

PROJECT INFORMATION

SCOPE OF WORK: UNMANNED TELECOMMUNICATIONS FACILITY MODIFICATIONS  
 SITE ADDRESS: 396 CEDAR STREET  
 ASHLAND, MA 01721  
 LATITUDE: 42.23536200° N  
 LONGITUDE: -71.43959400° W  
 JURISDICTION: NATIONAL, STATE & LOCAL CODES OR ORDINANCES  
 CURRENT USE: TELECOMMUNICATIONS FACILITY  
 PROPOSED USE: TELECOMMUNICATIONS FACILITY  
 PROJECT TYPE: ANCHOR SITE  
 DESIGN CONFIGURATION: 67D5A998E 6160

**SITE NUMBER: 4BS0539A**  
**SITE NAME: BS539/CEDAR STREET WT-RFP**

396 CEDAR STREET  
 ASHLAND, MA 01721  
 MIDDLESEX COUNTY

DESIGN CONFIGURATION: 67D5A998E 6160

DRAWING INDEX

REV

LOCUS MAP

GENERAL NOTES

T-1	TITLE SHEET	3
GN-1	GENERAL NOTES	3
A-1	COMPOUND & EQUIPMENT PLANS	3
A-2	ELEVATION	3
A-3	ANTENNA PLANS	3
A-4	DETAILS	3
S-1	STRUCTURAL DETAILS	3
S-2	CABINET MOUNTING DETAILS	3
S-3	STANDOFF BRACKET DETAILS	3
S-4	STRUCTURAL NOTES	3
G-1	GROUNDING, ONE-LINE DIAGRAM & DETAILS	3



- THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE NORTHEAST, LLC. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
- THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
- CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T-MOBILE REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

**APPROVED**

By Ryan Monte de Ramos at 7:28 pm, Mar 14, 2023



DIG SAFE SYSTEM, INC.



CALL BEFORE YOU DIG

CALL TOLL FREE: 811 OR 888-DIG-SAFE

UNDERGROUND SERVICE ALERT



SITE NUMBER: 4BS0539A  
 SITE NAME: BS539/CEDAR STREET WT-RFP  
 396 CEDAR STREET  
 ASHLAND, MA 01721  
 MIDDLESEX COUNTY

T-MOBILE NORTHEAST LLC  
 15 COMMERCE WAY, SUITE B  
 NORTON, MA 02766  
 OFFICE: (508) 286-2700  
 FAX: (508) 286-2893

NO.	DATE	REVISIONS	BY	CHK
0	08/27/21	ISSUED FOR REVIEW	CDC	SNA
1	10/26/21	ISSUED FOR CONSTRUCTION	CDC	SNA
2	11/18/21	REVISED	MER	SNA
3	02/22/23	REVISED	MER	SNA

TITLE SHEET

SHEET NO.

T-1

## GENERAL NOTES

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.

2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.

3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE LESEE/LICENSEE REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.

4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.

5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS / CONTRACT DOCUMENTS.

7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S / VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.

8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.

9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS, ESTABLISHING AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS AS SHOWN HEREIN.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.

12. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETCETERA DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.

13. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.

14. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.

15. THE CONTRACTOR SHALL NOTIFY THE LESEE/LICENSEE REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESEE/LICENSEE REPRESENTATIVE.

16. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.

17. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. CALL THE FOLLOWING FOR ALL PRE-CONSTRUCTION NOTIFICATION 72-HOURS PRIOR TO ANY EXCAVATION ACTIVITY: DIG SAFE SYSTEM (MA, ME, NH, RI, VT): 1-888-344-7233 CALL BEFORE YOU DIG (CT): 1-800-922-4455

18. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS SHOWN HEREIN.

19. ALL DIMENSIONS SHOWN THUS ± ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS WHICH EFFECT THE CONTRACTORS WORK. CONTRACTOR TO VERIFY ALL DIMENSIONS WITH PROJECT OWNER PRIOR TO CONSTRUCTION.

20. NORTH ARROW SHOWN ON PLANS REFERS TO APPROXIMATE TRUE NORTH. PRIOR TO THE START OF CONSTRUCTION, ORDERING OR FABRICATING OF ANTENNA MOUNTS, CONTRACTOR SHALL CONSULT WITH PROJECT OWNER'S RF ENGINEER AND FIELD VERIFY ALL ANTENNA SECTOR LOCATIONS AND ANTENNA AZIMUTHS.

21. THE CONTRACTOR AND OR HIS SUB CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.

22. ANTENNA INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF RADIO ANTENNAS, TRANSMISSION LINES AND SUPPORT STRUCTURES.

23. COAXIAL CABLE CONNECTORS AND TRANSMITTER EQUIPMENT SHALL BE PROVIDED BY THE PROJECT OWNER AND IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. A SCHEDULE OF PROJECT OWNER SUPPLIED MATERIALS IS ATTACHED TO THE BID DOCUMENTS (SEE EXHIBIT 3). ALL OTHER HARDWARE TO BE PROVIDED BY THE CONTRACTOR. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.

24. WHEN "PAINT TO MATCH" IS SPECIFIED FOR ANTENNA CONCEALMENT, PAINT PRODUCT FOR ANTENNA RADOME SHALL BE SHERWIN WILLIAMS COROTHANE II. SURFACE PREPARATION AND APPLICATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND PROJECT OWNER'S GUIDELINE'S.

25. COORDINATION, LAYOUT, AND FURNISHING OF CONDUIT, CABLE AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

26. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.

27. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW.

28. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF UTILITY COMPANY ENGINEERING. THE AREAS OF THE PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE EQUIPMENT, DRIVEWAY OR LEASE AREA SHALL BE RESTORED TO ORIGINAL CONDITION.

29. GRAVEL, SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDED AND COVERED WITH MULCH UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL ESTABLISH AND MAINTAIN SOIL EROSION AND SEDIMENTATION CONTROLS AT ALL TIMES.

30. DURING CONSTRUCTION, PER FCC MANDATE, ENHANCED EMERGENCY (E911) SERVICE IS REQUIRED TO MEET NATIONWIDE STANDARDS.

31. FOR WIRELESS COMMUNICATIONS SYSTEMS, PROJECT OWNER'S IMPLEMENTATION REQUIRES DEPLOYMENT OF EQUIPMENT AND ANTENNAS GENERALLY DEPICTED ON THIS PLAN, ATTACHED TO OR MOUNTED IN CLOSE PROXIMITY TO THE BTS RADIO CABINETS. PROJECT OWNER RESERVES THE RIGHT TO MAKE REASONABLE MODIFICATIONS TO E911 EQUIPMENT AND LOCATION AS TECHNOLOGY EVOLVES TO MEET REQUIRED SPECIFICATIONS.

32. SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL

ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

APPLICABLE BUILDING CODES:

SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN. BUILDING CODE:

MASSACHUSETTS STATE BUILDING CODE 780 CMR, 9TH EDITION  
ELECTRICAL CODE: MASSACHUSETTS 527 CMR 12.00 (NEC 2020)  
NFPA 780, 2017

## ELECTRICAL AND GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.

2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.

3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.

4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.

5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.

6. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.

7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THHN INSULATION.

8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.

9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE AND GREENLEE CONDUIT MEASURING TAPE IN EACH INSTALLED TELCO CONDUIT.

10. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.

11. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.

12. PPC SUPPLIED BY PROJECT OWNER.

13. GROUNDING SHALL COMPLY WITH NEC ART. 250.

14. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.

**ADDITIONAL NOTE:**  
GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE DONE IN ACCORDANCE WITH "T-MOBILE BTS SITE GROUNDING STANDARDS".

15. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.

16. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.

17. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.

18. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.

19. BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.

20. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.

21. CONTRACTOR SHALL PROVIDE AND INSTALL OMNI DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALLS OVER EACH GROUND ROD AND BONDING POINT BETWEEN EXISTING TOWER/ (E) MONOPOLE GROUNDING RING AND EQUIPMENT GROUNDING RING.

22. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MAXIMUM RESISTANCE REQUIRED.

23. CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.



## ABBREVIATIONS

AAV	ALTERNATIVE ACCESS VENDOR	EG	EQUIPMENT GROUND	N.T.S.	NOT TO SCALE
AC	ALTERNATING CURRENT	EGB	EQUIPMENT GROUND BAR	REF	REFERENCE
AGL	ABOVE GRADE LEVEL	EGR	EQUIPMENT GROUND RING	REQ	REQUIRED
ATS	AUTOMATIC TRANSFER SWITCH	(F)	FUTURE	RF	RADIO FREQUENCY
AWG	AMERICAN WIRE GAUGE	GALV.	GALVANIZED	RGS	RIGID GALVANIZED STEEL
AZ	AZIMUTH	G.C.	GENERAL CONTRACTOR	RRU	REMOTE RADIO HEAD
BCW	BARE COPPER WIRE	KW	KILOWATT	TBD	TO BE DETERMINED
BEP	BUILDING ENTRY POINT	MGB	MASTER GROUND BUS	TBR	TO BE REMOVED
BTS	BASE TRANSCEIVER STATION	MIN.	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
CSC	CELL SITE CONTROLLER	(P)	PROPOSED	TYP	TYPICAL
(E)	EXISTING	PPC	POWER PROTECTION CABINET	U/G	UNDERGROUND

SITE NUMBER: 4BS0539A

SITE NAME: BS539/CEDAR STREET WT-RFP

396 CEDAR STREET  
ASHLAND, MA 01721  
MIDDLESEX COUNTY

T-MOBILE NORTHEAST LLC

15 COMMERCE WAY, SUITE B  
NORTON, MA 02766  
OFFICE: (508) 286-2700  
FAX: (508) 286-2893

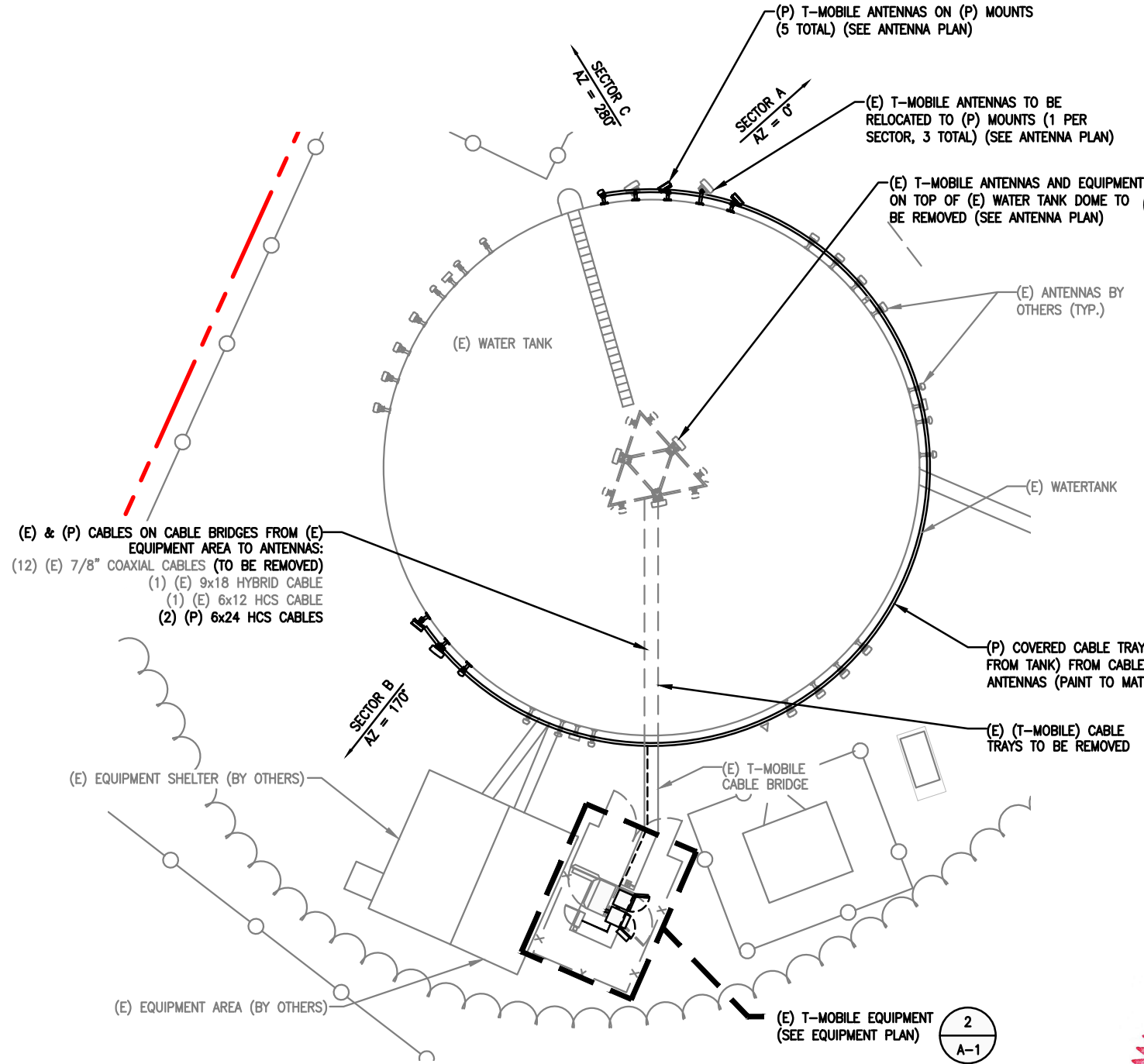
NO.	DATE	REVISIONS	BY	CHK
0	08/27/21	ISSUED FOR REVIEW	CDC	SNA
1	10/28/21	ISSUED FOR CONSTRUCTION	CDC	SNA
2	11/18/21	REVISED	MER	SNA
3	02/22/23	REVISED	MER	SNA

GENERAL NOTES

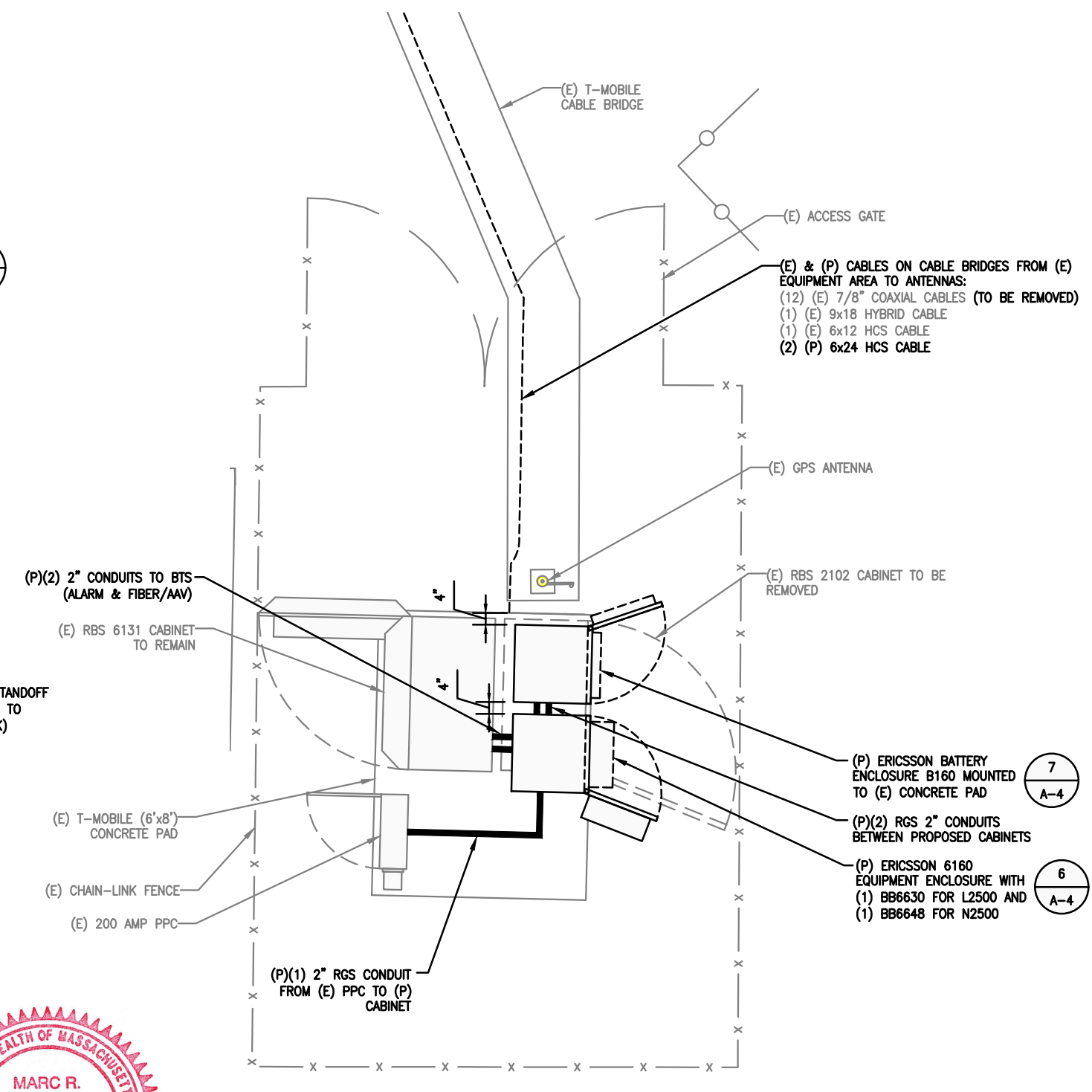
SHEET NO.

GN-1





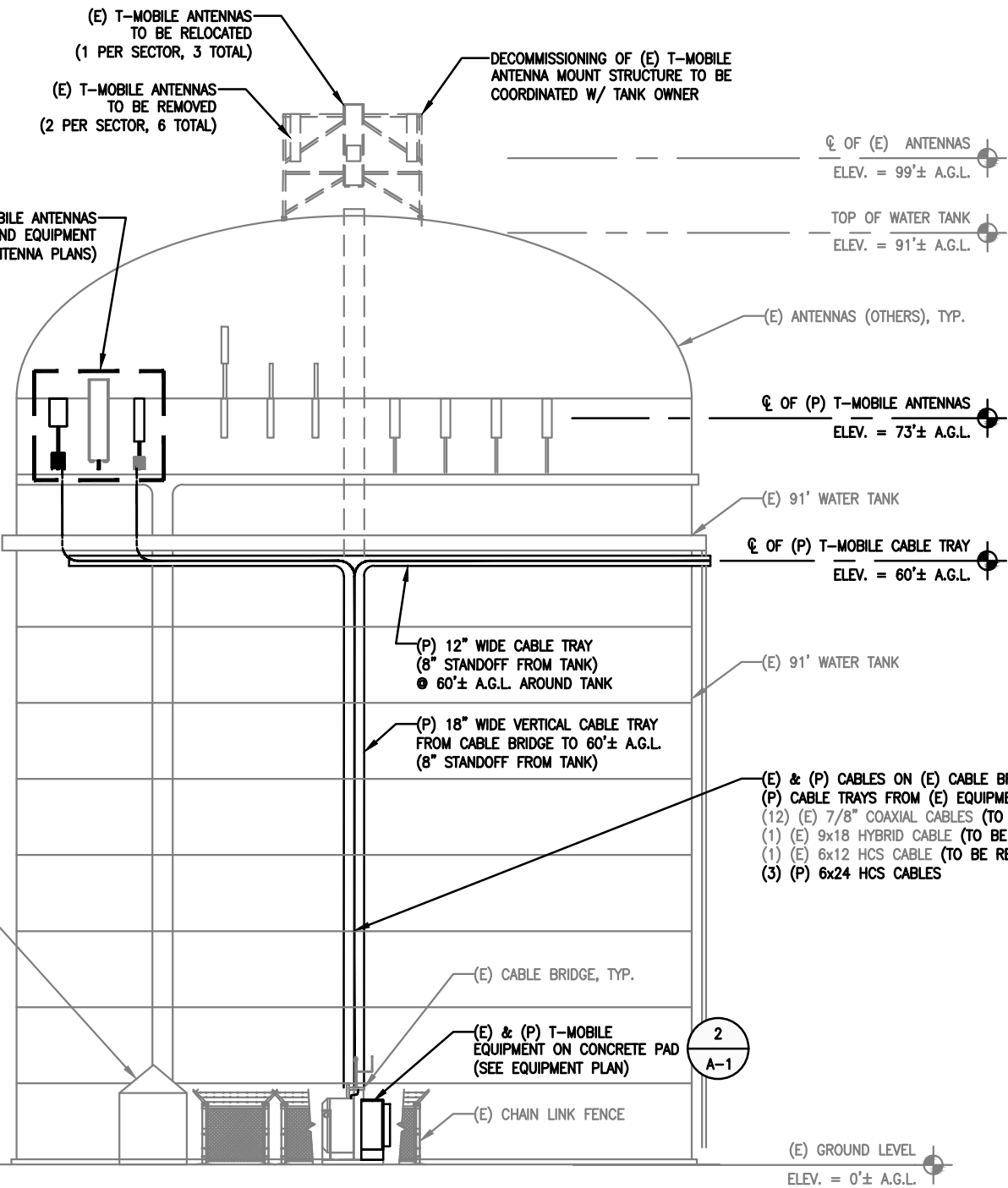
**1** COMPOUND PLAN  
 A-1 SCALE: 1"=20'-0"  
 NORTH



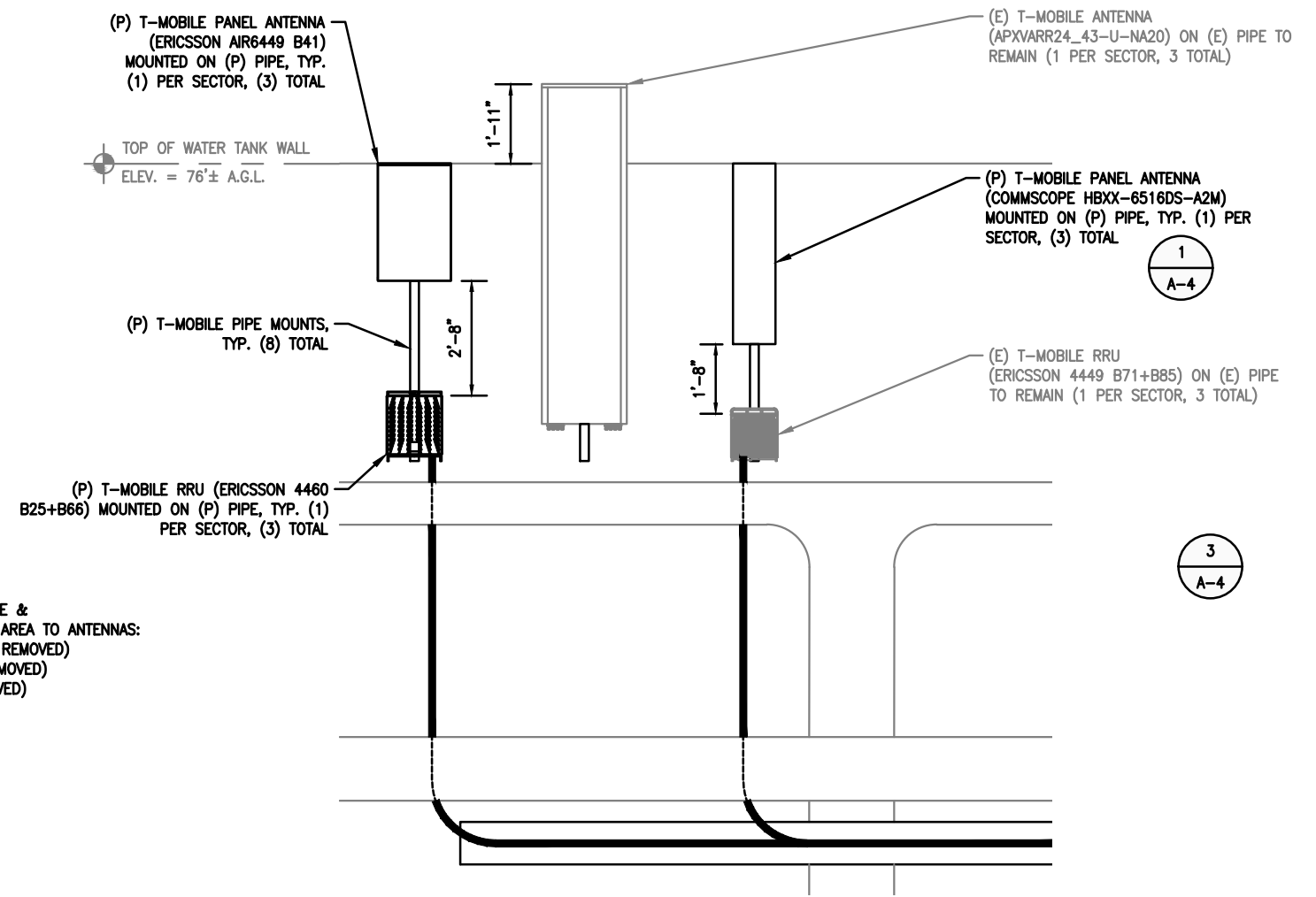
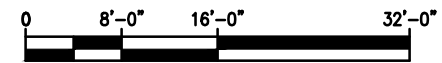
**2** EQUIPMENT PLAN  
 A-1 SCALE: 1/4"=1'-0"  
 NORTH



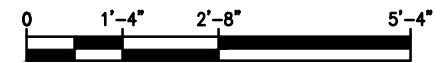
NO.	DATE	REVISIONS	BY	CHK
0	08/27/21	ISSUED FOR REVIEW	CDC	SNA
1	10/26/21	ISSUED FOR CONSTRUCTION	CDC	SNA
2	11/18/21	REVISED	MER	SNA
3	02/22/23	REVISED	MER	SNA



1 ELEVATION  
A-2 SCALE: 1/16" = 1'-0"



2 ENLARGED ANTENNA ELEVATION  
A-2 SCALE: 3/8" = 1'-0"



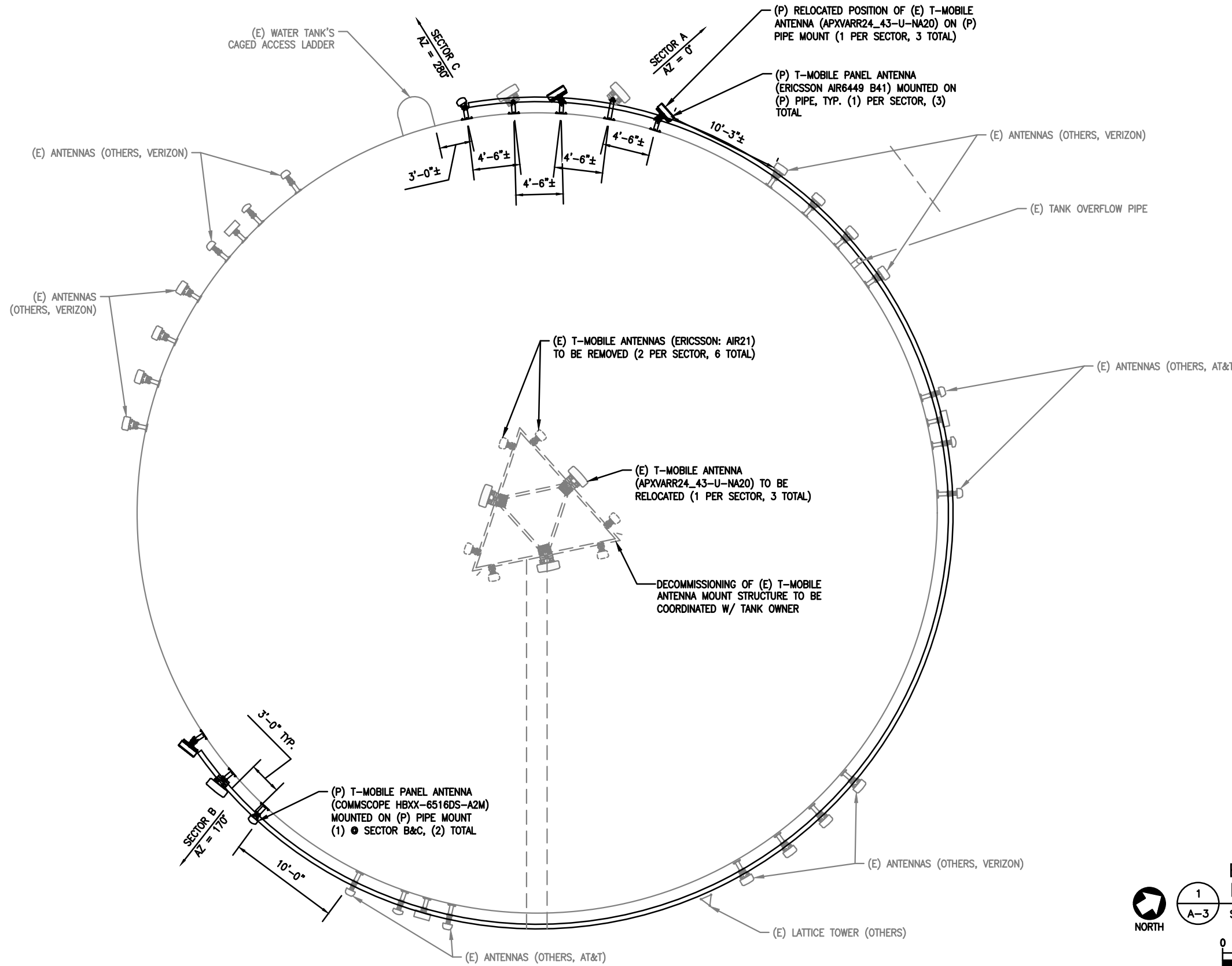
NOTE:  
ALL PROPOSED ANTENNAS AND RELATED APPURTENANCES TO BE PAINTED TO MATCH EXISTING BUILDING FACADE

NOTE:  
EXISTING DARK COAX TO BE REMOVED AS REQUIRED TO ACCOMMODATE (3) PROPOSED HYBRID CABLES

TOWER ANALYSIS NOTE:  
AN ANALYSIS TO DETERMINE THE STRUCTURAL CAPACITY OF THE EXISTING WATER TANK SHALL BE PERFORMED PRIOR TO THE INSTALLATION OF THE PROPOSED EQUIPMENT. AEG HAS NOT CONDUCTED AN ANALYSIS OF THE WATER TANK.



NO.	DATE	REVISIONS	BY	CHK
0	09/27/21	ISSUED FOR REVIEW	CDC	SNA
1	10/26/21	ISSUED FOR CONSTRUCTION	CDC	SNA
2	11/18/21	REVISED	MER	SNA
3	02/22/23	REVISED	MER	SNA



EXISTING ANTENNA SCHEDULE			
SECTOR	MAKE	MODEL#	SIZE (INCHES)
SECTOR A:	ERICSSON	AIR21 B2A_B4P	12x8x56
	RFS	APXVAARR24_43-U-NA20	24x8.7x95.9
	ERICSSON	AIR21 B2P_B4A	12x8x56
SECTOR B:	ERICSSON	AIR21 B2A_B4P	12x8x56
	RFS	APXVAARR24_43-U-NA20	24x8.7x95.9
	ERICSSON	AIR21 B2P_B4A	12x8x56
SECTOR C:	ERICSSON	AIR21 B2A_B4P	12x8x56
	RFS	APXVAARR24_43-U-NA20	24x8.7x95.9
	ERICSSON	AIR21 B2P_B4A	12x8x56

EQUIPMENT	ACTIVE TECHNOLOGY
HBXX-6516DS-A2M:	L1900, L2100, G1900, U2100
APXVAARR24_43-U-NA20:	L600, L700, N600
AIR6449 B41:	L2500, N2500
RRUS 4460 B25+B66:	L1900, L2100, G1900, U2100
RRUS 4449 B71+B85:	L600, L700, N600

PROPOSED ANTENNA SCHEDULE			
SECTOR	MAKE	MODEL#	SIZE (INCHES)
SECTOR A:	RFS	HBXX-6516DS-A2M	12.0x6.5x51.1
	RFS	APXVAARR24_43-U-NA20	24x8.7x95.9
	ERICSSON	AIR6449 B41	20.6x8.6x33.1
SECTOR B:	RFS	HBXX-6516DS-A2M	12.0x6.5x51.1
	RFS	APXVAARR24_43-U-NA20	24x8.7x95.9
	ERICSSON	AIR6449 B41	20.6x8.6x33.1
SECTOR C:	RFS	HBXX-6516DS-A2M	12.0x6.5x51.1
	RFS	APXVAARR24_43-U-NA20	24x8.7x95.9
	ERICSSON	AIR6449 B41	20.6x8.6x33.1

**EXISTING & PROPOSED ANTENNA PLAN**

SCALE: 1" = 10'-0"

NORTH

NO.	DATE	REVISIONS	BY	CHK
0	08/27/21	ISSUED FOR REVIEW	CDC	SNA
1	10/26/21	ISSUED FOR CONSTRUCTION	CDC	SNA
2	11/18/21	REVISED	MER	SNA
3	02/22/23	REVISED	MER	SNA

## EQUIPMENT SCHEDULE

### CURRENT EQUIPMENT

QUANTITY	DESCRIPTION
3	ERICSSON AIR21 B2A/B4P PANEL ANTENNAS
3	APXVARR24_43-U-NA20 PANEL ANTENNAS
3	ERICSSON AIR21 B2P/B4A PANEL ANTENNAS
3	ERICSSON RADIO 4449 B71+B85
3	GENERIC STYLE 1B TWIN AWS TMA'S
1	ERICSSON RBS 6131 EQUIPMENT CABINET
1	ERICSSON RBS 2102 EQUIPMENT CABINET
12	7/8" COAXIAL CABLES
1	9x18 HCS DC/FIBER CABLES
1	6x12 HCS HYBRID CABLES

### EQUIPMENT TO BE REMOVED

3	ERICSSON AIR21 B2A/B4P PANEL ANTENNAS
3	ERICSSON AIR21 B2P/B4A PANEL ANTENNAS
3	GENERIC STYLE 1B TWIN AWS TMA'S
1	ERICSSON RBS 2102 EQUIPMENT CABINET
12	7/8" COAXIAL CABLES

### EQUIPMENT TO BE ADDED

2	COMMSCOPE HBXX-6516DS-A2M PANEL ANTENNAS
3	ERICSSON AIR6449 B41 PANEL ANTENNAS
3	ERICSSON RADIO 4460 B25+B66
1	ERICSSON B160 BATTERY UNIT
1	ERICSSON B160 EQUIPMENT CABINET
3	6x24 HCS HYBRID CABLES

### FINAL EQUIPMENT CONFIGURATION

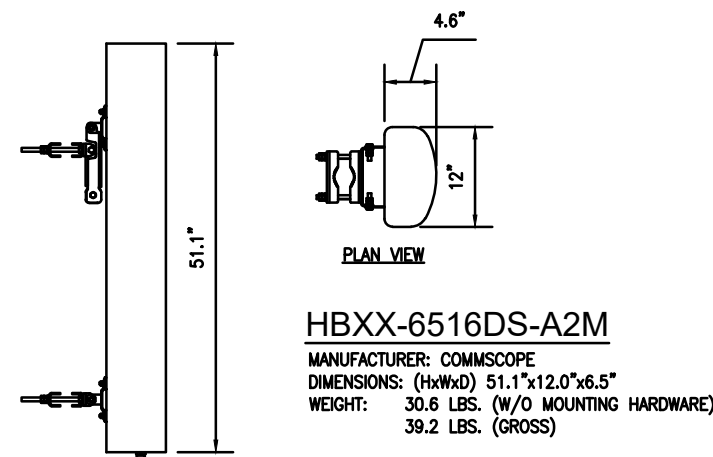
2	COMMSCOPE HBXX-6516DS-A2M PANEL ANTENNAS
3	RFS APXVARR24_43-U-NA20 PANEL ANTENNAS
3	ERICSSON AIR6449 B41 PANEL ANTENNAS
3	ERICSSON RADIO 4449 B71+B85
3	ERICSSON RADIO 4460 B25+B66
1	ERICSSON RBS 6131 EQUIPMENT CABINET
1	ERICSSON B160 BATTERY UNIT
1	ERICSSON B160 EQUIPMENT CABINET
1	9x18 HCS DC/FIBER CABLES
1	6x12 HCS HYBRID CABLES
2	6x24 HCS HYBRID CABLES

## RF CONFIGURATION

67D5A998E 6160

### SCOPE OF WORK

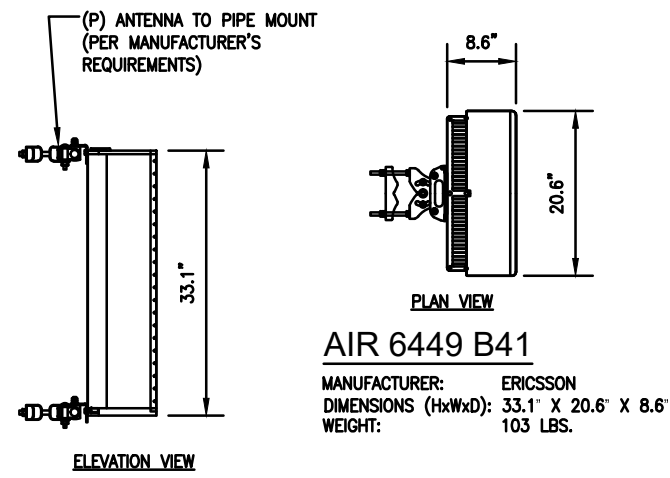
- REMOVE (6) PANEL ANTENNAS, (2) PER SECTOR
- REMOVE (3) TMA'S, (1) PER SECTOR
- REMOVE HYBRID CABLES (4 TOATL)
- REMOVE CABLE TRAYS
- INSTALL STAND-OFF NEW CABLE TRAYS
- INSTALL NEW ANTENNA MOUNTS (8 TOTAL)
- RELOCATE (3) PANEL ANTENNAS, (1) PER SECTOR
- RELOCATE (3) RRHs, (1) PER SECTOR
- INSTALL (1) NEW BATTERY CABINET
- INSTALL (1) NEW EQUIPMENT CABINET
- INSTALL (5) NEW PANEL ANTENNAS
- INSTALL (3) NEW RRU'S, (1) PER SECTOR
- INSTALL (3) 6x24 HCS HYBRID CABLES, (1) PER SECTOR



ELEVATION VIEW

PLAN VIEW

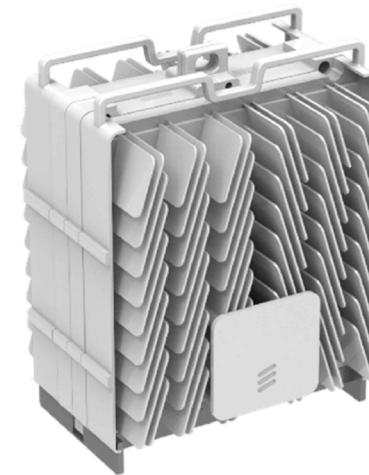
1 ANTENNA DETAIL  
A-4 SCALE: N.T.S.



ELEVATION VIEW

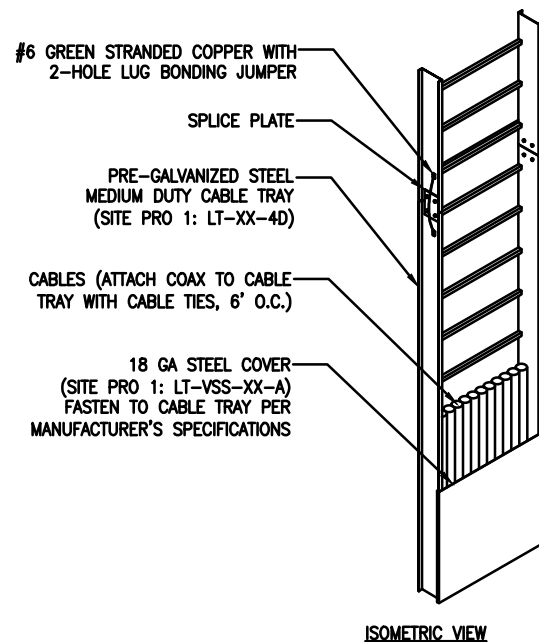
PLAN VIEW

2 ANTENNA DETAIL  
A-4 SCALE: N.T.S.

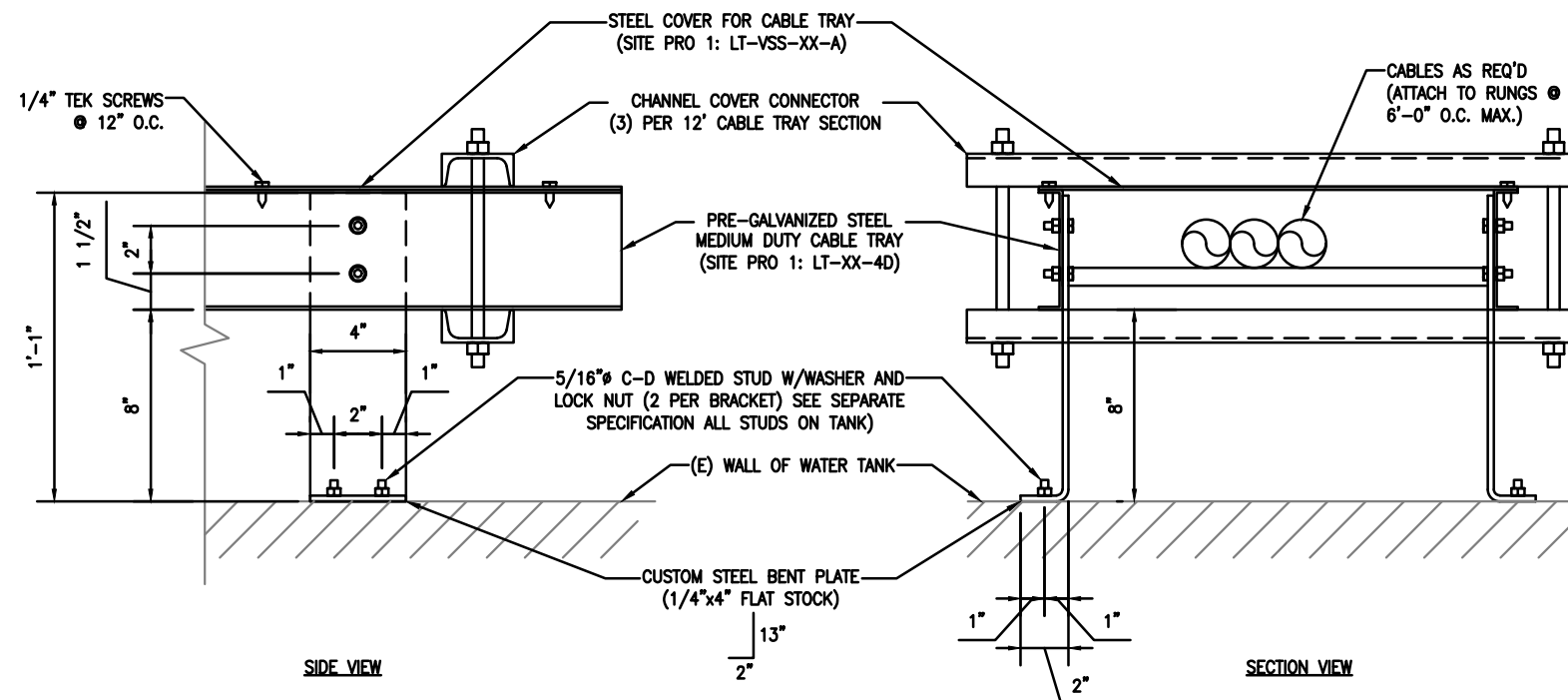


**RRUS-4460 B25+B66**  
 MANUFACTURER: ERICSSON  
 DIMENSIONS (HxWxD): 19.6"x15.7"x12.1"  
 WEIGHT: 109 LBS

3 TYPICAL RRU DETAIL  
A-4 SCALE: N.T.S.



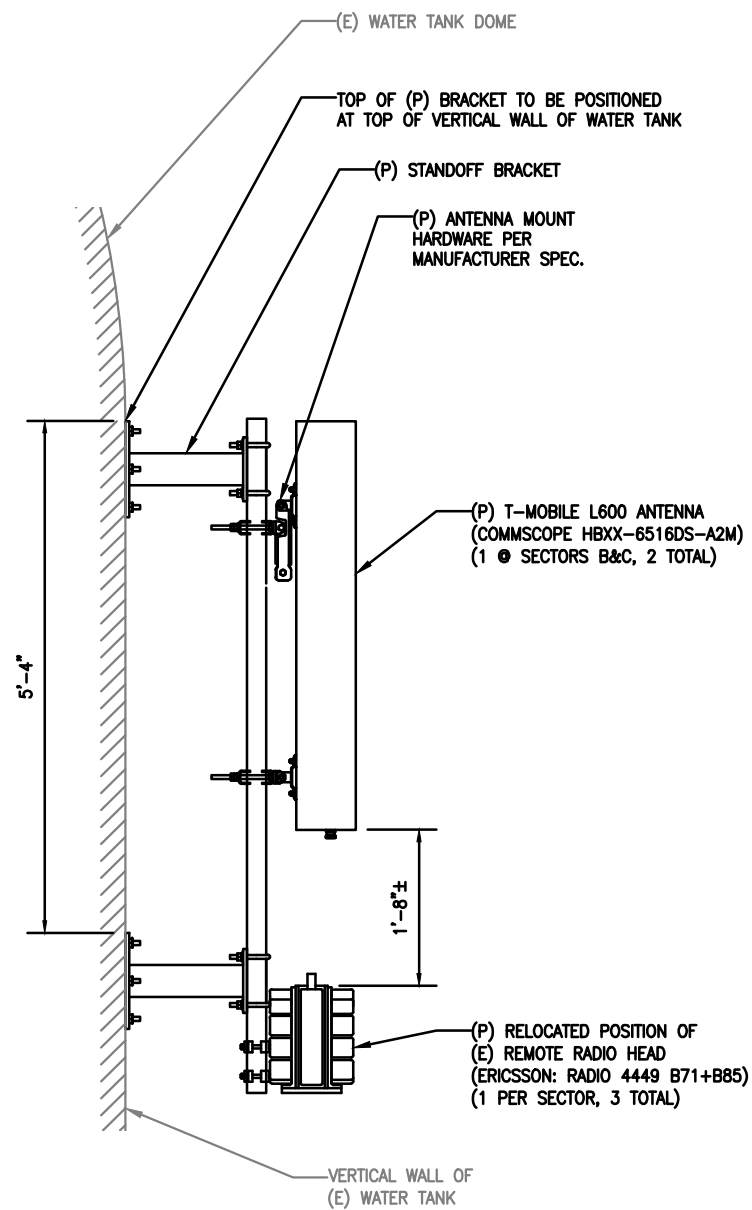
ISOMETRIC VIEW



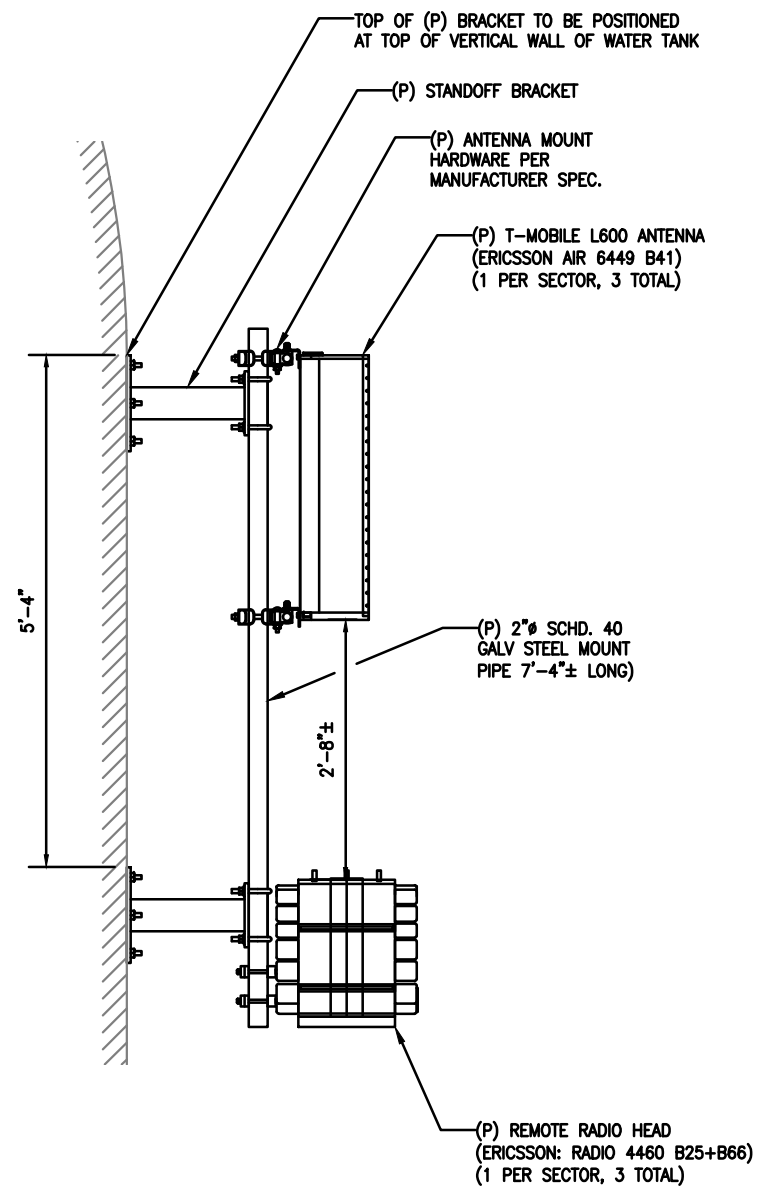
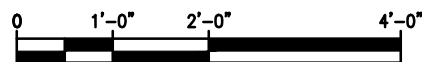
SIDE VIEW

SECTION VIEW

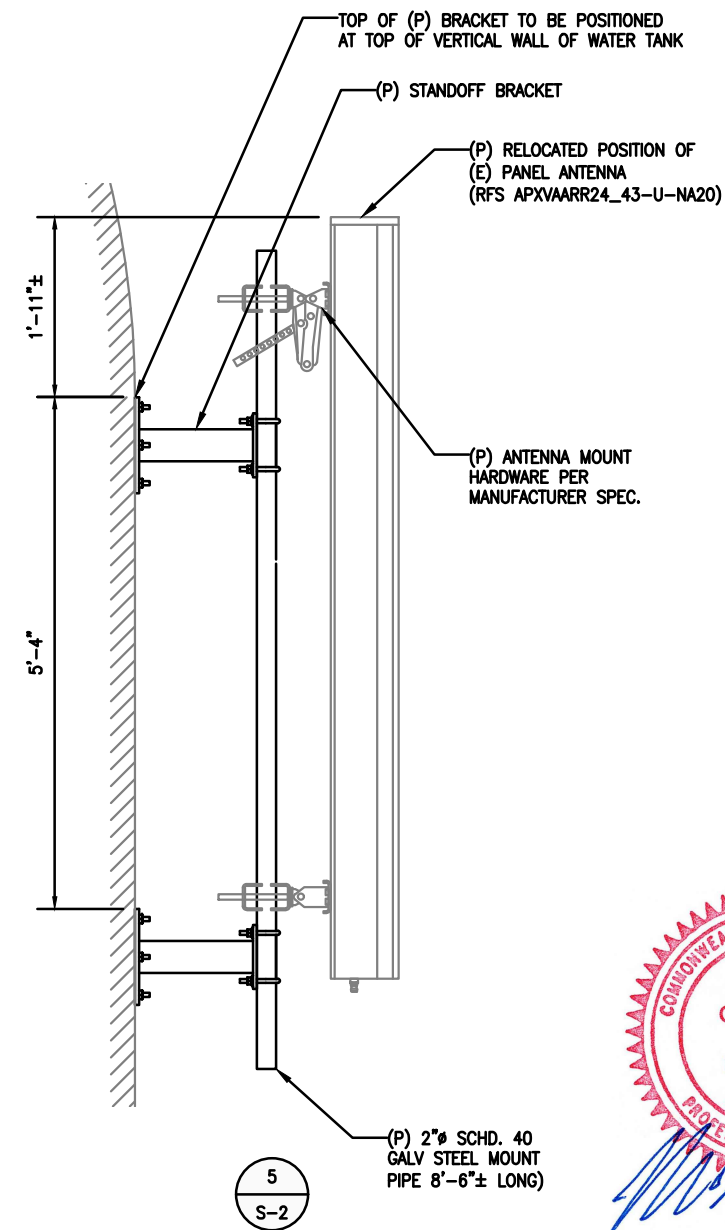
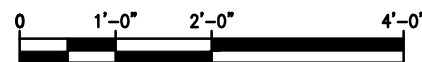
4 TANK-MOUNTED CABLE TRAY W/ STAND-OFF  
A-5 SCALE: N.T.S.



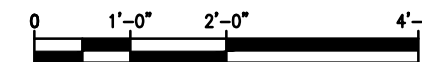
1 ANTENNA/RRU MOUNT DETAIL  
S-1 SCALE: 1/2" = 1'-0"



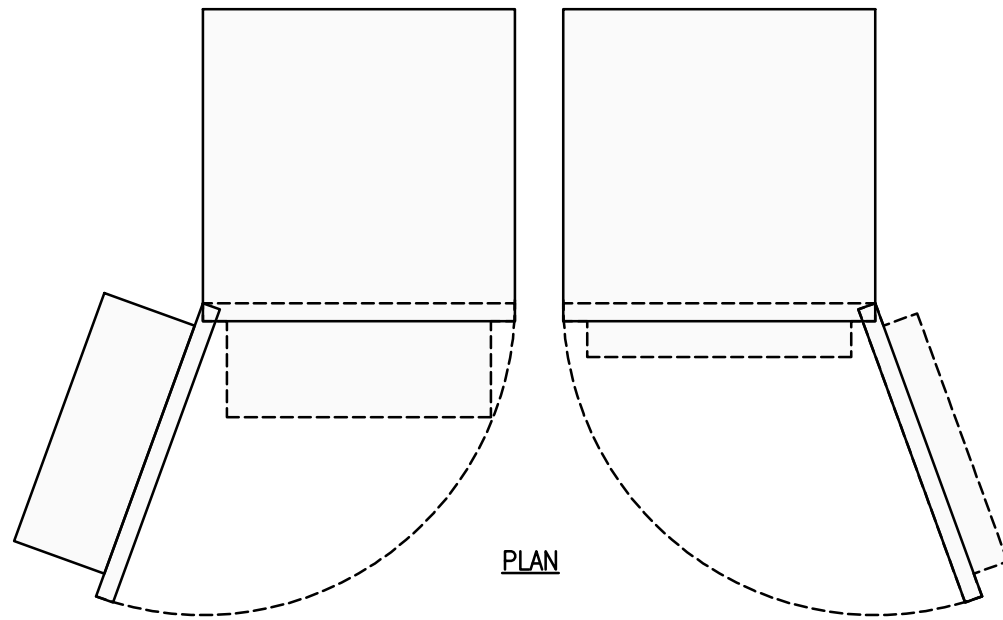
2 ANTENNA/RRU MOUNT DETAIL  
S-1 SCALE: 1/2" = 1'-0"



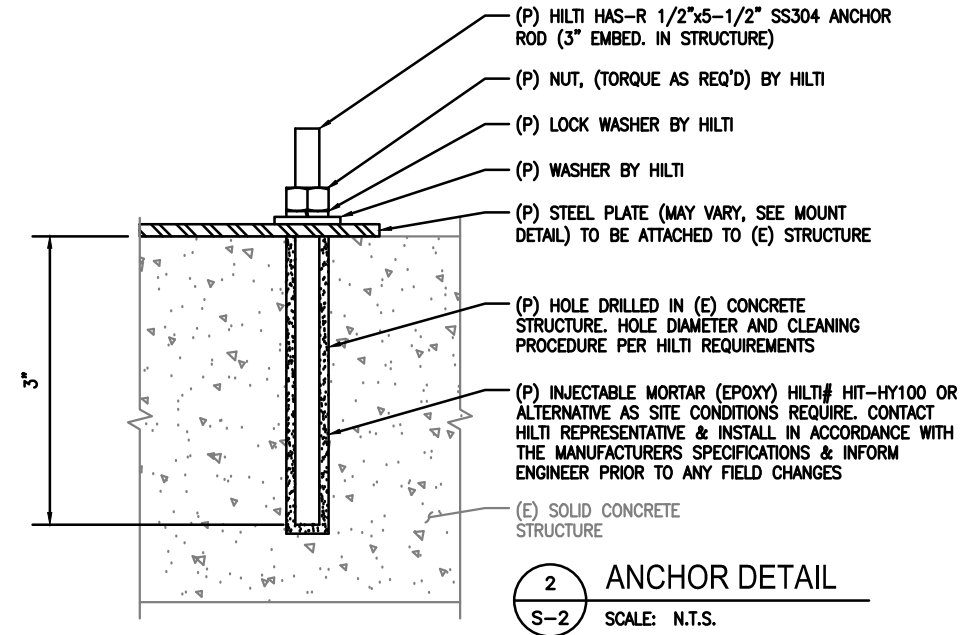
3 ANTENNA MOUNT DETAIL  
S-1 SCALE: 1/2" = 1'-0"



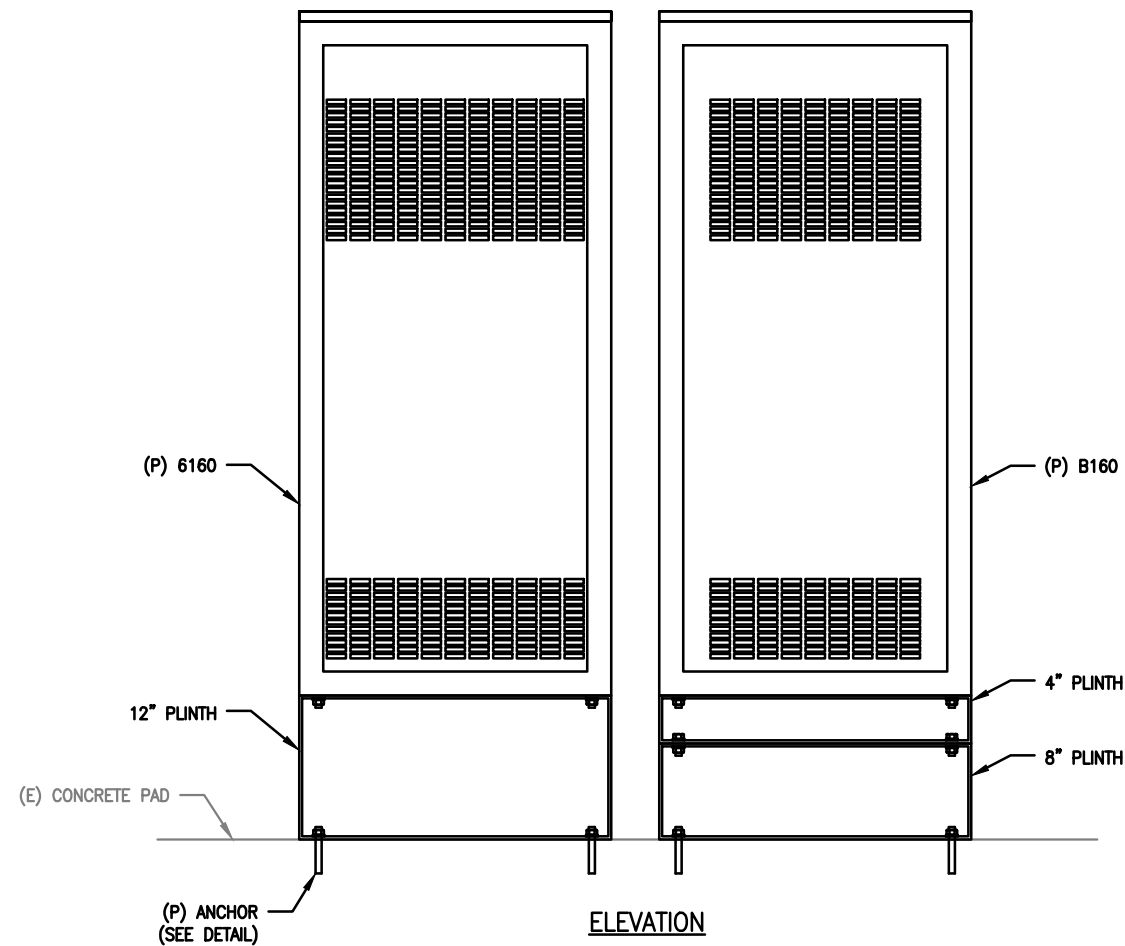
NO.	DATE	REVISIONS	BY	CHK
0	08/27/21	ISSUED FOR REVIEW	CDC	SNA
1	10/26/21	ISSUED FOR CONSTRUCTION	CDC	SNA
2	11/18/21	REVISED	MER	SNA
3	02/22/23	REVISED	MER	SNA



PLAN

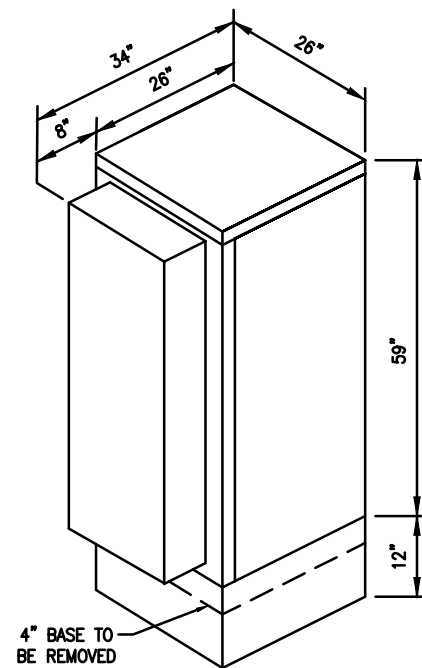


2 ANCHOR DETAIL  
S-2 SCALE: N.T.S.



ELEVATION

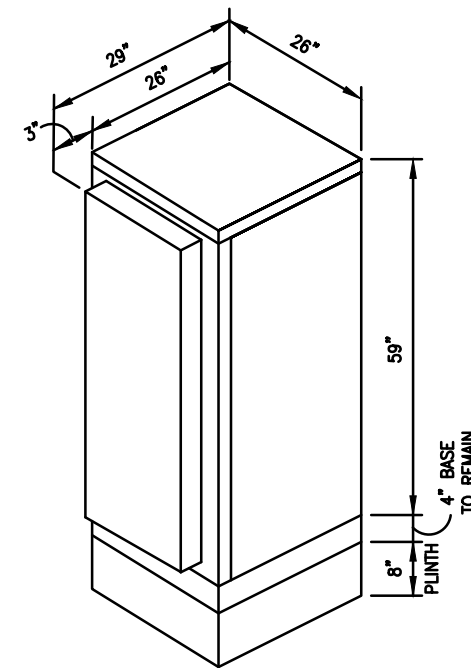
1 EQUIPMENT CABINET MOUNTING DETAILS  
S-2 SCALE: 3/4" = 1'-0"



ENCLOSURE 6160 AC

\*PRELIMINARY SPECIFICATIONS  
MANUFACTURER: ERICSSON  
DIMENSIONS: 32"x26"x71"  
WEIGHT W/O EQUIPMENT: 320 LBS.  
WEIGHT W/ EQUIPMENT: 605 LBS.

3 EQUIPMENT CABINET  
S-2 SCALE: N.T.S.



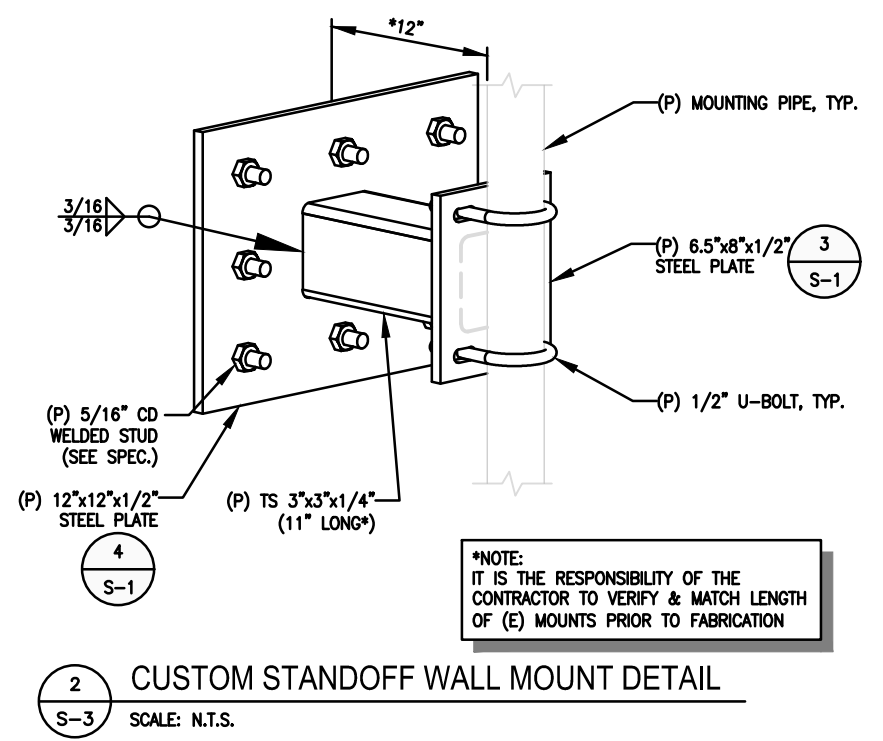
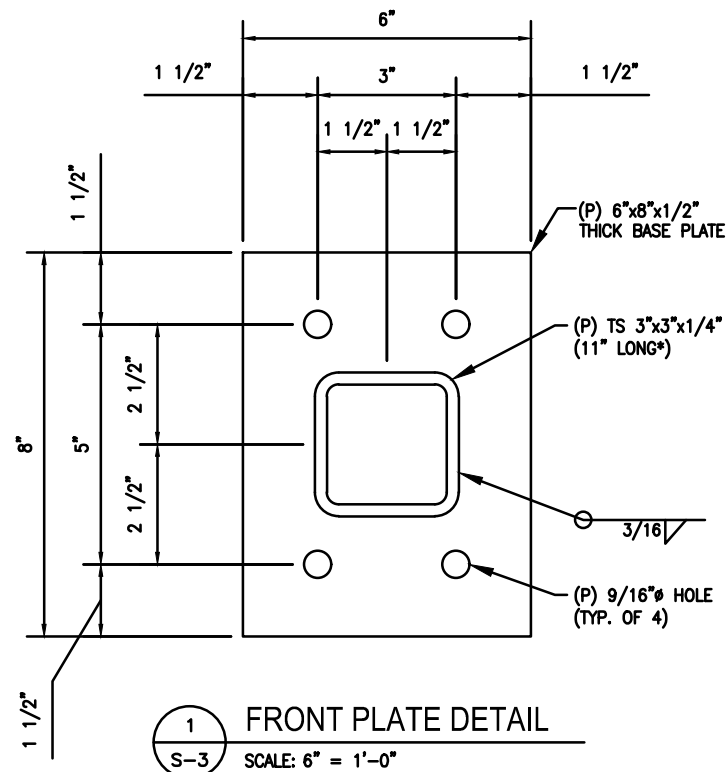
**STRUCTURAL LIMITATION:**  
STRUCTURAL ANALYSIS WAS CONDUCTED UTILIZING THE T-MOBILE DESIGN STANDARD OF TWO BATTERY STRINGS (MAXIMUM TOTAL WEIGHT OF 1,353 LBS). THE GENERAL CONTRACTOR AND/OR T-MOBILE SHALL NOTIFY THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION IF ADDITIONAL BATTERIES ARE TO BE INSTALLED AS STRUCTURAL DESIGN MODIFICATIONS MAY BE REQUIRED.

ENCLOSURE B160

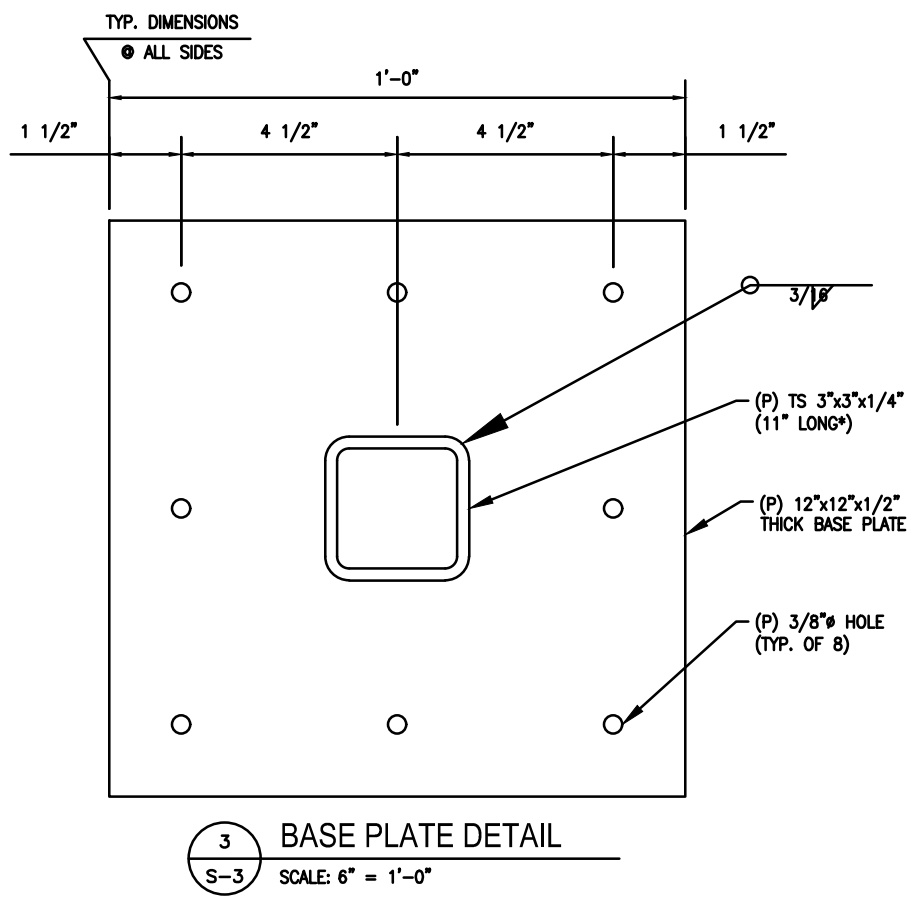
\*PRELIMINARY SPECIFICATIONS  
MANUFACTURER: ERICSSON  
DIMENSIONS: 29"x26"x71"  
WEIGHT W/O BATTERIES: 295 LBS.  
WEIGHT W/ BATTERIES: 1,353 LBS.  
ONLY TWO (2) STRINGS OF BATTERIES ALLOWED

4 BATTERY CABINET  
S-2 SCALE: N.T.S.

NO.	DATE	REVISIONS	BY	CHK
0	08/27/21	ISSUED FOR REVIEW	CDC	SNA
1	10/26/21	ISSUED FOR CONSTRUCTION	CDC	SNA
2	11/18/21	REVISED	MER	SNA
3	02/22/23	REVISED	MER	SNA



\*NOTE:  
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY & MATCH LENGTH OF (E) MOUNTS PRIOR TO FABRICATION



NO.	DATE	REVISIONS	BY	CHK
0	08/27/21	ISSUED FOR REVIEW	CDC	SNA
1	10/26/21	ISSUED FOR CONSTRUCTION	CDC	SNA
2	11/18/21	REVISED	MER	SNA
3	02/22/23	REVISED	MER	SNA

## STUD WELDING SPECIFICATIONS:

### SPECIFICATION FOR STUD WELDING TO EXISTING WATER TANKS GENERAL:

- WELDING STUDS SHALL BE FLANGED THREADED LOW CARBON COPPER COATED STEEL STUDS, GRADE 1010 THROUGH 1020, CONFORMING TO ASTM A-106 "STEEL BARS, CARBON, COLD FINISHED, STANDARD QUALITY." ALL STUDS SHALL BE 5/16" DIAMETER x 1-3/4" LONG, UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS.
- STUDS MUST BE WELDED BY THE CAPACITOR DISCHARGE METHOD, NELSON NCD 100 SYSTEM, AS MANUFACTURED AND MARKETED BY TRW NELSON STUD WELDING DIVISION, ELYRIA, OHIO (800) 635-9353 OR (216) 329-0400 OR APPROVED EQUAL. FILLET WELDS ARE NOT ACCEPTABLE.
- CONTRACTOR SHALL RECEIVE IN WRITING THE OWNERS REQUIREMENTS FOR TANK INSPECTIONS PRIOR TO COMMENCING WITH THE WORK ON THE TANK. UPON THE COMPLETION OF CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A WRITTEN RELEASE FROM THE OWNER STATING THAT ALL WORK DONE WAS PERFORMED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND THE OWNERS WRITTEN REQUIREMENTS AND RELEASES ALL LIABILITY TO THE CONTRACTOR, THE ENGINEER, AND THE STUD MANUFACTURER.
- CONTRACTOR SHALL COMPLY WITH AWS D1.1 AND AWS C5.4 FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES." CONTRACTOR SHALL ADHERE TO AWS RECOMMENDED "SAFE PRACTICES FOR WELDING."
- WELDING PARAMETERS, MACHINE POWER AND DWELL TIME SHALL BE QUALIFIED FOR THE WELDING POSITION, MATERIAL THICKNESS AND STUD SIZE TO BE USED. IF CHANGES IN THE SET-UP OCCUR AS DEFINED IN AWS D1.1, THE PROCEDURE MUST BE REQUALIFIED.
- CONTRACTOR SHALL SUBMIT CERTIFICATION OF WELDERS FOR STUD WELDING TO THE ENGINEER PRIOR TO COMMENCEMENT OF THE WORK.
- CLEANING PROCEDURES SHALL BE VERIFIED AS MEETING THE MINIMUM REQUIREMENTS PER THE AWS WELDING HANDBOOK, VOLUME 2, "QUALITY CONTROL AND INSPECTION" FOR STUD WELDING. IF THE EXISTING COATING SYSTEM CONTAINS LEAD OR OTHER POTENTIALLY HAZARDOUS MATERIALS, SPECIAL PROCEDURES FOR REMOVAL AND DISPOSAL WILL BE REQUIRED.
- PREPARE SURFACE TO BE WELDED BY SPOT REMOVING PAINT TO BARE METAL USING POWER BRUSHING IN ACCORDANCE WITH SSPC-SP11, (STEEL STRUCTURES PAINTING COUNCIL, SSPC-VIS 1-671). USE A 3M STRIP-N-CLEAN FLEXIBLE WHEEL OR APPROVED EQUAL. A WIRE WHEEL IS NOT ACCEPTABLE.
- FOLLOW POWER TOOL CLEANING WITH A NON-FLAMMABLE SOLVENT CLEANING TO REMOVE ANY OILS, CONTAMINANTS, RUST OR DIRT PRIOR TO STUD WELDING. (SSPC-SP1 BY STEEL STRUCTURES PAINTING COUNCIL, SSPC-VIS 1-671) STUD QUALIFICATION TESTING AND SAMPLING.
- THE QUALIFICATION OF STUD APPLICATION AND PRE-PRODUCTION TESTING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 7 "STUD WELDING" OF AWS D1.1. INITIAL QUALIFICATION TESTING SHALL BE PERFORMED UNDER INSPECTION BY THE ENGINEER.
- BEFORE PRODUCTION, AT THE START OF EVERY SHIFT AND FOR EACH PARTICULAR SETUP, TESTING SHALL BE PERFORMED ON THE FIRST TWO STUDS THAT ARE WELDED. TESTING MAY BE PERFORMED ON A MATERIAL

SIMILAR TO THE PRODUCTION MEMBER IN THICKNESS AND PROPERTIES. TESTING SHALL INCLUDE A VISUAL EXAMINATION OF THE STUD WELD FOR A FULL 360-DEGREE FLASH. IN ADDITION, THE TEST SHALL INCLUDE TORQUE TESTING THE STUDS IN ACCORDANCE WITH THE FOLLOWING CRITERIA:

STUD DIAMETER (IN)	TESTING TORQUE (FT-LB)
1/4-20 UNC	4.2
5/16-18 UNC	8.6
1/2-13 UNC	37

IF FAILURE OCCURS, THE PROCEDURE SHALL BE CORRECTED AND TWO MORE STUDS SHALL BE WELDED AND TESTED.

- ALL PAINTED SURFACES AFFECTED BY WELDING OPERATIONS SHALL BE REPAINTED TO MATCH ADJACENT EXISTING SURFACES. PAINTING SHALL INCLUDE COATING OF THE STUDS.
- PRIOR TO REPAINTING, SURFACES SHALL BE SOLVENT CLEANED TO REMOVE ANY OILS, CONTAMINANTS, RUST OR DIRT PRIOR TO REPAINT. (SSPC-SP1 BY STEEL STRUCTURES PAINT COUNCIL, SSPCOVIS 1-671).
- EXTERIOR STEEL SHALL BE PAINTED WITH 1 COAT EPOXY PRIMER (DFT=5-7 MIL) AND 2 COATS POLYURETHANE FINISH (DFT=4-6 MIL) WITH COLOR TO MATCH EXISTING SURFACE. PAINT SHALL BE AS MANUFACTURED BY TNEC OR EQUAL COATING TO MATCH EXISTING. CONTRACTOR SHALL VERIFY OWNER'S PAINT REQUIREMENTS PRIOR TO THE COMMENCEMENT OF WORK.
- CONTRACTOR TO VERIFY COATING SYSTEMS ARE COMPATIBLE WITH THE EXISTING SYSTEMS BY ADHESION TESTING PER ASTM D3359 "MEASURING ADHESION BY TAPE TEST."
- CONTRACTOR TO VERIFY THAT CANS OF THE PRODUCT ARE NOT BEYOND MANUFACTURER RECOMMENDED SHELF LIFE. ASSURE THOROUGH MIXING OF PREMEASURED TWO COMPONENT COATING SYSTEMS.
- SURFACE CLEANING SHALL BE FOLLOWED WITH PRIMER COAT ON THE SAME DAY.
- PAINT MUST BE APPLIED AT SURFACE AND AMBIENT TEMPERATURES BETWEEN 50 DEGREES TO 120 DEGREES FAHRENHEIT. NO PAINTING SHALL BE DONE ABOVE 80% RELATIVE HUMIDITY. THE AMBIENT TEMPERATURE BEFORE THE START OF COATING APPLICATION MUST BE AT LEAST 5 DEGREES FAHRENHEIT ABOVE THE DEW POINT AS DETERMINED BY CONVENTIONAL ACCEPTED STANDARDS.
- PAINT SHALL BE APPLIED USING A NATURAL BRISTLE BRUSH FOR A SMOOTH BRUSH FINISH.
- PAINT SHALL BE FEATHERED OUT AT TIE-IN AREAS OF EXISTING COATING. PAINT SHALL BE WORKED IN AND AROUND IRREGULARITIES IN THE SURFACE.
- PRIOR TO PRODUCTION, CONTRACTOR SHALL PERFORM THREE (3) TEST WELDS ON THE WATER TANK IN A LOCATION SPECIFIED BY THE TANK OWNER TO VERIFY THAT NO DAMAGE WILL OCCUR TO THE COATING SYSTEM ON THE INTERIOR OF THE TANK. ANY AND ALL DAMAGE TO THE INTERIOR COATING SHALL BE REPAIRED TO THE OWNER'S SATISFACTION. IF DAMAGE DOES OCCUR, THE PROCEDURE SHALL BE REEVALUATED BY THE ENGINEER, CONSTRUCTION AUTHORIZED REPRESENTATIVE, AND OWNER BEFORE COMMENCING WITH THE WORK.

## STRUCTURAL STEEL NOTES:

- FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION, "MANUAL OF STEEL CONSTRUCTION, ASD (LATEST EDITION).
- ALL STEEL DETAILS AND CONNECTIONS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", LATEST EDITION
- STEEL MATERIALS SHALL CONFORM TO THE FOLLOWING UNLESS OTHERWISE NOTED ON THE DRAWINGS:  
-ALL ROLLED SHAPES AND CHANNELS: ASTM A-572 OR A-992, MIN. YIELD STRENGTH OF 50 KSI  
-MISCELLANEOUS ANGLES: ASTM A-36, MIN YIELD STRENGTH OF 36 KSI  
-HOLLOW STRUCTURAL STEEL SECTIONS, (TUBES & PIPES): ASTM A500 GRADE B, MIN YIELD STRENGTH OF 42 KSI FOR PIPES AND 46 KSI FOR TUBES.
- ALL BOLTS SHALL CONFORM TO ASTM A325 OR A490, NUTS SHALL CONFORM TO ASTM A563 AND WASHERS SHALL CONFORM TO ASTM A-F436.
- ALL ANCHOR BOLTS/RODS SHALL CONFORM TO ASTM F-1554 GRADE 36 WITH WELD ABILITY SUPPLEMENT S1, UNLESS OTHERWISE NOTED. SUBMIT GRADE CERTIFICATIONS FOR RECORD. STEEL SUPPLIER SHALL SUPPLY RIGID STEEL TEMPLATES FOR ANCHOR ROD INSTALLATION.
- ALL SHOP OR FIELD BOLTED CONNECTIONS, SHALL BE BOLTED CONNECTIONS USING 1/2 INCH DIAMETER A325 N BOLTS IN STANDARD HOLES, UNLESS SPECIFICALLY NOTED OTHERWISE.
- OVERSIZED OR SLOTTED HOLES SHALL NOT BE USED FOR ANY CONNECTIONS UNLESS SPECIFICALLY INDICATED ON THE DRAWINGS OR APPROVED IN WRITING BY THE ENGINEER.
- ALL BUTT AND FULL PENETRATION WELDS SHALL BE MADE USING RUN OFF TABS WHICH SHALL BE REMOVED AND GROUND SMOOTH AFTER WELD IS COMPLETED.
- ALL WELD BACK UP BARS SHALL BE REMOVED AND GROUND SMOOTH AFTER WELD IS COMPLETED, UNLESS NOTED OTHERWISE.
- ALL WELDS INDICATED SHALL MEET THE MINIMUM WELD SIZE SPECIFIED BY THE AISC MANUAL OF STEEL DESIGN. (SINGLE PASS AS REQUIRED)
- ALL WELDS SHALL BE PERFORMED BY QUALIFIED WELDERS IN ACCORDANCE WITH A.W.S. SPECIFICATIONS, LATEST EDITIONS. ALL WELDING ELECTRODES SHALL CONFORM TO A.W.S. A5.1 GRADE E-70. BARE ELECTRODES AND GRANULAR FLUX SHALL CONFORM TO A.W.S. A5.17, F70 A.W.S. FLUX CLASSIFICATION.
- ALTERNATE CONNECTIONS WILL BE ACCEPTED ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER. HOWEVER, THE ENGINEER SHALL BE THE SOLE JUDGE OF THE ACCEPTABILITY AND THE CONTRACTOR'S BID SHALL ANTICIPATE THE USE OF THOSE SPECIFIC DETAILS SHOWN ON THE DRAWINGS. IN ANY EVENT THE CONTRACTOR SHALL BE

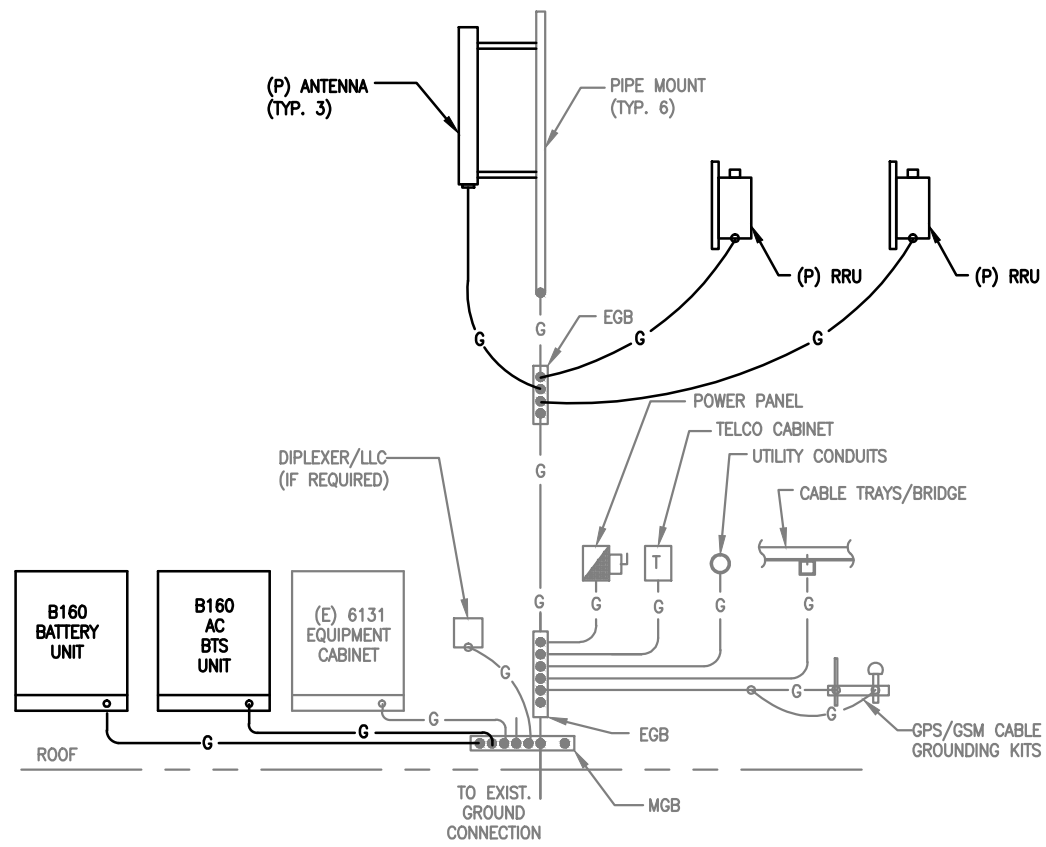
- RESPONSIBLE FOR THE DESIGN OF SUCH ALTERNATE DETAILS WHICH THEY PROPOSE.
- SHOP AND FIELD CONNECTIONS NOT SPECIFICALLY DETAILED ON THE DRAWINGS SHALL BE BOLTED OR WELDED.
- WHEN NOT SPECIFICALLY DETAILED ELSEWHERE ON THE DRAWINGS, ALL BEAM TO BEAM AND BEAM TO COLUMN CONNECTIONS SHALL BE DETAILED AS SHOWN IN THE TYPICAL BEAM CONNECTION DETAILS.
- ALL BEAM AND GIRDERS SHALL BE CONNECTED FOR 115% OF THE REACTION DENOTED BY THE SYMBOL V ON THE PLAN. PROVIDE A MINIMUM 2 BOLT CONNECTION. IF NO REACTION IS GIVEN PROVIDE CONNECTION FOLLOWING NOTE 16.
- ALL BEAM AND GIRDER CONNECTIONS SHALL BE AT LEAST CAPABLE OF DEVELOPING THE UNIFORMLY DISTRIBUTED LOAD CAPACITY OF THE MEMBER USING THE REACTION FROM THE ALLOWABLE LOAD OF BEAM AS TABULATED IN THE AISC MANUAL OF STEEL CONSTRUCTION LATEST EDITION UNLESS NOTED OTHERWISE. FOR COMPOSITE BEAMS MULTIPLY THE REACTION BY THE RATIO  $S_{tr}/S$  WHERE  $S_{tr}$  = SECTION MODULUS OF THE TRANSFORMED COMPOSITE CROSS SECTION WITH RESPECT TO THE BOTTOM FLANGE, AND  $S$  = SECTION MODULUS OF THE STRUCTURAL STEEL ALONE.
- ALL HOLES AND CUTS SHALL BE SHOWN ON THE SHOP DRAWINGS AND MADE IN THE SHOP. CUTS OR BURNING OF HOLES IN STRUCTURAL STEEL MEMBERS IN THE FIELD WILL NOT BE PERMITTED.
- PROVIDE ANY TEMPORARY BRACING OR GUYS TO PROVIDE LATERAL SUPPORT OF THE STRUCTURES AND INDIVIDUAL ELEMENTS UNTIL PERMANENT FRAME IS COMPLETELY INSTALLED.
- ALL STRUCTURAL STEEL EXPOSED TO WEATHER SHALL BE GALVANIZED.
- ALL TUBE & PIPE SECTIONS EXPOSED TO WEATHER SHALL HAVE OPEN ENDS CAPPED WITH 1/4" PLATE.
- ALL STRUCTURAL STEEL TO RECEIVE SPRAY APPLIED FIRE PROTECTION SHALL BE LEFT UNCOATED.
- FOR EXPOSED INTERIOR STRUCTURAL STEEL, REFER TO DRAWINGS AND SPECIFICATIONS FOR SURFACE PREPARATION AND FINISH REQUIREMENTS.
- STEEL FABRICATOR SHALL COORDINATE ALL HOLE LOCATIONS FOR SIMPSON TIE DOWN ANCHORS. ALL HOLES SHALL BE SHOP DRILLED THROUGH BEAM FLANGES.

## WELDING SPECIFICATIONS:

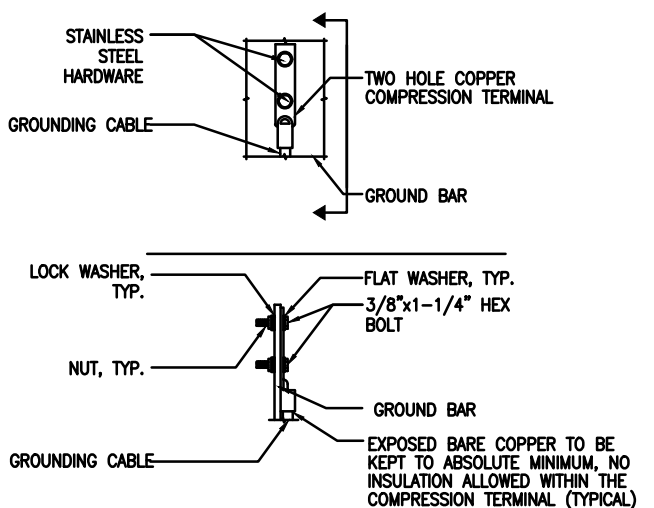
- FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZINC BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
- CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION". 9TH EDITION.



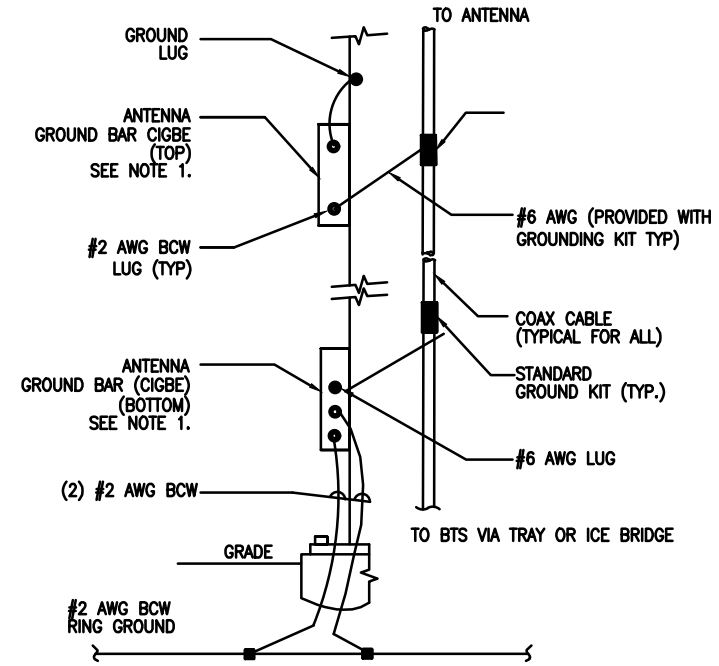
NO.	DATE	REVISIONS	BY	CHK
0	08/27/21	ISSUED FOR REVIEW	CDC	SNA
1	10/28/21	ISSUED FOR CONSTRUCTION	CDC	SNA
2	11/18/21	REVISED	MER	SNA
3	02/22/23	REVISED	MER	SNA



**1 TYP. GROUNDING RISER DIAGRAM**  
G-1 SCALE: N.T.S.

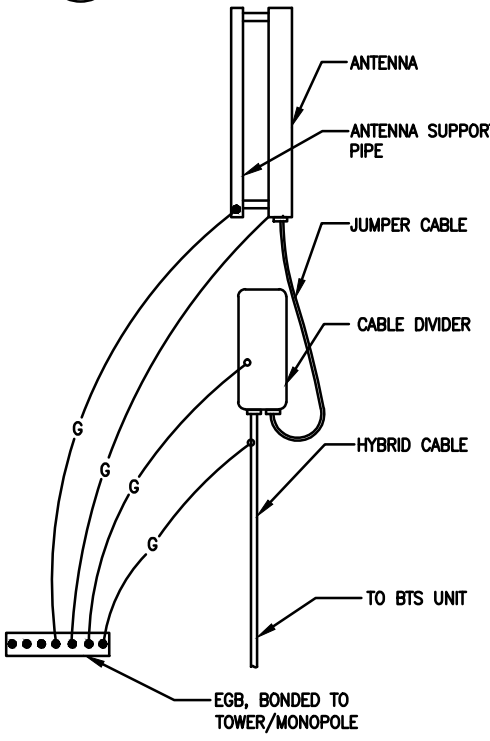


**NOTES:**  
 1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.  
 2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.  
 3. CADWELDED DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.  
 4. ALL GROUND LUGS MUST BE HEAT SHRUNK AT WIRE/LUG CONNECTION

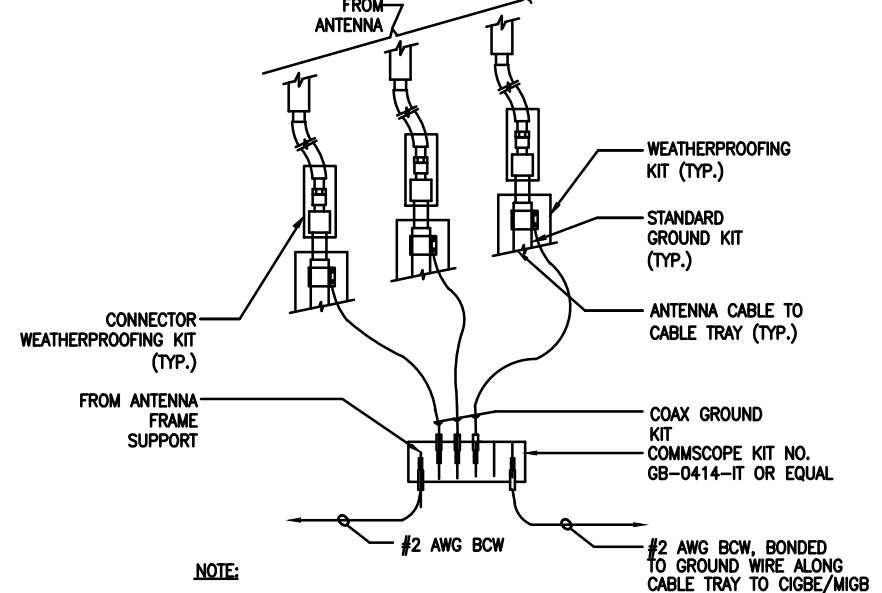


**NOTE:**  
 1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION AND CONNECTION ANTENNA LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.  
 2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

**3 ANTENNA CABLE GROUNDING**  
G-1 SCALE: NOT TO SCALE

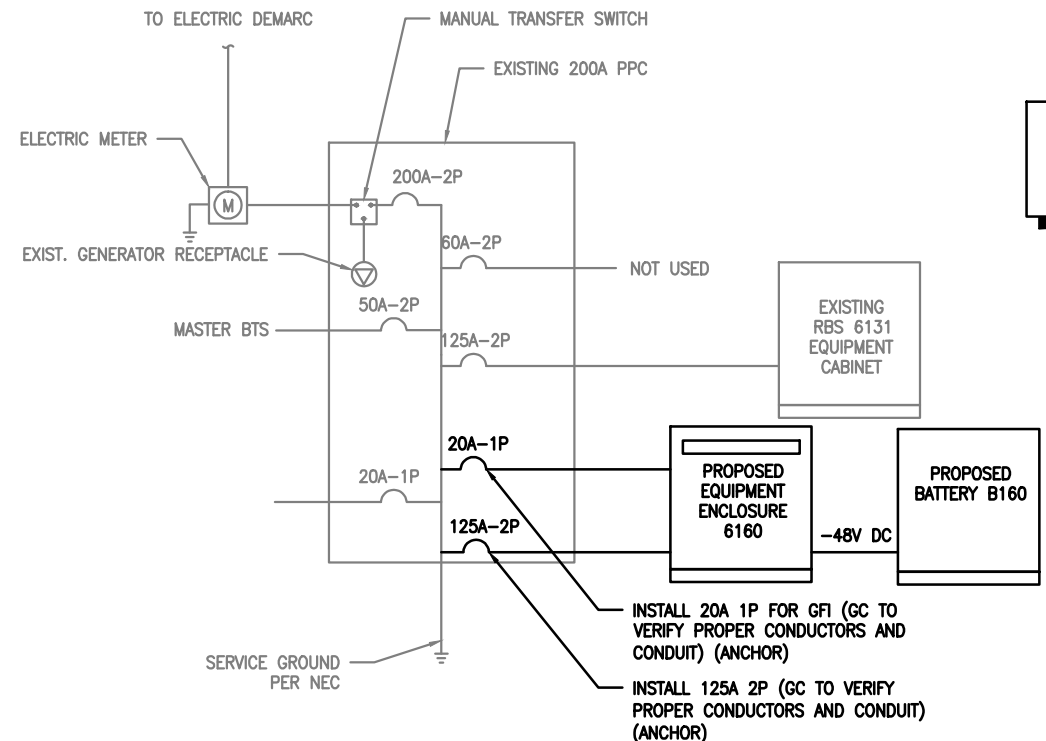


**4 HYBRID CABLE CONNECTION AND GROUNDING DETAIL**  
G-1 SCALE: N.T.S.



**NOTE:**  
 1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.  
 2. ALL PROPOSED COAXIAL CABLING TO BE GROUNDED IN (3) LOCATIONS; BELOW JUMPER/HARDLINE CONNECTION, AT BASE OF TOWER & PRIOR TO BUILDING/CABINET ENTRY.

**5 GROUND WIRE TO GROUND BAR CONNECTION DETAIL**  
G-1 SCALE: NOT TO SCALE



**NOTE:**  
 ALL WORK MUST BE PERFORMED BY LICENSED ELECTRICIAN ADHERING TO THE NEC AND LOCAL CODE REQUIREMENTS.

**6 ONE LINE DIAGRAM**  
G-1 SCALE: NOT TO SCALE



NO.	DATE	REVISIONS	BY	CHK
0	08/27/21	ISSUED FOR REVIEW	CDC	SNA
1	10/26/21	ISSUED FOR CONSTRUCTION	CDC	SNA
2	11/18/21	REVISED	MER	SNA
3	02/22/23	REVISED	MER	SNA