER RATED OUTPUT:	110 KW
MODULE STG RATING:	580 W

UTILITY INVERTER PROTECTION REQUIREMENTS				
DEVICE	VOLTAGE	HZ	TRIP TIME (SEC)	DESCRIPTION
81U-1	-	≤ 57.0	0.16	UNDER FREQUENCY
81U-2	-	≤ 59.0	300	
81O-1	-	≥ 60.5	0.5	OVER FREQUENCY
81O-2	-	-	-	
27-1	50%	-	0.16	UNDER VOLTAGE
27-2	88%	-	2.00	
59-1	110%	-	1.00	OVER VOLTAGE
59-2	120%	-	0.16	

EQUIPMENT SCHEDULE							
KEY	QTY	DESCRIPTION	MANUF.	PN	RATINGS	NOTES	OWNER U / C
1	3	FUSED LOAD BREAK CUTOFF	TBD	TBD	C513 15KV	POLE MOUNTED. CUSTOMER OWNED.	U
2	6	LIGHTNING ARRESTER	TBD	TBD	15KV, 7.65KV MCOV	POLE MOUNTED. CUSTOMER OWNED.	U
3	1	MAIN GENERATOR DISCONNECT SWITCH	TBD	TBD	15KV, 900A, 65KAIC, 110KV BIL	PAD MOUNTED LOAD BREAK DISCONNECT SWITCH: MANUAL, GROUP OPERATED, AIR BREAK, VISIBLE OPEN, LOCKABLE WITH 24/7 ACCESS. CUSTOMER OWNED AND INSTALLED. CUSTOMER AND UTILITY OPERATED.	C
4	1	FUSED LOAD BREAK SWITCH	TBD	TBD	SWITCH: 15KV, 150A, 110 KV BIL FUSE: 65T, 15KV, 110KV BIL	STANDARD PAD MOUNTED FUSED SWITCH.	C
5	1	UTILITY METERING EQUIPMENT	TBD	TBD	CT RATING: 70.5, PT RATING: 13.2KV/208V	PAD MOUNTED. UTILITY GRADE. CUSTOMER INSTALLED. UTILITY TO MAKE FINAL CONNECTION. UTILITY OWNED AND OPERATED.	U
6	1	CUSTOMER METERING	TBD	TBD	CT RATING: 70.5, PT RATING: 13.2V/120V	CUSTOMER INSTALLED.	C
7	1	GROUNDING TRANSFORMER	TBD	TBD	125KVA 2IG2AG 15KV RATED %Z: 4.2 X/R: 4.5	DRY-TYPE, PAD MOUNTED. NEMA 3R	C
8	1	MV STEP-UP TRANSFORMER	TBD	TBD	1.60 MVA %Z: 5.75 X/R: 8 PRI: 13.2KV WYE-G SEC: 480V WYE	LIQUID-FILLED, PAD MOUNTED.	C
9	1	PAD MOUNTED SWITCHBOARD	TBD	TBD	2,500A, 480V, 3PH, 4W, WITH RATED 2500A MCB	PV AC SERVICE ENTRANCE SWITCHGEAR. ENCLOSURE NEMA 3R RATED.	C
10	14	PV INVERTER	KACO	BLUEPLANET 110 TL3-US	AC: 110KW, 132A, 480V, SET 1.0 PF, 110KW MAX OUTPUT.	INVERTERS ARE UL1741 LISTED, IEEE1547 COMPLIANT, RATED TO 1500 VDC. THE INVERTERS HAVE INTEGRAL, MANUAL DC DISCONNECTING MEANS. THE INVERTER IS EQUIPPED WITH UL1741 APPROVED GROUND FAULT DETECTION DEVICE THAT MEETS NFPA 70 ARTICLE 250.122 REQUIREMENTS FOR EQUIPMENT GROUNDING.	C
11	14	DC COMBINER PANEL	TBD	TBD	2,000V, 275A, 16 STRINGS MIN (1) 25A FUSE PER STRING	NEMA 3R, OUTDOOR RATED.	C
12	3,560	SOLAR MODULE	HANWHA QCELLS	Q.PEAK DUO XL-G11.3/BFG	580W Imp 12.92A Vmp 44.88V IsC: 13.55 Voc: 53.56V	MODULES ARE UL1703 LISTED, RATED TO 1500 VDC. EACH MODULE INCLUDES OUTDOOR RATED QUICK CONNECTS FOR MODULE INTERCONNECTION. DO NOT REMOVE THE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND UL LISTING MAY BE INVALIDATED. QUICK CONNECTS SHALL COMPLY WITH NFPA 70 ARTICLE 690.33(C).	C
13	1	MINI POWER CENTER	TBD	TBD	PRI MAIN BREAKER: 480V TRANSFORMER: 480V / 120/240V 1PH SEC MAIN BREAKER: 120/240V 1PH	NEMA 3R ENCLOSURE - ENCAPSULATED SINGLE PHASE DRY-TYPE TRANSFORMER AND SECONDARY DISTRIBUTION LOAD CENTER.	C

WIRE AND CONDUIT SCHEDULE							
KEY	CONDUCTORS/ WIRE SCHEDULE	LENGTH (FT)	CABLE RATED AMPACITY (A)	DESIGN AMPACITY (A)	MIN CONDUCTOR INSULATION	CONDUIT SIZE (PER SET)	90°C RATED CABLE
A	(3) #2 AWG (6/1) ASCR AL (SPARROW) + #8 AWG CU GROUND	90	184	67.4	-	IN FREE AIR	-
B	(3) #4 AWG AL 133% MV-105 EPR WITH FULL CONCENTRIC NEUTRAL	40	98	67.4	15KV	(1) 5"	-
C	CLOSE-COUPLE CONNECTION. BRAIDED COPPER CONNECTIONS SIZED BY EQUIPMENT SUPPLIER	TBD	-	-	15KV	IN CONNECTION ENCLOSURE	-
D	(3) 3/0 AWG AL THWN-2 + #4 AL AWG GROUND	TBD	175	165.4	600V	(1) 2"	-
E	(2) 350 KCMIL AL PV-WIRE + #4 AWG CU GROUND	TBD	280	254.1	2000V	(1) 3"	X
F	(2) #10 AWG CU PV WIRE	TBD	40	21.17	2000V	(1) 3"	X
G	(2) #10 AWG CU THWN + #10 AWG CU GROUND	TBD	35	7.5	600V	(1) 1"	-
H	REFER TO GROUNDING DIAGRAM	TBD	-	-	-	-	-

- LISTED PIN ADAPTERS OR COMPRESSION LUGS SHALL BE PERMITTED FOR USE WITH ALUMINUM CONDUCTORS. CONDUCTOR SHALL BE PREPARED AND TERMINATED PER MANUFACTURERS GUIDELINES.
- ELECTRICAL CONTRACTOR SHALL IDENTIFY SOURCE WIRING WITH MARKING TAPE OR OTHER APPROVED METHOD. POSITIVE SHALL BE MARKED RED AND NEGATIVE MARKED BLACK. CONDUCTORS 4 AWG AND LARGER SHALL BE IDENTIFIED AT ALL TERMINATIONS. PROVIDE COMPRESSION LUGS AT BUS TERMINATIONS.
- ALL PARALLEL CABLE SETS TO BE INSTALLED WITH GROUND CONDUCTORS IN EACH CONDUIT.
- ALL CABLEING EXPOSED TO SUNLIGHT TO BE RATED AS UV RESISTANT.
- UNLESS NOTED OTHERWISE, ALL UNDERGROUND CONDUIT TO BE PVC SCHEDULE 40; ABOVE GROUND CONDUITS TO BE PVC SCHEDULE 80.
- CABLES NOT SIZED FOR VOLTAGE DROP.



LINETYPE LEGEND:

- EQUIPMENT ENCLOSURE
- POWER LINE
- GROUND

GENERAL NOTES:

- "UTILITY" SHALL MEAN NATIONAL GRID.
- ALL LOOSE CABLING INTO AND OUT OF ENCLOSURES TO BE INSTALLED WITH WEATHER-TIGHT FITTINGS WITH STRAIN RELIEF.
- ALL CONDUIT ENCASED CABLING INTO AND OUT OF ENCLOSURES TO BE INSTALLED WITH INSULATING BUSHINGS AND DUCT SEAL COMPOUND.
- REFER TO GROUNDING DETAILS SHEET FOR ADDITIONAL GROUNDING INFORMATION.
- COMPLIANCE: NFPA 70, NEC 2017.
- ELECTRICAL OVERHEAD POLES ARE NOT TO BE INSTALLED UNTIL PROPOSED LOCATIONS ARE REVIEWED AND APPROVED BY UTILITY.
- CUSTOMER RESPONSIBLE FOR PROVIDING ADEQUATE GROUND REFERENCE FOR SITE, PER NEC.

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6 BRITISH AMERICAN BLVD
LATHAM, NY 12110

SIEMENS

ALBANY RADAR TOWER SOLAR

897 WATERVLIT SHAKER ROAD
ALBANY, NY 12205

NO.	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2222708

DRAWN BY:

REVIEWED BY:

ISSUED FOR: PERMIT ONLY

DATE: 07/19/2022

DRAWING NAME:

ONE LINE DIAGRAM

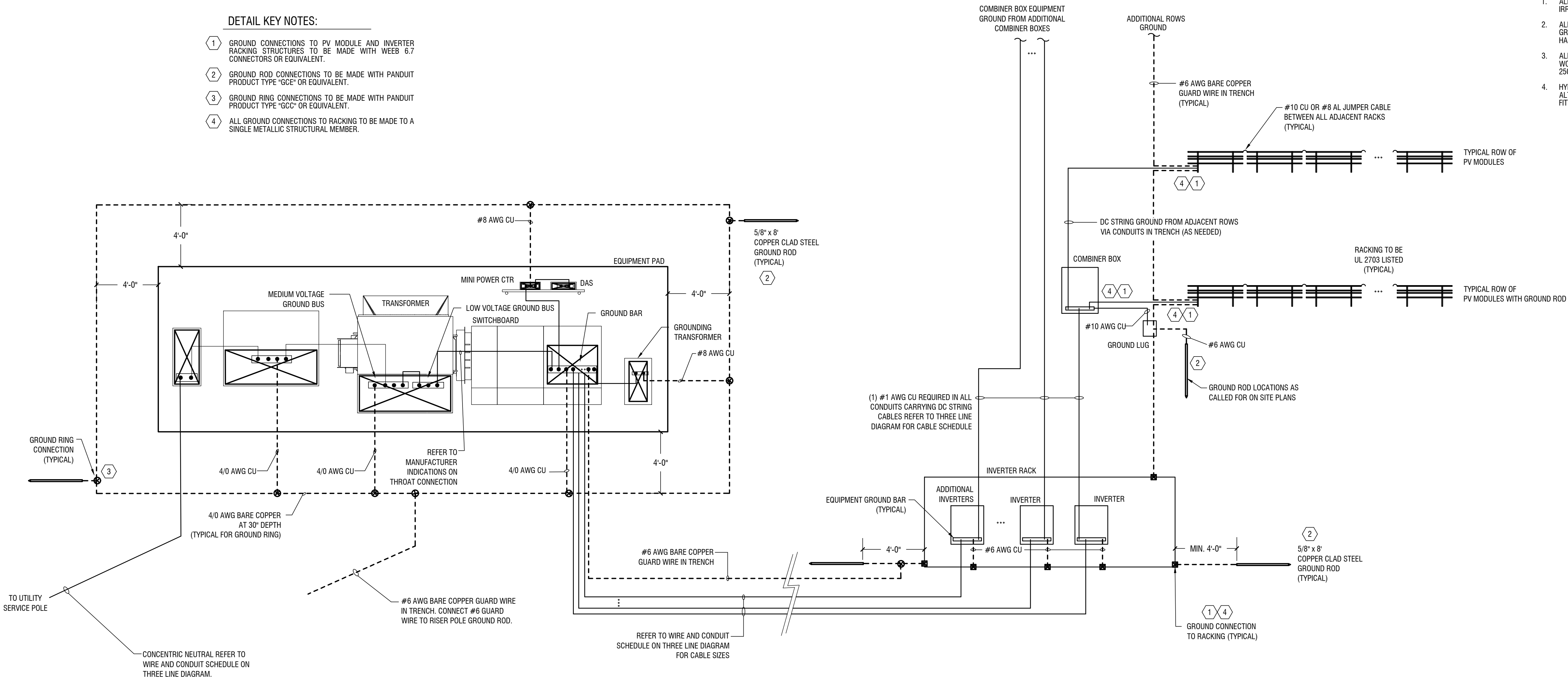
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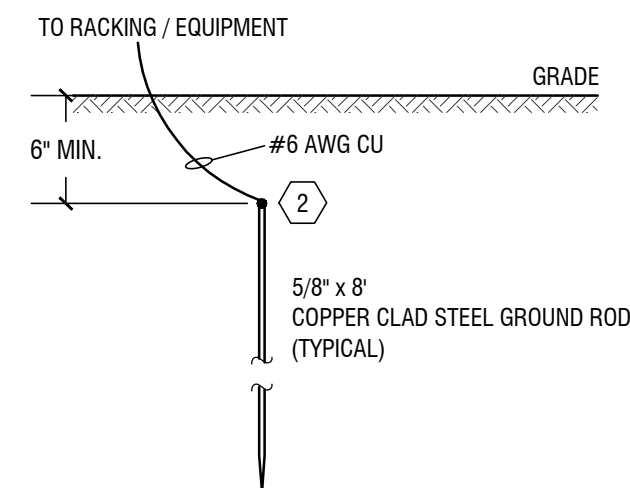
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DETAIL KEY NOTES:

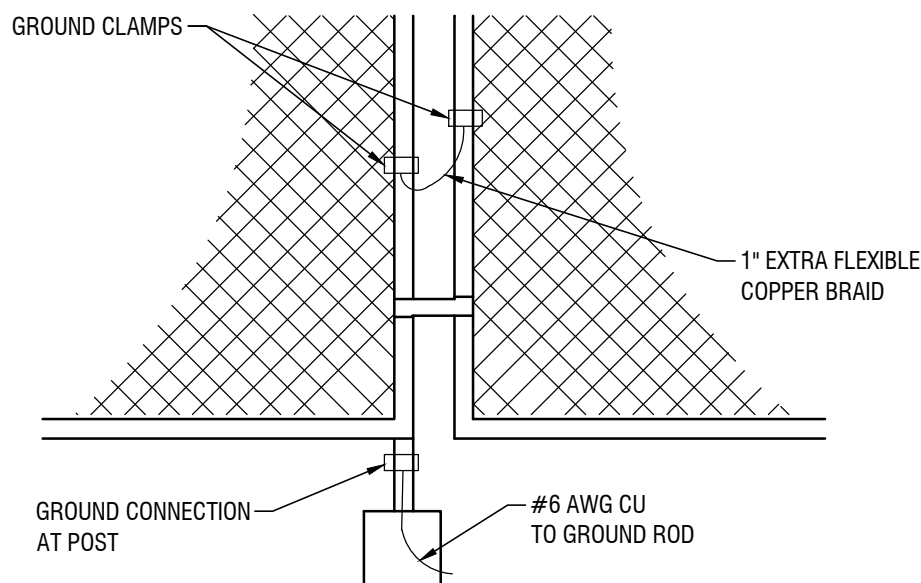
- GROUND CONNECTIONS TO PV MODULE AND INVERTER RACKING STRUCTURES TO BE MADE WITH WEEB 6.7 CONNECTORS OR EQUIVALENT.
- GROUND ROD CONNECTIONS TO BE MADE WITH PANDUIT PRODUCT TYPE "GCE" OR EQUIVALENT.
- GROUND RING CONNECTIONS TO BE MADE WITH PANDUIT PRODUCT TYPE "GCC" OR EQUIVALENT.
- ALL GROUND CONNECTIONS TO RACKING TO BE MADE TO A SINGLE METALLIC STRUCTURAL MEMBER.



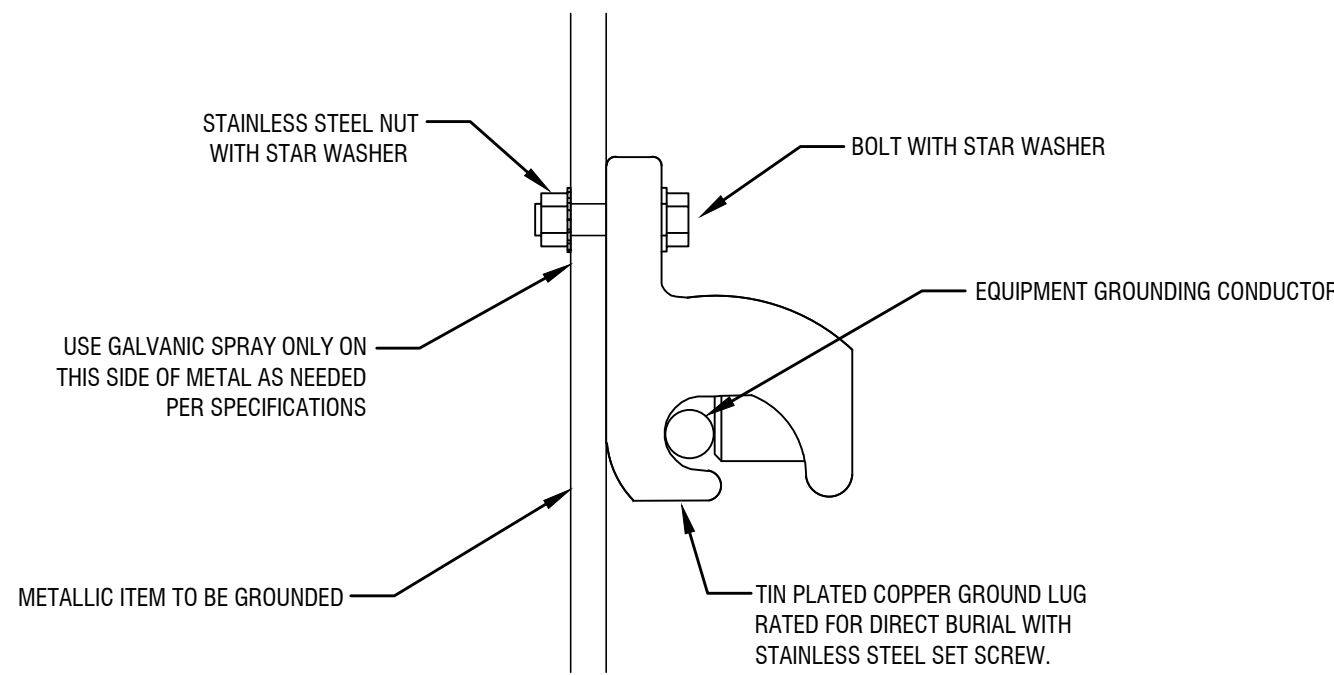
1 PV SYSTEM GROUNDING DIAGRAM
E-703 NOT TO SCALE



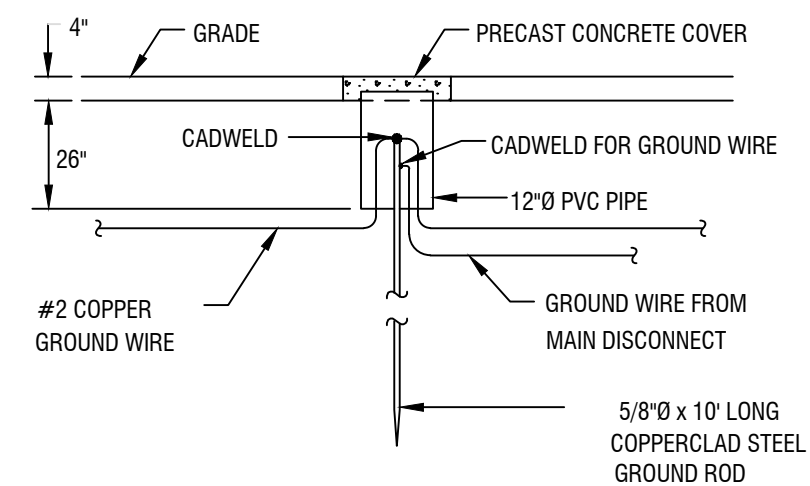
2 GROUNDING LUG DETAILS
E-703 NOT TO SCALE



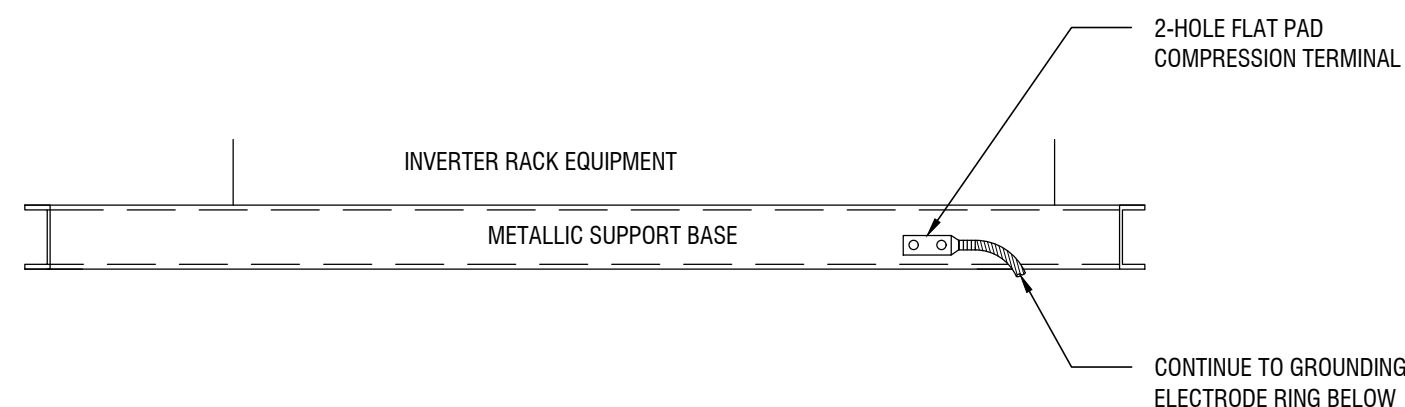
3 TYPICAL GATE GROUNDING DETAIL
E-703 NOT TO SCALE



4 GROUNDING LUG DETAILS
E-703 NOT TO SCALE



6 GROUNDING ELECTRODE TEST WELL DETAIL
E-703 NOT TO SCALE



5 INVERTER RACK GROUNDING DETAIL
E-703 NOT TO SCALE

DRAWING GENERAL NOTES:

- ALL CAD WELDS TO BE DIRECT BURIAL RATED AND IRREVERSIBLE IN NATURE.
- ALL PARALLEL CABLE SETS TO BE INSTALLED WITH GROUND CONDUCTORS IN EACH CONDUIT/CABLE HANGER SPAN.
- ALL GROUNDING SYSTEM MATERIALS AND WORKMANSHIP TO COMPLY WITH NFPA 70 ARTICLES 250 AND 690, PART IV.
- HYDRAULICALLY COMPRESSED FITTINGS ACCEPTABLE ALTERNATIVE TO CADWELDS. PROPERLY SIZED FITTINGS AND MATCHING DIES TO BE USED.



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SIEMENS

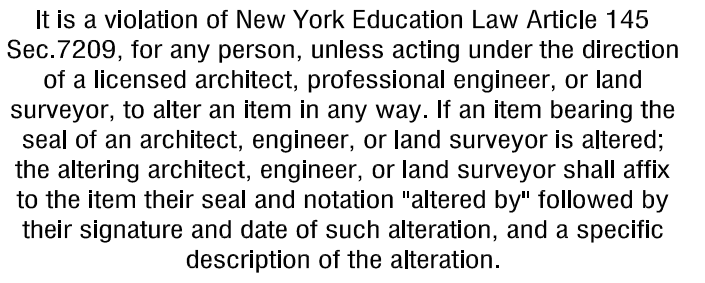
ALBANY RADAR TOWER SOLAR
897 WATERLIET SHAKER ROAD
ALBANY, NY 12205

NO.	DATE	DESCRIPTION
Revisions		
PROJECT NUMBER:	2222708	
DRAWN BY:		
REVIEWED BY:		
ISSUED FOR:	PERMIT ONLY	
DATE:	07/19/2022	
DRAWING NAME:		

GROUNDING DIAGRAM
& DETAILS

DRAWING NUMBER:

E703



**SIEMENS SMART
INFRASTRUCTURE**
6 BRITISH AMERICAN BLVD
LATHAM, NY 12110

ALBANY RADAR TOWER SOLAR
897 WATERVLIT SHAKER ROAD
ALBANY, NY 12205

PROJECT NUMBER:	2222708
DRAWN BY:	BJB
REVIEWED BY:	SJB
ISSUED FOR:	PERMIT ONLY
DATE:	08/05/2022
DRAWING NAME:	

DRAWING NUMBER:

The diagram illustrates the PV DAS system design, divided into two main sections: **PV DAS Enclosure** and **External Equipment**.

PV DAS Enclosure:

- Notes - PV DAS system design:**
 - PV DAS enclosure:**
 - Includes UPS charge controller, battery and surge arrester
 - AC converter 120V/24Vdc
 - Ethernet switch Ruggedcom RS900 or similar
 - Cloud service for remote data monitoring
 - DAS revenue grade meter will record PV production on the LV side of the main transformer (800V). Corresponding CTs shall be installed accordingly
 - Optionally, the customer meter installed on the HV side of the transformer can be integrated via communications in the datalogger for data analysis and comparison
 - PV system details:**
 - Number PV modules: 3,640, 580W
 - Total DC system size: 2,111 kW
 - Total AC system size: 1,540 kW
 - Equivalent DC/AC power ratio: 1.37
 - Inverter features:**
 - Anti-islanding detection UL1741/IEEE1547
 - DC ground fault detection UL1741
 - Smart inverter functions
 - Short circuit protection
 - Modbus TCP/IP
 - NEMA 4X enclosure
 - Integrated load breaker
- Hardware Components:**
 - Ethernet switch:** PoE switch (IP xxx.xxx.xxx.002) and Ethernet switch (IP xxx.xxx.xxx.002).
 - Measurement & billing:** PV revenue meter Slave ID 11 (IP xxx.xxx.xxx.011).
 - Secure remote access cRSP:** IPSec Router LTE (IP xxx.xxx.xxx.007).
 - PV Data Logger:** Datalogger Master ID 1 (IP xxx.xxx.xxx.010) with a Temperature sensor (Ambient Temperature PT1000 Sensor in case).
 - Weather station & system monitoring:** WS501-LAMB and P8855-E PTZ Camera with POA Irradiance sensor and PV Temp sensor.

External Equipment:

- String inverters Blueplanet 110 TL3 x 14:** Inverter #1 (Slave ID 21, IP xxx.xxx.xxx.021), Inverter #2 (Slave ID 22, IP xxx.xxx.xxx.022), Inverter #3 (Slave ID 23, IP xxx.xxx.xxx.023), Inverter #4 (Slave ID 24, IP xxx.xxx.xxx.024), and Inverter #5 (Slave ID 25, IP xxx.xxx.xxx.025).

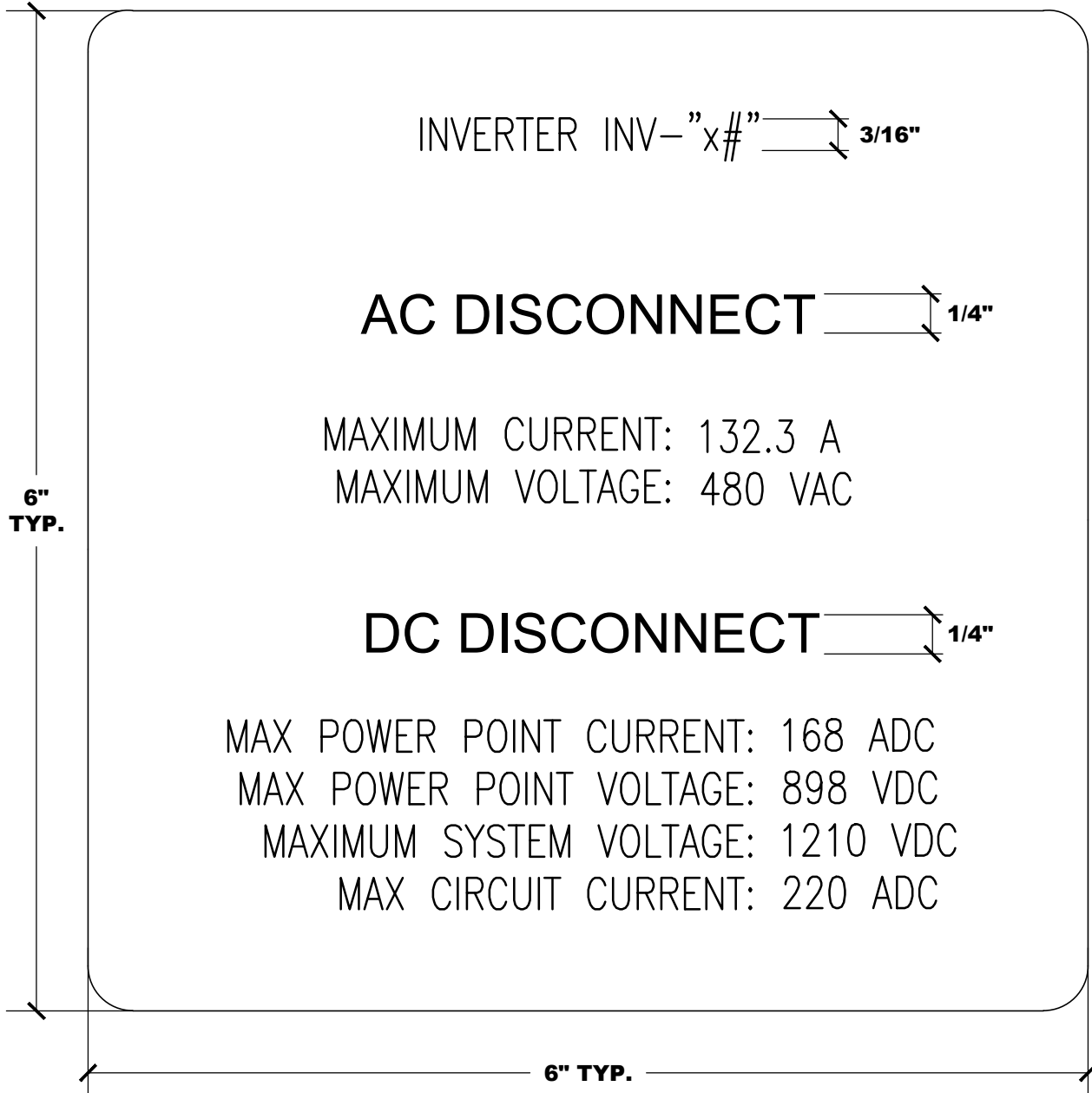
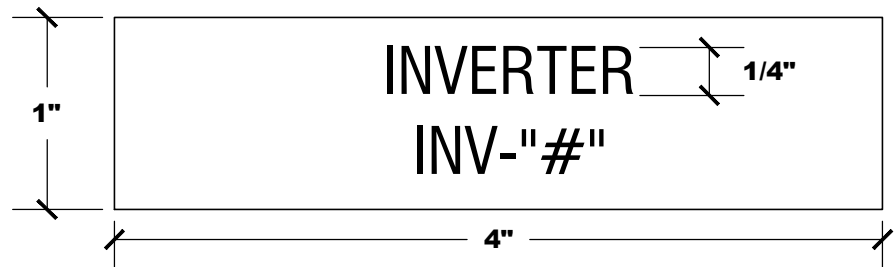
Legend & Notes Section:

- Legend:**
 - Green: Ethernet ID 1000-FX, 10/100/1000, 1300m, 10
 - Yellow: Ethernet ID 1000-FX, 10/100/1000, 1300m, 10
 - Blue: Modbus 485 RS485, 1200m, 10
 - Red: Serial RS485 RS485
 - Grey: Analog signal
- Notes:**
 - All connections comply with the relevant standards and codes.

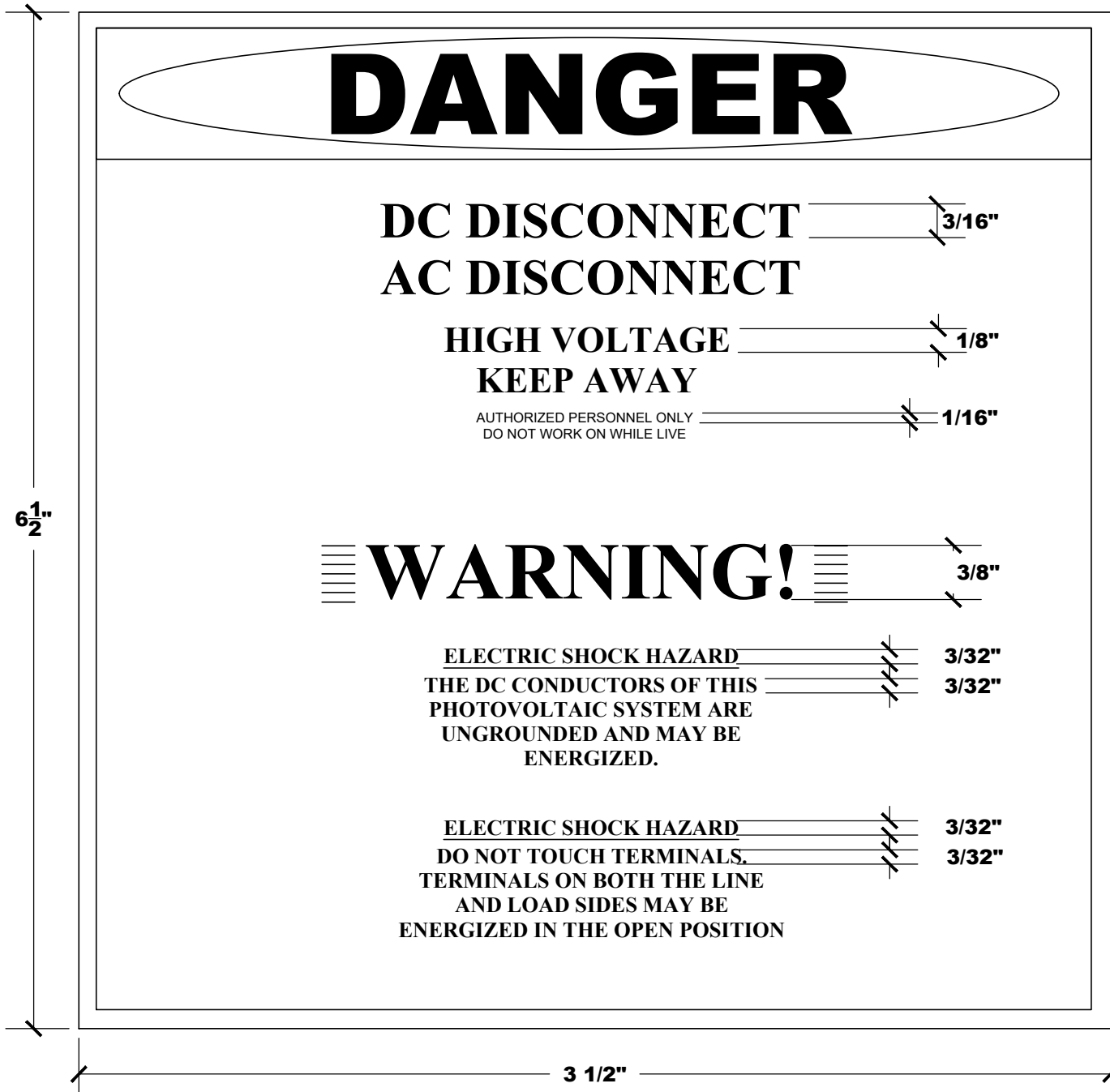
Network Overview:

IP	NAME	TYPE	PROTOCOL	PORT	DESCRIPTION
192.168.1.1	Gateway	Router	TCP/IP	24	Gateway to the Internet
192.168.1.2	Switch	Switch	TCP/IP	24	Switch for the PV system
192.168.1.3	Logger	Logger	Modbus	502	Datalogger Master ID 1
192.168.1.4	Meter	Meter	Modbus	502	PV revenue meter Slave ID 11
192.168.1.5	Router	Router	TCP/IP	24	IPSec Router LTE
192.168.1.6	Camera	Camera	TCP/IP	80	P8855-E PTZ Camera
192.168.1.7	Sensor	Sensor	Modbus	502	Temperature sensor
192.168.1.8	Sensor	Sensor	Modbus	502	PV Temp sensor
192.168.1.9	Inverter #1	Inverter	Modbus	502	String inverter Slave ID 21
192.168.1.10	Inverter #2	Inverter	Modbus	502	String inverter Slave ID 22
192.168.1.11	Inverter #3	Inverter	Modbus	502	String inverter Slave ID 23
192.168.1.12	Inverter #4	Inverter	Modbus	502	String inverter Slave ID 24
192.168.1.13	Inverter #5	Inverter	Modbus	502	String inverter Slave ID 25

LOCATION: STRING INVERTERS
FROM 1 TO 14

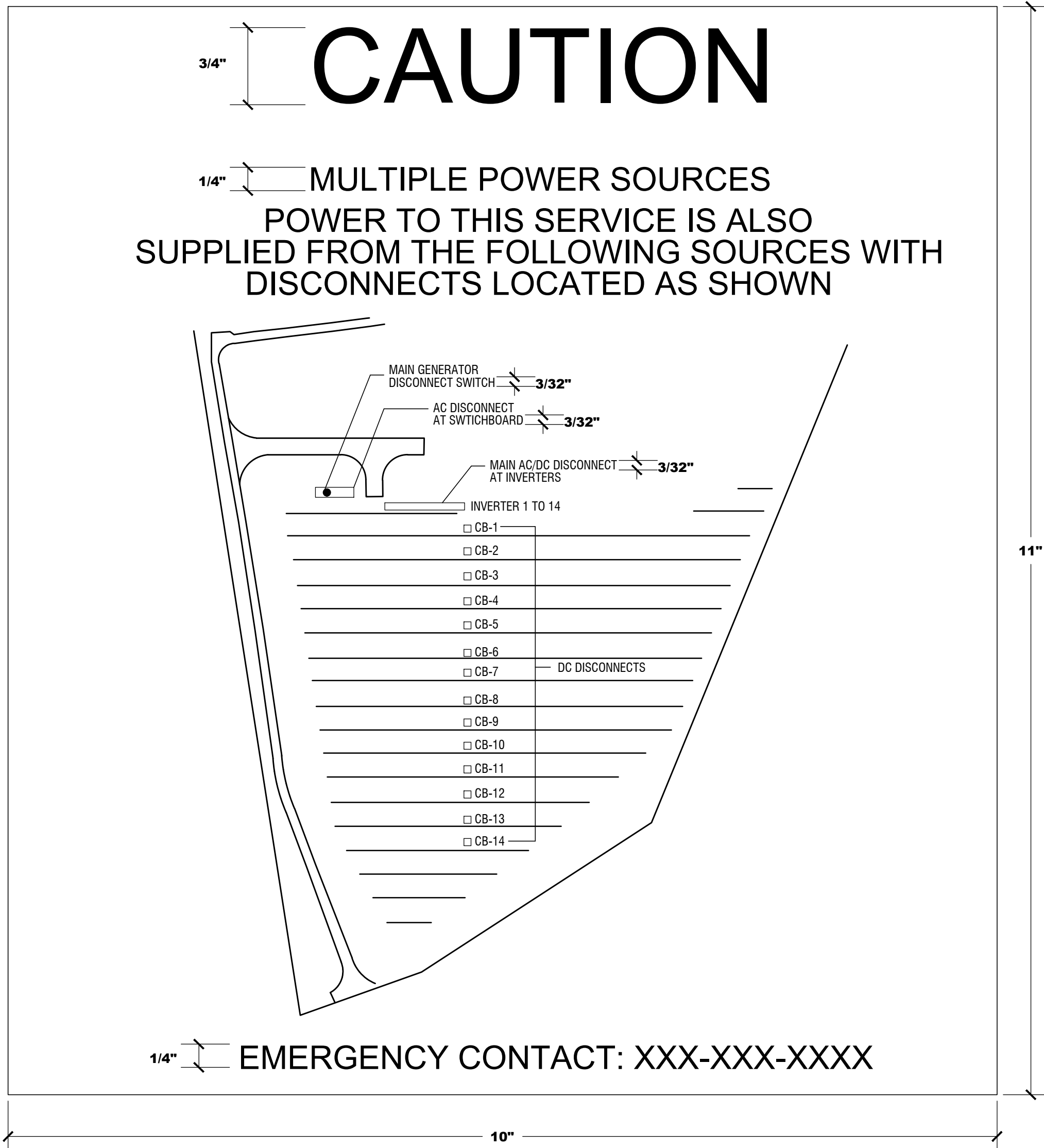


NEC: 690.54
NEC: 690.53

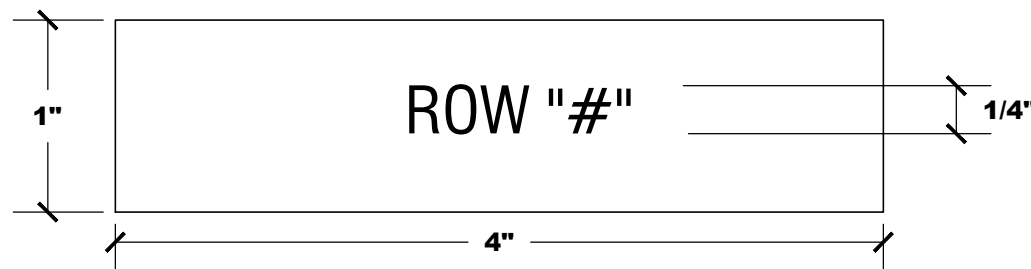


NEC: 690.13 (B)
NEC: 690.35 (F)
NEC: 690.17 (E)

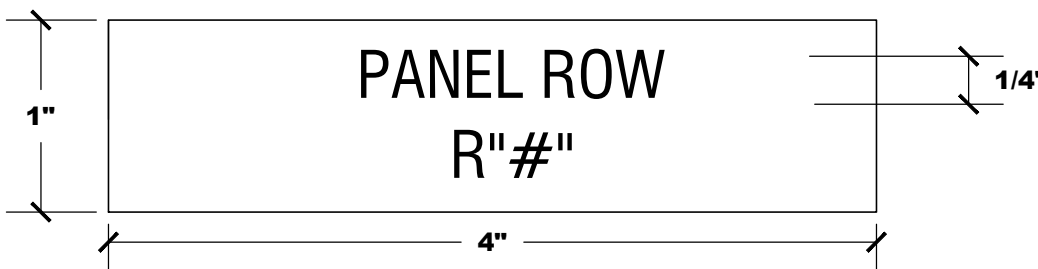
LOCATION: SWITCHBOARD & PAD-MOUNTED DISCONNECT SWITCH



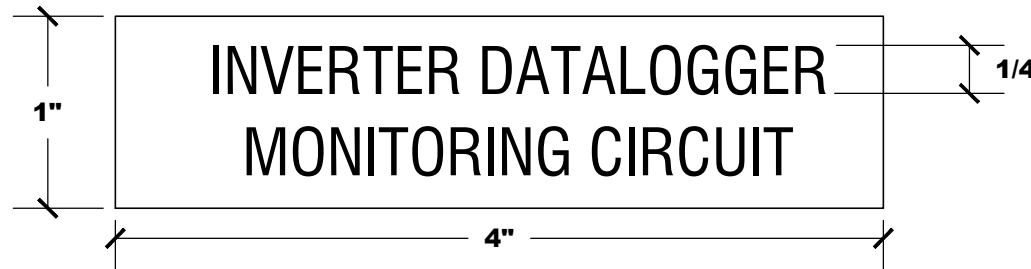
LOCATION: END OF ROW POST
REFER TO SITE LAYOUT



LOCATION: CONDUIT



LOCATION: INVERTER DATALOGGER



LOCATION: GROUNDING
TRANSFORMER



- GENERAL NOTES
1. LABELS SHOWN ARE TO BE APPLIED AS A MINIMUM REQUIREMENT. NAMETAGS ARE RECOMMENDED FOR ALL SYSTEM EQUIPMENT.
 2. LABELS NEED NOT BE APPLIED FOR CASES WHERE EQUIPMENT IS PROVIDED WITH SIMILAR LABELS AND MARKINGS.
 3. TEXT LABELS AND 10"x10" PLACARD TO BE ETCHED WITH WHITE GRAPHICS ONTO 1/16" RED PLASTIC PLACARDS. ATTACH LABEL TO APPROPRIATE COMPONENT ENCLOSURES IN CONSPICUOUS LOCATION USING TWO PART EPOXY.
 4. ALL SIGNAGE AND LABELS WILL BE IN COMPLIANCE WITH NFPA 70 - 110.20, ANSI Z39.4 AND UL 969.



It is a violation of New York Education Law Article 145 Sec.7209, for any person, unless acting under the direction of a licensed architect, professional engineer, or land surveyor, to alter an item in any way. If an item bearing the seal of an architect, engineer, or land surveyor is altered; the altering architect, engineer, or land surveyor shall affix to the item their seal and notation "altered by" followed by their signature and date of such alteration, and a specific description of the alteration.

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6 BRITISH AMERICAN BLVD
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SIEMENS

ALBANY RADAR TOWER SOLAR
897 WATERLIET SHAKER ROAD
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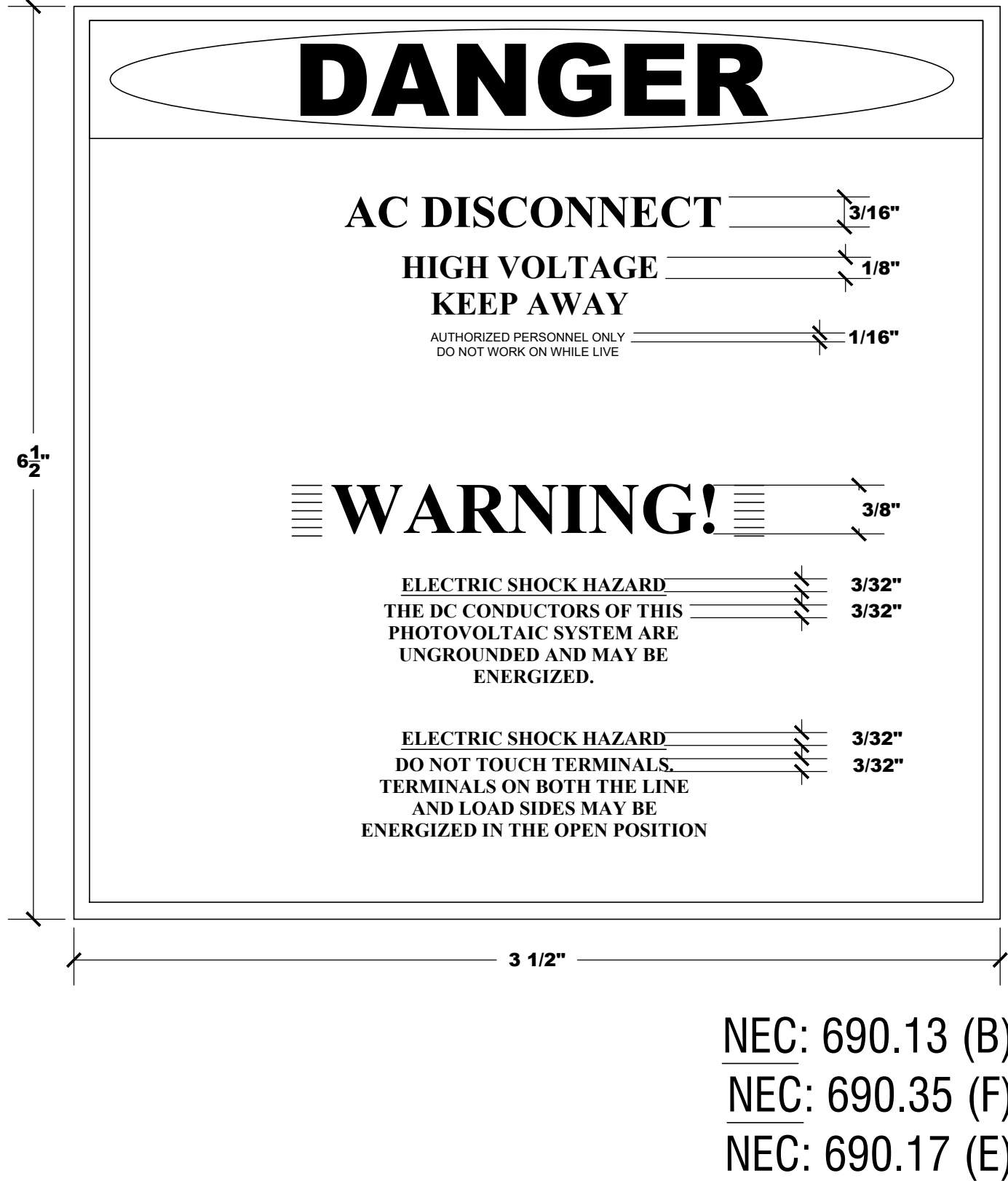
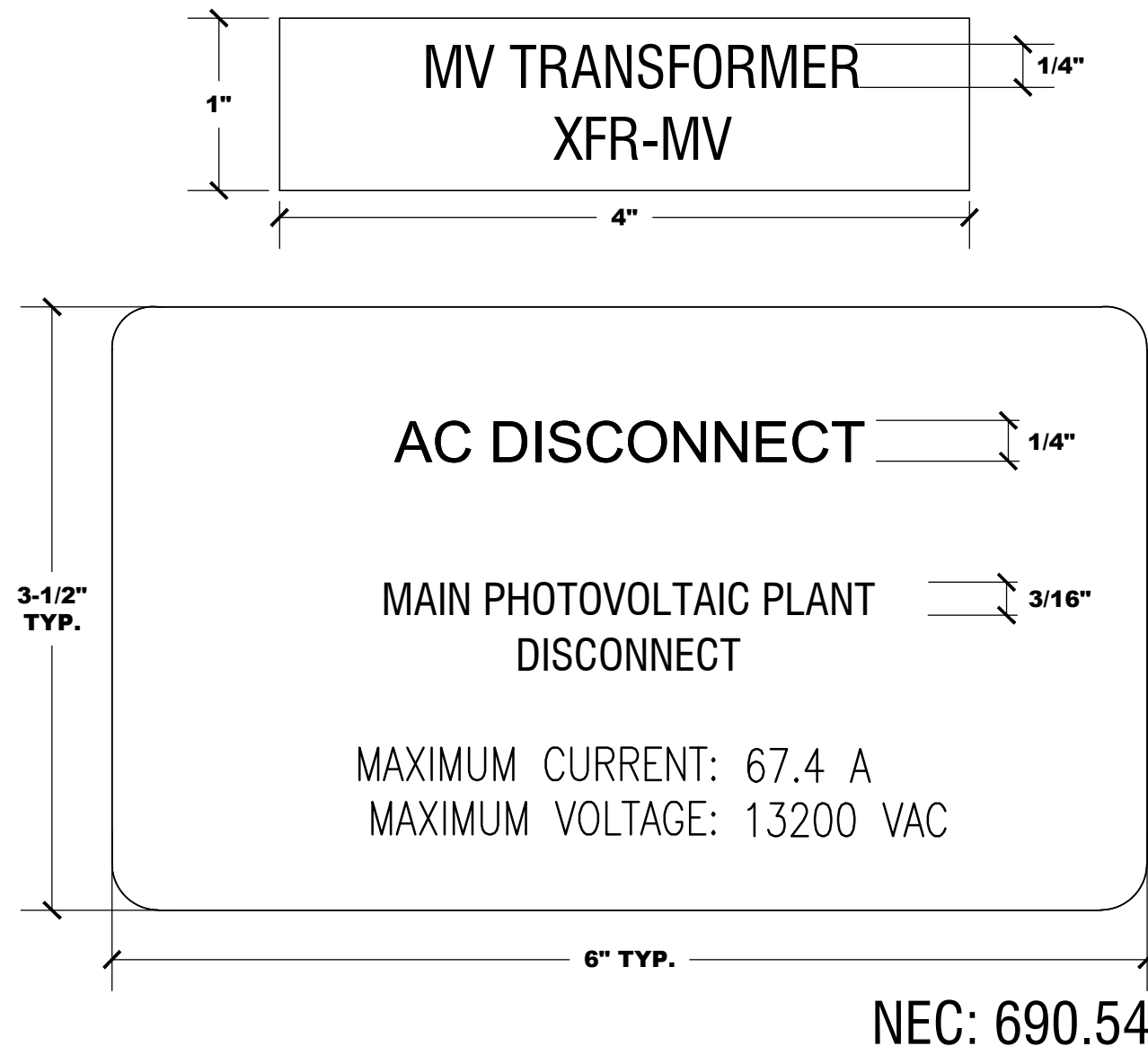
NO:	DATE:	DESCRIPTION:
Revisions		
PROJECT NUMBER: 2222708		
DRAWN BY:		
REVIEWED BY:		
ISSUED FOR: PERMIT ONLY		
DATE: 07/19/2022		
DRAWING NAME:		

SYSTEM LABELS

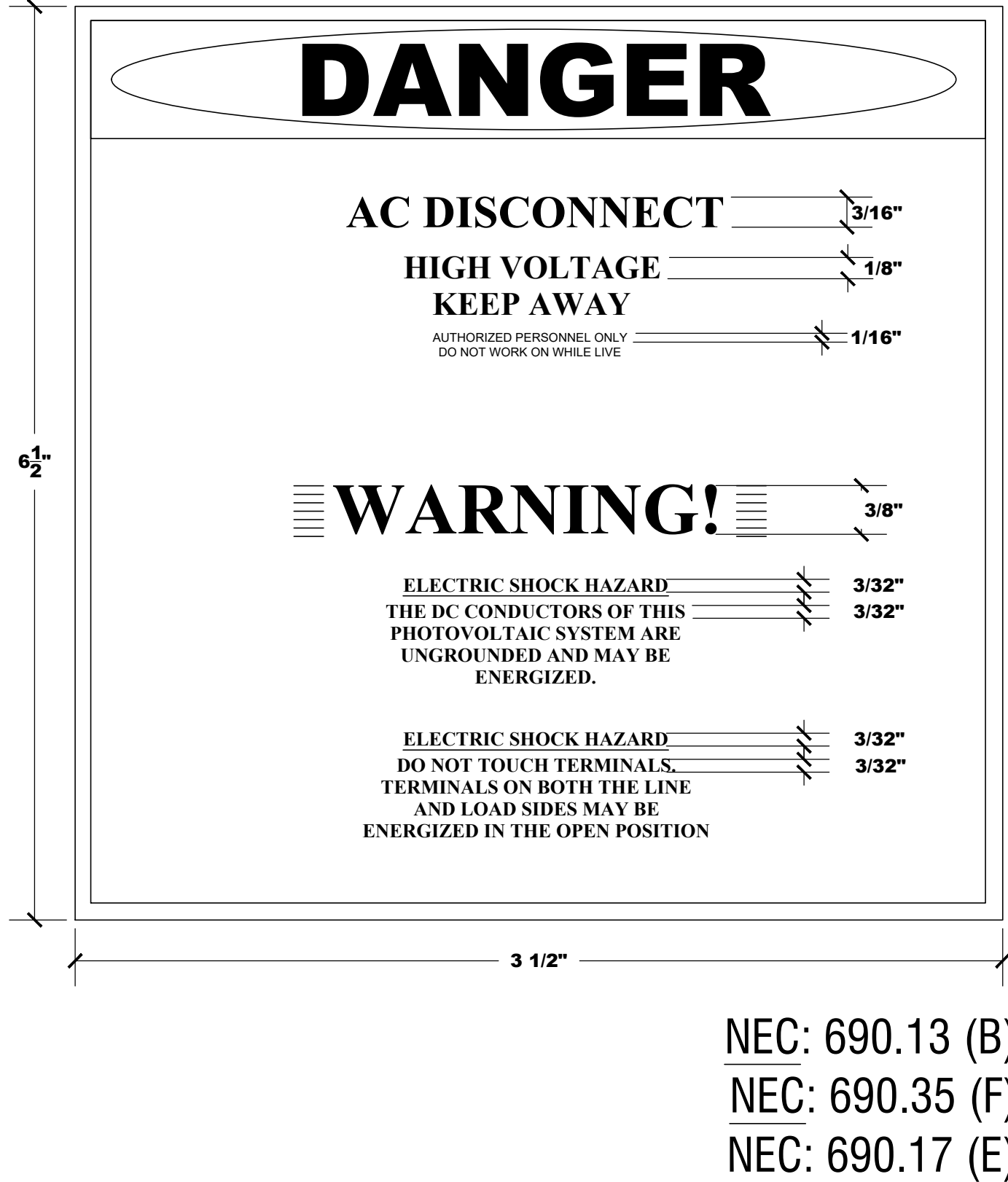
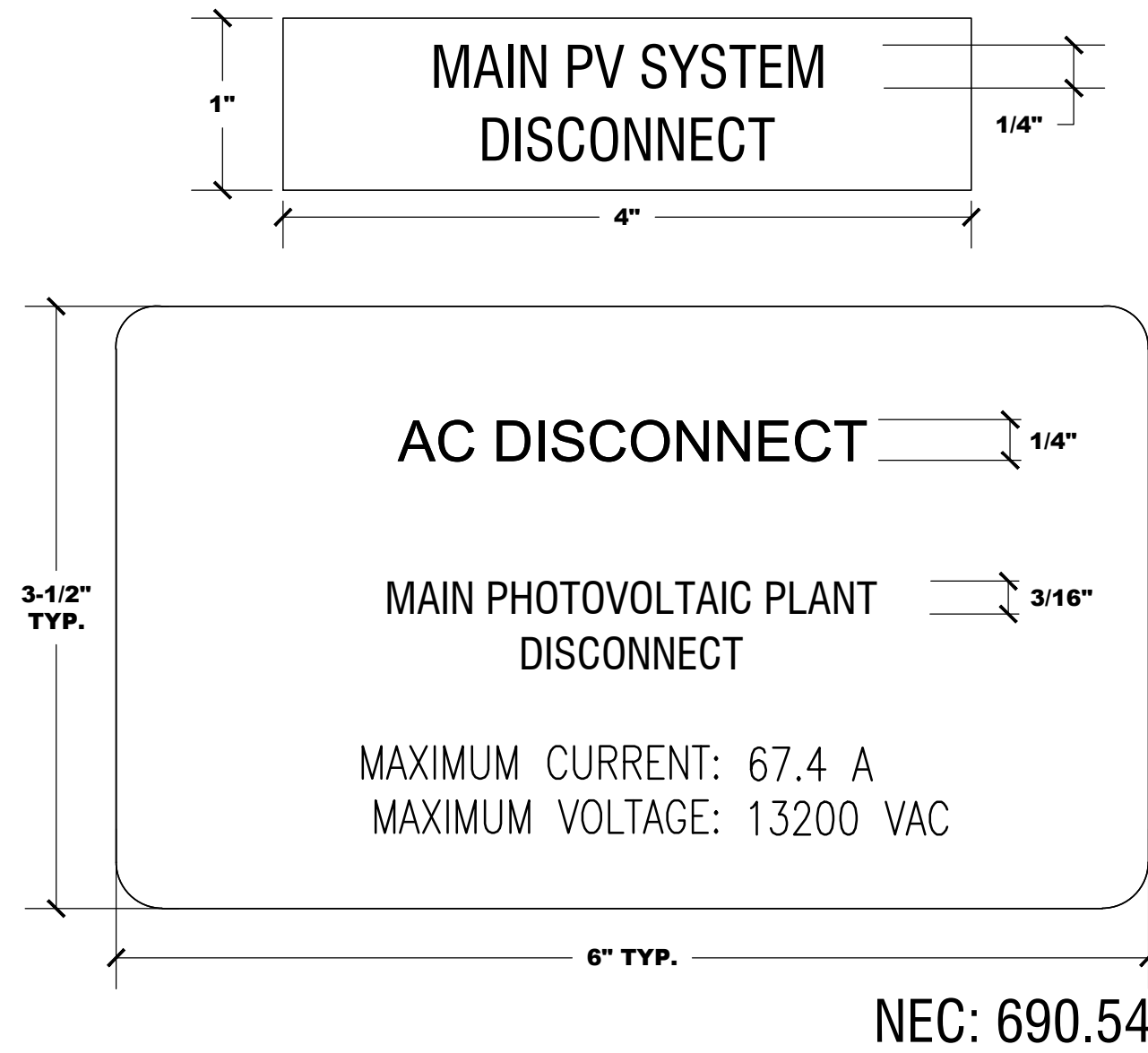
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E801

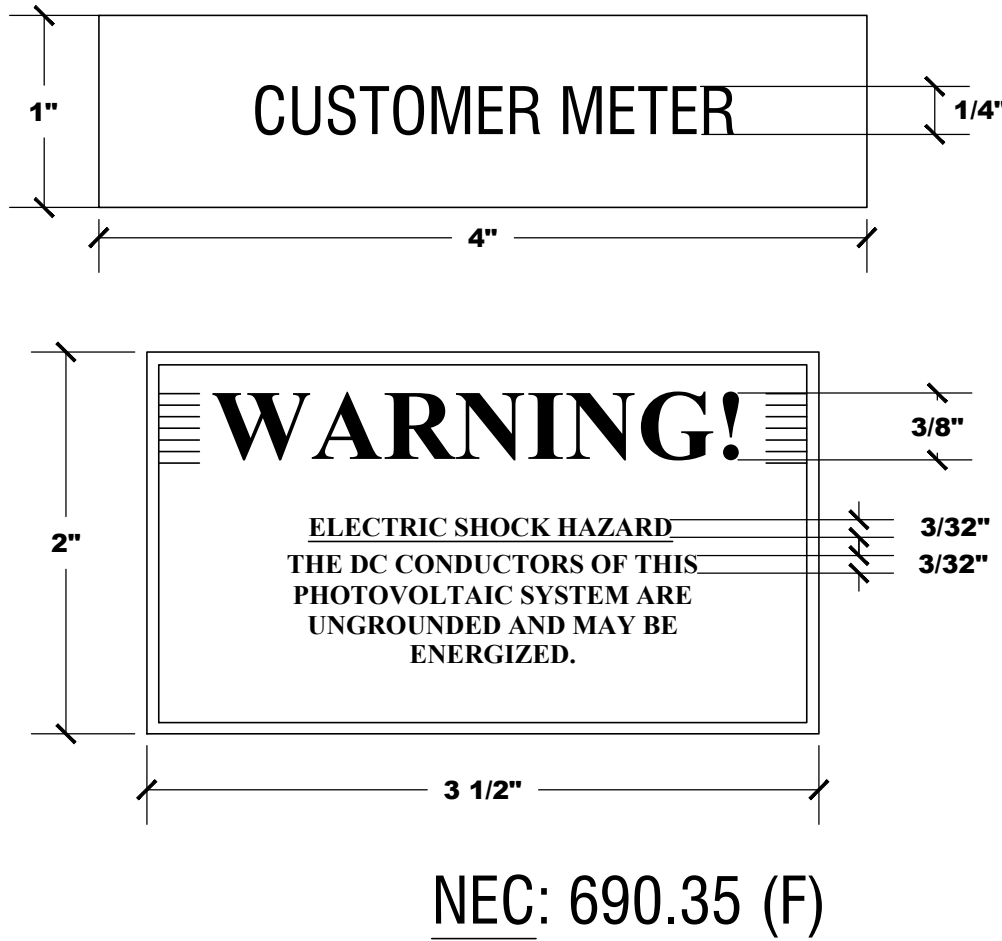
LOCATION: MV TRANSFORMER



LOCATION: GENERATOR PAD
MOUNTED DISCONNECT



LOCATION: CUSTOMER METER



- GENERAL NOTES
1. LABELS SHOWN ARE TO BE APPLIED AS A MINIMUM REQUIREMENT. NAMETAGS ARE RECOMMENDED FOR ALL SYSTEM EQUIPMENT.
 2. LABELS NEED NOT BE APPLIED FOR CASES WHERE EQUIPMENT IS PROVIDED WITH SIMILAR LABELS AND MARKINGS.
 3. TEXT LABELS AND 10"x10" PLACARD TO BE ETCHED WITH WHITE GRAPHICS ONTO 1/16" RED PLASTIC PLACARDS. ATTACH LABEL TO APPROPRIATE COMPONENT ENCLOSURES IN CONSPICUOUS LOCATION USING TWO PART EPOXY.
 4. ALL SIGNAGE AND LABELS WILL BE IN COMPLIANCE WITH NFPA 70 - 110.20, ANSI Z535.4 AND UL 969.



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SIEMENS

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NO:	DATE:	DESCRIPTION:
Revisions		
PROJECT NUMBER: 2222708		
DRAWN BY:		
REVIEWED BY:		
ISSUED FOR: PERMIT ONLY		
DATE: 07/19/2022		
DRAWING NAME:		

SYSTEM LABELS

DRAWING NUMBER:

E802

GENERAL NOTES:

1. THE DESIGN AND CONSTRUCTION OF THIS PROJECT IS GOVERNED BY THE RELATED PROVISIONS OF THE 2020 NEW YORK STATE UNIFORM FIRE PREVENTION AND BUILDING CODE (NYSBC) AND STATE ENERGY CONSERVATION CONSTRUCTION CODE (ENERGY CODE) AND STANDARDS INCLUDING ASCE STANDARD (ASCE/SEI 7-16) MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.
2. REFER TO ELECTRICAL AND CIVIL DRAWINGS FOR ADDITIONAL INFORMATION INCLUDING BUT NOT LIMITED TO: DIMENSIONS, SLOPES, DRAINS, ELECTRICAL UNIT LOCATIONS, AND OTHER NON-STRUCTURAL ITEMS.
3. CONTRACTOR TO BE RESPONSIBLE FOR COORDINATING DETAILS AND ACCURACY OF WORK WITH OTHER TRADES; FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS; FOR SELECTING FABRICATION PROCESSES; FOR TECHNIQUES, MEANS AND METHODS OF ASSEMBLY; AND FOR PERFORMING WORK IN A SAFE AND SECURE MANNER.
4. CONTRACTOR TO BE RESPONSIBLE FOR STRENGTH AND STABILITY OF STRUCTURE DURING CONSTRUCTION AND SHALL PROVIDE TEMPORARY SHORING, BRACING AND OTHER ELEMENTS REQUIRED TO MAINTAIN STABILITY UNTIL STRUCTURE IS COMPLETE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE FAMILIAR WITH THE WORK REQUIRED IN CONSTRUCTION DOCUMENTS AND REQUIREMENTS FOR EXECUTING IT PROPERLY.
5. LOADS ON STRUCTURES DURING CONSTRUCTION SHALL NOT EXCEED THE DESIGN LOADS AS NOTED IN "DESIGN CRITERIA" OR THE CAPACITY OF PARTIALLY COMPLETED CONSTRUCTION AS DETERMINED BY CONTRACTOR'S SPECIALTY STRUCTURAL ENGINEER (SSE). CONTRACTOR SHALL BE RESPONSIBLE FOR RETAINING THE SERVICES OF THE SSE TO SUPPORT CONSTRUCTION EFFORTS INCLUDING BUT NOT LIMITED TO TEMPORARY SHORING, RIGGING SUPPORT OR MEANS AND METHODS OF CONSTRUCTION.
6. MEANS AND METHODS OF CONSTRUCTION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR INCLUDING BUT NOT LIMITED TO TEMPORARY BRACING/ SHORING, RIGGING, TEMPORARY WORK PLATFORMS, DE-WATERING, GRADING AND MAINTAINING STAGING AND TEMPORARY WORK AREAS ETC. CONTRACTOR SHALL SUBMIT PLANS FOR ALL TEMPORARY EARTH WORK STABILITY INCLUDING BUT NOT LIMITED TO DE-WATERING AND SLOPE/ VERTICAL CUT STABILITY.
7. CONTRACTOR TO HAVE SOLE RESPONSIBILITY TO NOTIFY ENGINEER OF ANY BUILDING SYSTEM, MECHANICAL, ELECTRICAL, OR PLUMBING SYSTEM LOAD IMPOSED ONTO THE STRUCTURE THAT DIFFERS FROM, OR THAT IS NOT DOCUMENTED ON THE ORIGINAL CONTRACT DOCUMENTS (STRUCTURAL OR ELECTRICAL DRAWINGS).
8. IN THE CASE OF DISCREPANCIES BETWEEN GENERAL NOTES, SPECIFICATIONS, PLAN/DETAILS, REFERENCE STANDARDS, OR BETWEEN DISCIPLINES THE ENGINEER SHALL DETERMINE WHICH SHALL GOVERN. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
9. CONTRACTOR TO VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE. CONFLICTS BETWEEN DRAWINGS AND ACTUAL SITE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH WORK.
10. CONTRACTOR SHALL DETERMINE THE LOCATION OF ADJACENT UNDERGROUND UTILITIES PRIOR TO EARTHWORK, FOUNDATIONS, SHORING, AND EXCAVATION. UTILITY INFORMATION SHOWN ON DRAWINGS AND DETAILS IS APPROXIMATE AND NOT NECESSARILY COMPLETE.
11. DETAILS ENTITLED OR NOTED AS "TYPICAL" APPLY NOT ONLY WHERE SPECIFICALLY INDICATED OR REFERENCED, BUT ALSO IN ALL OTHER CASES WHERE THE NATURE OF THE CONSTRUCTION REQUIRES THEIR USE. DETERMINE APPLICABILITY OF TYPICAL DETAILS FROM DESCRIPTIVE TITLES OR FROM THE SIMILARITY OF A CONSTRUCTION CONDITION TO ANOTHER CONDITION WHERE THE DETAIL IS SPECIFICALLY INDICATED OR REFERENCED.
12. USE WATER MIST, TEMPORARY ENCLOSURES AND OTHER SUITABLE METHODS TO LIMIT THE SPREAD OF DUST AND DIRT, COMPLY WITH GOVERNING ENVIRONMENTAL PROTECTION REGULATIONS. DO NOT USE WATER WHEN IT MAY DAMAGE EXISTING CONSTRUCTION; DO NOT CAUSE ICING, FLOODING, OR TRANSPORTATION OF POLLUTANTS.
13. ALL CONSTRUCTION WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE SAFETY CODES. APPLICABLE SAFETY CODES MEAN THE LATEST EDITION INCLUDING ANY AND ALL AMENDMENTS, REVISIONS, AND ADDITIONS THERE TO, TO THE FEDERAL DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH STANDARDS (OSHA), AND APPLICABLE LOCAL SAFETY AND HEALTH REGULATIONS AND BUILDING CODES FOR CONSTRUCTION IN THE STATE OF MARYLAND IN ADDITION TO ANY AND ALL "HOUSE RULES" AS REQUIRED BY OWNER.
14. TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK, THE CONTRACTOR SHALL SUBMIT A PROPOSED CONSTRUCTION SEQUENCE TO THE ENGINEER OR AS OTHERWISE DIRECTED IN THE PROJECT SPECIFICATIONS FOR APPROVAL.
15. EXPLORATORY EXCAVATIONS SHALL BE PERFORMED AS NEEDED BY THE CONTRACTOR TO VERIFY EXISTING CONDITIONS PRIOR TO WORK IN CONGESTED UTILITY AREAS. ALL TEST PIT LOGS SHALL BE SUBMITTED TO THE ENGINEER WITHIN FOURTEEN (14) DAYS FOLLOWING NOTICE TO PROCEED UNLESS OTHERWISE DIRECTED BY THE SPECIFICATIONS OR ENGINEER.
16. ALL HARDWARE TO BE STAINLESS STEEL.

SOILS AND FOUNDATIONS NOTES:

1. CONFORM TO BUILDING CODE CHAPTER 18 "SOILS AND FOUNDATIONS".
2. FOUNDATION DESIGN IS BASED UPON CONSERVATIVE PRESUMPTIVE VALUES PER BUILDING CODE TABLE 1806.2. ONLINE USDA WEB SOIL SURVEY INDICATES SILT LOAM AT THE PROJECT SITE, WHICH TYPICALLY CORRESPONDS TO A VERTICAL BEARING CAPACITY OF 1500 PSF AND LATERAL BEARING CAPACITY OF 100 PSF/FT. WE HAVE CONSERVATIVELY DESIGNED THE FOUNDATIONS FOR VERTICAL BEARING CAPACITY OF 1500 PSF AND LATERAL BEARING CAPACITY OF 100 PSF/FT. A COMPETENT PERSON SHALL OBSERVE THE BEARING STRATA IN FIELD TO CONFIRM AT LEAST A 1500 PSF VERTICAL BEARING CAPACITY AND 100 PSF/FT OF LATERAL BEARING CAPACITY IS APPROPRIATE.
3. FOUNDATION DRAWINGS SHALL BE USED IN CONJUNCTION WITH CIVIL, MECHANICAL, ELECTRICAL, PLUMBING DRAWINGS AND CIVIL / SITE DRAWINGS. VERIFY THE REQUIREMENTS OF OTHER TRADES AS TO SLEEVES, HOLES, INSERTS, ETC. TO BE INSTALLED IN THE CONCRETE WORK. CONTACT THE STRUCTURAL ENGINEER OF RECORD IF SLEEVES NOT SHOWN ON THE DRAWINGS PENETRATE ANY DRILLED PILE.
4. REFER TO THE DESIGN DOCUMENTS AND SPECIFICATIONS FOR FILL MATERIALS AND REQUIREMENTS. ON SITE SOIL SHALL NOT BE USED AS STRUCTURAL OR GRANULAR FILL.
5. CONTRACTOR SHALL PREVENT SURFACE AND GROUND WATER FROM ENTERING EXCAVATIONS, FROM PONDING ON PREPARED SUBGRADES, AND FROM FLOODING PROJECT SITE AND SURROUNDING AREA. DO NOT PLACE FOUNDATIONS IN WATER OR ON FROZEN GROUND.

CONCRETE REINFORCEMENT NOTES:

1. CONFORM TO THE FOLLOWING REFERENCE STANDARDS:
- 1.1. ACI 301 "STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE", SECTION 3 "REINFORCEMENT SUPPORTS"
- 1.2. ACI SP-66 "ACI DETAILING MANUAL" INCLUDING ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT"
- 1.3. CRSI MSP-2 "MANUAL OF STANDARD PRACTICE"
- 1.4. ANSI/AWS D1.4 "STRUCTURAL WELDING CODE - REINFORCING STEEL"
- 1.5. IBC 2012 CHAPTER 19 - CONCRETE
- 1.6. ACI 318-14
2. CONFORM TO ACI 301 SECTION 3.1.1 "SUBMITTALS, DATA AND DRAWINGS". SUBMIT PLACING DRAWINGS, SHOWING FABRICATION DIMENSIONS AND LOCATIONS FOR PLACEMENT OF REINFORCEMENT AND REINFORCEMENT SUPPORTS.
3. MATERIALS:
- A. REINFORCING BARS.....ASTM A 615, GRADE 60, DEFORMED BARS
- B. BAR SUPPORTS.....CRSI SP-2, CHAPTER 3 - BAR SUPPORTS
- C. TIE WIRE.....4/0 GAGE OR HEAVIER, BLACK ANNEALED
- D. WELDED WIRE REINFORCEMENT.....ASTM A185, SHEET TYPE
4. CONFORM TO ACI 301, SECTION 3.2.2 "FABRICATION" AND ACI SP-66 "ACI DETAILING MANUAL".
5. BARS SHALL NOT BE WELDED UNLESS AUTHORIZED. WHEN AUTHORIZED, CONFORM TO ACI 301, SECTION 3.2.2.2 "WELDING" AND PROVIDE ASTM A706, GRADE 60 REINFORCEMENT.
6. WELDED WIRE REINFORCEMENT SHEET LAPS SHALL BE TIED AND LAPPED ONE FULL MESH SPACING PLUS 2".
7. CONFORM TO ACI 301, SECTION 3.3.2 "PLACEMENT". PLACING TOLERANCES SHALL CONFORM TO SECTION 3.3.2.1 "TOLERANCES".
8. CONFORM TO THE FOLLOWING MINIMUM COVER REQUIREMENTS FROM ACI 301, TABLE 3.3.2.3:
- A. CONCRETE CAST AGAINST EARTH.....3"
- B. CONCRETE EXPOSED TO EARTH OR WEATHER.....2"
- C. SLABS, WALLS AND JOINTS NOT EXPOSED TO WEATHER OR EARTH.....3/4"
- D. BEAMS, COLUMNS NOT EXPOSED TO WEATHER OR EARTH.....1 1/2"
9. CONFORM TO ACI 301 SECTION 3.3.2.8 "FIELD BENDING OR STRAIGHTENING". BAR SIZES 3 THROUGH 5 MAY BE FIELD BENT COLD THE FIRST TIME. OTHER BARS REQUIRE PREHEATING. DO NOT TWIST BARS. DO NOT BEND BARS TWICE.
1. CONFORM TO THE FOLLOWING REFERENCE STANDARDS:
- 1.1. ACI 301 "STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE"
- 1.2. ACI 302 "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION"
- 1.3. IBC 2018 CHAPTER 19 - CONCRETE
- 1.4. ACI 318-14 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
2. CONTRACTOR TO KEEP A COPY OF ACI FIELD REFERENCE MANUAL, SP-15, "STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301) WITH SELECTED ACI AND ASTM REFERENCES".
3. CONFORM TO ACI 301 SECTION 4 "CONCRETE MIXTURES".
4. CONFORM TO ACI 301 SECTION 4.2.1 "MATERIALS" FOR REQUIREMENTS FOR CEMENTITIOUS MATERIALS, AGGREGATES, MIXING WATER AND ADMIXTURES.
5. PROVIDE ALL SUBMITTALS REQUIRED BY ACI 301 SECTION 4.1.2. SUBMIT MIX DESIGNS FOR EACH MIX IN THE TABLE BELOW.

MEMBER TYPE/LOCATION	MIX DESIGN REQUIREMENTS			
	STRENGTH (PSI)	TEST AGE (DAYS)	MAXIMUM AGGREGATE W/C RATIO	AIR CONTENT
EXTERIOR SLABS	4500	28	1"	0.4 6%+/-1%

SLUMP NOTES:

1. 8" MAXIMUM FOR FLOWABLE CONCRETE. CONCRETE CONTAINING HRWR ADMIXTURE (SUPERPLASTICIZER): 3" MAXIMUM BEFORE ADDITION OF HRWR. PLASTICIZER SHALL BE ADDED AND MIXED ON SITE IF TRAVEL TIME IS GREATER THAN 40 MINUTES.
2. WHERE FIELD CONDITIONS REQUIRE SLUMP TO EXCEED THAT SPECIFIED ABOVE, INCREASED SLUMP SHALL BE OBTAINED BY A SUPERPLASTICIZER ADDED ON SITE IN QUANTITIES SPECIFICALLY NOTED IN THE APPROVED MIX DESIGN.
3. NO WATER SHALL BE ADDED ON SITE EXCEPT IN QUANTITIES SPECIFICALLY NOTED IN THE APPROVED MIX DESIGN.
4. SEE SPECIFICATIONS, FOR SLUMP REQUIREMENTS.
6. MIX DESIGN NOTES:
- 6.1. MIX DESIGN SUBMITTED SHALL HAVE DOCUMENTATION OF HISTORICAL BREAK STRENGTHS IN ACCORDANCE WITH ACI 318-11 SECTION 5.3.
- 6.2. WATER-CEMENTITIOUS MATERIAL RATIOS SHALL BE BASED ON TOTAL WEIGHT OF CEMENTITIOUS MATERIALS. RATIOS NOT SHOWN IN TABLE ABOVE ARE CONTROLLED BY STRENGTH REQUIREMENTS.
- 6.3. CEMENTITIOUS CONTENT:
- 6.3.1. THE USE OF FLY ASH, OTHER POZZOLANS, SILICA FUME, OR SLAG SHALL CONFORM TO ACI 301 SECTION 4.2.2.8.B. MAXIMUM AMOUNT OF FLY ASH SHALL BE 20% OF TOTAL CEMENTITIOUS CONTENT UNLESS OTHERWISE REVIEWED AND APPROVED BY ENGINEER.
- 6.3.2. FOR CONCRETE USED IN ELEVATED FLOORS, PORTLAND CEMENT CONTENT SHALL CONFORM TO ACI 301 SECTION 4.2.2.1. ACCEPTANCE OF LOWER CEMENT CONTENT IS CONTINGENT ON PROVIDING SUPPORTING DATA TO THE ENGINEER FOR REVIEW AND ACCEPTANCE.
- 6.4. AIR CONTENT: CONFORM TO ACI 301 SECTION 4.2.2.4. CONCRETE SURFACES IN CONTACT WITH SOIL REQUIRE ENTRAINED AIR. HORIZONTAL AND VERTICAL EXTERIOR SURFACES REQUIRE "SEVERE EXPOSURE". TOLERANCE IS ±1%. AIR CONTENT SHALL BE MEASURED AT POINT OF PLACEMENT.
- 6.5. SLUMP: CONFORM TO ACI 301 SECTION 4.2.2.2. SLUMP SHALL BE DETERMINED AT POINT OF PLACEMENT.
- 6.6. NO CHLORIDES SHALL BE USED IN ANY CONCRETE MIX DESIGN. ALL AGGREGATES, CEMENT, WATER AND ADDITIVES SHALL BE CHLORIDE FREE.
7. CONCRETE DENSITY SHALL BE NORMAL WEIGHT UNLESS SPECIFICALLY OTHERWISE NOTED.

8. CONCRETE REINFORCING STEEL SHALL BE CONTINUOUS UNLESS OTHERWISE INDICATED. CONTINUOUS REINFORCING STEEL SHALL BE LAPPED IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 318 AND THE CONCRETE REINFORCEMENT SCHEDULE THIS SHEET.
9. ALL EMBEDDED ITEMS SHALL BE PROPERLY PLACED, ACCURATELY POSITIONED, AND MAINTAINED SECURELY IN PLACE PRIOR TO AND DURING CONCRETE PLACEMENT.
10. NO CONCRETE SHALL BE PLACED UNTIL THE CONTRACTING OFFICER HAS INSPECTED ALL EMBEDDED WORK, INCLUDING REINFORCEMENT.
11. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4" OR AS INDICATED.
12. ALUMINUM SHALL NOT BE PLACED IN DIRECT CONTACT WITH CONCRETE UNLESS EFFECTIVELY COATED OR COVERED TO PREVENT ALUMINUM-CONCRETE REACTION AND ELECTROLYTIC ACTION BETWEEN ALUMINUM AND STEEL.
13. CONFORM TO ACI 301 SECTION 2 "FORMWORK AND FORM ACCESSORIES". REMOVAL OF FORMS SHALL CONFORM TO SECTION 2.3.2 EXCEPT STRENGTH INDICATED IN SECTION 2.3.2.5 SHALL BE 0.75 f_c.
14. MEASURING, MIXING AND DELIVERY SHALL CONFORM TO ACI 301 SECTION 4.3.
15. HANDLING, PLACING, CONSTRUCTING AND CURING SHALL CONFORM TO ACI 301 SECTION 5.

16. PROVIDE CURING COMPOUNDS FOR CONCRETE AS FOLLOWS:
- 16.1. SPRAY EVAPORATIVE RETARDANTS AS FINISHING AGENT AND TO CONTROL PLASTIC SHRINKAGE.
- 16.2. APPLY SPECIFIED CURING COMPOUND TO CONCRETE SLABS AS SOON AS FINAL FINISHING OPERATIONS ARE COMPLETE (WITHIN 2 HOURS AND AFTER SURFACE WATER SHEEN HAS DISAPPEARED). APPLY UNIFORMLY IN CONTINUOUS OPERATION BY POWER SPRAY OR ROLLER IN ACCORDANCE WITH MANUFACTURER'S DIRECTIONS. RECOAT AREAS SUBJECTED TO HEAVY RAINFALL WITHIN 3 HOURS AFTER INITIAL APPLICATION. MAINTAIN CONTINUITY OF COATING AND REPAIR DAMAGE DURING CURING PERIOD.
- 16.3. USE MEMBRANE CURING COMPOUNDS THAT WILL NOT AFFECT SURFACES TO BE COVERED WITH FINISH MATERIALS APPLIED DIRECTLY TO CONCRETE.
- 16.4. APPLY CURING COMPOUND AT RATE EQUIVALENT TO RATE OF APPLICATION AT WHICH CURING COMPOUND WAS ORIGINALLY TESTED FOR CONFORMANCE TO REQUIREMENTS OF ASTM C 309.
- 16.5. USE CURING COMPOUND COMPATIBLE WITH AND APPLIED UNDER DIRECTION OF SYSTEM MANUFACTURER OF PROTECTION SEALER.
- 16.6. ALL CONCRETE MUST ACHIEVE 1000 PSI COMPRESSIVE STRENGTH BEFORE BEING SUBJECTED TO FREEZING AND THAWING CYCLES.
- 16.7. APPLY 2 SEPARATE COATS WITH FIRST ALLOWED TO BECOME TACKY BEFORE APPLYING SECOND. DIRECTION OF SECOND APPLICATION SHALL BE AT RIGHT ANGLES TO DIRECTION OF FIRST.
17. CONSTRUCTION JOINTS SHALL CONFORM TO ACI 301 SECTIONS 2.2.2.5, 5.1.2.3a, 5.2.2.1 AND 5.3.2.6. CONSTRUCTION JOINTS SHALL BE LOCATED AND DETAILED AS ON CONSTRUCTION DRAWINGS. USE OF AN ACCEPTABLE ADHESIVE, SURFACE RETARDANT, PORTLAND CEMENT GROUT OR ROUGHENING THE SURFACE IS NOT REQUIRED UNLESS SPECIFICALLY NOTED ON THE DRAWINGS.
18. POSITION AND SECURE IN PLACE EXPANSION JOINT MATERIAL, ANCHORS AND OTHER STRUCTURAL AND NON-STRUCTURAL EMBEDDED ITEMS BEFORE PLACING CONCRETE. CONTRACTOR SHALL REFER TO MECHANICAL, ELECTRICAL, PLUMBING AND BUILDING SYSTEMS DRAWINGS AND COORDINATE OTHER EMBEDDED ITEMS.
19. USE 7,000 PSI NON-SHRINK GROUT UNDER COLUMN BASE PLATES, ETC.
20. POST-INSTALLED ANCHORS TO CONCRETE: ANCHOR LOCATION, TYPE, DIAMETER AND EMBEDMENT SHALL BE AS INDICATED ON DRAWINGS. ANCHORS SHALL BE INSTALLED AND INSPECTED IN STRICT ACCORDANCE WITH APPLICABLE ICC EVALUATION SERVICE REPORT (ESR). SPECIAL INSPECTION SHALL BE PER THE TESTS AND INSPECTIONS SECTION.

21. FINISH:
- 21.1. FLOATED WITH BROOM FINISH.
22. OWNER SHALL RETAIN AN INDEPENDENT TESTING LAB TO OBTAIN SAMPLES AND CONDUCT TESTS IN ACCORDANCE WITH ACI 301 SECTION 1.6.4.2. ADDITIONAL SAMPLES MAY BE REQUIRED TO OBTAIN CONCRETE STRENGTHS AT ALTERNATE INTERVALS THAN SHOWN BELOW.
- 22.1. CURE 5 CYLINDERS FOR 28-DAY TEST AGE. TEST 2 CYLINDERS AT 7 DAYS OR AT CONTRACTOR REQUEST, TEST 2 CYLINDERS AT 28 DAYS, AND HOLD 1 CYLINDER IN RESERVE FOR USE AS ENGINEER DIRECTS. AFTER 56 DAYS, UNLESS NOTIFIED BY ENGINEER TO THE CONTRARY, RESERVE CYLINDER MAY BE DISCARDED WITHOUT BEING TESTED FOR SPECIMENS MEETING 28-DAY STRENGTH REQUIREMENTS.
- 22.2. ACCEPTABLE STRENGTH IS SATISFACTORY WHEN:
- A. THE AVERAGES OF ALL SETS OF 3 CONSECUTIVE TESTS EQUAL OR EXCEED THE SPECIFIED STRENGTH.
- B. NO INDIVIDUAL TEST FALLS BELOW THE SPECIFIED STRENGTH BY MORE THAN 500 PSI.
- C. A "TEST" FOR ACCEPTANCE IS THE AVERAGE STRENGTH OF 2 CYLINDERS TESTED AT THE SPECIFIED TEST AGE.
23. COLD WEATHER CONCRETE PLACEMENT
- 23.1. PLACE CONCRETE IN ACCORDANCE WITH ACI 306.1 AND AS FOLLOWS. PROTECT CONCRETE WORK FROM PHYSICAL DAMAGE OR REDUCED STRENGTH THAT COULD BE CAUSED BY FROST FREEZING ACTIONS, OR LOW TEMPERATURES.
- 23.2. WHEN AIR TEMPERATURE HAS FALLEN TO OR IS EXPECTED TO FALL BELOW 40°F UNIFORMLY HEAT WATER AND AGGREGATES BEFORE MIXING TO OBTAIN A CONCRETE MIX TEMPERATURE OF NOT LESS THAN 50°F AND NOT MORE THAN 80° AT POINT OF PLACEMENT.
- 23.3. DO NOT USE FROZEN MATERIALS OR MATERIALS CONTAINING ICE OR SNOW. DO NOT PLACE CONCRETE ON FROZEN SUBGRADE OR ON SUBGRADE CONTAINING FROZEN MATERIALS. DO NOT USE CALCIUM CHLORIDE, SALT OR OTHER MATERIALS CONTAINING ANTIFREEZE AGENTS OR CHEMICAL ACCELERATORS, UNLESS OTHERWISE SPECIFIED AND APPROVED IN MIX DESIGNS.
24. HOT WEATHER CONCRETE PLACEMENT SHALL BE IN CONFORMANCE WITH ACI 305R LATEST EDITION "HOT WEATHER CONCRETING".
- 24.1. CONCRETE SHALL NOT BE PLACED THAT HAS REACHED OR EXCEEDED 90°F.
25. CONCRETE SHALL BE PLACED WITHIN 90 MINUTES OF BATCH TIME UNLESS SPECIFICALLY APPROVED BY ENGINEER, ENGINEER OR INSPECTOR HAS AUTHORITY TO REJECT TRUCKS NOT MEETING PROJECT SPECIFICATIONS AND/ OR TEMPERATURE/ TIME REQUIREMENTS. CONTRACTOR TAKES FULL RESPONSIBILITY FOR ANY REJECTED TRUCKS.

DESIGN CRITERIA:

ALL WORK SHALL COMPLY WITH THE RELATED PROVISIONS OF THE CALIFORNIA STATE BUILDING PERFORMANCE STANDARDS AND ITS REFERENCE STANDARDS.

DESIGN BASIS
GOVERNING CODE.....2020 NEW YORK STATE UNIFORM FIRE PREVENTION AND BUILDING CODE (NYSBC)

BUILDING INFORMATION
STRUCTURE USE.....EQUIPMENT PAD
RISK CATEGORY.....II

DESIGN CRITERIA
(ALL LOADS PROVIDED BELOW ARE SERVICE-LEVEL LOADS)

DEAD LOADS:
CONCRETE SLAB.....145 PSF
INVERTER.....172.4 LBS/EA.
COMBINER BOX.....60 LBS/EA.
PV ARRAY.....75.8 LBS/EA.

LIVE LOADS:
SLAB.....150 PSF

RAIN LOADS:
15-MINUTE RAINFALL INTENSITY.....5.49 IN./H
60-MINUTE RAINFALL INTENSITY.....2.44 IN./H

SNOW LOADS:
GROUND SNOW LOAD (P_g).....50 PSF
FULLY EXPOSED
EXPOSURE FACTOR (C_e).....0.9
THERMAL FACTOR (C_t).....1.2
IMPORTANCE FACTOR (I_s).....1.0
FLAT ROOF SNOW LOAD (P_f).....N/A
SLOPED ROOF SNOW LOAD (P_s).....N/A

RISK CATEGORY.....II
ULTIMATE WIND SPEED (3-SECOND GUST,V_{ult}).....110 MPH
NOMINAL WIND SPEED (V_{ASD}).....85 MPH
EXPOSURE CATEGORY.....B
INTERNAL PRESSURE COEFFICIENT (C_{pi}).....±0.00(OPEN)
DESIGN WIND LATERAL PRESSURE.....31.5 PSF
DESIGN WIND VERTICAL UPLIFT.....25 PSF

EARTHQUAKE DESIGN DATA
RISK CATEGORY.....II
IMPORTANCE FACTOR (I_p).....1.0
MAPPED SPECTRAL RESPONSE ACCELERATION FOR SHORT PERIODS (S_s).....0.205g
MAPPED SPECTRAL RESPONSE ACCELERATION FOR 1-SECOND PERIODS (S₁).....0.061g
SITE CLASS.....D (ASSUMED)
SPECTRAL RESPONSE ACCELERATION FOR SHORT PERIODS (S_{ds}).....0.219g
SPECTRAL RESPONSE ACCELERATION FOR 1-SECOND PERIODS (S_{d1}).....0.098g
SEISMIC DESIGN CATEGORY.....B
BASIC SEISMIC FORCE RESISTING SYSTEM.....

GENERATORS, BATTERIES, INVERTERS, MOTORS, TRANSFORMERS, AND OTHER ELECTRICAL COMPONENTS CONSTRUCTED OF HIGH DEFORMABILITY MATERIALS
.....1.0
COMPONENT RESPONSE MODIFICATION FACTOR (R_p).....2.5
OVERSTRENGTH FACTOR (Q₀).....2.0
DESIGN BASE SHEAR.....0.105W
VERTICAL SEISMIC FORCE.....0.044W
SEISMIC DESIGN OF NON-STRUCTURAL COMPONENTS.....PER ASC7-16 CHAPTER 13

CONCRETE REINFORCEMENT SCHEDULES:

BAR SIZE	TENSION DEVELOPMENT LENGTH / CLASS A SPLICE LENGTH			
	F _c IN PSI	Ø28 DAYS		
#3	3,500	4,000	4,500	5,000
#4	20"	19"	18"	17"
#5	27"	25"	24"	23"
#6	33"	31"	30"	28"
	40"	37"	35"	34"

- NOTES:
1. TABLE BASED ON ASTM A615 GRADE 60 STEEL.
2. INCREASE LENGTH BY 30% WHEN MORE THAN 12" OF FRESH CONCRETE ARE PLACED BELOW HORIZONTAL REINFORCEMENT.
3. TABLE BASED ON NORMAL WEIGHT CONCRETE, UNCOATED OR ZINC-COATED REINFORCEMENT.
4. TABLE INDICATES MINIMUM LAP UNLESS NOTED OTHERWISE.
5. INCREASE LENGTH BY 30% WHEN CLASS B SPLICE IS REQUIRED.

STRUCTURAL STEEL:

1. STRUCTURAL STEEL FOR THIS PROJECT IS DESIGNED IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) SPECIFICATIONS PER AISC - "MANUAL OF STEEL CONSTRUCTION" FIFTEENTH EDITION (2017).
2. CONFORM TO THE FOLLOWING REFERENCE STANDARDS:
- 2.1. NEW YORK BUILDING CODE, CHAPTER 22 - STEEL
- 2.2. ANSI/AISC 360-16 - SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, HEREAFTER REFERRED TO AS AISC 360.
3. MATERIALS:
- 3.1. PIPES.....ASTM A53, GALVANIZED (G90 MIN.)
- 3.2. ANCHOR BOLTS.....ASTM F1554 GR. 36, GALVANIZED (G90 MIN.)
- 3.3. BOLTS IN STEEL.....ASTM A325, GALVANIZED (G90 MIN.)
- 3.4. FASTENERS.....GALVANIZED (G90 MIN.)
- 3.5. HARDWARE.....GALVANIZED (G90 MIN.)
4. FABRICATION:
- 4.1. CONFORM TO AISC 303, SECTION 8 AND AISC 360 SECTIONS M2 AND M5.
5. ERECTION:
- 5.1. CONFORM TO AISC 303, SECTION 7 "ERECTION", SECTION 8 "QUALITY ASSURANCE" AND AISC 360 SECTION 4.
- 5.2. ERECTOR SHALL MAINTAIN DETAILED FABRICATION AND ERECTION QUALITY CONTROL PROCEDURES THAT ENSURE WORK IS PERFORMED IN ACCORDANCE WITH AISC 360 SECTION M, AISC 303, AND CONTRACT DOCUMENTS.
- 5.3. STEEL WORK SHALL BE CARRIED UP TRUE AND PLUMB WITHIN LIMITS DEFINED IN AISC 303 SECTION 7.11.
6. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING AND SAFETY PROTECTIONS REQUIRED BY AISC 360 SECTION M4.2 AND AISC 303 SECTION 7.10 AND 7.11.
7. PROTECTIVE AND COATING REQUIREMENTS:
EXTERIOR STEEL: EXPOSED EXTERIOR STEEL SHALL BE HOT DIPPED GALVANIZE.



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INFRASTRUCTURE

6 BRITISH AMERICAN BLVD
LATHAM, NY 12110



ALBANY RADAR TOWER SOLAR

897 WATERVLIEET SHAKER ROAD
ALBANY, NY 12205

NO.	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2222708

DRAWN BY: JC

REVIEWED BY: LC

ISSUED FOR: FOR PERMIT ONLY

DATE: 06/29/2022

DRAWING NAME:

GENERAL NOTES

DRAWING NUMBER:

S001

SPECIAL INSPECTION NOTES:

1. THE OWNER SHALL ENGAGE THE SERVICES OF A QUALIFIED SPECIAL INSPECTOR FOR THE PROJECT, WHO WILL PROVIDE AND/OR COORDINATE INSPECTION AND TESTING REQUIREMENTS AS NECESSARY IN ACCORDANCE WITH THE PROVISIONS OF CHAPTER 17 OF THE BUILDING CODE.
2. IN ADDITION TO SPECIAL INSPECTIONS, INSPECTION OF FOUNDATIONS, FOOTINGS, SLABS AND UNDERSLAB SYSTEMS, LOWEST FLOOR ELEVATIONS, FRAMING, LATH AND GYPSUM BOARD, FIRE-RESISTANCE AND PENETRATIONS, ENERGY EFFICIENCY, PRELIMINARY AND FINAL INSPECTIONS MAY BE REQUIRED AND/OR PROVIDED BY THE LOCAL BUILDING OFFICIAL PER THE REQUIREMENTS OF THE NYS UNIFORM CODES. THE LOCAL BUILDING OFFICIAL MAY REQUIRE ADDITIONAL INSPECTIONS TO ASCERTAIN COMPLIANCE WITH THE PROVISIONS OF THE CODE. ALL INSPECTIONS REQUIRED AND/OR PROVIDED BY THE LOCAL BUILDING OFFICIAL SHALL BE AGREED UPON IN WRITING PRIOR TO THE START OF CONSTRUCTION.
3. SPECIAL INSPECTIONS SHALL BE IN ACCORDANCE WITH THE STATEMENT OF SPECIAL INSPECTIONS AND THE SCHEDULE OF SPECIAL INSPECTIONS AND SPECIFICATIONS TO BE SUBMITTED WITH THE CONTRACT DOCUMENTS AND THE APPLICATION FOR BUILDING PERMIT TO THE CODE ENFORCEMENT OFFICIAL. LOCAL BUILDING OFFICIALS CANNOT PROVIDE SPECIAL INSPECTIONS.
4. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING INSPECTION AGENCIES WHEN WORK IS READY FOR INSPECTION WITH AT LEAST 48 HOUR NOTICE OR AS AGREED UPON PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ACCESS AND MEANS FOR INSPECTION INCLUDING ACCESS TO THE CONTRACT DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION AND REPLACEMENT OF ANY MATERIALS REQUIRED TO ALLOW INSPECTIONS.
5. REFER TO THE SCHEDULE OF SPECIAL INSPECTIONS AND TO THE SPECIFICATIONS FOR REQUIRED SPECIAL INSPECTIONS AND TESTING. SPECIAL INSPECTIONS AND TESTING SHALL BE CONTINUOUS OR PERIODIC DURING THE PERFORMANCE OF THE WORK, AS NOTED.
6. THE CONTRACTOR SHALL HOLD A PRE-CONSTRUCTION MEETING WITH THE ENGINEER, SPECIAL INSPECTOR, TESTING AGENCY, AND AFFECTED SUBCONTRACTORS TO REVIEW THE REQUIRED SPECIAL INSPECTION AND TESTING REQUIREMENTS FOR THE PROJECT. THE CONTRACTOR SHALL DISTRIBUTE CONSTRUCTION SCHEDULES TO EACH ATTENDEE. A SEPARATE MEETING WITH THE LOCAL BUILDING OFFICIAL TO REVIEW INSPECTION REQUIREMENTS, AND TO CONFIRM THE ROLES AND RESPONSIBILITIES OF THE TESTING AGENCIES AND BUILDING OFFICIALS.
7. THE SPECIAL INSPECTOR SHALL SUBMIT INTERIM AND FINAL REPORTS AND, AT COMPLETION OF SPECIAL INSPECTIONS, A FINAL STATEMENT OF SPECIAL INSPECTIONS. REPORTS SHALL BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER. SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS AND FURNISH TO CODE ENFORCEMENT OFFICIALS, AND THE THE ENGINEER OF RECORD, REPORTS THAT WORK INSPECTED WAS DONE IN CONFORMANCE WITH APPROVED CONSTRUCTION DOCUMENTS. THE SPECIAL INSPECTOR SHALL NOTIFY THE CONTRACTOR IMMEDIATELY OF DISCREPANCIES. SUBSEQUENT REPORTS SHALL NOTE WHEN AND HOW DEFICIENCIES WERE CORRECTED. THE SPECIAL INSPECTOR SHALL NOTIFY THE ENGINEER AND THE CODE ENFORCEMENT OFFICIAL OF DISCREPANCIES WHICH HAVE NOT BEEN CORRECTED.
8. THE SPECIAL INSPECTION PROGRAM SHALL IN NO WAY RELIEVE THE CONTRACTOR OF THE OBLIGATION TO PERFORM THE WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS OR FROM IMPLEMENTING AN EFFECTIVE QUALITY CONTROL PROGRAM.
9. EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN WIND- OR SEISMIC-FORCE-RESISTING SYSTEM, DESIGNATED SEISMIC SYSTEM OR A WIND-OR SEISMIC-RESISTING COMPONENT LISTED IN THE STATEMENT OF SPECIAL INSPECTIONS SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE CODE ENFORCEMENT OFFICIAL AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT IN ACCORDANCE WITH BUILDING CODE CHAPTER 17 "CONTRACTOR RESPONSIBILITY".
10. SPECIAL INSPECTIONS NOTED ON STRUCTURAL SHEETS ARE FOR STRUCTURAL SYSTEMS ONLY. SPECIAL INSPECTIONS MAY BE REQUIRED FOR NON-STRUCTURAL COMPONENTS SUCH AS SPRAY-ON FIRE RESISTANCE. NON-STRUCTURAL INSPECTIONS ARE BY OTHERS, SEE ARCHITECTURAL AND OTHER TRADES FOR ADDITIONAL INFORMATION.

MINIMUM QUALIFICATIONS FOR SPECIAL INSPECTORS

CATEGORY	MINIMUM QUALIFICATIONS
REINFORCED CONCRETE:	1. CURRENT ICC REINFORCED CONCRETE SPECIAL INSPECTOR OR ACI CONCRETE CONSTRUCTION INSPECTOR. 2. CONCRETE FIELD TESTING CAN BE BY AN ACI CONCRETE FIELD TESTING TECHNICIAN WITH GRADE 1 CERTIFICATION. 3. ENGINEER-IN-TRAINING (EIT) WITH RELEVANT EXPERIENCE. 4. CA STATE LICENCED PROFESSIONAL ENGINEER (P.E) WITH RELEVANT EXPERIENCE.
WELDING	1. CURRENT ICC STRUCTURAL STEEL AND WELDING CERTIFICATE PLUS ONE YEAR OF RELEVANT EXPERIENCE. 2. CURRENT ICC STRUCTURAL STEEL AND WELDING CERTIFICATE PLUS ONE YEAR OF RELEVANT EXPERIENCE. 3. CURRENT LEVEL II CERTIFICATION FROM THE AMERICAN SOCIETY FOR NONDESTRUCTIVE TESTING (NDT). 4. CURRENT NDT LEVEL III PROVIDED PREVIOUSLY CERTIFIED AS NDT LEVEL II.
HIGH-STRENGTH BOLTING & STEEL FRAME INSPECTION	1. CURRENT ICC STRUCTURAL STEEL AND WELDING CERTIFICATION AND ONE YEAR OF RELEVANT EXPERIENCE. 2. EIT WITH RELEVANT EXPERIENCE. 3. P.E. WITH RELEVANT EXPERIENCE.
EXCAVATION AND FILLING; VERIFICATION OF SOILS; PILING & DRILLED PIERS; MODULAR RETAINING WALLS	1. CURRENT LEVEL II CERTIFICATION IN GEOTECHNICAL ENGINEERING TECHNOLOGY / CONSTRUCTION FROM THE NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES (NICET). 2. EIT WITH RELEVANT EXPERIENCE. 3. P.E. WITH RELEVANT EXPERIENCE
SEISMIC RESISTANCE	1. SEE THE APPLICABLE CATEGORIES IN THIS TABLE.

- NOTES:
1. INSPECTORS MUST MEET REQUIREMENTS ABOVE OR BE APPROVED BY RDP RESPONSIBLE FOR DESIGN.

SOIL VERIFICATION AND INSPECTION REQUIREMENTS

VERIFICATION AND INSPECTION TASK	FREQUENCY OF INSPECTION	
	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	—	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	—	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	—	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	—
5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE THE SUBGRADE AND VERIFY THAT THE SITE HAS BEEN PREPARED PROPERLY.	—	X

CONCRETE CONSTRUCTION VERIFICATION AND INSPECTION REQUIREMENTS

INSPECTION AND TESTING (Continuous & Periodic is as Defined by the 2018 IBC)	C O N C R E T E	R E F E R E N C E	2018 IBC REFERENCE	CHECK IF REQUIRED
INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS, AND PLACEMENT.	X	ACI 318: CH. 20, 25.2, 25.3, 26.6.1–26.6.3	1908.4	X
INSPECTION OF REINFORCING STEEL WELDING.		AWS D1.4; ACI 318: 26.6.4		
CAST IN CONCRETE ANCHORAGE.	X	ACI 318: 17.8.2		
POST INSTALLED CONCRETE MEMBERS.	X	ACI 318: 17.8.2.4.		
VERIFY USE OF REQUIRED DESIGN MIX.	X	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1 1904.2 1908.2 1908.3	X
SAMPLING FRESH CONCRETE: SLUMP, AIR CONTENT, TEMPERATURE, STRENGTH TEST SPECIMENS.	X	ASTM C 172, C 31; ACI 318: 26.5, 26.12	1908.10	X
INSPECTION OF PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	ACI, 318: 26.5.	1908.6 1908.7 1908.8	X
INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	X	ACI, 318: 26.5.3 – 26.5.5	1908.9	X
INSPECTION OF PRESTRESSED CONCRETE.	X	ACI 318: 26.10		
ERECTION OF PRECAST CONCRETE MEMBERS.	X	ACI 318: CH. 26.9		
VERIFICATION OF IN-SITU CONCRETE STRENGTH PRIOR TO STRESSING OF TENDONS AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND SLABS.	X	ACI 318: CH. 26.11.2		
INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	X	ACI 318: CH. 26.11.1.2(b)		X



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SIEMENS SMART INFRASTRUCTURE

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LATHAM, NY 12110



ALBANY RADAR TOWER SOLAR

897 WATERVLIEDT SHAKER ROAD
ALBANY, NY 12205

NO.	DATE:	DESCRIPTION:
Revisions		
PROJECT NUMBER: 2222708		
DRAWN BY: JC		
REVIEWED BY: LC		
ISSUED FOR: FOR PERMIT ONLY		
DATE: 06/29/2022		
DRAWING NAME:		

SPECIAL INSPECTION NOTES

DRAWING NUMBER:

S002



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SIEMENS

ALBANY RADAR TOWER SOLAR

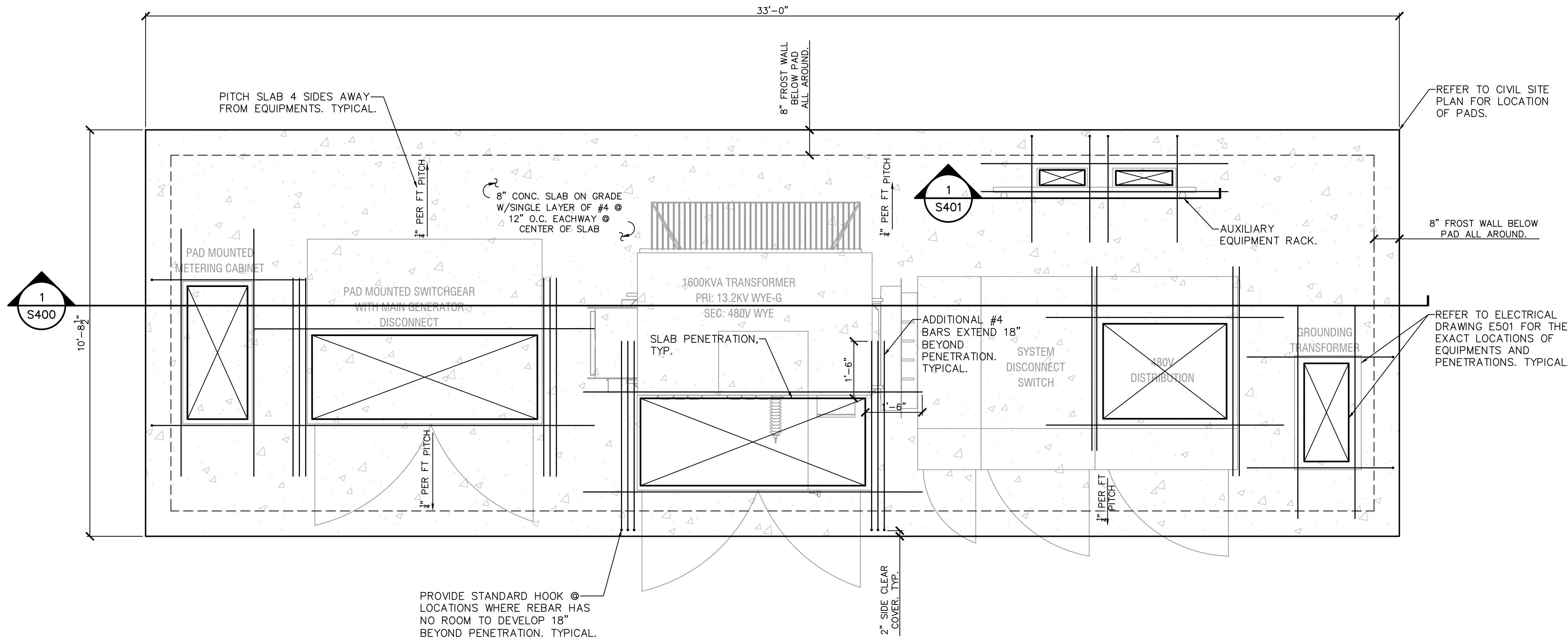
897 WATERVLIT SHAKER ROAD
ALBANY, NY 12205

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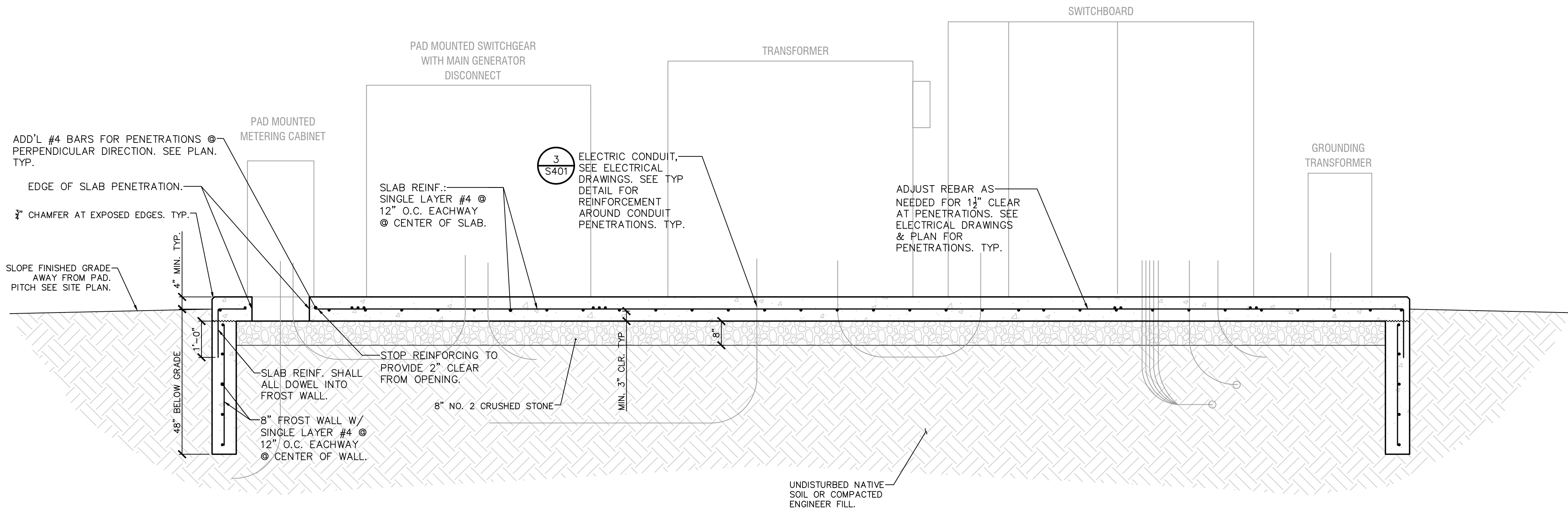
EQUIPMENT PAD PLAN &
SECTION

DRAWING NUMBER:

S400



A
S400
EQUIPMENT PAD FRAMING PLAN LAYOUT
SCALE: 1/2" = 1'-0"



1
S400
EQUIPMENT PAD CROSS SECTION
SCALE: 1/2" = 1'-0"



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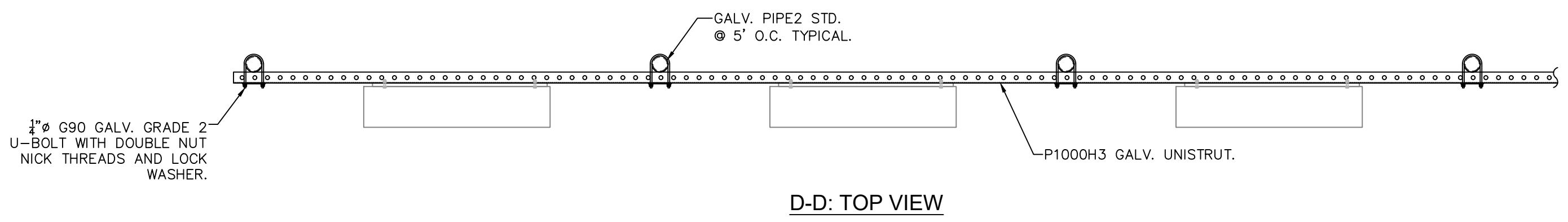
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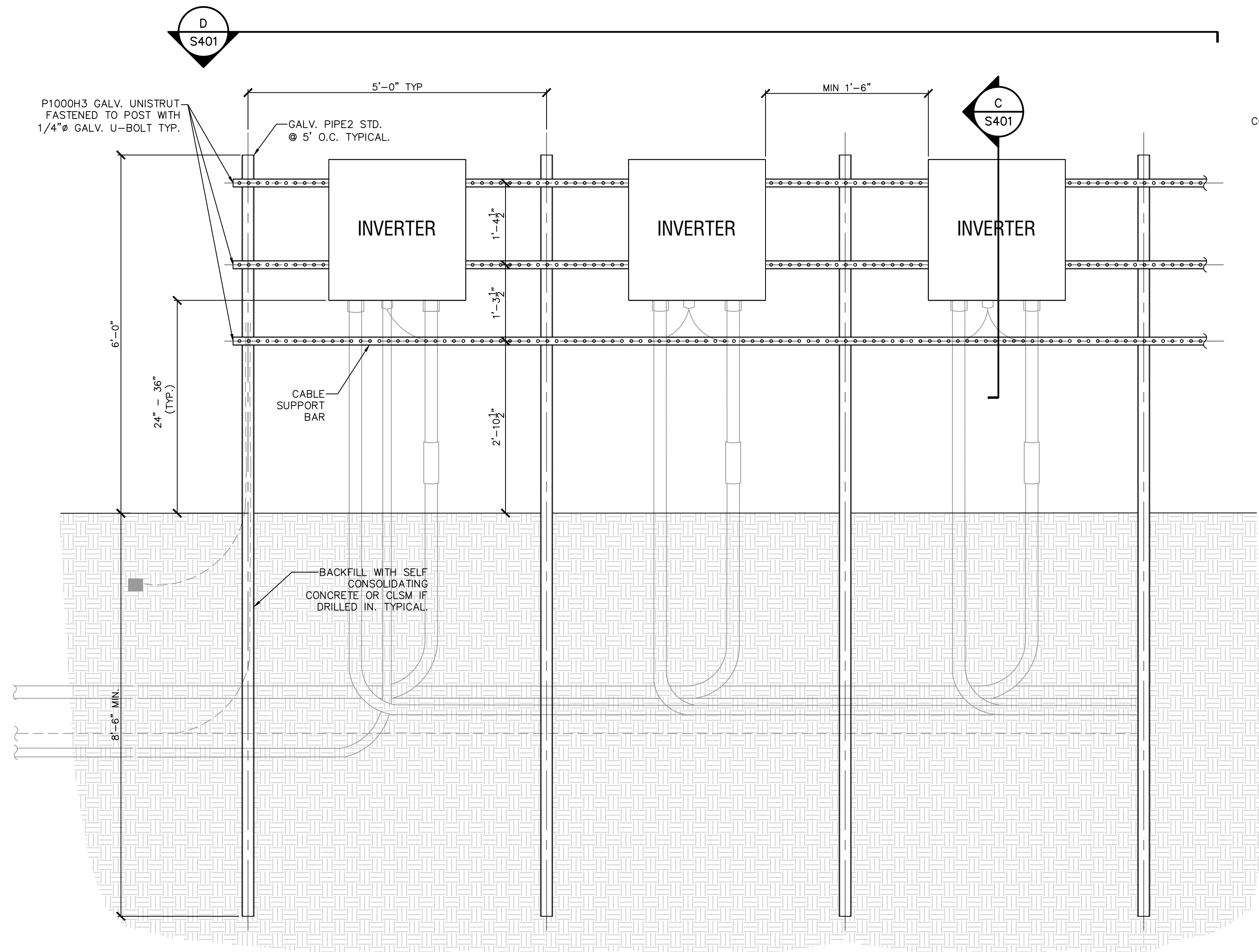
DETAILS & SECTIONS

DRAWING NUMBER:

S401



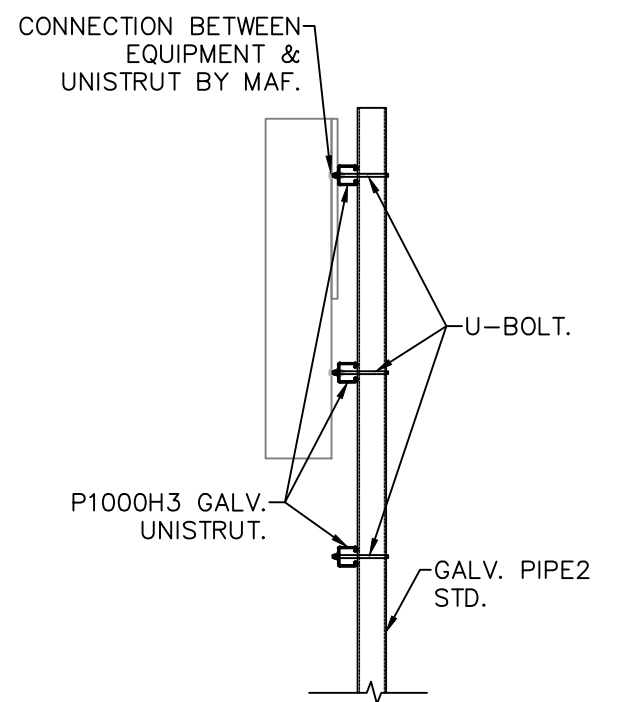
AUXILIARY RACK DETAILS
SCALE: 3/4" = 1'-0"



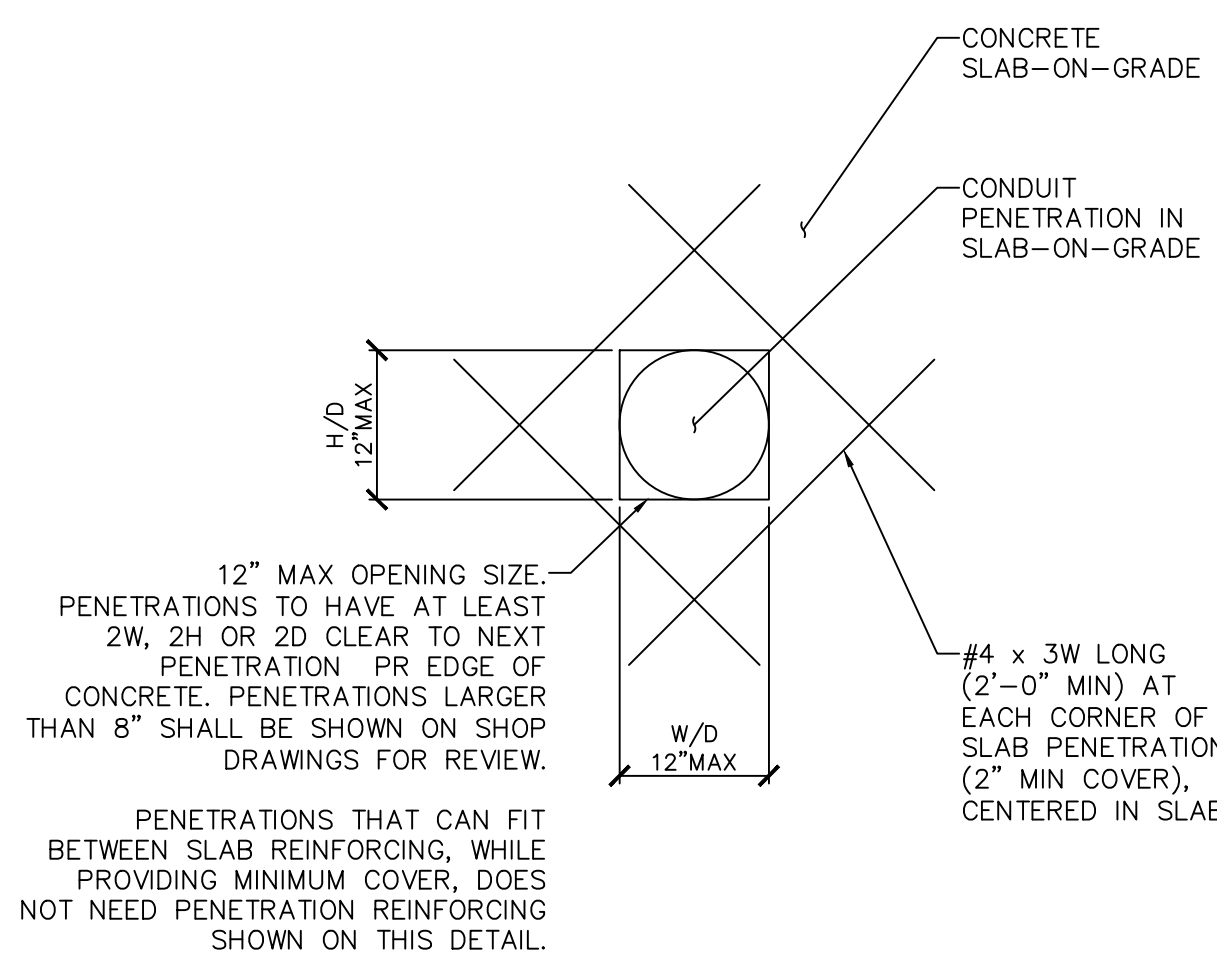
2
S401

TYPICAL INVERT RACK DETAILS

SCALE: 3/4" = 1'-0"



C-C: SIDE VIEW



3 TYPICAL SLAB ON GRADE CONDUIT PENETRATION DETAIL
 S401 SCALE: 3/4" = 1'-0"

STRUCTURAL PRINT PACKAGE - 210930

ALBANY, NY 12205

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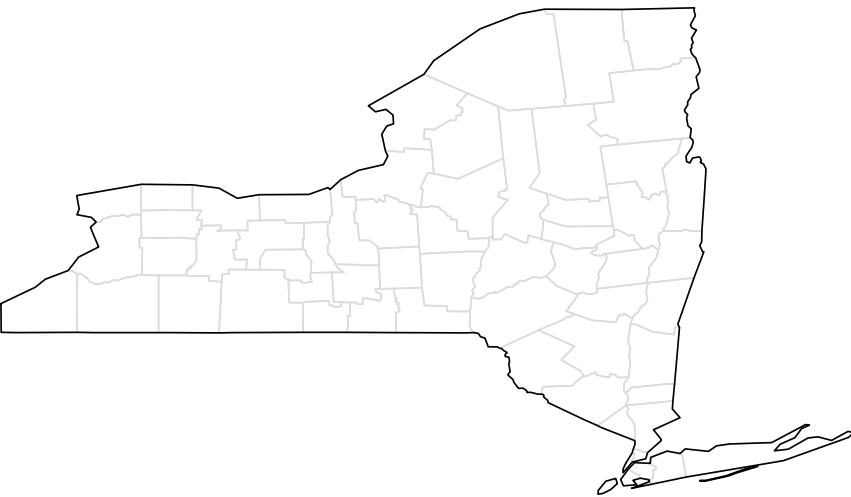
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SUBMISSION TO PERMIT/INSPECTION
AGENCY:

- ☒ CALCULATION PACKAGE:
210930 CALC SET – STAMPED
- ☒ FOUNDATION DESIGN REPORT (SITE
SPECIFIC, & ONLY WHERE REQUIRED
BY EOR OR AHJ)



SITE ADDRESS: 925 WATERVLIT SHAKER RD
ALBANY, NY 12205

REVISION: A

PERMIT SET/
STRUCTURAL PACKET

A P P R O V E D

SHEET INDEX		
STRUCTURAL		
S-000	A	STRUCTURAL COVER
S-100	A	RACKING OVERVIEW
S-101	A	GROUND SCREW
S-200	A	STRUCTURAL COMPONENTS
S-300	A	CONNECTIONS
S-400	A	STRUCTURAL PURLINS
S-500	A	CLAMPS & BRACES
S-600	A	STRUCTURAL DESIGN & ANALYSIS SUMMARY

GOVERNING STRUCTURAL CODE/S
2018 INTERNATIONAL BUILDING CODE

PACKAGE COVERAGE – LOADING
AND SETUP RANGES & CONSTANTS

TILT ANGLES:	25°
MAX GROUND SNOW LOAD (PSF):	40
MAX WIND LOADS (MPH):	105
WIND EXPOSURE CATEGORY:	C
MAX SEISMIC Ss:	0.560 g
MAX SEISMIC S1:	0.140 g
PV MODULE:	Q CELLS Q.PEAK DUO XL- G11.3/BFG OR SIMILIAR
MAX. PANEL WIDTH:	44.65"
MAX. PANEL LENGTH:	95.12"
MAX. PANEL HEIGHT:	2.00"
MAX. PANEL WEIGHT:	76.00 LBS

RISK CATEGORY: I
MAX FRONT LIP CLEARANCE: 48"

*PER USGS MIN/MAX DESIGN VALUES FOR REGIONS, VALUES BASED
ON MAX VALUES IN PROJECT STATE. SEISMIC DOES NOT CONTROL.

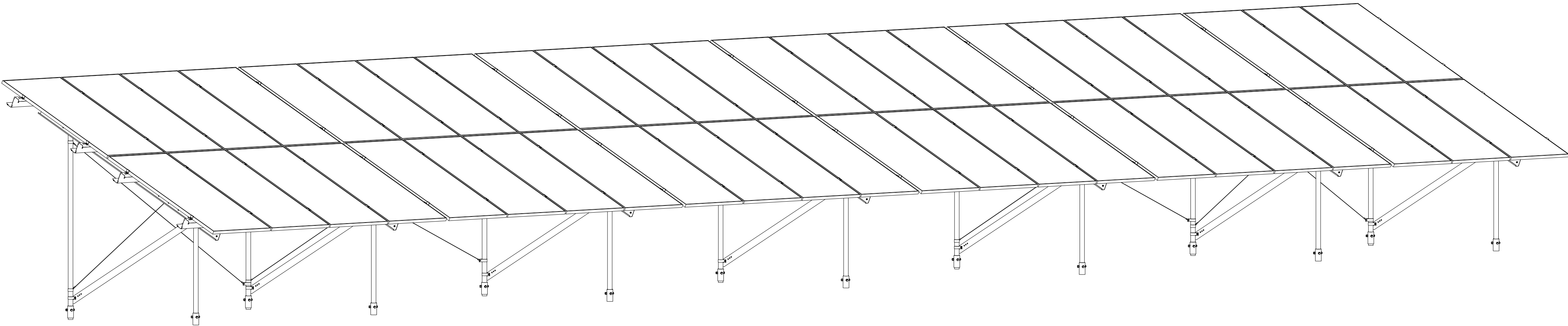


IMAGE FOR REFERENCE ONLY

It is a violation of New York Education Law Article 145
Sec.7209, for any person, unless acting under the direction
of a licensed architect, professional engineer, or land
surveyor, to alter an item in any way. If an item bearing the
seal of an architect, engineer, or land surveyor is altered;
the altering architect, engineer, or land surveyor shall affix
to the item their seal and notation "altered by" followed by
their signature and date of such alteration, and a specific
description of the alteration.

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**SIEMENS SMART
INFRASTRUCTURE**
6 BRITISH AMERICAN BLVD
LATHAM, NY 12110

SIEMENS

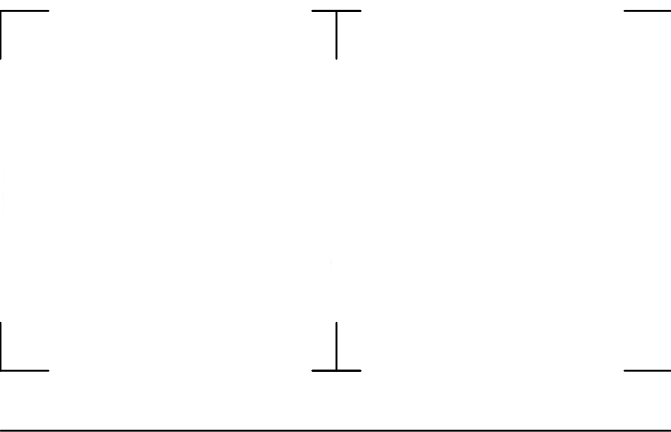
ALBANY RADAR TOWER SOLAR
897 WATERVLIT SHAKER ROAD
ALBANY, NY 12205

NO.	DATE:	DESCRIPTION:
Revisions		
PROJECT NUMBER: 2222708		
DRAWN BY:		
REVIEWED BY:		
ISSUED FOR: FOR PERMIT ONLY		
DATE: 07/13/2022		
DRAWING NAME:		

STRUCTURAL COVER

DRAWING NUMBER:

S000A



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SIEMENS SMART
INFRASTRUCTURE

6 BRITISH AMERICAN BLVD
LATHAM, NY 12110



ALBANY RADAR TOWER SOLAR

897 WATERVLiet SHAKER ROAD
ALBANY, NY 12205

NO.	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER:

2222708

DRAWN BY:

REVIEWED BY:

ISSUED FOR:

FOR PERMIT ONLY

DATE:

07/13/2022

DRAWING NAME:

RACKING OVERVIEW

DRAWING NUMBER:

S100A

NOTES:

- STANDARD FRONT LIP HEIGHT AND TILT ANGLES MEASURED FROM LEVEL GROUND
- FOUNDATION TESTING, WHERE REQUIRED, SHALL BE DONE ACCORDING TO THE "QUICK TEST METHOD" PER ASTM D1143 & D3689.
- PRINT DIMENSIONS: DIMENSIONS SHOWN REFLECT POST HEIGHTS ON LEVEL GROUND. ON UNEVEN TERRAIN, REAR FOUNDATION POST HEIGHT WILL BE DICTATED BY FRONT LIP HEIGHT, PANEL TILT, AND NORTH/SOUTH POST SPACING.
- ADDITIONAL TOLERANCES: POST PLUMBNESS SHOULD BE WITHIN ±2"
- SPECIAL INSPECTIONS (WHERE REQUIRED):

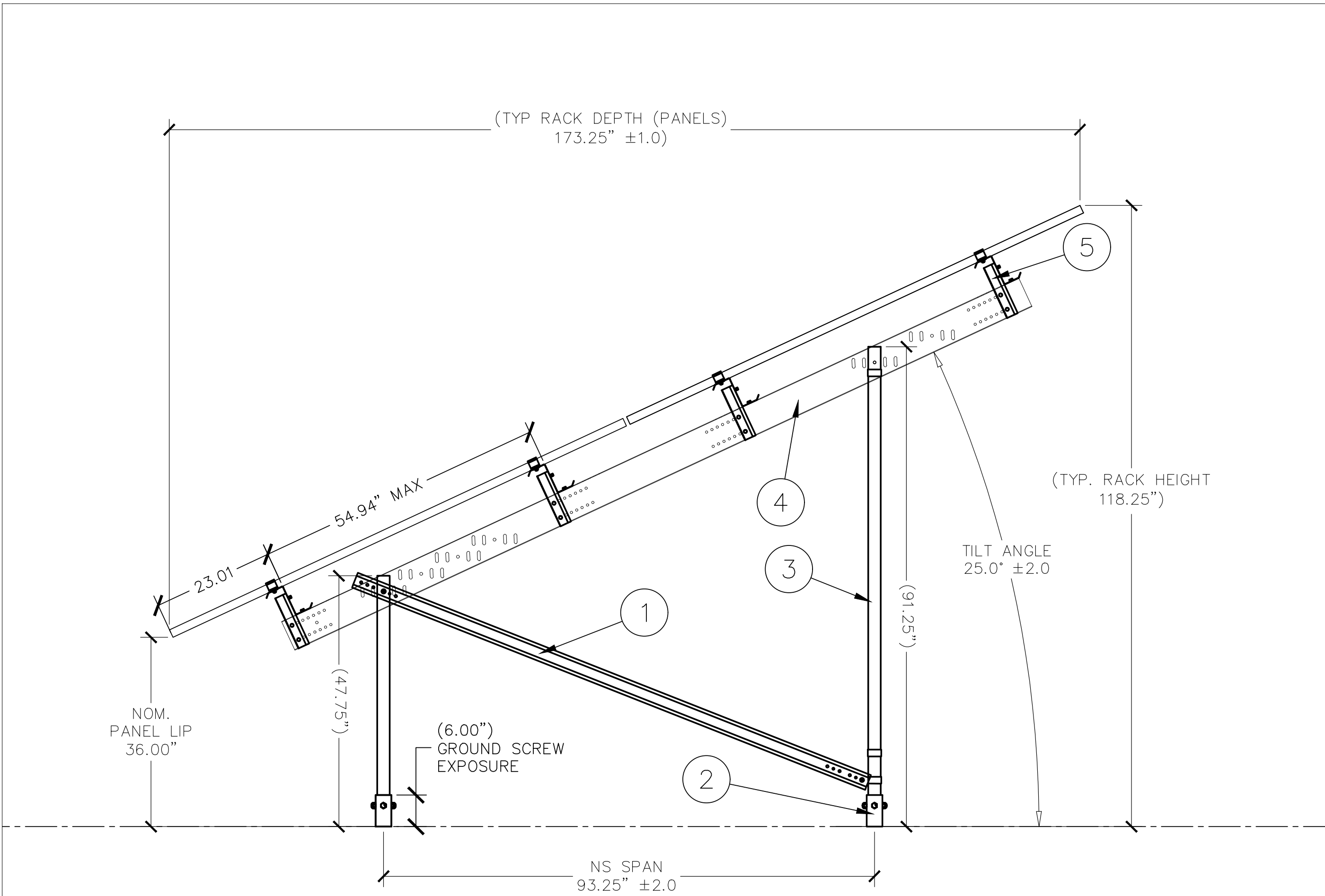
SPECIAL INSPECTIONS ARE NOT REQUIRED BY APA SOLAR OR THE STRUCTURAL ENGINEER OF RECORD, THE JDI GROUP, WHERE REQUIRED BY OWNER, CUSTOMER, AND/OR AUTHORITY HAVING JURISDICTION, MINIMUM INSPECTION SHALL FOLLOW IBC OR LOCAL AHJ SPECIAL INSPECTIONS GUIDELINES, PER NOTES AND TABLE BELOW

- ALL SPECIAL INSPECTORS SHALL BE RETAINED BY OWNER/CUSTOMER. THE EXTENT OF THE INSPECTION SHALL COMPLY WITH THE CONTRACT DOCUMENTS, 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.
- FAILURE TO NOTIFY THE SPECIAL INSPECTOR MAY RESULT IN OWNER/CUSTOMER HAVING TO REMOVE WORK FOR THE PURPOSE OF INSPECTION AT THE OWNER'S/CUSTOMERS EXPENSE.
- SPECIAL INSPECTORS SHALL KEEP RECORDS OF ALL INSPECTIONS. RECORDS SHALL BE FURNISHED TO THE OWNER, ENGINEER OF RECORD, AND LOCAL JURISDICTION AS REQUIRED.

SPECIAL INSPECTION & TESTING SCHEDULE		
(WHEN REQUIRED, SEE ABOVE)		
	CONTINUOUS	PERIODIC
STRUCTURAL STEEL FABRICATION		
MATERIAL IDENTIFICATION		X
HIGH STRENGTH BOLTS - MATERIAL IDENTIFICATION OF BOLTS, NUTS, & WASHERS		X
WELD FILLER MATERIALS - IDENTIFICATION AND CONFIRMATION OF COMPLIANCE WITH DESIGN DOCUMENTS		X
STRUCTURAL STEEL ERECTION		
MATERIAL IDENTIFICATION		X
INSTALLATION OF HIGH STRENGTH BOLTS		X
WELDED CONNECTIONS		X
MEMBER SIZES AND PLACEMENT		X
GENERAL CONFORMANCE WITH DESIGN DOCUMENTS		X
DRIVEN DEEP FOUNDATION ELEMENTS		
VERIFY ELEMENT MATERIALS, SIZE, LENGTHS COMPLY WITH DESIGN DOCUMENTS	X	
DETERMINE CAPACITIES OF TEST ELEMENTS & CONDUCT ADDITIONAL LOAD TESTS, AS REQ.	X	
OBSERVE DRIVING OPERATIONS, MAINTAIN RECORDS	X	
VERIFY PLACEMENT LOCATIONS & PLUMBNESS	X	
HELICAL PILE FOUNDATIONS		
RECORD INSTALLATION EQUIPMENT USED, PILE DIMENSIONS, TIP ELEVATIONS, FINAL DEPTH.	X	

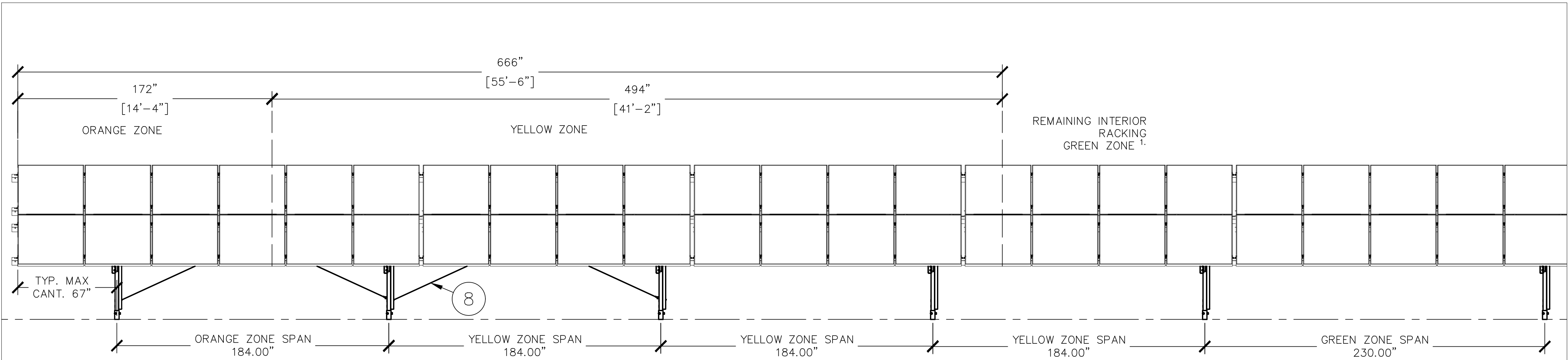
THIS TABLE PER IBC 2018, SEC. 1705

PARTS LIST (BALLOONS THIS SHEET)			
ITEM	DESCRIPTION	SHAPE	DETAIL / SHEET
1	KNEE BRACE	CEE	B2 / S.200
2	GROUND SCREW	POST	D2 / S.101
3	FOUNDATION POST	POST	A6 / S.200
4	NS CHORD	CEE	D1 / S.200
5	ROLL BAR	MIXED	A4 / S.200
6	TRANSVERSE BRACE	ZEE	D5 / S.500
7	ZEE PURLIN	ZEE	E1 / S.200
8	CABLE BRACE	CABLE	D4/ S.500



NOTES: PV MODULE & MODULE RELATED DIMENSIONS THIS DETAIL ARE MAX ALLOWABLE, UNLESS SPECIFIED SOMEWHERE ELSE IN THIS PACKET. DIMENSIONS TO GROUND ARE NOMINAL FROM LEVEL GROUND.

C1 | PROFILE VIEW: RACK OVERVIEW



NOTES:MAX CANTILEVER MEASURED FROM EDGE OF PANEL TO POST CENTER.
MAX SPAN MEASURED FROM PILE CENTER TO PILE CENTER.
POST QUANTITY AS REQUIRED TO SATISFY CANTILEVERS, SPANS, ROW LENGTH, & PANEL QUANTITY
1. WHERE ALLOWABLE PER THE CALCULATIONS PACKAGE. PROHIBITED AREAS SHALL REMAIN ZONED YELLOW.

IMAGE REFERENCE ONLY. NOT INDICATIVE OF REQUIRED QUANTITIES.

A1 | ELEVATION VIEW FROM FRONT (NORTH-FACING)

SIEMENS SMART
INFRASTRUCTURE

6 BRITISH AMERICAN BLVD
LATHAM, NY 12110

SIEMENS

ALBANY RADAR TOWER SOLAR

897 WATERVLiet SHAKER ROAD
ALBANY, NY 12205

NO.	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2222708

DRAWN BY:

REVIEWED BY:

ISSUED FOR: FOR PERMIT ONLY

DATE: 07/13/2022

DRAWING NAME:

GROUND SCREW

DRAWING NUMBER:

S101A

NOTES:

- FOUNDATION POST MATERIAL: 50 KSI MIN YIELD STRENGTH
- FOUNDATION POST TO BE HOT DIPPED GALVANIZED TO ASTM A123 OR INLINE GALVANIZED TO ASTM A1057.
- SCREW PILE TUBE MATERIAL: 30 KSI MIN YIELD STRENGTH STEEL.
- SCREW PILE THREAD MATERIAL: 28 KSI MIN YIELD STRENGTH STEEL.
- SCREW PILE TO BE HOT DIPPED GALVANIZED TO ASTM A123 OR INLINE GALVANIZED TO ASTM A1057.
- ALL HARDWARE IS 300 SERIES STAINLESS STEEL, A574 ALLOY STEEL, OR MINIMUM 8.8 CLASS METRIC.
- BOLTS MUST BE FULLY SET INTO WELDED NUTS.
- BOLTS SHALL BE 30 MM LONG.
- SCREW PILE SHALL PENETRATE THE SOIL TO A DEPTH PAST THE FROST LINE, SUCH WHICH LESS THAN 1/3 OF THE TOTAL LENGTH OF THREADS ARE ABOVE THE FROST LINE, OR TO THE DEPTH INDICATED AS MINIMUM PER THE STAMPED FOUNDATION DESIGN REPORT, WHICHEVER IS DEEPER.
- FOUNDATION POST SHALL EXTEND ABOVE GROUND LEVEL AT MINIMUM OF INDICATED FRONT LIP CLEARANCE, PLUS THE ADDITIONAL LENGTH REQUIRED TO ACHIEVE THE INDICATED TILT ANGLE.
- MINIMUM ENGAGEMENT BETWEEN SCREW PILE AND FOUNDATION POST SHALL BE 4".
- INSTALLERS SHALL REFER TO STRUT AND POST SETUP SHEETS FOR LENGTH AND PLACEMENT DETAILS.

FOUNDATION POST INSTALLATION

- ACCURATELY LOCATE AND INSTALL SCREW PILES BY SUCH METHODS AND EQUIPMENT SO AS NOT TO IMPAIR THE PILE STRENGTH OR DAMAGE POSTS OR ADJACENT CONSTRUCTION.
- INSTALLATION CONTRACTOR RESPONSIBLE FOR ALL CONSTRUCTION EQUIPMENT, METHODS, AND SEQUENCES.
- DISTURBED GALVANIZED SURFACES SHALL BE TOUCHED UP WITH AN APPROVED COLD GALVANIZING COMPOUND.
- INSTALL SCREW PILES TO MINIMUM DEPTH(PER GEOTECHNICAL ENGINEER, NOT JDI--DELEGATED DESIGN PARAMETER) AS INDICATED THIS SHEET OR AS REQUIRED PER THE STAMPED FOUNDATION DESIGN REPORT, WHICHEVER IS GREATER.

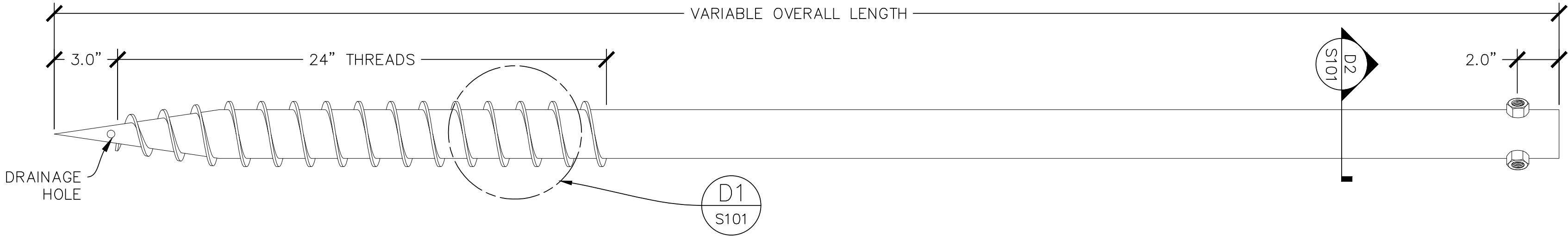
AUXILLIARY FOUNDATION NOTES:

- EMBEDMENT DEPTH(PER GEOTECHNICAL ENGINEER, NOT JDI--DELEGATED DESIGN PARAMETER) CONTINGENT UPON SITE SPECIFIC DATA, INCLUDING BUT NOT LIMITED TO: FROST DEPTH, SOIL PROPERTIES, AND LOCAL BUILDING CODE REQUIREMENTS.
- AUGERED HOLE SHOULD EXTEND BELOW THE LOCAL FROST LINE, INTO THE STABLE SOIL ZONE.
- HOLDING PROPERTIES OF THE SCREW PILE IN AGGREGATE DETERMINED BY TESTING CONDUCTED BY APA, PER ASTM D1143
- STRUCTURAL PROPERTIES OF SCREW PILE TESTED ONLY. CORROSIVITY, AND OTHER GEOTECHNICAL PROPERTIES NOT TESTED.
- INSTALLATION PROCEDURE
 - AUGER HOLE TO REQUIRED DEPTH. HOLE SHOULD BE APPROXIMATELY PLUMB AND A MINIMUM DIAMETER AS INDICATED IN DRAWING.
 - REMOVE THE SPOILS AS BEST AS POSSIBLE. THERE SHOULD BE NO LARGE CLUMPS OR ROCKS AT THE BOTTOM OF THE HOLE.
 - POUR IN AGGREGATE.
 - AGGREGATE SHOULD BE SIZED BETWEEN 1" - 2 1/2".
 - KNOWN ACCEPTABLE AGGREGATES (NAMING PER ASTM C33--03):
 - #2 (2 1/2" - 1 1/2")
 - #3 (2" - 1").
 - A COMBINATION OF BOTH #2 & #3
 - EQUIVALENT SIZE OF EITHER #2 OR #3.
 - DEVIATIONS IN AGGREGATE SIZE, FROM THE ABOVE SPECIFICATIONS, MUST BE APPROVED BY APA SOLAR ENGINEERING BEFORE USING/PURCHASING.
 - DRIVE SCREW PILE AS NORMALLY INTO HOLE. ENSURE IT IS PLUMB. ENSURE THE NORTH--SOUTH DIMENSIONS AND EAST--WEST DIMENSIONS ARE CORRECT. ALSO ENSURE BOLT HOLE IN THE POST IS FACING THE CORRECT DIRECTION.

IF NEEDED, RETAMP THE AGGREGATE AT SOIL LEVEL AROUND THE SCREW PILE.

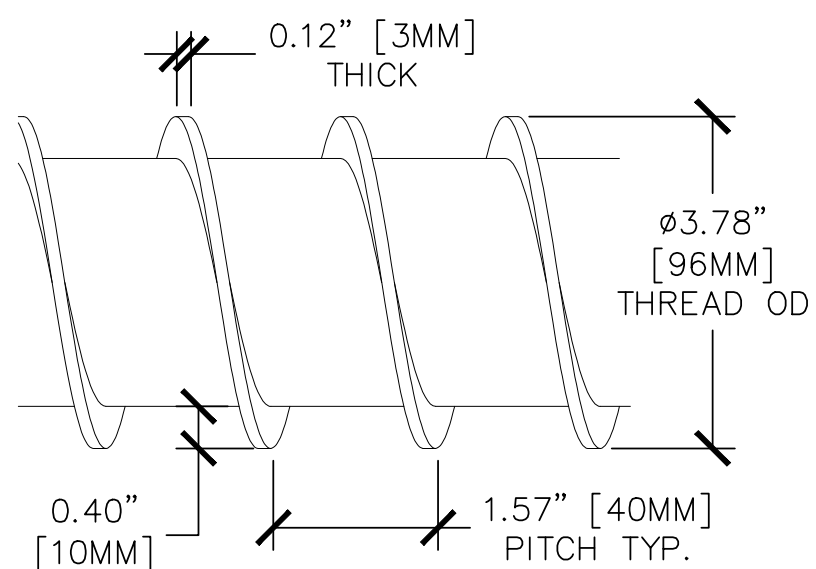
6. QUALITY CONTROL NOTES

- POST HEIGHTS SHOULD BE MEASURED FROM THE GROUND LEVEL, NOT THE TOP OF THE AGGREGATE. IF AGGREGATE IS BELOW GROUND LEVEL, ADDITIONAL GRAVEL SHOULD BE ADDED AND TAMPED TO BRING IT UP TO AT LEAST GROUND LEVEL.
- FOUNDATION POSTS SHOULD NOT BE VERIFIED BY PULLING LATERALLY AT THE TOP OF THE POST (FIGURE 3). THIS CREATES A LARGE AND ARTIFICIAL MOMENT IN THE FOUNDATION. FOUNDATION POSTS SHOULD ALSO NOT BE ROCKED BACK AND FORTH UNTIL IT "FAILS"; THE FOUNDATION POSTS ARE INTENDED TO WORK AS A SYSTEM WITH ALL PARTS INTACT (ADJOINING POSTS, SMALL AND LARGE ZEES, HARD AND CABLE BRACES, AND ALL ADDITIONAL PARTS AND HARDWARE INSTALLED AND TIGHTENED) AND DO NOT REACH FULL CAPACITY UNTIL THAT POINT.

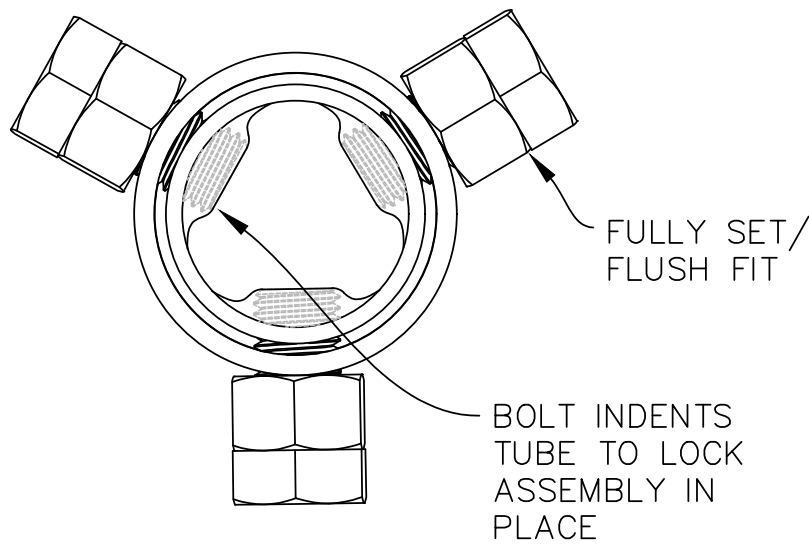


- NOTES:
- VIEW NOT REPRESENTATIVE OF SCREW TIP OR REQUIRED OVERALL OR THREAD LENGTH.

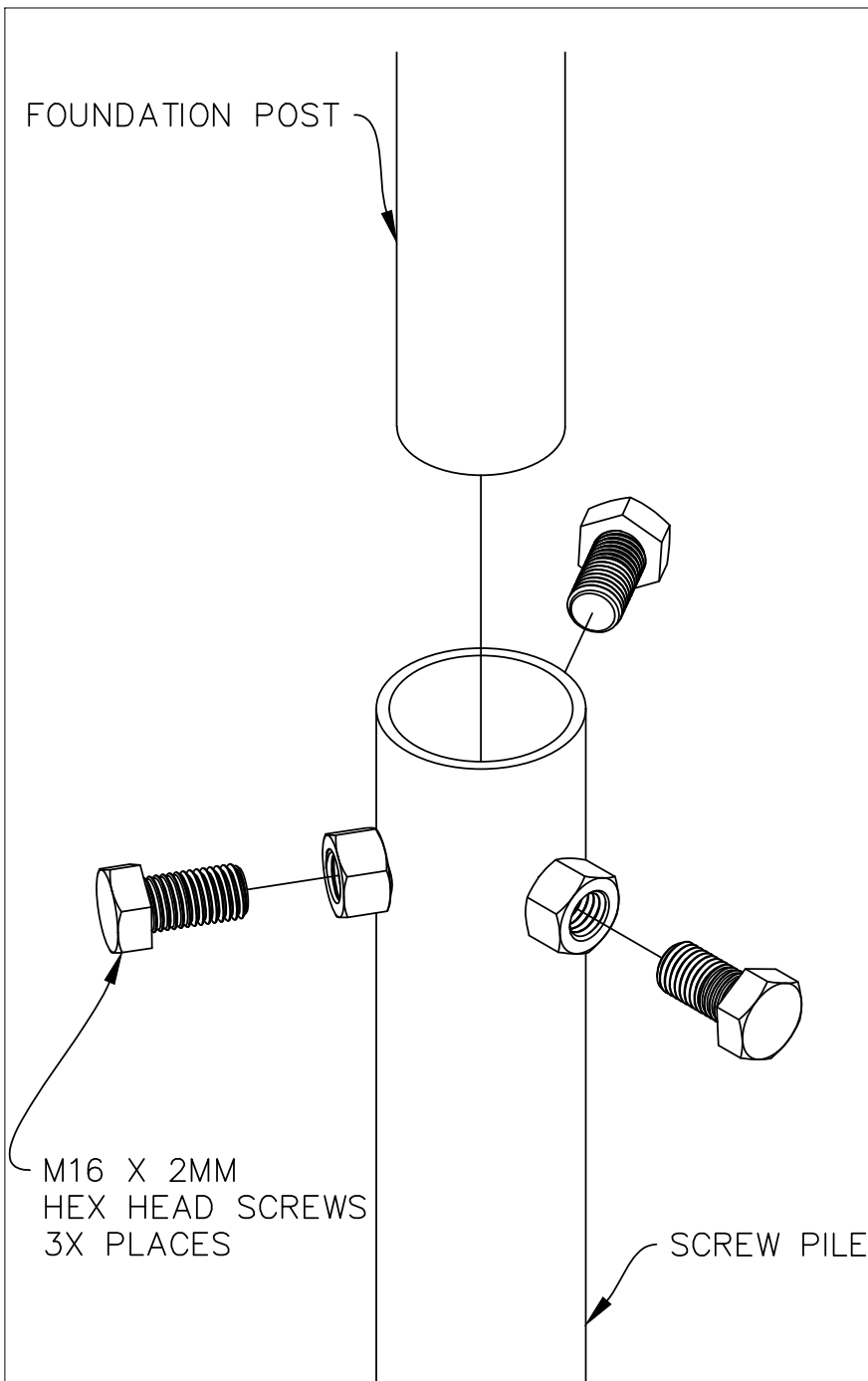
E1 PART: SCREW PILE



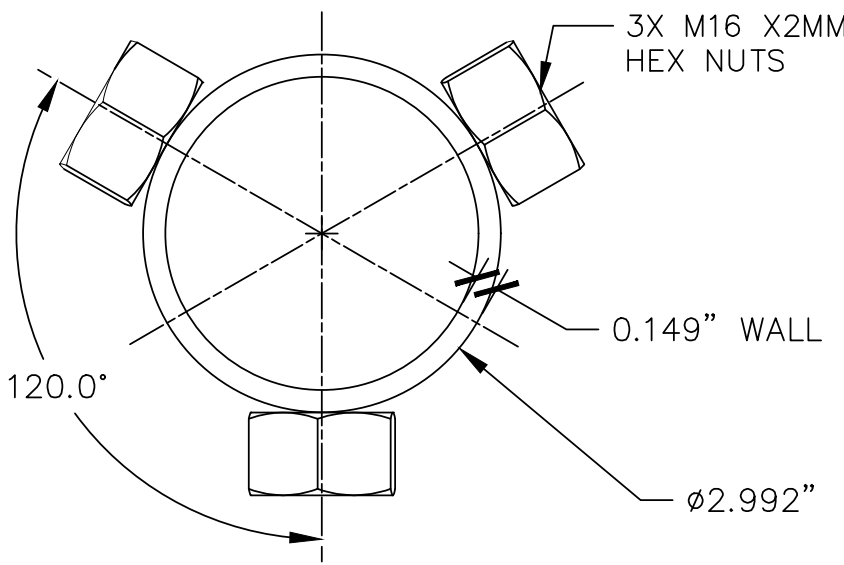
D1 DETAIL: SCREW PILE



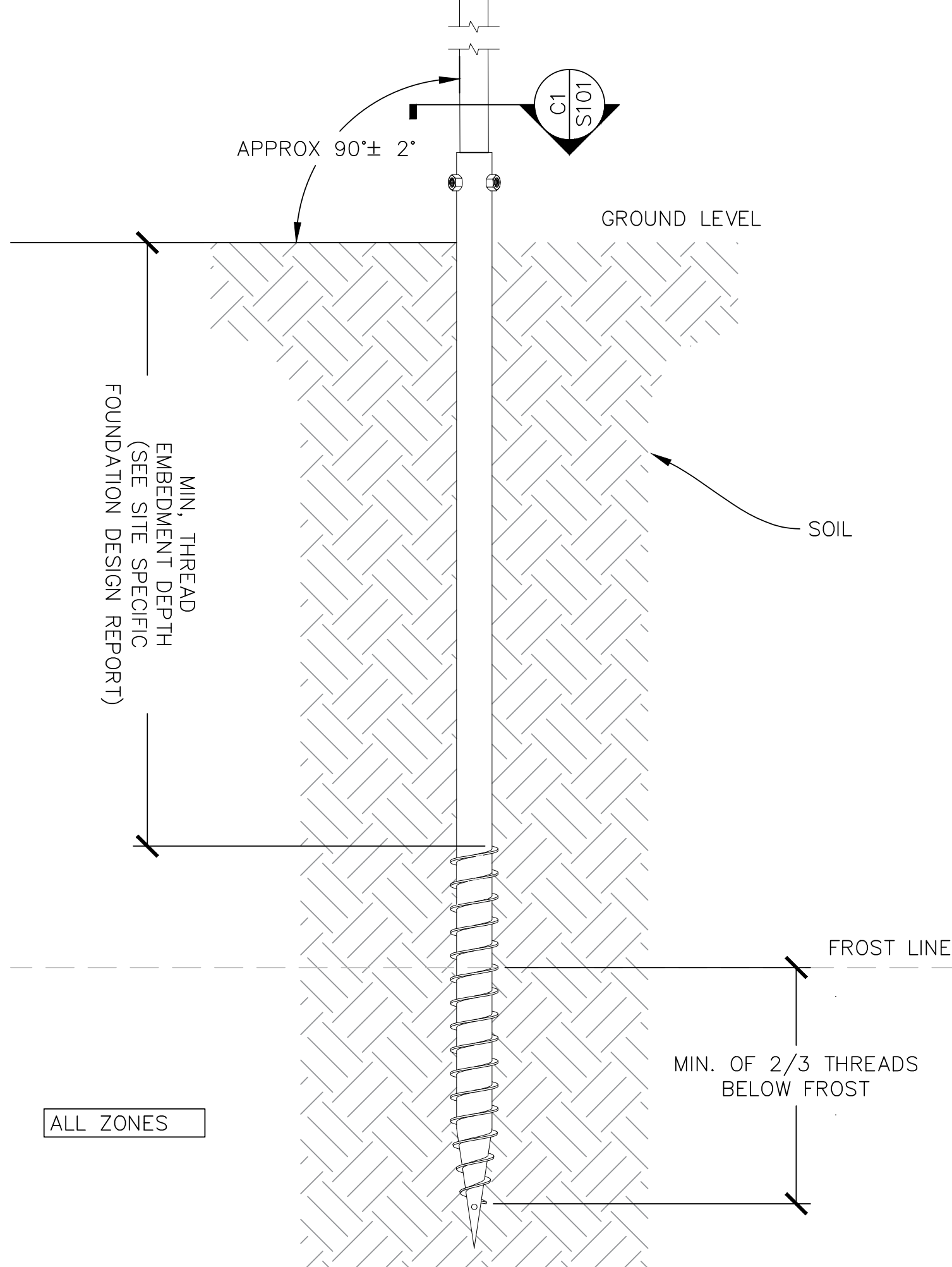
C1 SECTION: PILE ASSEMBLY



A1 CONNECTION: POST-TO-PILE

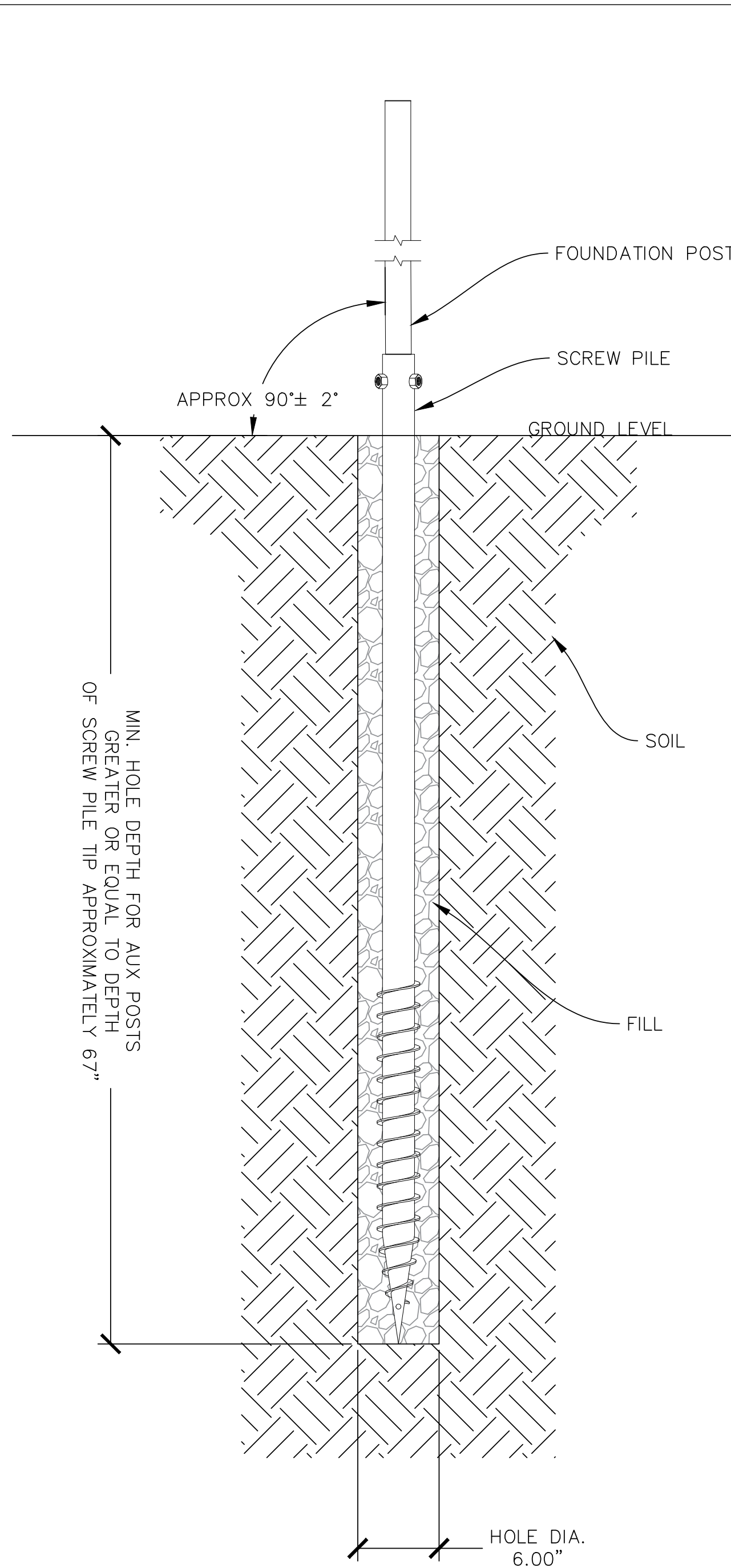


D2 SECTION: SCREW PILE



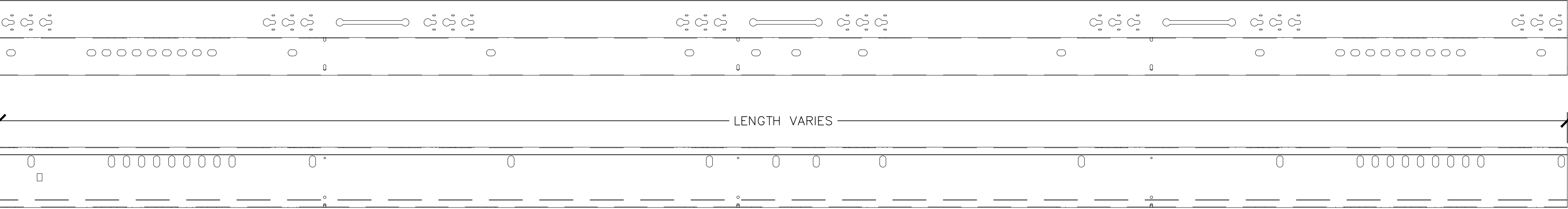
- NOTES:
- LENGTH & THREADS MAY VARY, SEE SHEET NOTES
 - EMBEDMENT DEPTH PER GEOTECHNICAL ENGINEER APPROVED FOUNDATION DESIGN REPORT, NOT BY JDI GROUP.

A2 VIEW: POST EMBEDMENT

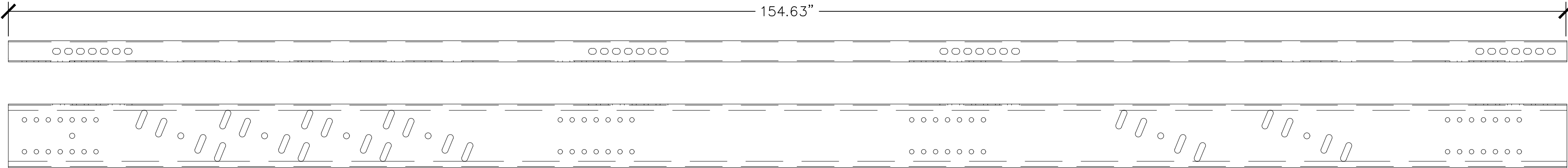


NOTE: EMBEDMENT DEPTH PER GEOTECHNICAL ENGINEER
APPROVED FOUNDATION DESIGN REPORT, NOT BY JDI GROUP.

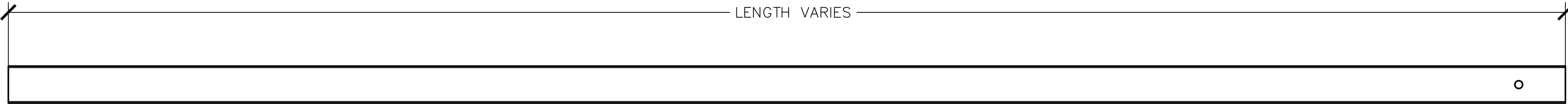
A3 AUX. FOUNDATION VIEW:PROFILE - SOIL CUTAWAY



E1 SIDE/TOP: ZEE PURLIN

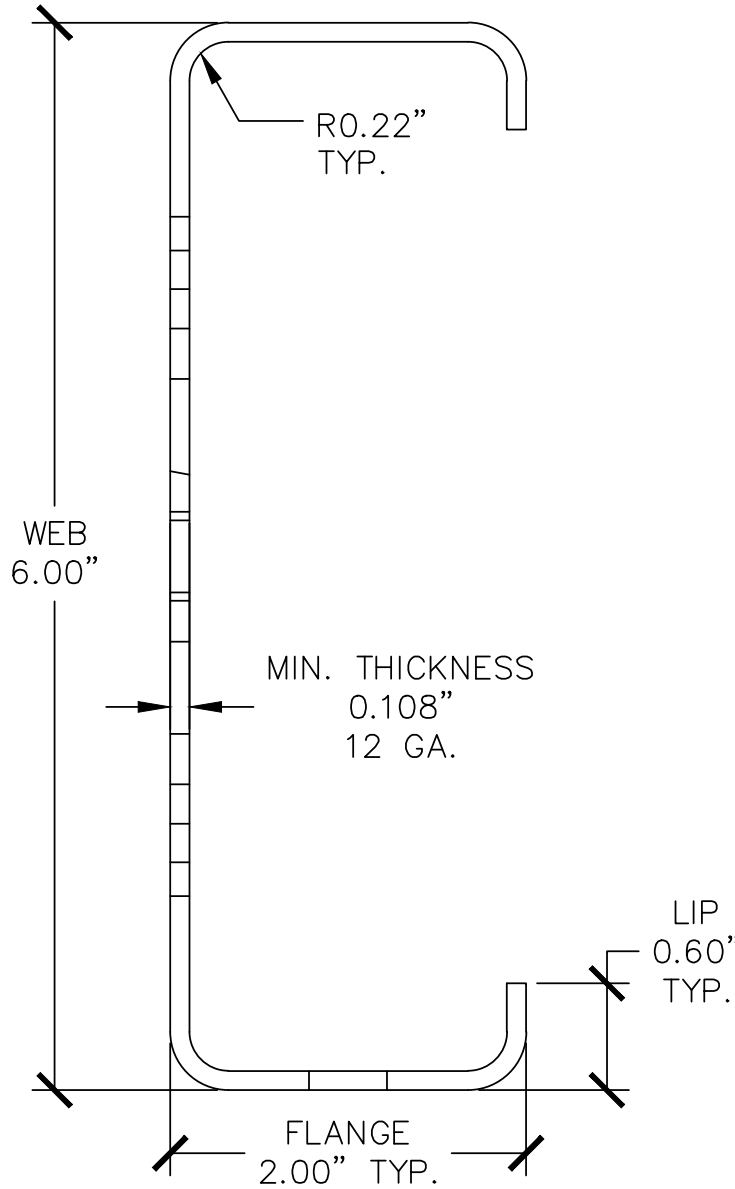


D1 SIDE/TOP: NS CHORD

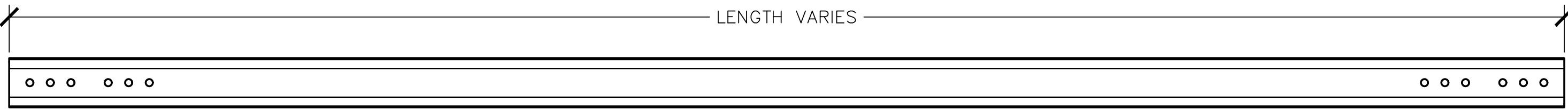


C1 SIDE: ANCHOR POST

MATERIAL: A653 HSLAS
STRENGTH: MIN. YIELD (Fy): 80 KSI.

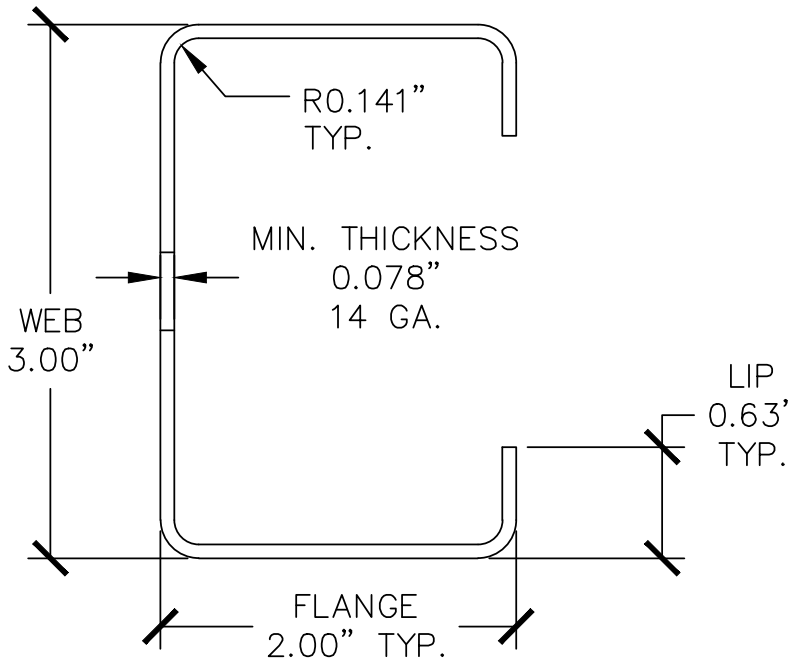


A1 PROFILE: NS CHORD

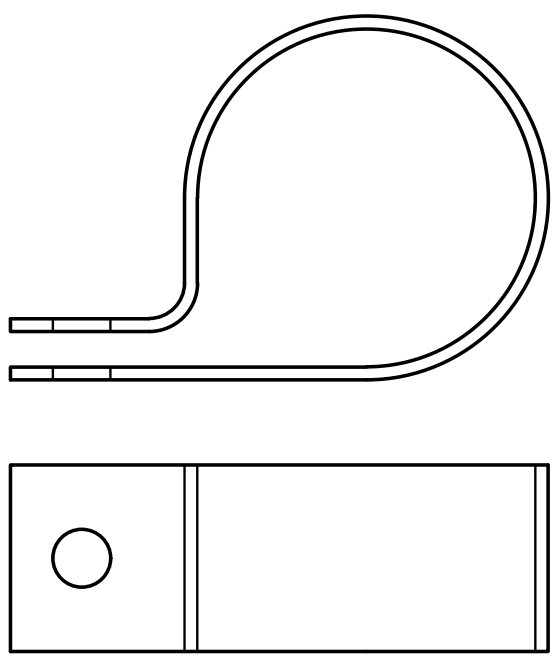


B2 SIDE: KNEE BRACE

MATERIAL: A653 SS GR 80 CL1
STRENGTH: MIN. YIELD (Fy): 80 KSI.

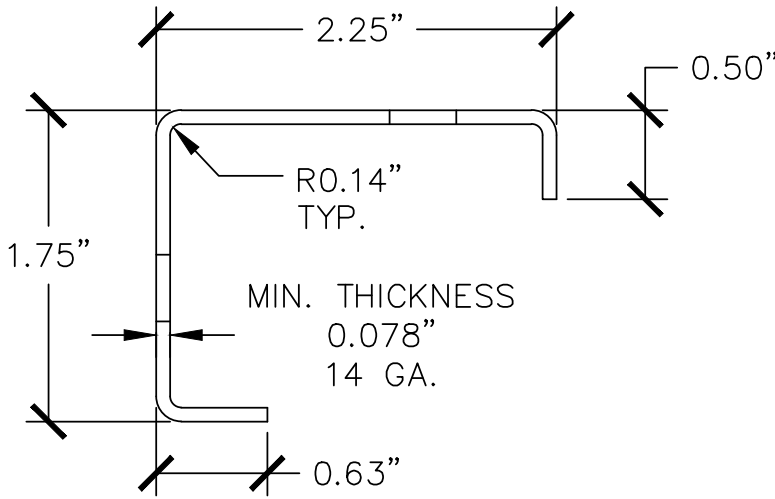


A2 PROFILE: KNEE BRACE

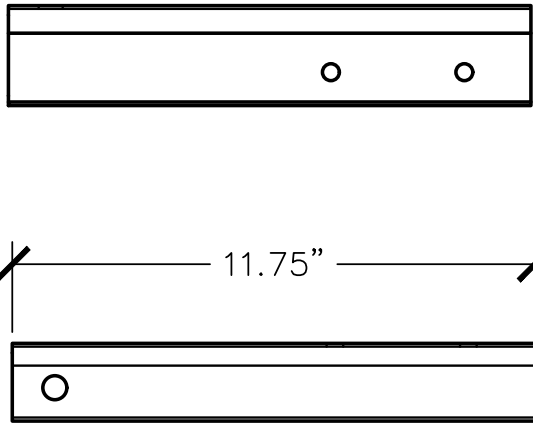


A3 SIDE:BRACE CLAMP

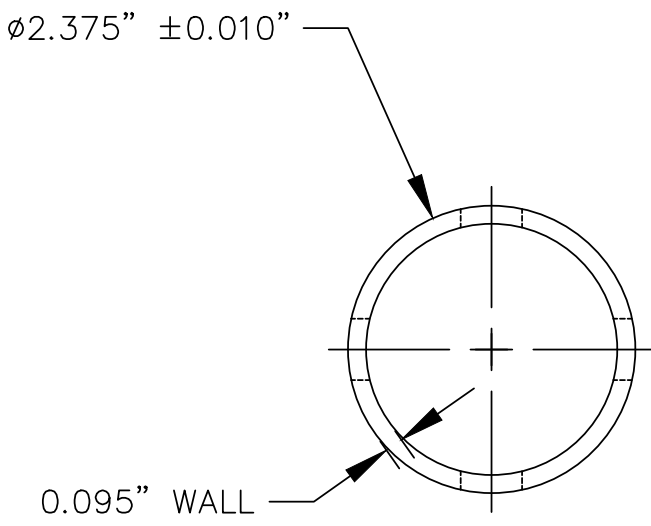
MATERIAL: A572 CF STR. STL.
STRENGTH: MIN. YIELD (Fy): 50 KSI.



A4 PROFILE: ROLL BAR

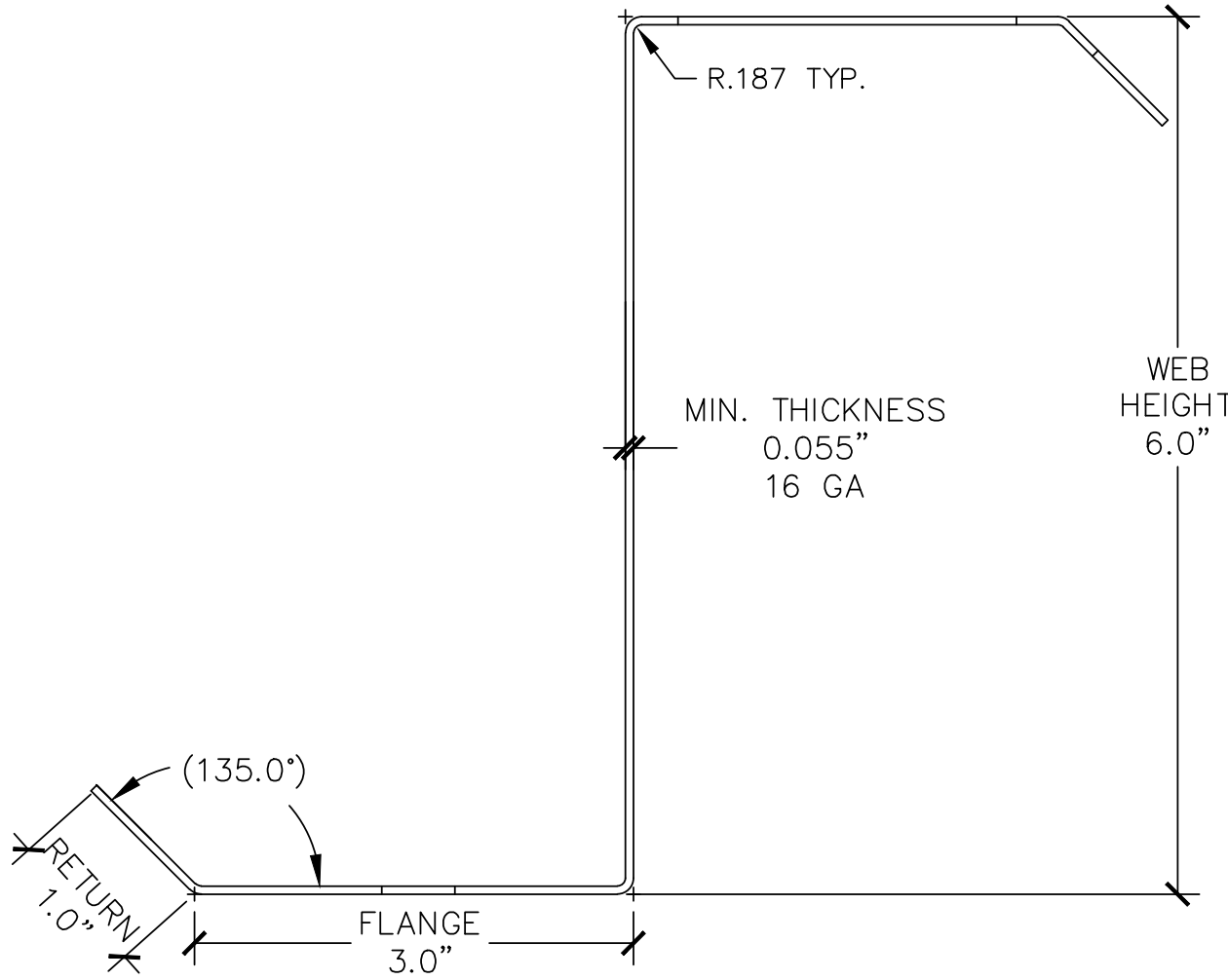


A5 SIDE/TOP: ROLL BAR



A6 PROFILE:FOUNDATION POST

MATERIAL: A653 STR. STL.
STRENGTH: MIN. YIELD (Fy): 80 KSI.



D5 PART: ZEE PURLIN

4 British American Blvd.
Latham, NY 12110
518-439-8235

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**SIEMENS SMART
INFRASTRUCTURE**

6 BRITISH AMERICAN BLVD
LATHAM, NY 12110

SIEMENS

ALBANY RADAR TOWER SOLAR

897 WATERVLIT SHAKER ROAD
ALBANY, NY 12205

NO.	DATE:	DESCRIPTION:
01	01	Revisions

PROJECT NUMBER: 2222708

DRAWN BY:

REVIEWED BY:

ISSUED FOR: FOR PERMIT ONLY

DATE: 07/13/2022

DRAWING NAME:

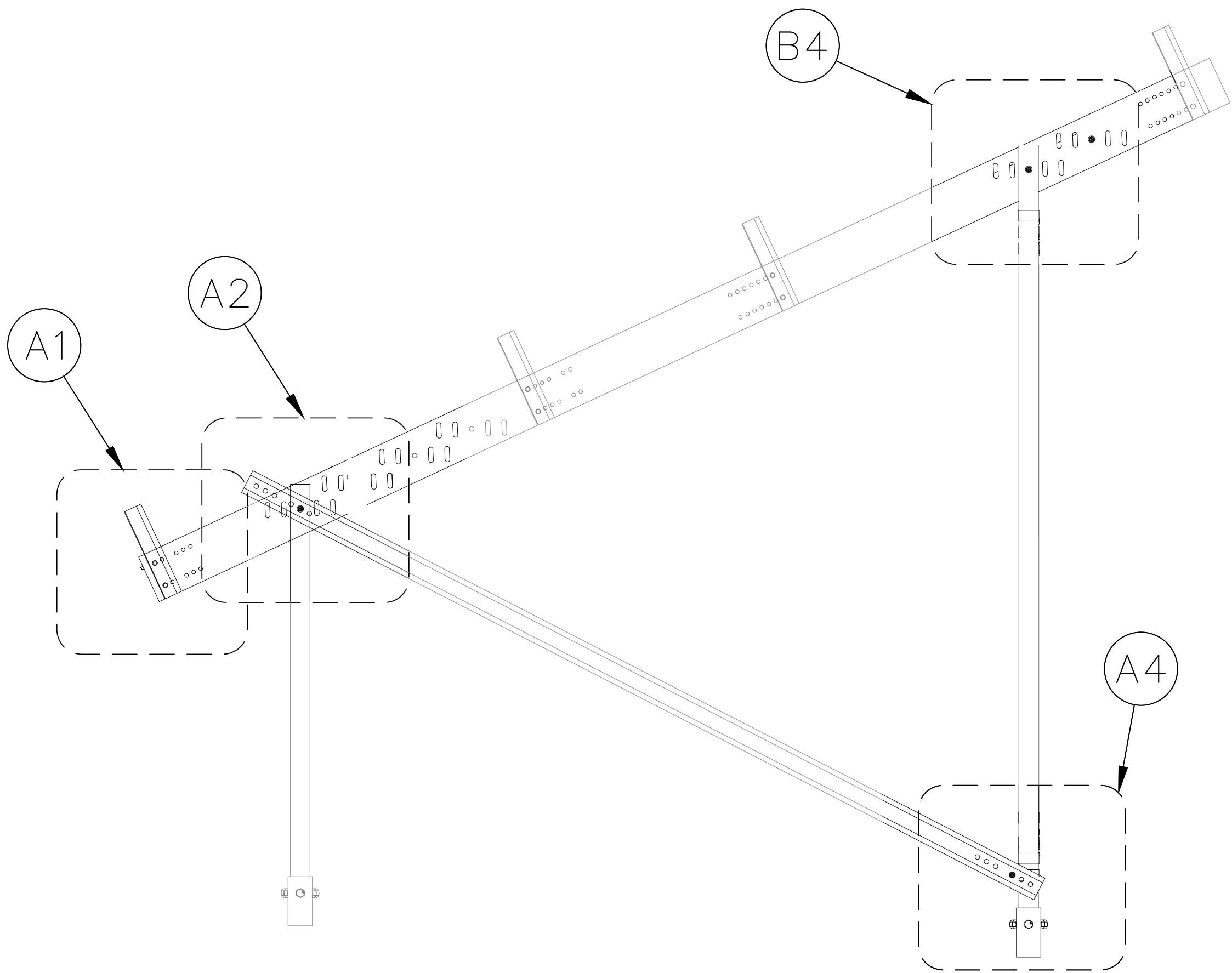
STRUCTURAL COMPONENTS

DRAWING NUMBER:

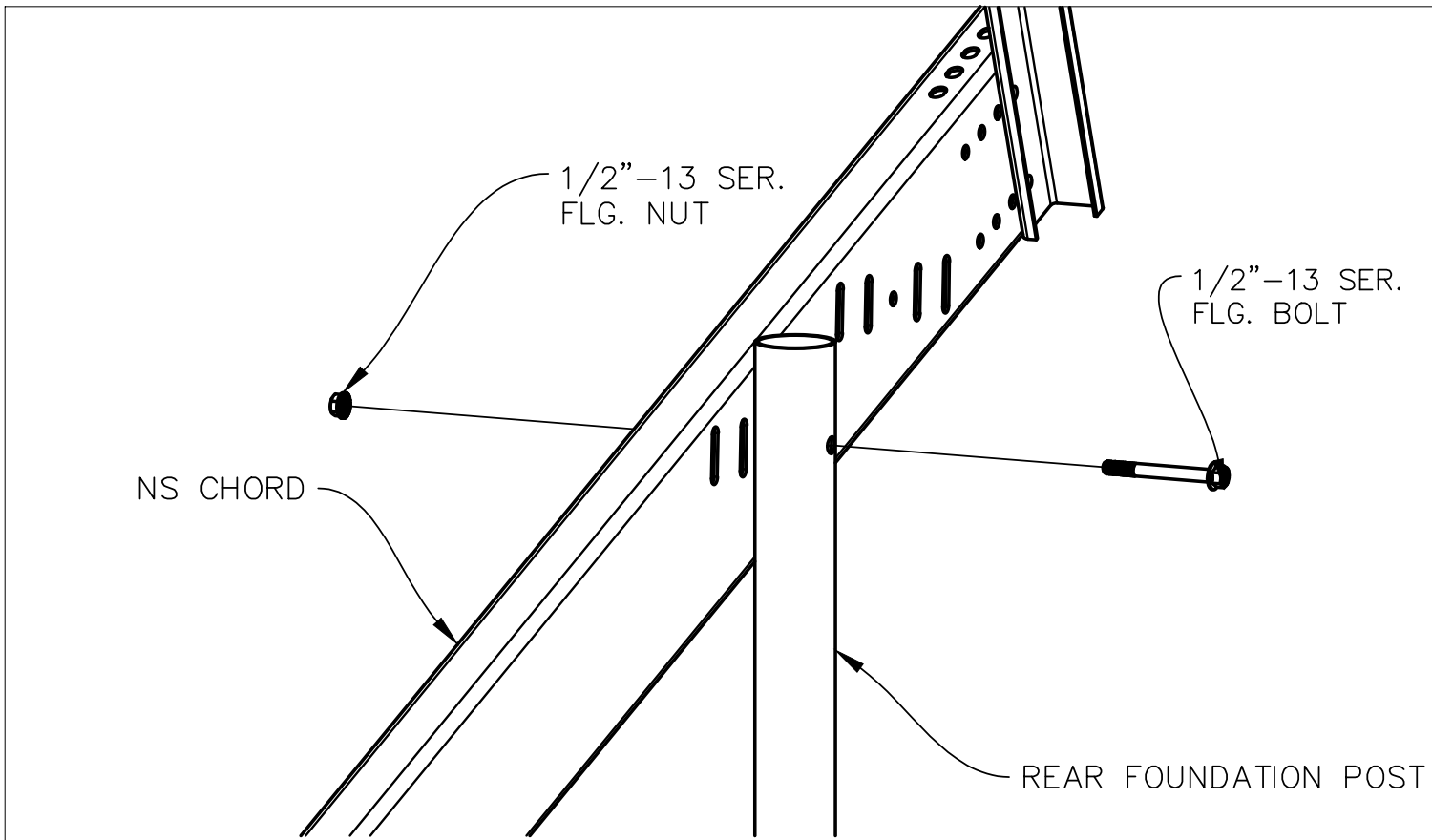
S200A

STRUCTURAL COMPONENTS

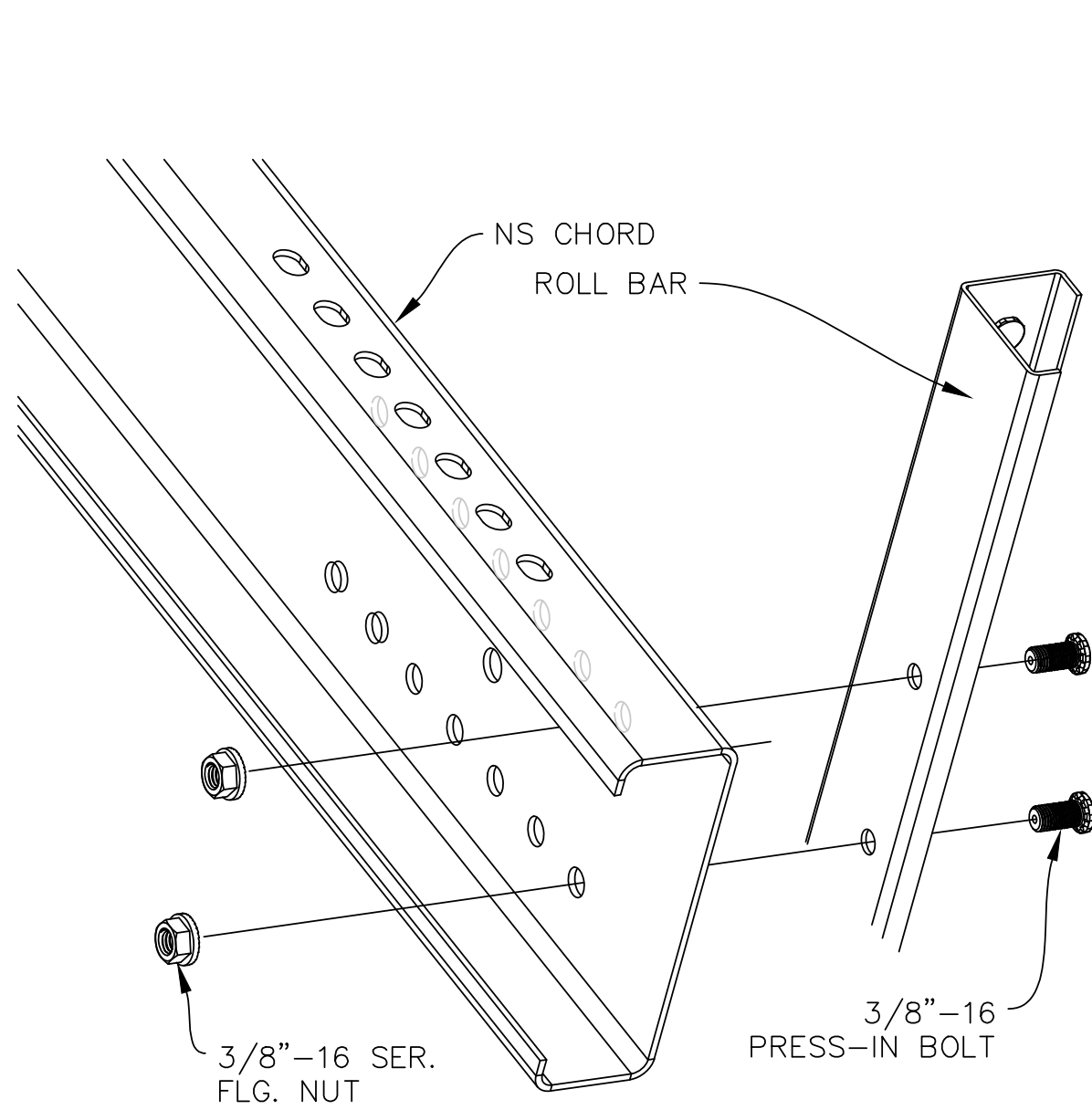
IMAGE FOR REFERENCE ONLY



B1 FOUNDATION SET CONNECTIONS OVERVIEW

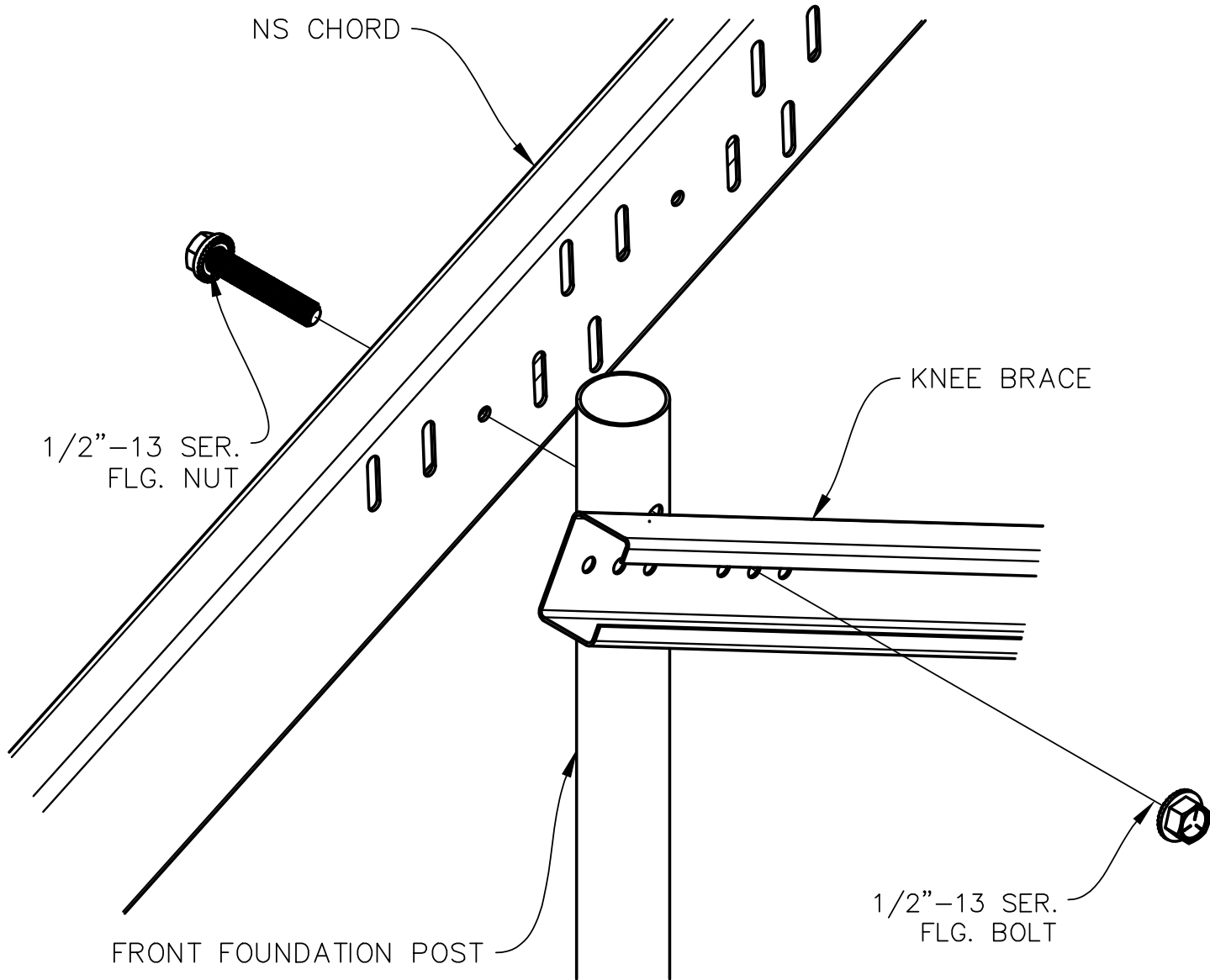


B4 CONNECTION: REAR POST-TO-NS CHORD

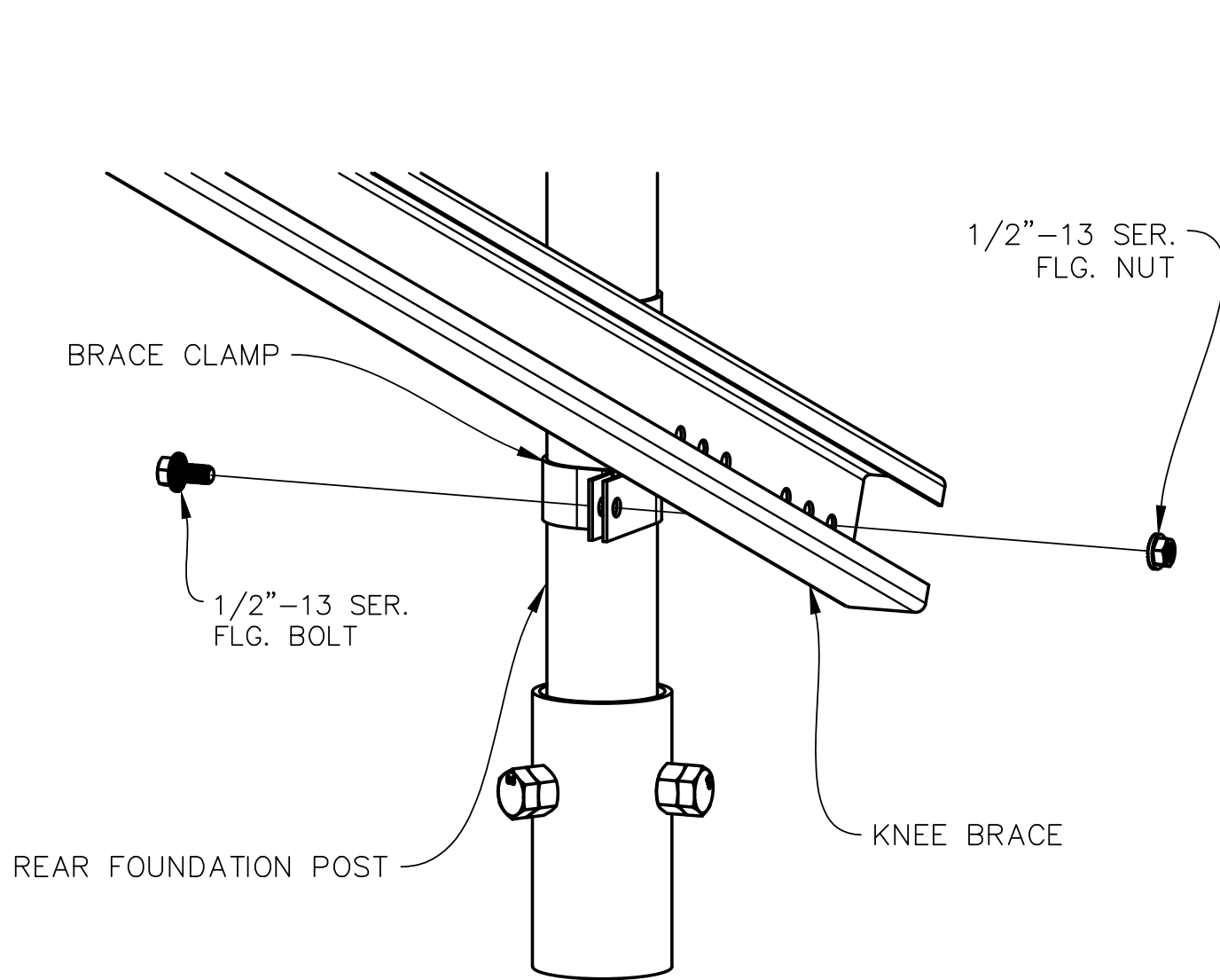


ATTACHED TO OUTER HOLE SET FOR REFERENCE ONLY. SEE NOTES.

A1 CONNECTION: ROLL BAR-TO-NS CHORD



A2 CONNECTION: KNEE BRACE-TO-FRONT POST



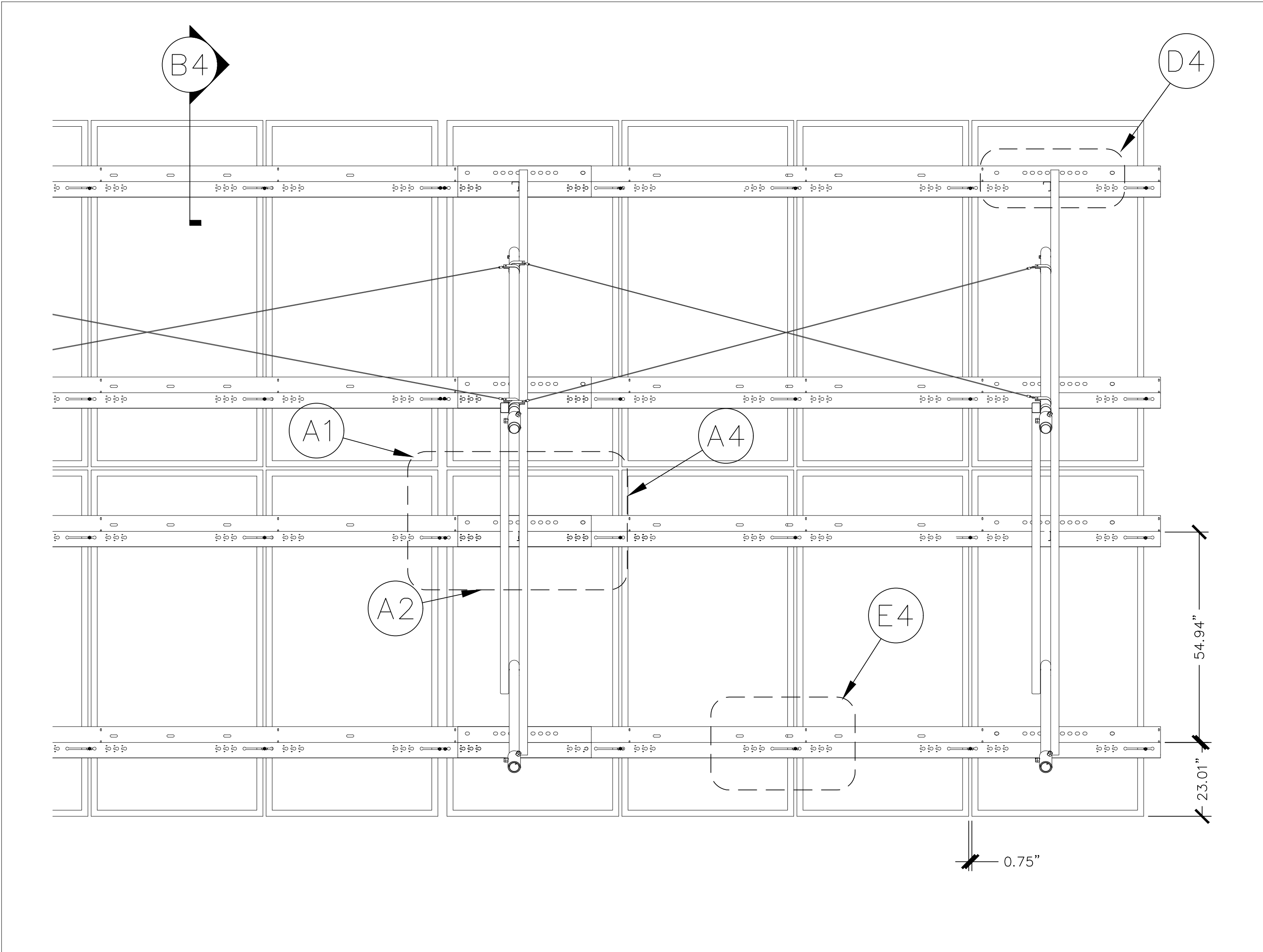
A4 KNEE BRACE-TO-REAR POST

NO.	DATE:	DESCRIPTION:
Revisions		
PROJECT NUMBER: 2222708		
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REVIEWED BY:		
ISSUED FOR: FOR PERMIT ONLY		
DATE: 07/13/2022		
DRAWING NAME:		

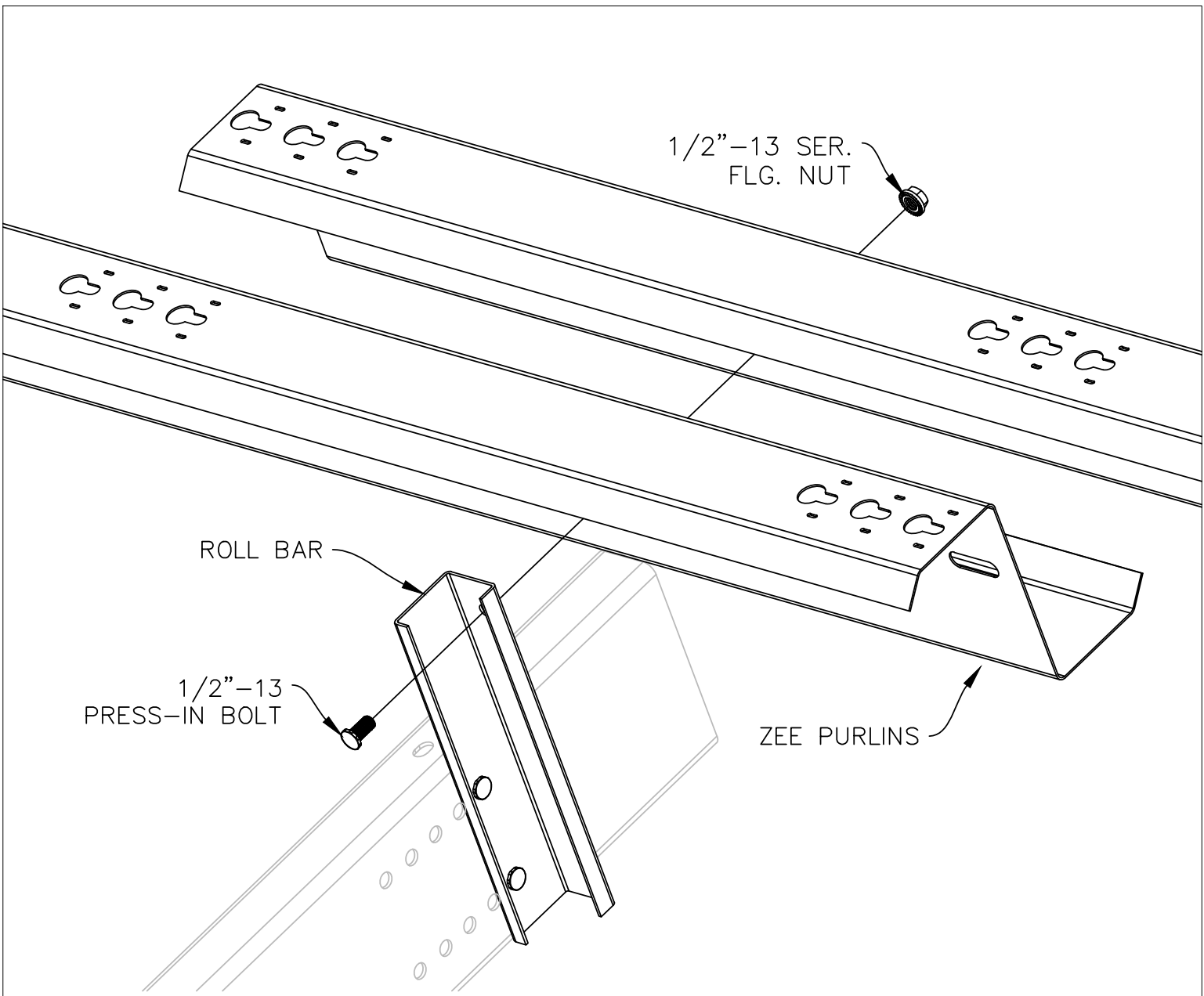
CONNECTIONS

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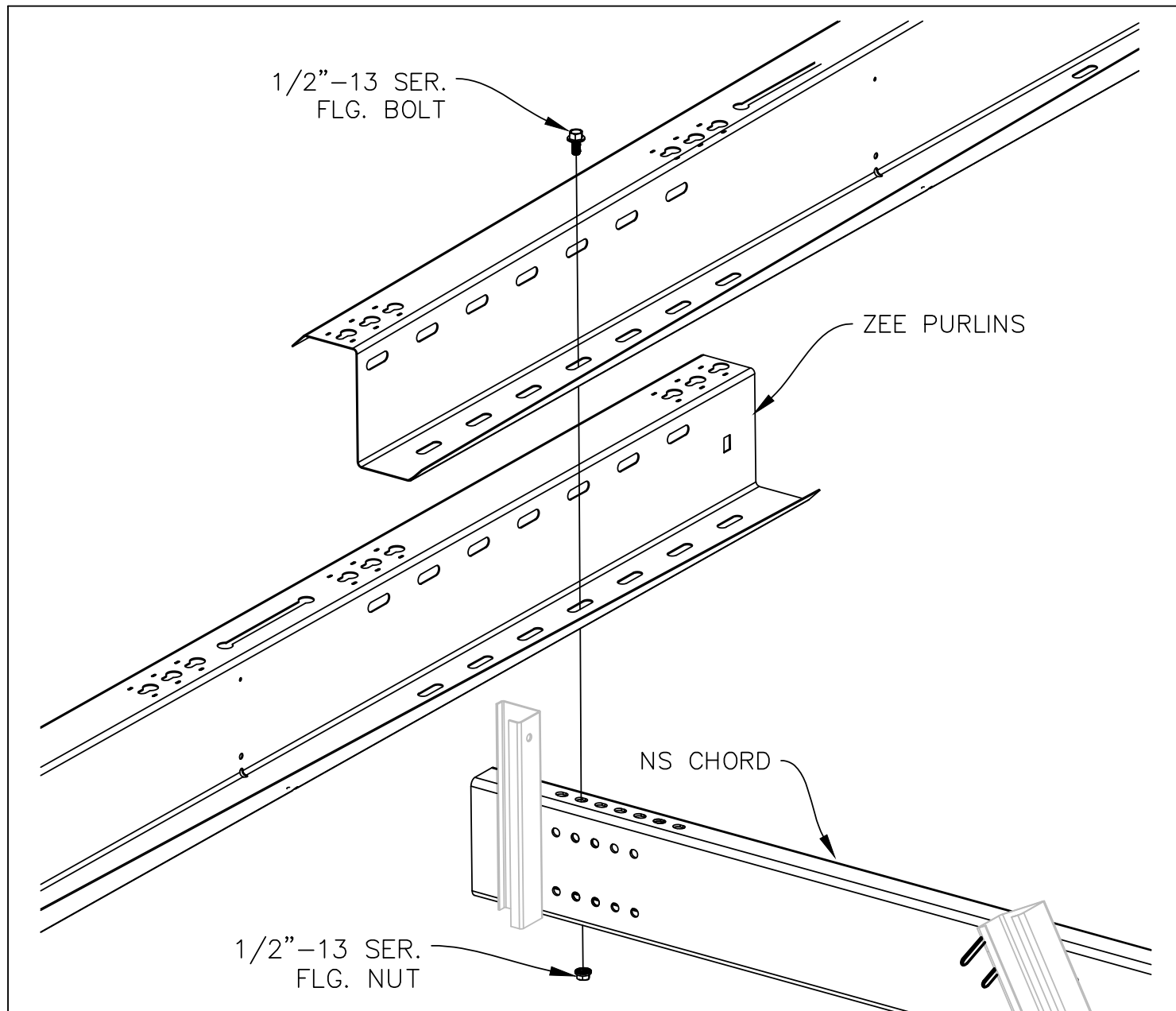
S300A



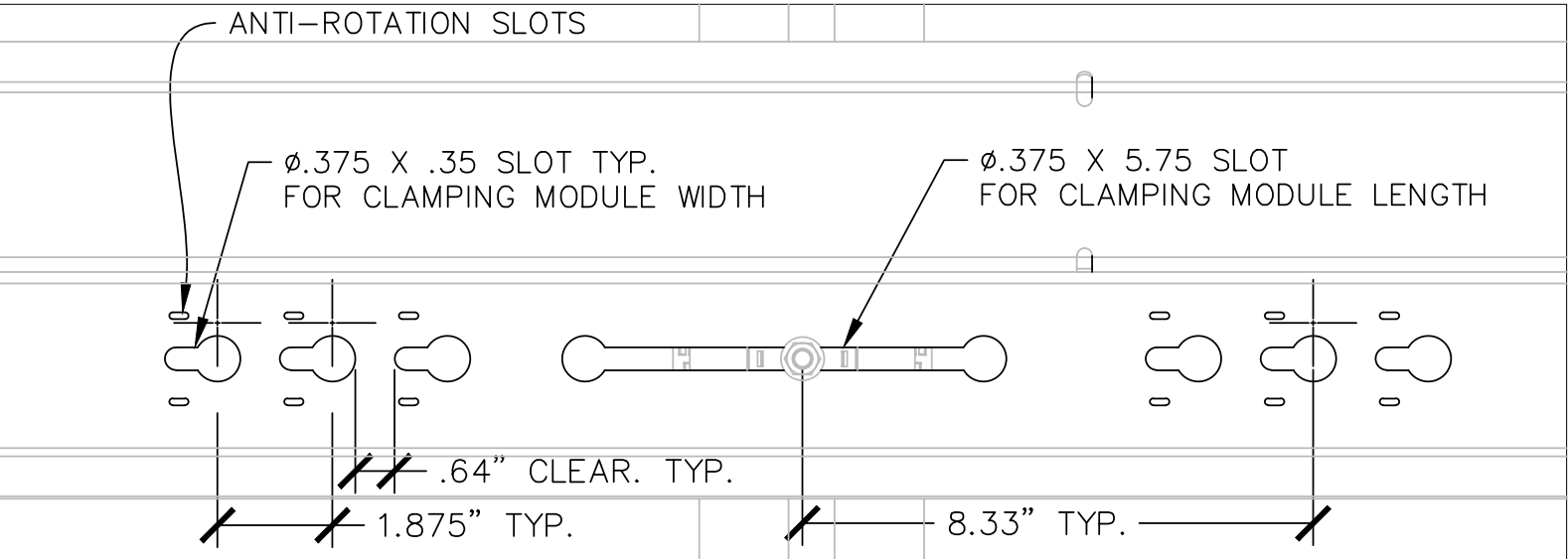
B1 OVERVIEW: ZEE PURLIN CONNECTIONS (RACK UNDERSIDE)



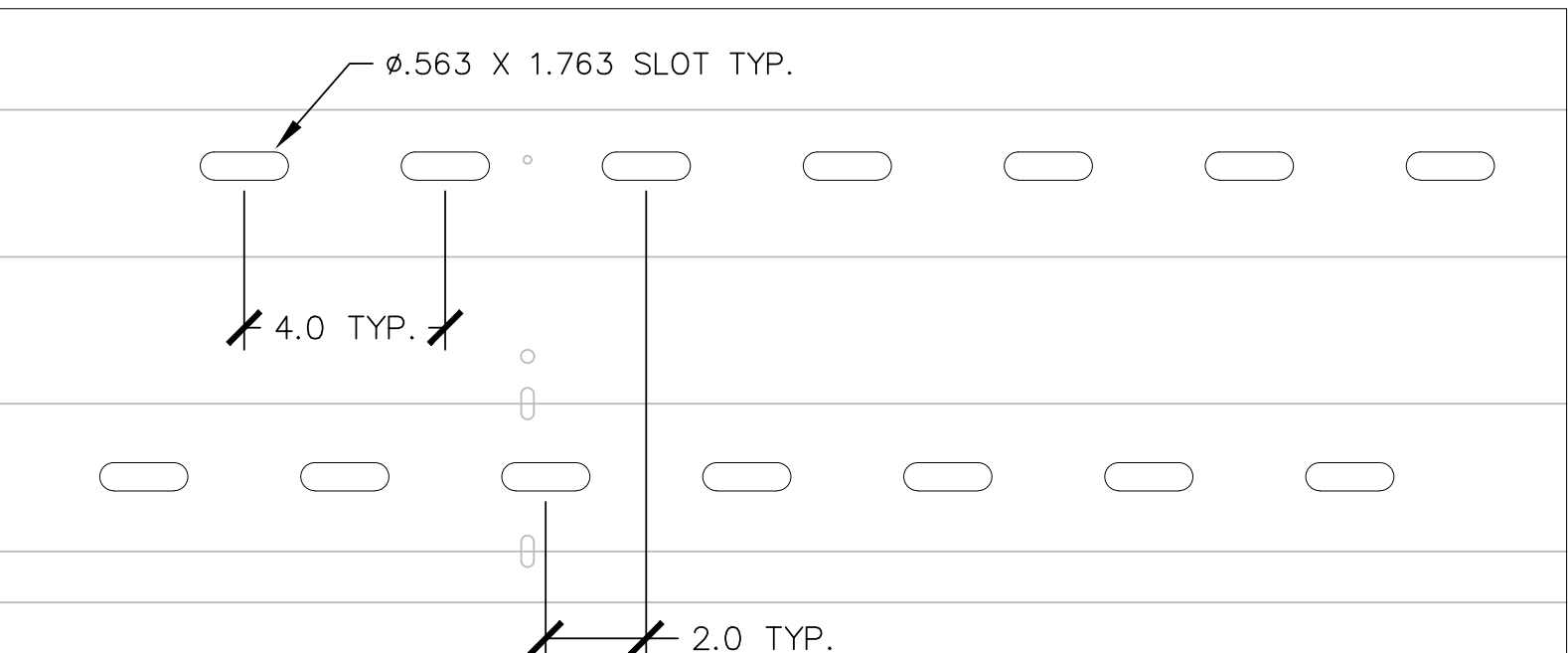
A1 CONNECTION: ZEE PURLINS-TO-ROLL BAR



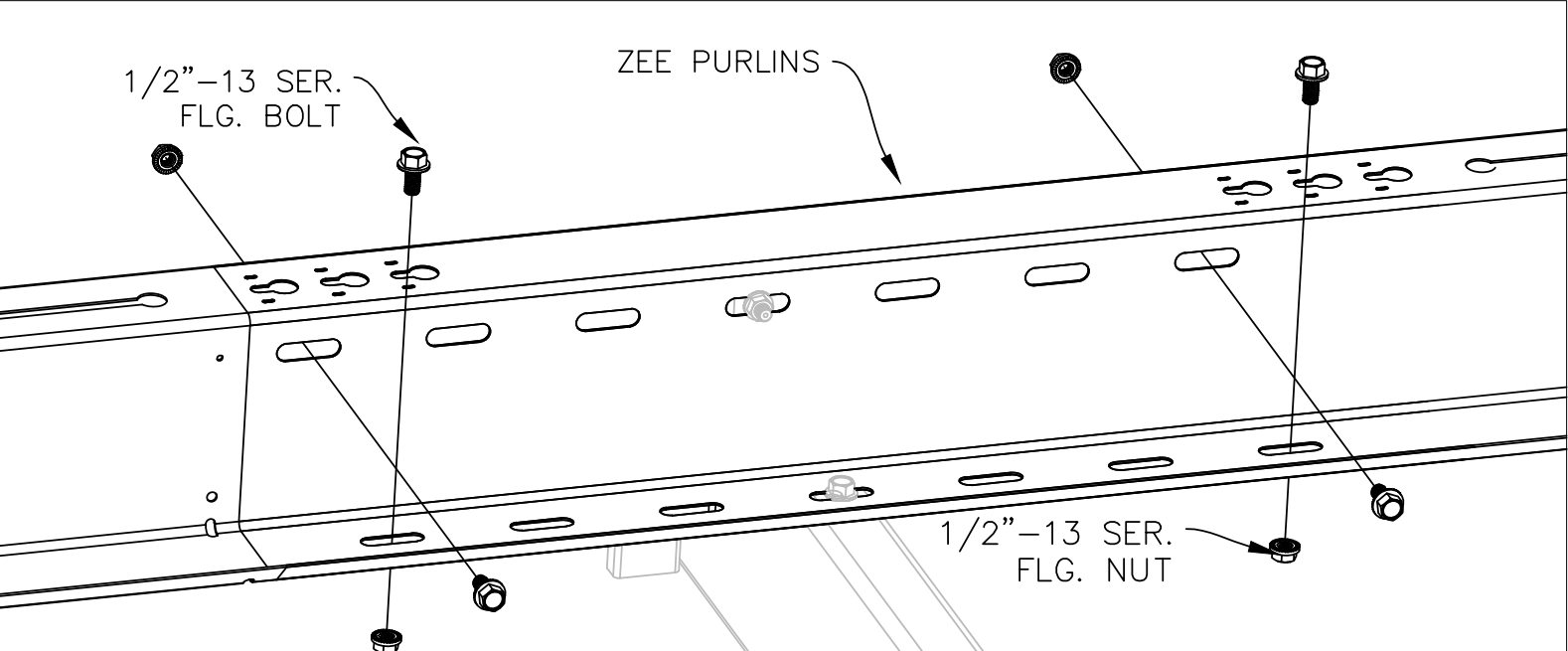
A2 CONNECTION: ZEE PURLINS-TO-NS CHORD



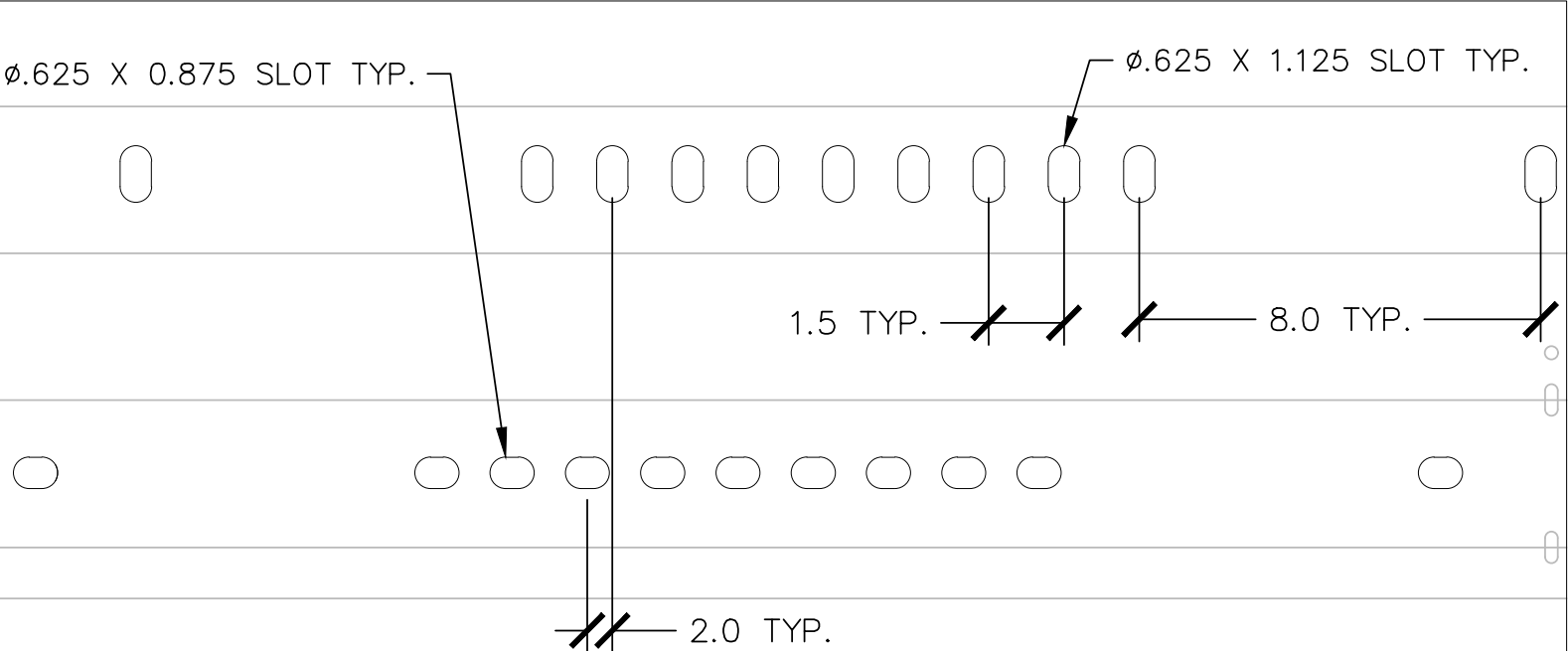
E4 DETAIL: ZEE PURLIN PANEL SLOTS



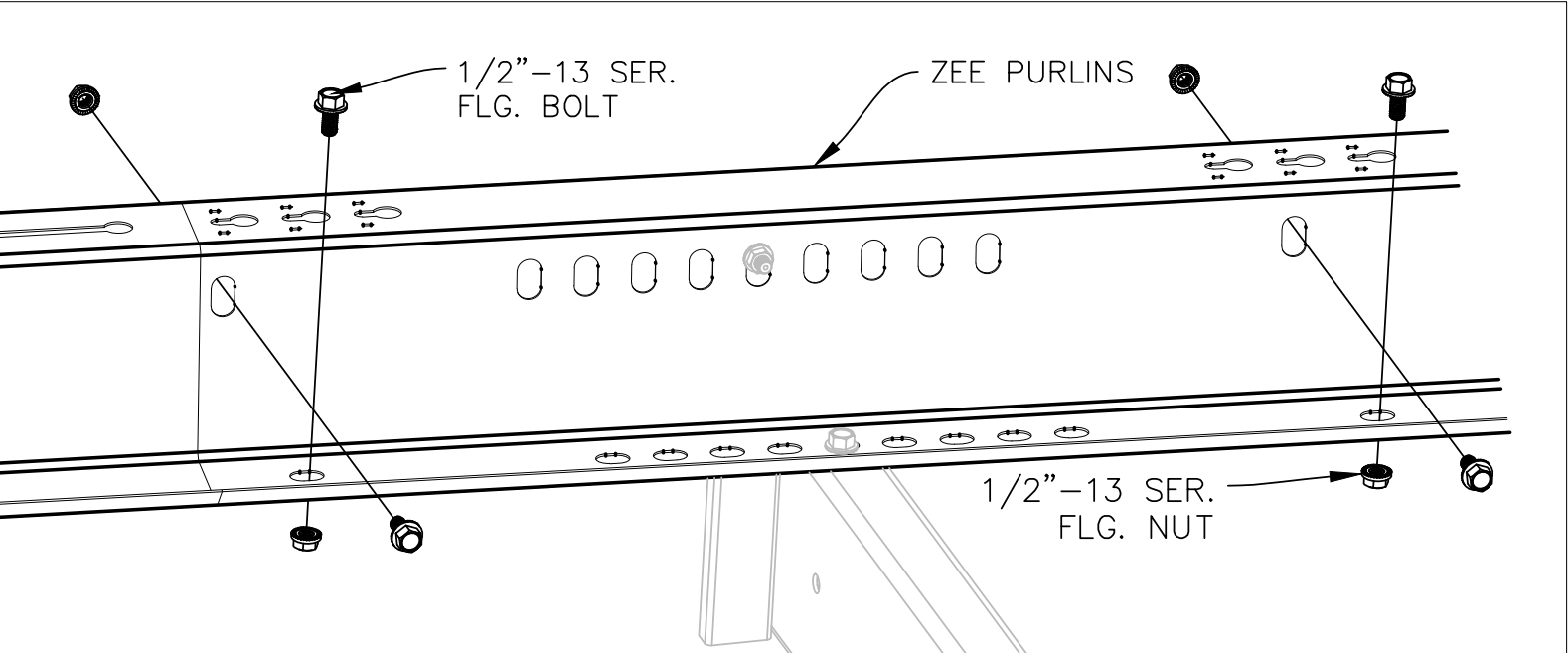
D4 DETAIL: ZEE PURLIN SPLICE SLOTS-DESIGN A



C4 CONNECTION: ZEE-TO-ZEE PURLINS SPLICE-DESIGN A



B4 DETAIL: ZEE PURLIN SPLICE SLOTS-DESIGN B

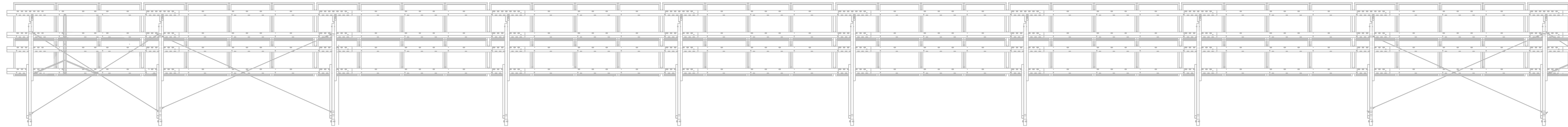


A4 CONNECTION: ZEE-TO-ZEE PURLINS SPLICE-DESIGN B

- NOTES:
- HARDWARE TORQUE VALUES:

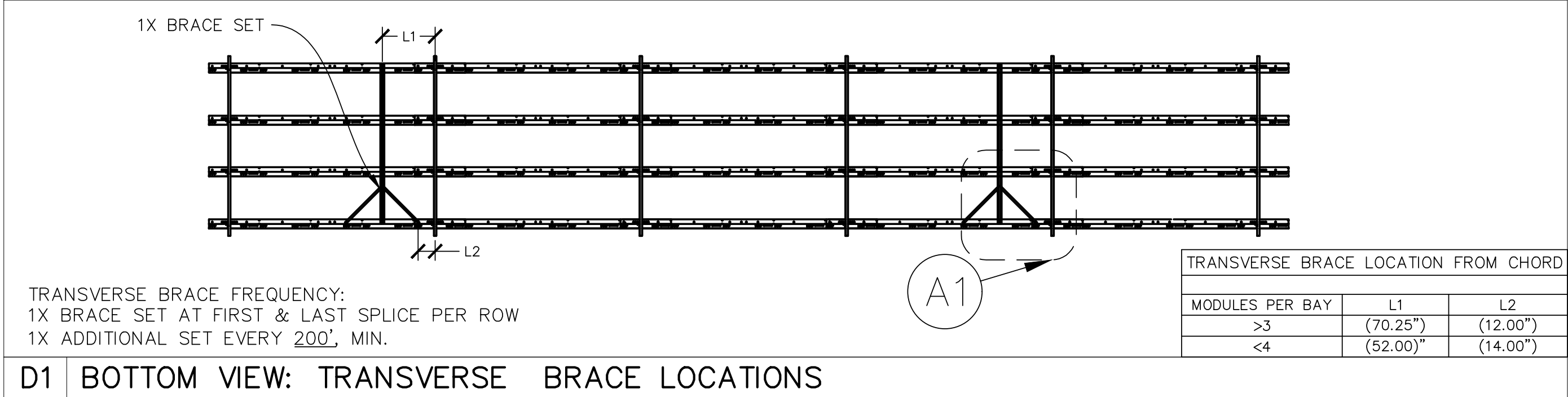
3/8"-16 STAINLESS STEEL
MIN.: 17.5 FT-LBS
NOM.: 19.6 FT-LBS
MAX.: 50.0 FT-LBS
 - DEPICTED HARDWARE AND PART PLACEMENT NOT INDICATIVE OF PREFERRED OR REQUIRED POSITIONS.
 - HOLE/SLOT PATTERNS IN PARTS ALLOW FOR DEVIATION FROM NOMINAL DIMENSIONS, MULTIPLE PART POSITIONS, AND MULTIPLE TILT ANGLES.
 - SEE INSTALLATION MANUAL FOR SETUP INSTRUCTIONS.
 - SERRATED FLANGED BOLTS MAY BE REPLACED WITH EQUIVALENT PRESS-IN BOLTS.
 - PRESS-IN BOLTS, WHERE PRESENT, TO BE INSTALLED TO MANUFACTURERS RECOMMENDED VALUES.
 - OTHER SPECIFIC CONNECTIONS ELSEWHERE IN PRINT SET.
 - SERRATED HARDWARE MAY BE REPLACED WITH EQUIVALENT HARDWARE WITH WASHERS IF NECESSARY.
 - IN ALL DETAILS, THE PRESENCE OF TWO SETS OF HARDWARE INDICATES THE REQUIREMENT OF TWO SETS OF HARDWARE.
 - STAINLESS STEEL HARDWARE MAY BE REPLACED WITH GALVANIZED STEEL HARDWARE OR CORROSION AND STRENGTH COMPARABLE HARDWARE MATERIALS AND FINISHES.
 - UNLESS NOTED OTHERWISE, ALL HARDWARE MAY BE INSTALLED IN EITHER DIRECTION (NUT/BOLT MAY BE ON EITHER SIDE OF CONNECTION).
 - WHEN NECESSARY, ADDITIONAL HOLES MAY BE DRILLED TO COMPLETE CONNECTION. ENGINEERING SHALL BE CONTRACTED PRIOR TO FIELD MODIFICATIONS OF PARTS.
 - CONNECTION IN DETAIL A1 & A2 SHOWN IN NOMINAL POSITION. ACTUAL CONNECTION MAY BE ±8".
 - WHEN CONNECTIONS IN DETAIL A1 & A2 ARE AT THEIR MAX/MIN POSITIONS (±2") INTERFERING SPLICE HARDWARE MAY BE RELOCATED TO NEXT NEAREST SLOTS.
 - WHERE PRESENT, TRANSVERSE BRACE MAY UTILIZE LOWER SPLICE BOLTS. SEE CONNECTIONS SHEET FOR MORE INFORMATION.
 - ZEE-TO-ZEE SPLICE SHALL ALWAYS OVERLAP APPROXIMATELY 24", AS INDICATED, EXCEPT AT ENDS OF ROW, WHERE NO SPLICE IS REQUIRED.
 - SPLICE MAY OVERLAP IN EITHER DIRECTION.
 - ZEE PURLIN MATERIAL AND FINISH ARE MANUFACTURED TO SPECIFICATIONS THAT MEET OR EXCEED OUR STANDARD PRODUCT WARRANTY.
 - ZEE PURLINS GALVANIZED TO CONFORM TO A MINIMUM THICKNESS DESIGNATION EQUAL TO G90 OR INLINE GALVANIZED TO COMPARABLE THICKNESS AS PER ASTM A1057.
 - TYPICAL ZEE PURLIN RETURN LIP ANGLE SHOWN. ACTUAL ANGLE MAY VARY.
 - SLOT DIMENSIONS FOR REFERENCE ONLY. FINAL SHAPE, FREQUENCY, AND DIMENSIONS MAY VARY.
 - LENGTH OF PURLIN VARIES BY PROJECT AND LOCATION WITHIN ARRAY.

NO.	DATE:	DESCRIPTION:
Revisions		
PROJECT NUMBER: 2222708		
DRAWN BY:		
REVIEWED BY:		
ISSUED FOR: FOR PERMIT ONLY		
DATE: 07/13/2022		
DRAWING NAME:		

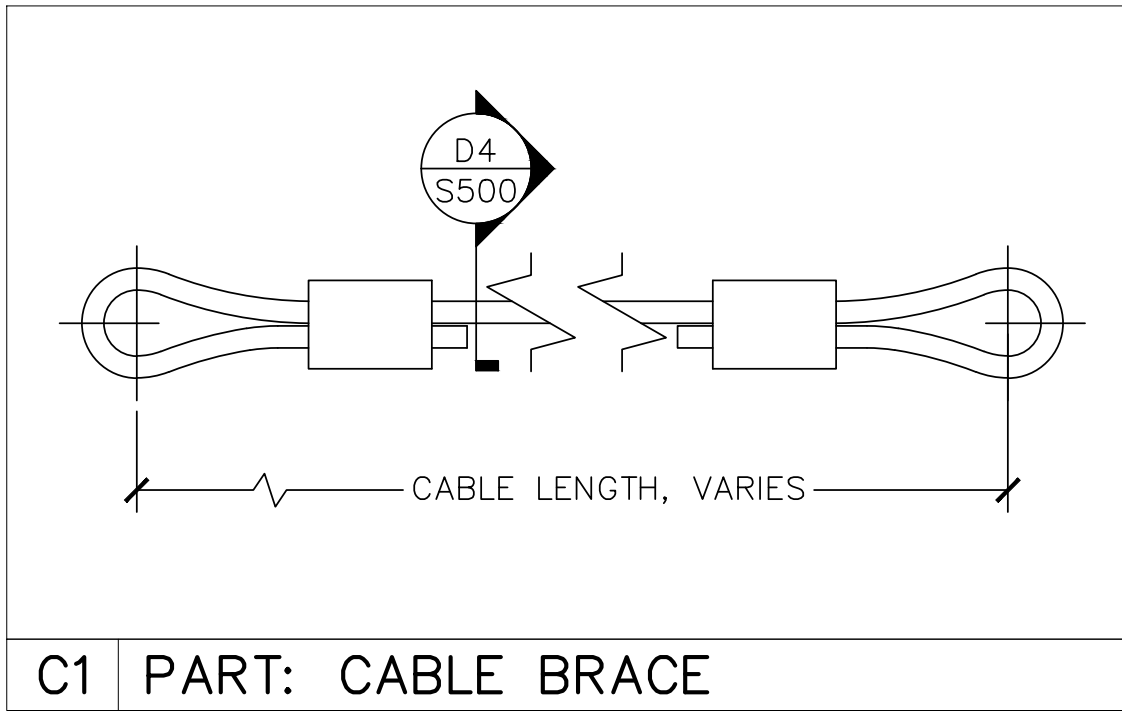


EAST/WEST CABLE BRACE FREQUENCY: OUTSIDE 2 BAYS AND EVERY 7TH BAY

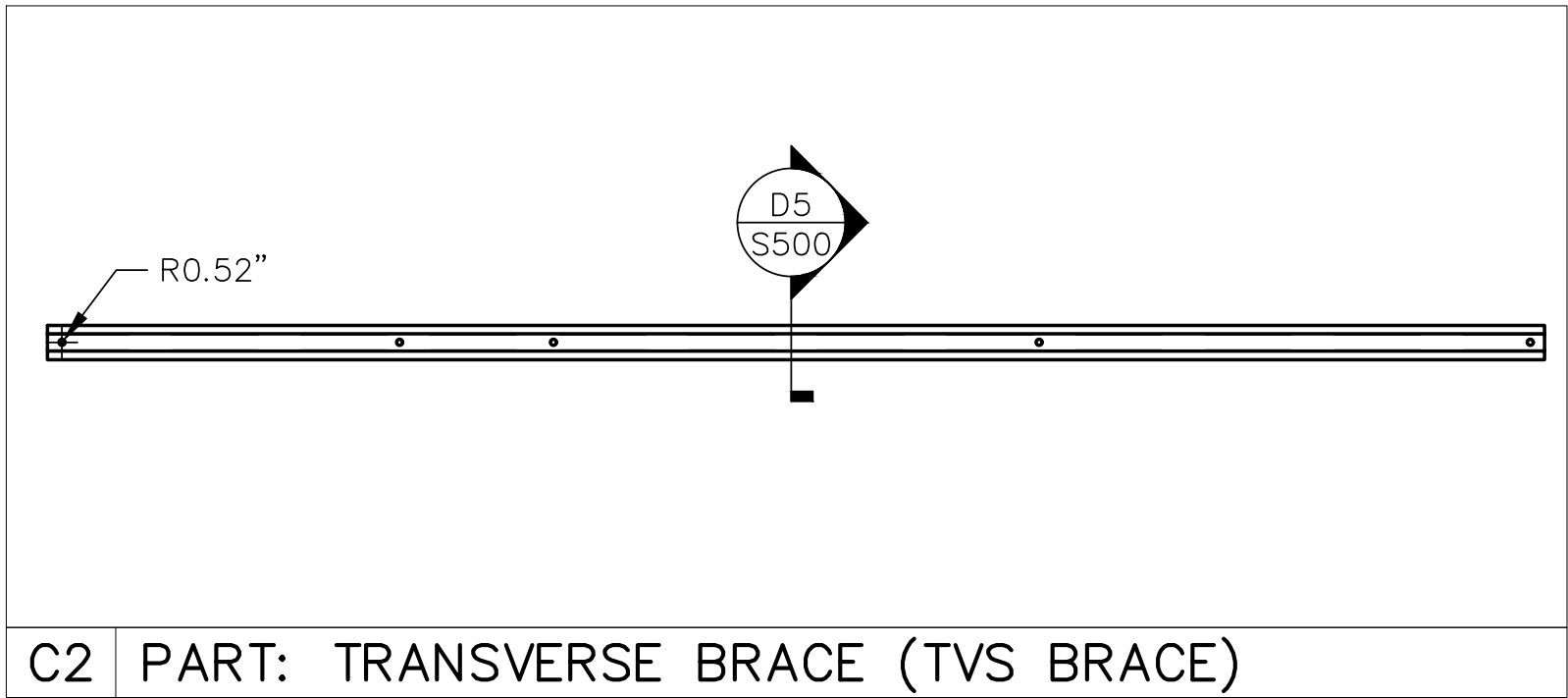
E1 REAR VIEW: CABLE BRACE FREQUENCY



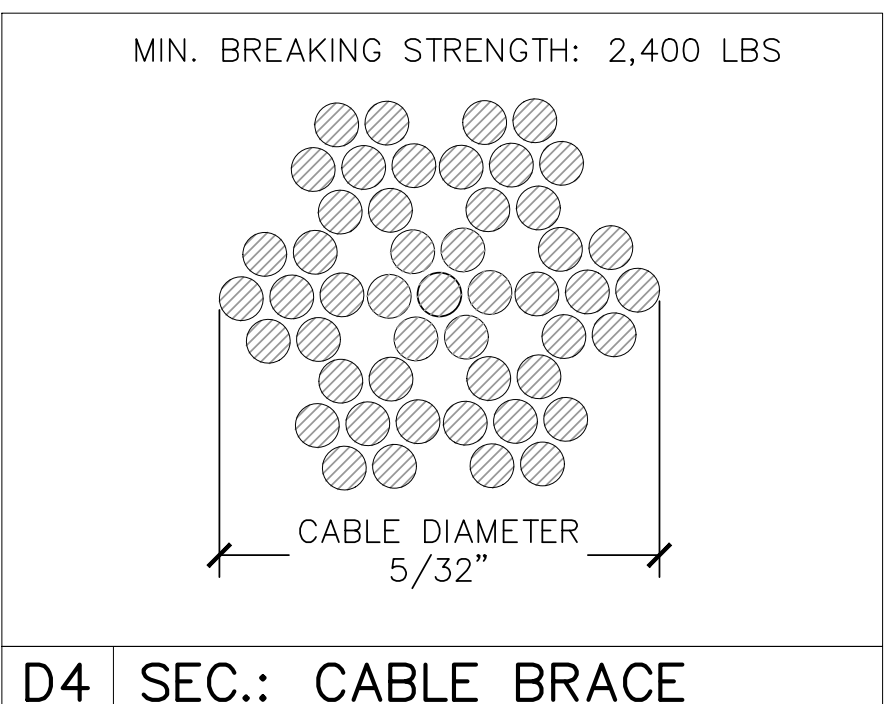
D1 BOTTOM VIEW: TRANSVERSE BRACE LOCATIONS



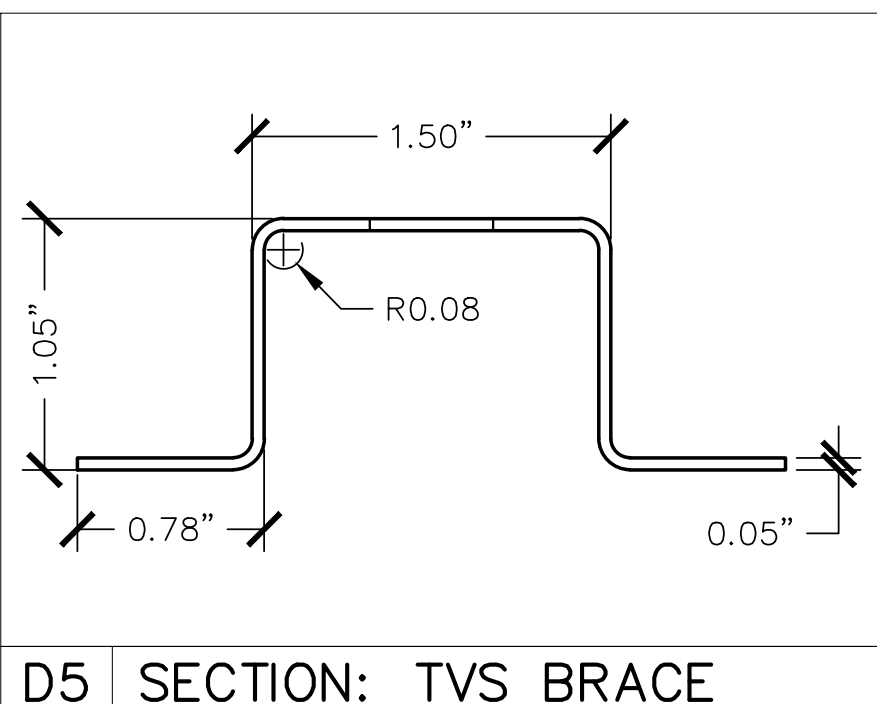
C1 PART: CABLE BRACE



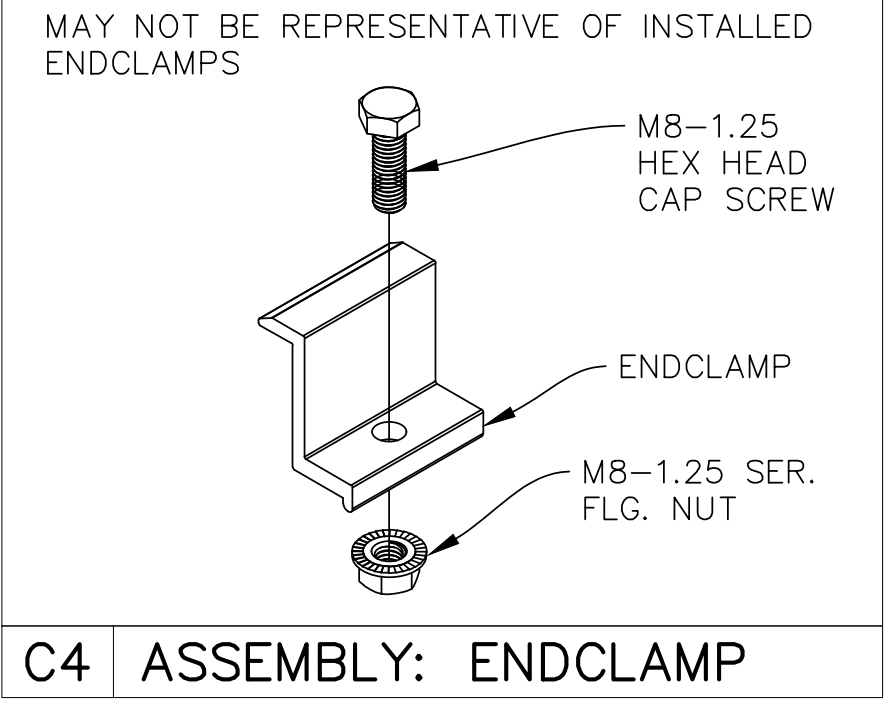
C2 PART: TRANSVERSE BRACE (TVS BRACE)



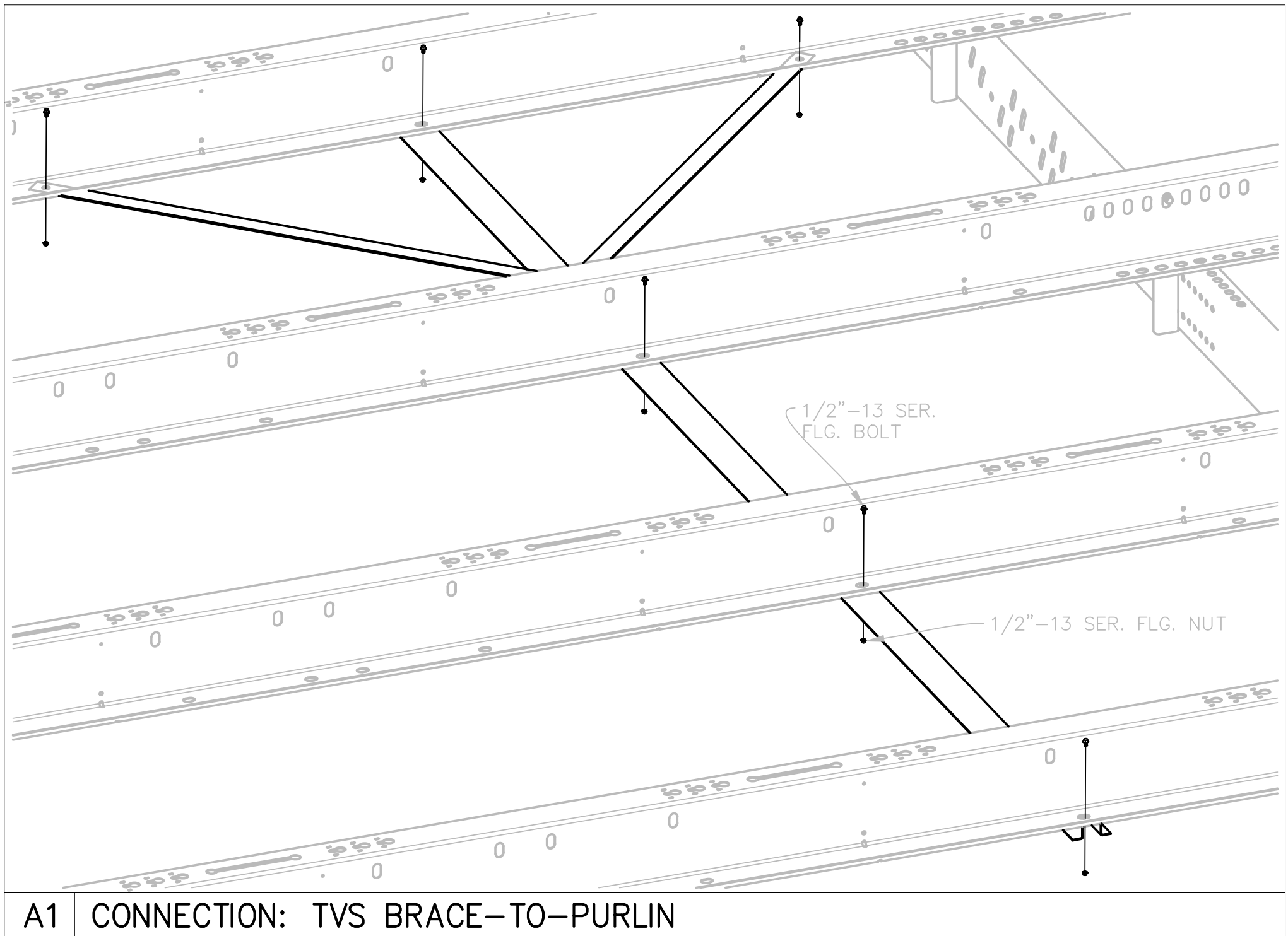
D4 SEC.: CABLE BRACE



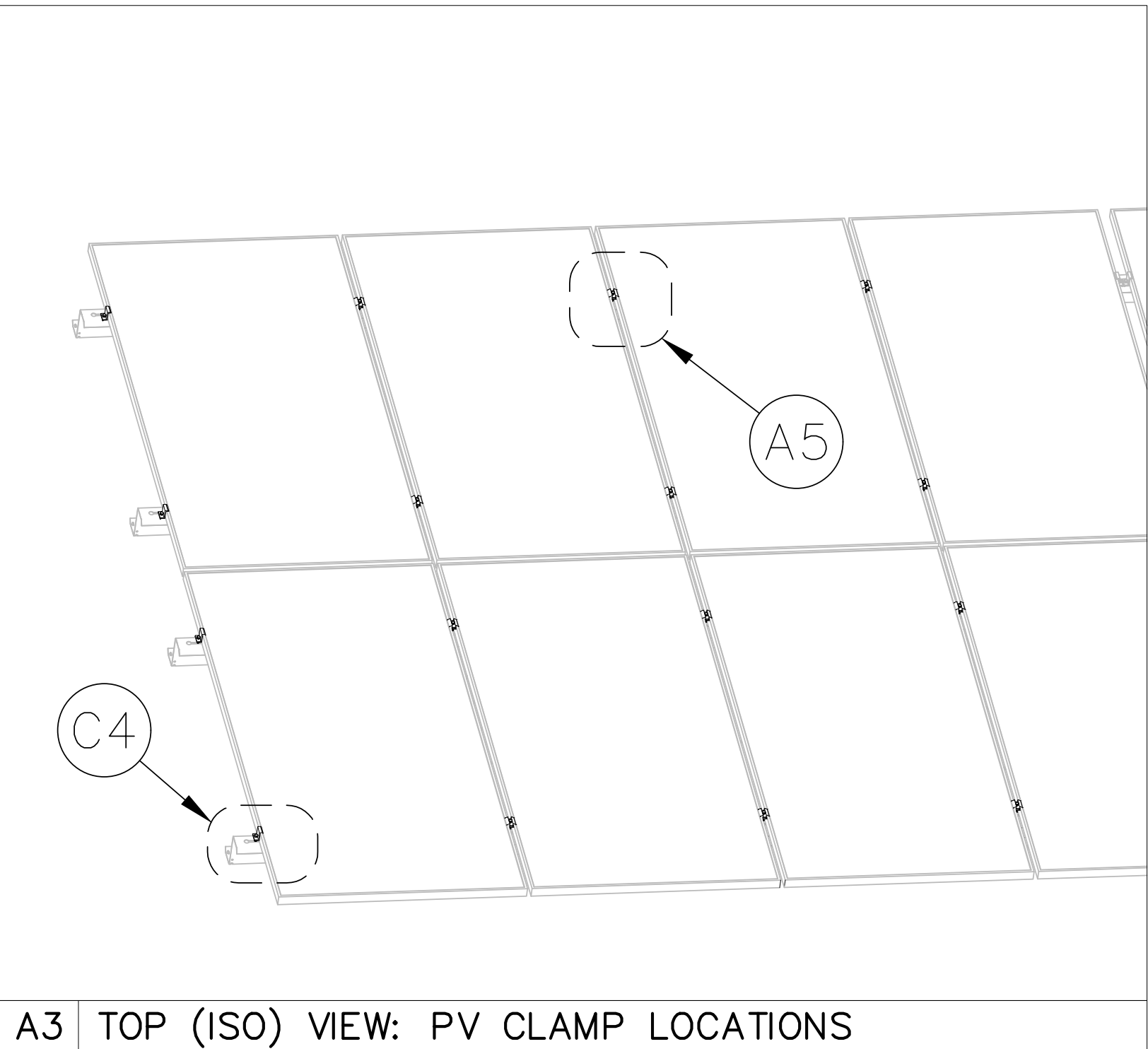
D5 SECTION: TVS BRACE



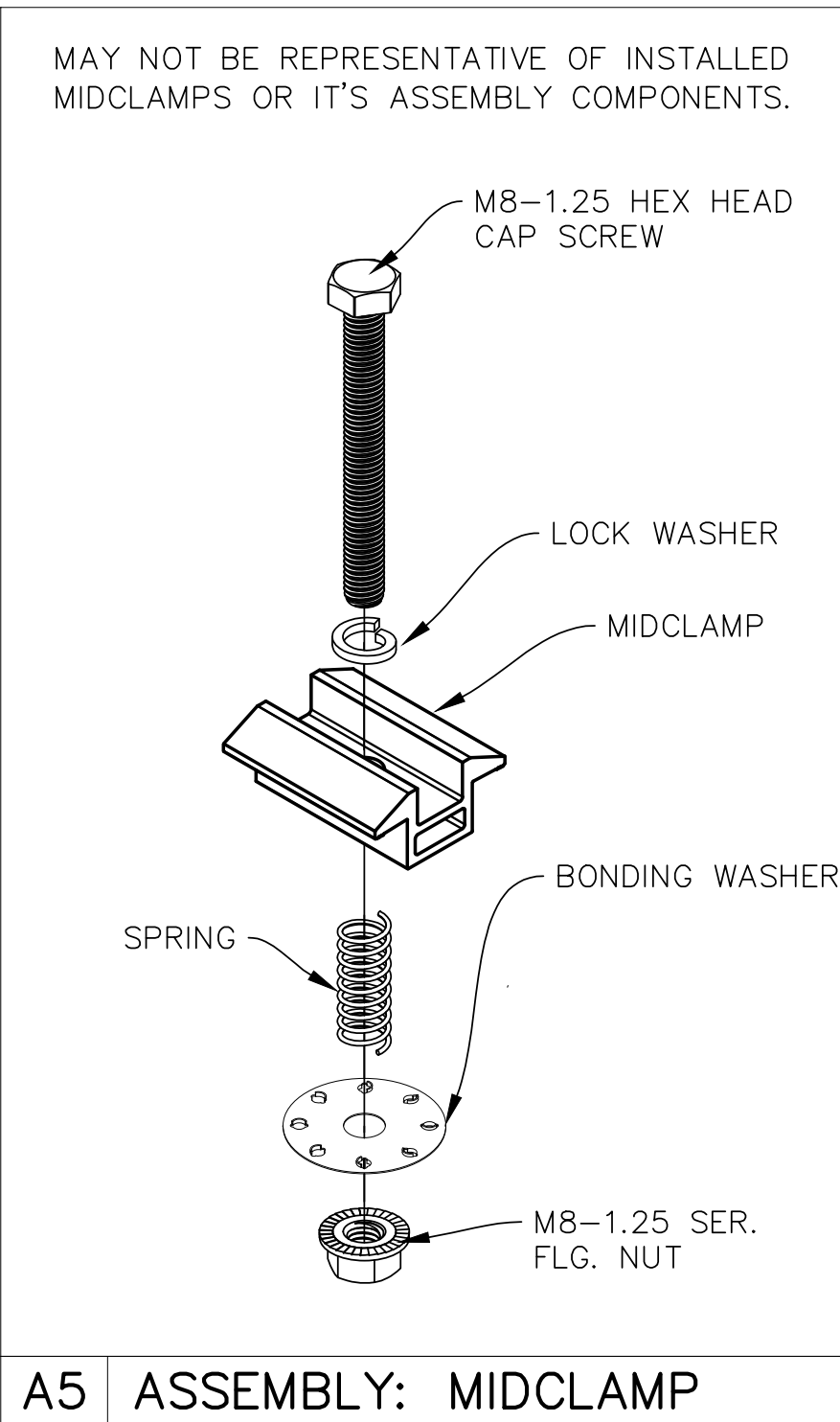
C4 ASSEMBLY: ENDCLAMP



A1 CONNECTION: TVS BRACE-TO-PURLIN



A3 TOP (ISO) VIEW: PV CLAMP LOCATIONS



A5 ASSEMBLY: MIDCLAMP

NOTES:

- HARDWARE TORQUE VALUES:

1/2"-13 STAINLESS STEEL
MIN.: 40 FT-LBS

M8-1.25 STAINLESS STEEL
MIN.: 14.0 FT-LBS
NOM.: 15.6 FT-LBS
MAX.: 25 FT-LBS
- DEPICTED HARDWARE AND PART PLACEMENT NOT INDICATIVE OF PREFERRED OR REQUIRED POSITIONS.
- HOLE/SLOT PATTERNS IN PARTS ALLOW FOR DEVIATION FROM NOMINAL DIMENSIONS, MULTIPLE PART POSITIONS, AND MULTIPLE TILT ANGLES.
- SEE INSTALLATION MANUAL FOR SETUP INSTRUCTIONS.
- SERRATED FLANGED BOLTS MAY BE REPLACED WITH EQUIVALENT PRESS-IN BOLTS.
- PRESS-IN BOLTS, WHERE PRESENT, TO BE INSTALLED TO MANUFACTURERS' RECOMMENDED VALUES.
- OTHER SPECIFIC CONNECTIONS ELSEWHERE IN PRINT SET.
- SERRATED HARDWARE MAY BE REPLACED WITH EQUIVALENT HARDWARE WITH WASHERS IF NECESSARY.
- STAINLESS STEEL HARDWARE MAY BE REPLACED WITH GALVANIZED STEEL HARDWARE OR CORROSION AND STRENGTH COMPARABLE HARDWARE MATERIALS AND FINISHES.
- UNLESS NOTED OTHERWISE, ALL HARDWARE MAY BE INSTALLED IN EITHER DIRECTION (NUT/BOLT MAY BE ON EITHER SIDE OF CONNECTION).
- WHEN NECESSARY, ADDITIONAL HOLES MAY BE DRILLED TO COMPLETE CONNECTION. ENGINEERING SHALL BE CONTRACTED PRIOR TO FIELD MODIFICATIONS OF PARTS.
- EASE/WEST CABLE BRACING (C1) TO BE INSTALLED IN THE SPACE BETWEEN ANCHOR SETS (BAY).
- MINIMUM CABLE BREAKING STRENGTH DETERMINED BY PROJECT SPECIFIC STRUCTURAL CALCULATIONS.
- CABLE TO BE STAINLESS STEEL AIRCRAFT CABLE.
- CABLE MAY BE OF ANY CONFIGURATION (IE. 7X7 OR 7X19) AS LONG AS IT MEETS THE REQUIREMENTS LISTED ON THIS SHEET.
- LENGTH OF BRACES WILL VARY DEPENDENT ON PROJECT SPECIFICS.
- TRANSVERSE BRACE SETS SHALL BE INSTALLED AT FREQUENCY INDICATED.
- TRANSVERSE BRACE SHALL BE FASTENED IN THREE PLACES (ONCE TO EACH ZEE).
- TRANSVERSE BRACES ARE NOT A REQUIREMENT OF THE STRUCTURAL MODELS. APA REQUIRES THEIR PRESENCE AS AN ASSEMBLY AID ONLY.
- DUE TO IT'S NON-STRUCTURAL NATURE, TRANSVERSE BRACE PROFILE, THICKNESS, MATERIAL, STRENGTH, COATING, FREQUENCY, AND INSTALLATION MAY CHANGE AT ANY TIME AT THE DISCRETION OF APA, BY APPROVAL OF APA ENGINEERING.
- WHERE TRANSVERSE BRACE CANNOT BE INSTALLED DUE TO NS CHORD (OUT OF NOMINAL LOCATION), BRACE SHALL BE RELOCATED TO NEXT NEAREST REASONABLE SPLICE.
- TRANSVERSE BRACE MAY UTILIZE LOWER SPLICE BOLTS, WHERE PRESENT. SEE PURLIN SHEET FOR MORE INFORMATION.
- EACH PV MODULE SHALL BE CLAMPED IN 4 PLACES.
- A MAJORITY OF THE CLAMP BOLT FLANGES MUST TERMINATE OVER THE SLOT, AND NOT OVER THE KEYHOLE.
- SPRING, & PANEL GUIDE MAY NOT BE PRESENT AT ALL LOCATIONS, OR ANY LOCATIONS.
- ALL PANELS MUST BE GROUNDED/BONDED TO ZEE PURLINS. THIS MAY BE ACCOMPLISHED WITH THE PANEL GUIDE, BONDING WASHERS, DYNABOND EQUIPMENT OR OTHER APPROVED GROUNDING DEVICE.

NO.	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER: 2222708

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REVIEWED BY:

ISSUED FOR: FOR PERMIT ONLY

DATE: 07/13/2022

DRAWING NAME:

1. MODULE CONSTANTS

MAX. MODULE DIMS.				
WIDTH	44.65	IN	3.72	FT
LENGTH	95.12	IN	7.93	FT
HEIGHT	2.00	IN	0.17	FT
WEIGHT	76.00	LBS		
AREA	29.49	SQ FT		

2. DESIGN CONSTANTS

SNOW LOAD CONSTANTS		
TERRAIN TYPE	C	
EXPOSURE CONDITION	FULLY EXPOSED	
EXPOSURE FACTOR	0.90	Ce
THERMAL CONDITION	UNHEATED	
THERMAL FACTOR	1.20	Ct
IMPORTANCE CATEGORY	I	
IMPORTANCE FACTOR	0.80	Is
ROOF SURFACE TYPE	SLIPPERY	
VENTILATION	VENTILATED	

WIND LOAD CONSTANTS		
RISK CATEGORY	I	
VELOCITY PRESSURE COEFF.	0.85	Kd
EXPOSURE CATEGORY	C	
GUST EFFECT FACTOR	0.85	
TOPOGRAPHY FACTOR	1.0	Kzt

SEISMIC LOAD CONSTANTS		
RISK CATEGORY	I	
RESPONSE MODIFICATION FACTOR	1.25	
SYSTEM OVERSTRENGTH FACTOR	1.25	
DEFLECTION AMPLIFICATION FACTOR	1.25	
SEISMIC FORCE-RESISTING SYSTEM	CANTILEVERED COLUMN SYSTEMS; STEEL ORDINARY CANTILEVER	
SEISMIC IMPORTANCE FACTOR	1.00	
STRUCTURE TYPE	ALL OTHER SYSTEMS	
LONG-PERIOD TRANSITION PERIOD	6.00	SEC

TITAN – DUO
25° TILT
40 PSF SNOW
105 MPH WIND

3. SITE DESIGN LOADS

DEAD LOADS		
PER PANEL		
MODULES WEIGHT	76.00	LBS
EW STRUTS WEIGHT	20.46	LBS
MISC HARDWARE WEIGHT	5.00	LBS
TOTAL DEAD LOAD	101.46	LBS
PRESSURE	3.44	PSF
DISTRIBUTED LOAD	13.63	LB/FT

SNOW LOADS		
PER PANEL		
GROUND SNOW LOAD	40	PSF
TILT ANGLE	25	DEGREES
WIDTH	3.72	FT
DEPTH	7.18	FT
SLOPED SNOW LOAD	19.79	PSF
AREA	26.73	SQ FT
RESULTANT FORCE	529.09	LBS
DISTRIBUTED LOAD	71.10	LB/FT

WIND LOADS		
PER CARTRIDGE		
ENVELOPE WIDTH	3.72	FT
ENVELOPE HEIGHT	3.35	FT
AREA	12.46	SQ FT
WIND SPEED (3-SEC PEAK GUST), VuIt	105	MPH
VELOCITY PRESSURE	20.37	PSF

SEISMIC LOADS		
PER CARTRIDGE		
MAX SHORT PERIOD ACCELERATION, Ss	0.560	G
MAX 1 SEC PERIOD ACCELERATION, S1	0.140	G
SITE COEF. SHORT PERIOD, FA	1.35	
SITE COEF. 1 SEC. PERIOD, FV	2.12	
SITE CLASS	D	
DESIGN CATEGORY	D	
MAX HEIGHT	10.85	FT
Cs	0.40	
WEIGHT OF STRUCTURE	19,485	LB
SEISMIC BASE SHEAR	7,868	LBS
SEISMIC BASE SHEAR – PER RACK	7,868	LBS
LOAD PER POST	357.63	LBS

4. LOAD COMBOS.

LOAD COMBINATIONS	
LRFD	
CODE	FORMULA
D1	1.4DL
D2	1.2DL+0.5SL
D3	1.2DL+1.6SL
D4	1.2DL+0.5WL1
D5	1.2DL+0.5WL2
D6	1.2DL+0.5WL3
D7	1.2DL+0.5WL4
D8	1.2DL+0.5WL5
D9	1.2DL+0.5WL6
D10	1.2DL+1.6SL+0.5WL1
D11	1.2DL+1.6SL+0.5WL2
D12	1.2DL+1.6SL+0.5WL3
D13	1.2DL+1.6SL+0.5WL4
D14	1.2DL+1.6SL+0.5WL5
D15	1.2DL+1.6SL+0.5WL6
D16	1.2DL+WL1
D17	1.2DL+WL2
D18	1.2DL+WL3
D19	1.2DL+WL4
D20	1.2DL+WL5
D21	1.2DL+WL6
D22	1.2DL+0.5SL+WL1
D23	1.2DL+0.5SL+WL2
D24	1.2DL+0.5SL+WL3
D25	1.2DL+0.5SL+WL4
D26	1.2DL+0.5SL+WL5
D27	1.2DL+0.5SL+WL6
D28	1.2DL+0.2SL
D29	1.2DL+EL1
D30	1.2DL+EL2
D31	1.2DL+EL3
D32	1.2DL+EL4
D33	1.2DL+0.2SL+EL1
D34	1.2DL+0.2SL+EL2
D35	1.2DL+0.2SL+EL3
D36	1.2DL+0.2SL+EL4
D37	0.9DL+WL1
D38	0.9DL+WL2
D39	0.9DL+WL3
D40	0.9DL+WL4
D41	0.9DL+WL5
D42	0.9DL+WL6
D43	0.9DL+EL1
D44	0.9DL+EL2
D45	0.9DL+EL3
D46	0.9DL+EL4

LOAD COMBINATIONS	
ASD	
CODE	FORMULA
D1	DL
D2	DL+SL
D3	DL+0.75SL
D4	DL+0.6WL1
D5	DL+0.6WL2
D6	DL+0.7EL1
D7	DL+0.7EL2
D8	DL+0.7EL3
D9	DL+0.7EL4
D10	DL+0.75SL+0.45WL1
D11	DL+0.75SL+0.45WL2
D12	DL+0.75SL+0.525EL1
D13	DL+0.75SL+0.525EL2
D14	DL+0.75SL+0.525EL3
D15	DL+0.75SL+0.525EL4
D16	0.6DL+0.6WL1
D17	0.6DL+0.6WL2
D18	0.6DL+0.7EL1
D19	0.6DL+0.7EL2
D20	0.6DL+0.7EL3
D21	0.6DL+0.7EL4
D22	DL+0.6WL3
D23	DL+0.6WL4
D24	DL+0.6WL5
D25	DL+0.6WL6
D26	DL+0.75SL+0.45WL3
D27	DL+0.75SL+0.45WL4
D28	DL+0.75SL+0.45WL5
D29	DL+0.75SL+0.45WL6
D30	0.6DL+0.6WL3
D31	0.6DL+0.6WL4
D32	0.6DL+0.6WL5
D33	0.6DL+0.6WL6

5. FINAL DESIGN LOADS

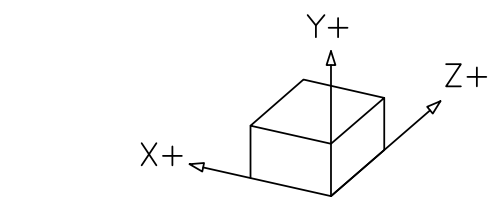
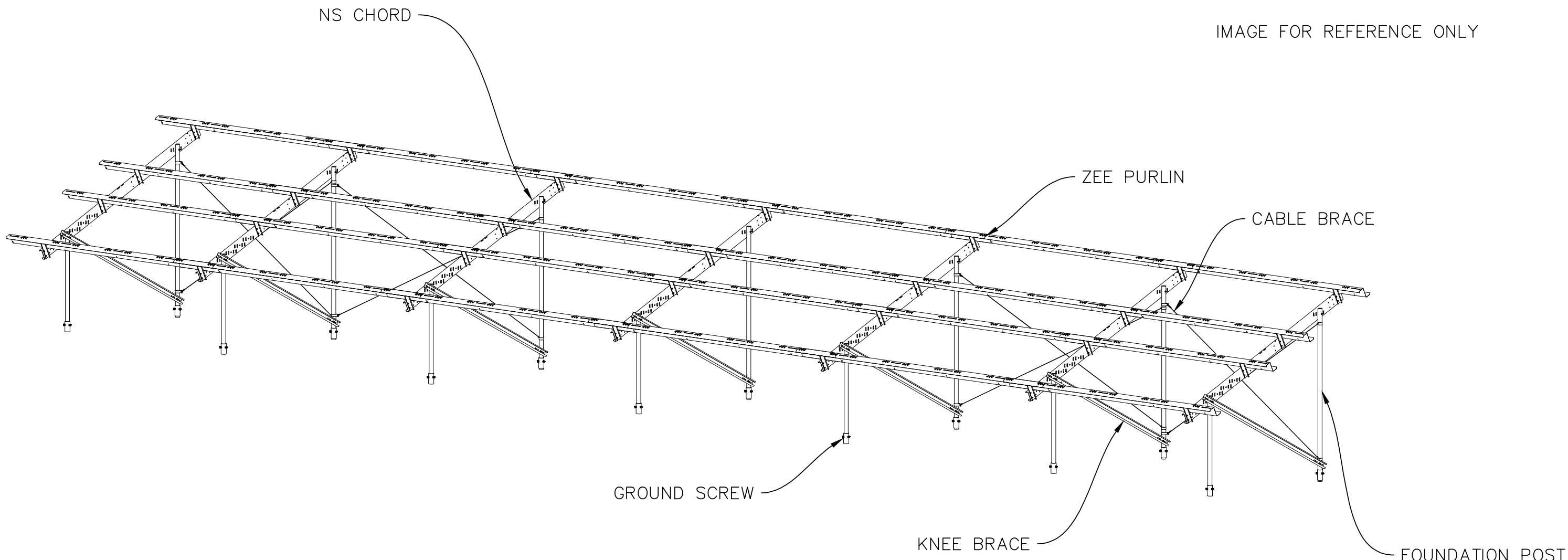
FORCES				
ABBRV.	NAME	RESULTANT LOAD	DISTRIBUTED LOAD (LB/FT/PC.)	DIR.
DL	DEAD LOAD	101.46	–13.63	–Y
SL	SNOW LOAD	529.09	–71.10	–Y
SEE CALC PACKAGE FOR WIND LOADING				
		LB/POST		
EL1	SEISMIC LEFT	357.63		+X
EL2	SEISMIC RIGHT	–357.63		–X
EL3	SEISMIC NORTH	357.63		+Z
EL4	SEISMIC SOUTH	–357.63		–Z

6. ANALYSIS RESULTS:
LRFD

STEEL CODE CHECK SUMMARY – LRFD						
	GREEN ZONE		YELLOW ZONE		ORANGE ZONE	
DESC.	CTRL EQ.	RATIO	CTRL EQ.	RATIO	CTRL EQ.	RATIO
FOUNDATION POST	D13	0.56	D13	0.59	D25	0.56
ZEE PURLIN	D14	0.97	D14	0.77	D14	0.94
CABLE BRACE	D34	<0.93	D34	0.93	D33	0.92
KNEE BRACE	D25	0.43	D25	0.73	D25	0.76
NS CHORD	D13	0.83	D38	0.81	D34	0.78

7. ANALYSIS RESULTS:
ASD

MAX/MIN SUPPORT REACTIONS – ASD							
DIR.	SIGN	GREEN ZONE		YELLOW ZONE		ORANGE ZONE	
		LOAD (LBS)	LOAD COMB.	LOAD (LBS)	LOAD COMB.	LOAD (LBS)	LOAD COMB.
X	MAX	0	D13	1404	D7	1394	D19
	MIN	0	D18	–1404	D18	–1394	D6
Y	MAX	3714	D27	4055	D27	3667	D27
	MIN	–2961	D17	–4270	D17	–4086	D17
Z	MAX	1354	D22	1897	D30	1742	D30
	MIN	–735	D31	–1578	D23	–1646	D23



MEMBER SUMMARY		
DESCRIPTION	SECTION	MATERIAL
KNEE BRACE	CEE 3 X 2 X 0.078	A653 SS GR 80 CL1
FOUNDATION POST	POST 2.375 X 0.095	A570 GR50 HOT ROLLED
NS CHORD	CEE 6 X 2 X 0.108	A653 HSLAS GR 80
ZEE PURLIN	ZEE 6 X 3 X 0.055	A653 SS GR 80–19A
CABLE BRACE	CABLE BRACE 5/32	A36

SIEMENS SMART
INFRASTRUCTURE

6 BRITISH AMERICAN BLVD
LATHAM, NY 12110

SIEMENS

ALBANY RADAR TOWER SOLAR
897 WATERVLLET SHAKER ROAD
ALBANY, NY 12205

NO.	DATE:	DESCRIPTION:
Revisions		

PROJECT NUMBER:	2222708
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DRAWN BY:

REVIEWED BY:

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DATE:	07/13/2022
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DRAWING NAME:

STRUCTURAL ANALYSIS