

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE: :
:
A PETITION FOR A DECLARATORY : PETITION NO. ____
RULING ON THE NEED TO OBTAIN A :
SITING COUNCIL CERTIFICATE FOR THE :
PROPOSED MODIFICATION OF AN :
EXISTING WIRELESS :
TELECOMMUNICATIONS FACILITY AT :
99 MOUNTAIN-ROAD,UNIT.C,(AKA-101
MOUNTAIN ROAD),REDDING, CONNECTICUT December 30, 2024

PETITION FOR A DECLARATORY RULING:
INSTALLATION HAVING NO
SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT

I. Introduction

Pursuant to Section 6409(a) of the Middle Class Tax Relief and Job Creation Act of 2012, codified at 47 U.S.C. §1455(a) (“Section 6409(a)”) and the October 21, 2014 Report and Order (FCC-14-533) issued by the Federal Communications Commission (“FCC”) (the “FCC Order”), T-Mobile US, Inc. (“T-Mobile”) hereby petitions the Connecticut Siting Council (the “Council”) for a declaratory ruling that the proposed modifications to the existing transmission tower at 99 Mountain Road, Unit C (aka 101 Mountain Road), Redding Connecticut (“Property”) constitutes an Eligible Facilities Request (“EFR”) under the FCC Order. Section 6409 requires that within 60 days of submission, a state or local agency must approve an “eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station.”

II. Existing Facility

The Existing Facility is located within the CL&P right-of-way between Route 7 and Mountain Road in Redding. Parcel and tower are both owned by CL&P d/b/a Eversource Energy. The Facility consists of a 68-foot electric transmission pole (#3275) with a 25-foot extension mast for a total overall height of 80-ft. **Attachment 1** contains Eversource’s permitting authorization for T-Mobile to file this Petition. The Facility was originally approved for use by the Council on December 8, 1999, Docket No. 441 as documented in **Attachment 2**. The Modification and Amendment to Petition No. 441 Does Not Represent a Substantial Change to the Physical Dimensions of the Existing Tower and is an Eligible Facility Request (EFR).

III. T-Mobile Facility Modifications

T-Mobile’s proposed modification to its facility is illustrated on the plans submitted as **Attachment 3**. T-Mobile proposes to replace the existing mast and antenna with new mast, mounts and (6) antenna, the total height of approximately 80-feet above ground level (AGL) will remain the same. Section 6409 and the FCC Declaratory Ruling clarifying its rules provide

that a modification does not constitute a “substantial change” of the physical dimensions of a tower. The proposed modification does not increase the height by more than 10-feet of the tower height. No Generator or backup power is proposed at this time. Installation of T-Mobile’s facility will take approximately three (3) weeks to complete. Construction will take place Monday through Friday, during normal business hours of 8am-6pm, or as allowed by the tower and/or property owner. T-Mobile’s modification will cost approximately \$200,000. T-Mobile will fund this installation

Complete Planned Modification:

(3) RFS APXVAALL18 43 antenna @ 77ft RAD
(3) Amphenol APXVLLT9P 43 @ 77ft RAD
(6) Smart Bias Tees @ 77ft RAD
(16) 7/8” Coax Lines
Site-Pro Mount with Standoff
10” Sch.80 Mast
4’x10.6’x4’ fence compound expansion (fence to match existing fence)

T-Mobile has confirmed that the Modified Facility is capable of supporting the additional antennas and other changes to the tower mounted equipment, as documented in the Structural Analysis Report annexed hereto as **Attachment 4**.

T-Mobile was granted approval for an exempt modification (EM-T-MOBILE-117-240220) on March 25, 2024. However, due to revisions in the scope of work, this petition will replace EM-T-MOBILE-117-240220.

IV. The Proposed Modification Will Not Have A Substantial Adverse Environmental Effect

1. Physical Environmental Effects

The modification of T-Mobile’s Facility will not involve a significant alteration to the physical and environmental characteristics of the Property.

2. Visual Effects

Given the overall height of the existing monopole tower is 80-feet AGL will remain thew same, T-Mobile’s proposed modification would have a minimal visual impact. The 4x10.6x4 foot extended compound will be disguised in the same manner as the existing compound and will have a minimal visual impact when viewed from the public right-of-way.

3. FCC Compliance

Radio frequency (“RF”) emissions resulting from T-Mobile’s proposed modification of the Existing Facility will be well below the standards adopted by the Federal Communications Commission (“FCC”). Included in **Attachment 6** is a Radio Frequency Emissions Analysis Report prepared by Fox Hill Telecom. This report confirms that the modified facility will operate well within the RF emission standards established by the FCC.

V. Notice to the Municipality, Property Owner and Abutting Landowners

On January 2, 2024, a copy of this Petition was sent to Julia Pemberton, First Selectwoman and Aimee Pardee, Land Use Director for the Town of Redding. A notice of T-Mobile's intent to file this Petition was also sent to the owners of land that may be considered to abut the Property or they are within 200-feet. Included in **Attachment 5** is a sample abutter's letter and the list of those abutting landowners who were sent notice. To date no responses have been received from the abutting properties.

VI. Conclusion

Based on the information provided above, the Petitioners respectfully requests that the Council issue a determination in the form of a declaratory ruling that the Antenna replacement and compound expansion at the Property will not have a substantial adverse environmental effect and does not require the issuance of a Certificate of Environmental Compatibility and Public Need pursuant to § 16-50k of the General Statutes.

Respectfully submitted,

Denise Sabo
Northeast Site Solutions
Agent for T-Mobile
(203) 435-3640
denise@northeastsitesolutions.com

Attachments

Cc: Julia Pemberton, First Selectwoman
100 Hill Road, P.O. Box 1028 Redding, CT 06875

Aimee Pardee, Land Use Director
100 Hill Road, P.O. Box 1028 Redding, CT 06875

CL&P d/b/a Eversource Energy, as tower owner and property owner
PO BOX 270, Hartford, CT 0614

ATTACHMENT 1



56 Prospect Street,
Hartford, CT 06103

P.O. Box 270
Hartford, CT 06141-0270
(860) 665-5000

December 20, 2024

Mr. Dan Reid
Northeast Site Solutions
420 Main St,
Sturbridge, MA 01566

RE: T-Mobile Antenna Site CT11116C, Mountain Road, Redding, CT, Eversource Structure 3275

Dear Mr. Reid:

Based on our reviews of the site drawings, the structural analysis and foundation review provided by Centek Engineering, along with a third party review performed by Paul J. Ford and Company, we accept the proposed modification.

Please work with Haleluya Haile of Eversource Real Estate to process the site lease amendment. Please do not hesitate to contact us with questions or concerns. Haleluya can be contacted at (860) 665-6176, and I can be contacted at (860) 728-4862.

Sincerely,

Masie Hartt

Masie Hartt
Transmission Line Engineering

Ref: 2024-1003 - CT11116C - Structural Analysis Rev2 (24066.01)
CT11116C_Rev6 CDs _ L600
2024_0723 CT11116C Mount Analysis (24066.01)

ATTACHMENT 2

Petition No. 441
Omnipoint Communications
Staff Report
December 8, 1999

On December 6, 1999, Connecticut Siting Council (Council) member Edward S. Wilensky, and Council staff Steve Levine met Omnipoint representatives Brendan Sharkey, Chetan Dhaduk, and Brian Raggozine in Redding for inspection of an electric transmission structure. The structure is owned by Connecticut Light and Power Co. (CL&P). Omnipoint, with the agreement of CL&P, proposes to modify the structure for telecommunications use and is petitioning the Council for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for the modification. Omnipoint submits that the proposed modification will not have a substantial adverse environmental effect and will reduce the need for new telecommunications towers by utilizing an existing structure.

Omnipoint proposes to place a pipe-mount with two panel antennas atop existing CL&P structure #3275, which is located within the CL&P right-of-way between Route 7 and Mountain Road in Redding. The monopole-style tower is 68 feet tall. Associated equipment would be mounted on a new 7 ft. by 10 ft. fenced concrete slab poured near the base of the tower. Access to the site would be by private easement along an existing driveway that leads to near the base of the tower. Utility service would be routed underground along the driveway from an existing CL&P distribution pole.

As proposed, Omnipoint's equipment would extend approximately 11.5 feet above the tower, bringing the total height to approximately 80 feet. The antenna structure itself would consist of 5.5 foot-high antennas with approximately 6 feet of pipe showing between the antenna bottoms and the top of the lattice structure. The pipe would be 4 inches in diameter, and the asymmetrical antenna cluster would measure between approximately 10 inches and 2 feet in width, depending on the direction of view.

The proposed antennas and associated equipment will not increase the noise levels at the existing site, under normal operating conditions, by six decibels or more. The worst case power density for the telecommunications operations at the site has been calculated to be 2.52% of the applicable standard for uncontrolled environments. Omnipoint contends that the proposed installation will not cause a substantial adverse environmental effect, and for this reason would not require a Certificate.

99 MOUNTAIN RD

Location 99 MOUNTAIN RD

Mblu 35/ / 82/ C/

Acct# 3582C

Owner EVERSOURCE

Assessment \$252,000

Appraisal \$360,000

PID 100623

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2023	\$0	\$360,000	\$360,000
Assessment			
Valuation Year	Improvements	Land	Total
2023	\$0	\$252,000	\$252,000

Owner of Record

Owner	EVERSOURCE	Sale Price	\$0
Co-Owner		Certificate	1
Address	PO BOX 270 HARTFORD , CT 06141	Book & Page	0000/0000
		Sale Date	10/01/2015
		Instrument	25

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
EVERSOURCE	\$0	1	0000/0000	25	10/01/2015
CONN LIGHT & POWER	\$0		0296/356X	XX	09/16/2003

Building Information

Building 1 : Section 1

Year Built:	
Living Area:	0
Replacement Cost:	\$0
Building Percent Good:	

Replacement Cost
Less Depreciation: \$0

Building Attributes	
Field	Description
Style	Vacant Land
Model	
Grade:	
Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms	
Full Bathrooms	
Half Bathrooms	
Total Xtra Fixtrs	
Total Rooms	
Bath Style:	
Kitchen Style:	
Fireplaces 2	
Cndtn	
Whirlpool Tubs	
Fin Bsmt Area	
Fin Bsmt Qual	
Bsmt Garages	
Num Park	
Fireplaces	
Fndtn Cndtn	
Basement	

Building Photo



(<https://images.vgsi.com/photos/ReddingCTPhotos//default.jpg>)

Building Layout

([ParcelSketch.ashx?pid=100623&bid=20626](#))

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use		Land Line Valuation	
Use Code	435	Size (Acres)	0.00
Description	Cell Site Vac Lnd	Frontage	
Zone	R-2	Depth	
Neighborhood		Assessed Value	\$252,000
Alt Land Appr Category	No	Appraised Value	\$360,000

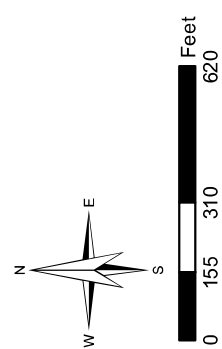
Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2022	\$0	\$360,000	\$360,000
2021	\$0	\$360,000	\$360,000
2020	\$0	\$360,000	\$360,000

Assessment			
Valuation Year	Improvements	Land	Total
2022	\$0	\$252,000	\$252,000
2021	\$0	\$252,000	\$252,000
2020	\$0	\$252,000	\$252,000



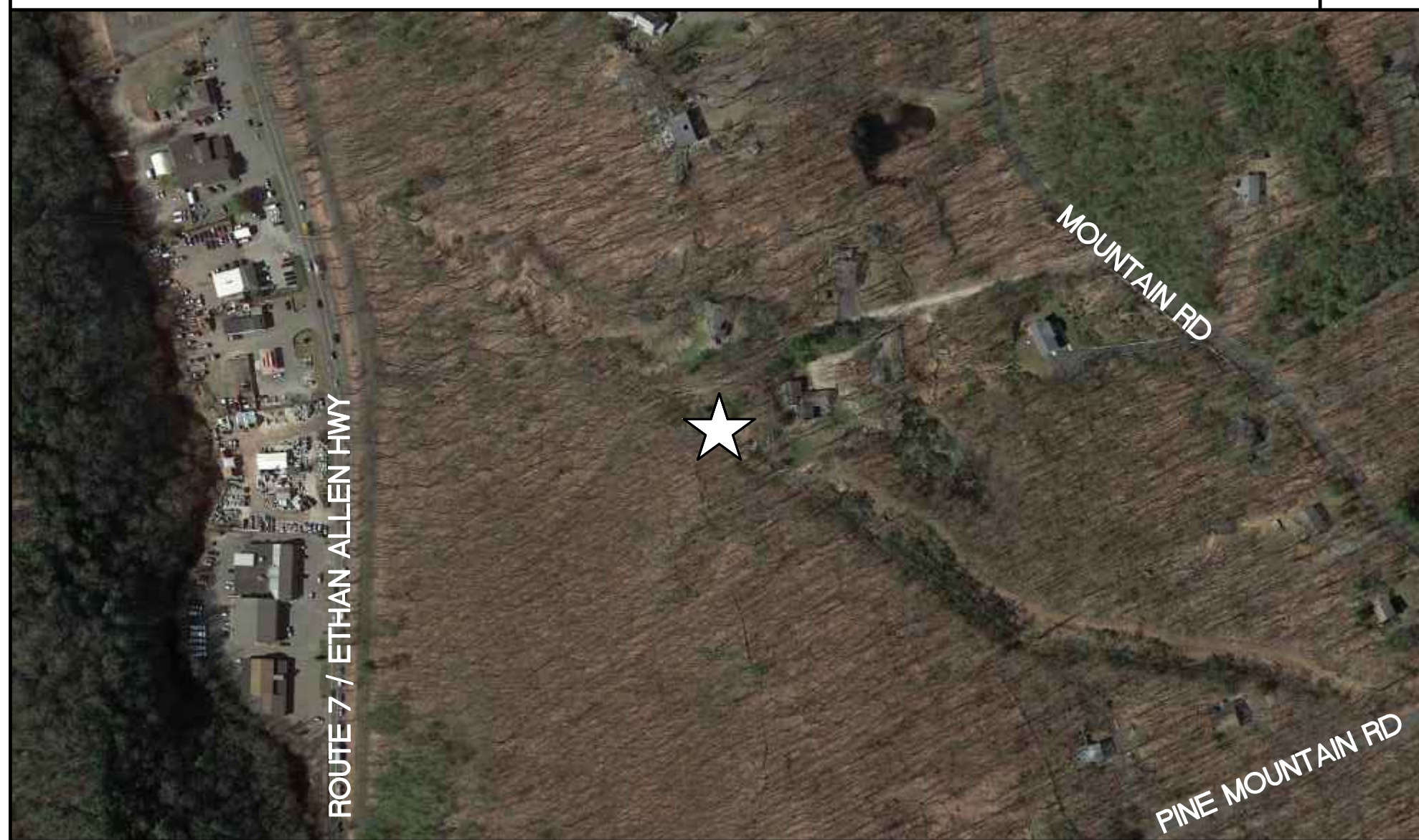
Information presented is provided "as is." The Town of Ridgefield, CT disclaims all representations or warranties regarding GIS information. GIS data is representative data only. In no event will the Town of Ridgefield be responsible for damages of any nature whatsoever resulting from use of or reliance upon GIS information.

ATTACHMENT 3

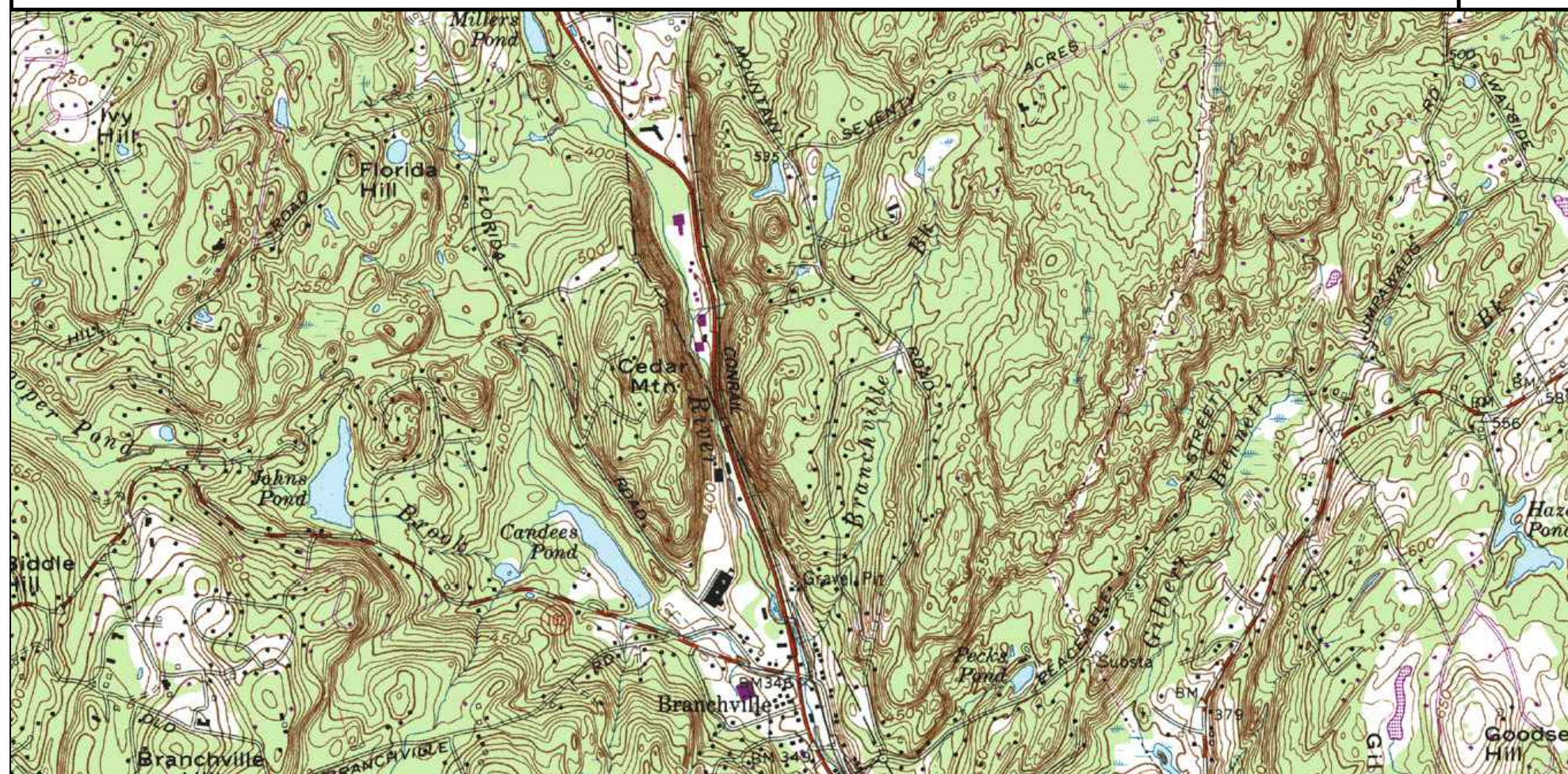
T-MOBILE RAN TEMPLATE (PROVIDED BY RFDS)
67E998E 6160

1.	ALL WORK SHALL BE IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2022 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "H" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2022 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.	14.	DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
2.	SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.	15.	ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
3.	CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.	16.	ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
4.	BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE, WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.	17.	ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED' ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE T-MOBILE CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
5.	ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS AND ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.	18.	CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
6.	AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS, AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.	19.	CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
7.	CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.	20.	THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
8.	CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.	21.	COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUITS AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND CONFIRMED WITH THE PROJECT MANAGER AND OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK
9.	CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL, AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.	22.	ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
10.	CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN "AS-BUILT" SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.	23.	THE CONTRACTOR SHALL CONTACT 'CALL BEFORE YOU DIG' AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
11.	LOCATION OF EQUIPMENT AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS, SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.	24.	CONTRACTOR SHALL COMPLY WITH THE OWNER'S ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.
12.	THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.	25.	THE COUNTY/CITY/TOWN MAY MAKE PERIODIC FIELD INSPECTIONS TO ENSURE COMPLIANCE WITH THE DESIGN PLANS, SPECIFICATIONS, AND CONTRACT DOCUMENTS.
13.	ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.	26.	THE COUNTY/CITY/TOWN MUST BE NOTIFIED (2) WORKING DAYS PRIOR TO CONCEALMENT/BURIAL OF ANY SYSTEM OR MATERIAL THAT WILL PREVENT THE DIRECT INSPECTION OF MATERIALS, METHODS OR WORKMANSHIP. EXAMPLES OF THESE PROCESSES ARE BACKFILLING A GROUND RING OR TOWER FOUNDATION, POURING TOWER FOUNDATIONS, BURYING GROUND RODS, PLATES OR GRIDS, ETC. THE CONTRACTOR MAY PROCEED WITH THE SCHEDULED PROCESS (2) WORKING DAYS AFTER PROVIDING NOTICE UNLESS NOTIFIED OTHERWISE BY THE COUNTY/CITY/TOWN.
		27.	PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTOR SHALL VISIT THE SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF ENGINEER ON RECORD, PRIOR TO THE COMMENCEMENT OF ANY WORK.

N.T.S.



N.T.S.



SITE COORDINATES: LATITUDE: 41°-16'-42" N
LONGITUDE: 73°-26'-32" W
GROUND ELEVATION: ±570' AMSL





1. REMOVE EXISTING RFS: APX16DWV-16DWS ANTENNA, TYP. (1) PER SECTOR, TOTAL OF (3)
2. REMOVE EXISTING TMAs
3. REMOVE EXISTING FENCE PORTION AND INSTALL COMPOUND FENCE EXPANSION AS SHOWN HEREIN. PROPOSED FENCE TO MATCH EXISTING TYPE/HEIGHT.
4. REMOVE EXISTING EQUIPMENT CABINET
5. INSTALL (2) NEW ANCHOR CABINETS AS SHOWN HEREIN
6. INSTALL NEW ICE-BRIDGE
7. INSTALL NEW EQUIPMENT FRAME TO ACCOMMODATE PROPOSED RRU INSTALLATION
8. INSTALL (16) 7/8" COAX CABLES
9. INSTALL (2) HYBRID CABLES AT GRADE
10. INSTALL RFS: APXVAALL18_43-U-NA20 ANTENNA, TYP. (1) PER SECTOR, TOTAL OF (3) MOUNTED TO NEW 8' PIPE MAST
11. INSTALL RFS: APXVLL19P_43-C-A20 ANTENNA, TYP. (1) PER SECTOR, TOTAL OF (3) MOUNTED TO NEW 8' PIPE MAST
12. INSTALL ERICSSON: RADIO 4480 B71+B85, TYP. (1) PER SECTOR, TOTAL OF (3) AT GRADE
13. INSTALL ERICSSON: RADIO 4460 B25+B66, TYP. (1) PER SECTOR, TOTAL OF (3) AT GRADE
14. INSTALL COMMSCOPE: SMART BIAST_ATSBT-TOP-MF-4G, TYP. (2) PER SECTOR, TOTAL OF (6) AT TOWER
15. INSTALL (2) COLLAR MOUNT ANTENNA FRAMES W/ STANDOFFS (SITE PRO P/N: UDS-NP)
16. REMOVE EXISTING ANTENNA MAST AND CONNECTIONS AND INSTALL NEW ANTENNA MAST EXTENSION AS SHOW HEREIN
17. INSTALL NEW 200A CIRCUIT BREAKER AT UTILITY METER
18. INSTALL NEW 200A MINI PPC CABINET

1. REMOVE EXISTING ANTENNA MAST AND INSTALL NEW ANTENNA MAST AND NEW ANTENNA MOUNTS TO EXISTING STRUCTURE.

SITE NAME:	RIDGEFIELD/ ETHAN ALLEN H
SITE ID:	CT11116C
SITE ADDRESS:	99 MOUNTAIN RD. UNIT C (EVERSOURCE) REDDING, CT 06896
APPLICANT:	T-MOBILE NORTHEAST, LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT. 06002
CONTACT PERSON:	MATT BANDLE (PROJECT MANAGER) NORTHEAST SITE SOLUTIONS (508) 642-8801
ENGINEER OF RECORD:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD ROAD BRANFORD, CT. 06405 CARLO F. CENTORE, PE (203) 488-0580 EXT. 122
SITE COORDINATES:	LATITUDE: 41°-16'-42" N LONGITUDE: 73°-26'-32" W GROUND ELEVATION: ±570' AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	6
N-1	NOTES AND SPECIFICATIONS, ANT. SCHEDULE	6
N-2	SPECIAL INSPECTIONS AND SPECIFICATIONS	6
C-0	ABUTTERS MAP	6
C-1	SITE AND EQUIPMENT PLANS	6
C-2	ANTENNA PLANS AND ELEVATIONS	6
C-3	TYPICAL EQUIPMENT DETAILS	6
C-4	TYPICAL EQUIPMENT DETAILS	6
S-1	STRUCTURAL DETAILS	6
E-1	CONDUIT ROUTING AND RISER DIAGRAM	6
E-2	TYPICAL ELECTRICAL DETAILS	6
E-3	ELECTRICAL SPECIFICATIONS	6

SHEET NO. 1 OF 12	TITLE SHEET		T-MOBILE NORTHEAST LLC SITE NAME: RIDGEFIELD/ ETHAN ALLEN H SITE ID: CT1116C 99 MOUNTAIN RD. UNIT C (EVERSOURCE) REDDING, CT 06896		<div><div><p>CERK engineering Centered on Solutions™</p></div><div><p>(203) 488-0380 (203) 488-8597 Fax 63-2 North Bedford Road Bedford, CT 06405</p></div><div><p>www.CenterEng.com</p></div></div> <div><div><p>NSS NORTHEAST SITE SOLUTIONS www.CenterEng.com</p></div></div>		<div><div></div></div>		PROFESSIONAL ENGINEER SEAL		<div><div><div>611/26/24</div><div>505/31/24</div><div>404/02/24</div><div>301/17/24</div><div>211/06/23</div><div>109/12/23</div><div>008/10/23</div></div><div>REV.</div></div> <div><div>TURTURTURTURTURTURTURTURT</div><div>CONSTRUCTION DRAWINGS – REVISED PER CABINET CONSOLIDATION</div><div>CONSTRUCTION DRAWINGS – REVISED PER NEWLY ISSUED RFOS</div><div>CONSTRUCTION DRAWINGS – REVISED ADDRESS PER CLIENT</div><div>CONSTRUCTION DRAWINGS – REVISED PER NEWLY ISSUED RFOS</div><div>CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS</div><div>CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS</div><div>CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION</div></div>	
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NOTES AND SPECIFICATIONS:

DESIGN BASIS:

1. GOVERNING CODE: 2021 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2022 CONNECTICUT STATE BUILDING CODE.

2. TIA-222-H, ASCE MANUAL NO. 48-19 – "DESIGN OF STEEL TRANSMISSION POLE STRUCTURES SECOND EDITION", NESC C2-2023 AND EVERSOURCE.

3. DESIGN CRITERIA
 - WIND LOAD: (ANTENNA MAST)
ULTIMATE DESIGN AND WIND SPEED (V) = 125 MPH (2022 CSBC: APPENDIX "P")
 - WIND LOAD: (UTILITY POLE & FOUNDATION)
BASIC WIND SPEED (V) = 110 MPH (3 SECOND GUST)
BASED ON NESC C2-2023, SECTION 25 RULE 250C.

SITE NOTES

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.

2. ACTIVE EXISTING UTILITIES, WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY, PRIOR TO PROCEEDING, SHOULD ANY UNCOVERED EXISTING UTILITY PRECLUDE COMPLETION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

3. THE AREAS OF THE COMPOUND DISTURBED BY THE WORK SHALL BE RETURNED TO THEIR ORIGINAL CONDITION.

4. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

5. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2022 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "H" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2022 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.

2. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.

3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.

4. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE, WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.

5. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS AND ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.

6. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS, AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.

7. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.

8. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.

9. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL, AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.

10. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS-BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.

11. LOCATION OF EQUIPMENT AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS, SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.

12. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.

13. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
14. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.

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

16. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.

17. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED' ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE T-MOBILE CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.

18. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.

19. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.

20. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.

21. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUITS AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND CONFIRMED WITH THE PROJECT MANAGER AND OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK

22. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.

23. THE CONTRACTOR SHALL CONTACT 'CALL BEFORE YOU DIG' AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.

24. CONTRACTOR SHALL COMPLY WITH THE OWNER'S ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

25. THE COUNTY/CITY/TOWN MAY MAKE PERIODIC FIELD INSPECTIONS TO ENSURE COMPLIANCE WITH THE DESIGN PLANS, SPECIFICATIONS, AND CONTRACT DOCUMENTS.

26. THE COUNTY/CITY/TOWN MUST BE NOTIFIED (2) WORKING DAYS PRIOR TO CONCEALMENT/BURIAL OF ANY SYSTEM OR MATERIAL THAT WILL PREVENT THE DIRECT INSPECTION OF MATERIALS, METHODS OR WORKMANSHIP. EXAMPLES OF THESE PROCESSES ARE BACKFILLING A GROUND RING OR TOWER FOUNDATION, POURING TOWER FOUNDATIONS, BURYING GROUND RODS, PLATES OR GRIDS, ETC. THE CONTRACTOR MAY PROCEED WITH THE SCHEDULED PROCESS (2) WORKING DAYS AFTER PROVIDING NOTICE UNLESS NOTIFIED OTHERWISE BY THE COUNTY/CITY/TOWN.

27. PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTOR SHALL VISIT THE SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF ENGINEER ON RECORD, PRIOR TO THE COMMENCEMENT OF ANY WORK.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)
 - A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
 - B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
 - C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
 - D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
 - E. PIPE---ASTM A53 (FY = 35 KSI)
 - F. CONNECTION BOLTS---ASTM A325-N
 - G. U-BOLTS---ASTM A36
 - H. ANCHOR RODS---ASTM F 1554
 - I. WELDING ELECTRODE---ASTM E 70XX

2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.

3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.

4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.

5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.

6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.

7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.

8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.

9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".

10. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.

11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.

12. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.

13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.

14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.

15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.

16. FABRICATE BEAMS WITH MILL CAMBER UP.

17. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.

18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.

19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.

20. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

ANTENNA/APPURTENANCE SCHEDULE

SECTOR	EXISTING/PROPOSED	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA @ HEIGHT	AZIMUTH	(E/P) RRU (QTY) – AT GRADE	(E/P) TMA (QTY) – AT TOWER	(QTY) HYBRID/COAX
A1	PROPOSED	RFS (APXVAALL24_43-U_NA20)	95.9 x 24 x 8.5	77'	320°	(P) RADIO 4480 B71+B85 (1)	(P) COMMSCOPE – SMART BIAST-ATSBT-TOP-MF-4G (1)	(8) EXISTING 7/8" COAX CABLE
A2	PROPOSED	RFS (APXVLL19P_43-U_A20)	75.8 x 11.3 x 4.6	77'	320°	(P) RADIO 4460 B25+B66 (1)	(P) COMMSCOPE – SMART BIAST-ATSBT-TOP-MF-4G (1)	
B1	PROPOSED	RFS (APXVAALL24_43-U_NA20)	95.9 x 24 x 8.5	77'	110°	(P) RADIO 4480 B71+B85 (1)	(P) COMMSCOPE – SMART BIAST-ATSBT-TOP-MF-4G (1)	(16) PROPOSED 7/8" COAX CABLE
B2	PROPOSED	RFS (APXVLL19P_43-U_A20)	75.8 x 11.3 x 4.6	77'	110°	(P) RADIO 4460 B25+B66 (1)	(P) COMMSCOPE – SMART BIAST-ATSBT-TOP-MF-4G (1)	
C1	PROPOSED	RFS (APXVAALL24_43-U_NA20)	95.9 x 24 x 8.5	77'	200°	(P) RADIO 4480 B71+B85 (1)	(P) COMMSCOPE – SMART BIAST-ATSBT-TOP-MF-4G (1)	
C2	PROPOSED	RFS (APXVLL19P_43-U_A20)	75.8 x 11.3 x 4.6	77'	200°	(P) RADIO 4460 B25+B66 (1)	(P) COMMSCOPE – SMART BIAST-ATSBT-TOP-MF-4G (1)	

NOTE:
ALL HYBRID/COAX LENGTHS TO BE MEASURED
AND VERIFIED IN FIELD BEFORE ORDERING

CONSTRUCTION DRAWINGS – REVISED PER CABINET CONSOLIDATION

CONSTRUCTION DRAWINGS – REVISED PER NEWLY ISSUED RFDS

CONSTRUCTION DRAWINGS – REVISED ADDRESS PER CLIENT

CONSTRUCTION DRAWINGS – REVISED PER NEWLY ISSUED RFDS

CONSTRUCTION DRAWINGS – REVISED PER CLIENT COMMENTS

CONSTRUCTION DRAWINGS – REVISED FOR CONSTRUCTION

TUR

TUR

TUR

TUR

TUR

TUR

SFG

BSP

BSP

BSP

BSP

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6

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2

1

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04/02/24

01/17/24

11/06/23

09/12/23

08/10/23

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T-MOBILE NORTHEAST LLC

SITE NAME: RIDGEFIELD/ ETHAN ALLEN H

SITE ID: CT1116C

99 MOUNTAIN RD. UNIT C (EVERSOURCE)

REDDING, CT 06896

DATE: 08/10/23

SCALE: AS NOTED

JOB NO. 22006.03

NOTES AND SPECIFICATIONS,
ANT. SCHEDULE

N-1

SHEET NO. 2 OF 12

MODIFICATION INSPECTION REPORT REQUIREMENTS					
PRE-CONSTRUCTION		DURING CONSTRUCTION		POST-CONSTRUCTION	
SCHEDULED ITEM	REPORT ITEM	SCHEDULED ITEM	REPORT ITEM	SCHEDULED ITEM	REPORT ITEM
X	EOR MODIFICATION INSPECTION DRAWING	–	FOUNDATIONS	X	MODIFICATION INSPECTOR RECORD REDLINE DRAWING
X	EOR APPROVED STEEL SHOP DRAWINGS	–	EARTHWORK BACKFILL MATERIAL AND COMPACTION	–	POST–INSTALLED ANCHOR ROD PULL–OUT TEST
–	EOR APPROVED POST–INSTALLED ANCHOR MPII	–	REBAR AND FORMWORK GEOMETRY VERIFICATION	X	PHOTOGRAPHS
–	FABRICATION INSPECTION	–	CONCRETE TESTING	X	STEEL INSPECTION
–	FABRICATOR CERTIFIED WELDER INSPECTION	X	STEEL INSPECTION		
X	MATERIAL CERTIFICATIONS	–	POST INSTALLED ANCHOR ROD VERIFICATION		
		–	BASE PLATE GROUT VERIFICATION		
		–	CONTRACTOR’S CERTIFIED WELD INSPECTION		
		X	ON–SITE COLD GALVANIZED VERIFICATION		
		X	CONTRACTOR AS–BUILT REDLINE DRAWINGS		
		–	HOST BUILDING (BEARING WALL/PARAPET ETC..)		
			INTEGRITY VERIFICATION PRIOR TO ANY INSTALLATIONS		
		–	HOST BUILDING (ROOF OPENING)		
			FRAMING VERIFICATION PRIOR TO ANY INSTALLATIONS		
NOTES	1. REFER TO MODIFICATION INSPECTION NOTES FOR ADDITIONAL REQUIREMENTS				
	2. (X) DENOTES DOCUMENT REQUIRED FOR INCLUSION IN MODIFICATION INSPECTION FINAL REPORT				
	3. (–) DENOTES DOCUMENT NOT REQUIRED FOR INCLUSION IN MODIFICATION INSPECTION FINAL REPORT				
	4. EOR – ENGINEER OF RECORD				
	5. MPII – MANUFACTURER’S PRINTED INSTALLATION GUIDELINES				

GENERAL

1. THE MODIFICATION INSPECTION IS A VISUAL INSPECTION OF STRUCTURAL MODIFICATIONS, TO INCLUDE A REVIEW AND COMPILATION OF SPECIFIED SUBMITTALS AND CONSTRUCTION INSPECTIONS, AS AN ASSURANCE OF COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS PREPARED UNDER THE DIRECTION OF THE ENGINEER OF RECORD (EOR).
2. THE MODIFICATION INSPECTION IS TO CONFIRM INSTALLATION CONFIGURATION AND GENERAL WORKMANSHIP AND IS NOT A REVIEW OF THE MODIFICATION DESIGN. OWNERSHIP OF THE MODIFICATION DESIGN EFFECTIVENESS AND INTENT RESIDES WITH THE ENGINEER OF RECORD.
3. TO ENSURE COMPLIANCE WITH THE MODIFICATION INSPECTION REQUIREMENTS THE GENERAL CONTRACTOR (GC) AND THE MODIFICATION INSPECTOR (MI) COMMENCE COMMUNICATION UPON AUTHORIZATION TO PROCEED BY THE CLIENT. EACH PARTY SHALL BE PROACTIVE IN CONTACTING THE OTHER. THE EOR SHALL BE CONTACTED IF SPECIFIC GC/MI CONTACT INFORMATION IS NOT MADE AVAILABLE.
4. THE GC SHALL PROVIDE THE MI WITH A MINIMUM OF 5 BUSINESS DAYS NOTICE OF IMPENDING INSPECTIONS.
5. WHEN POSSIBLE, THE GC AND MI SHALL BE ON SITE DURING THE MODIFICATION INSPECTION TO HAVE ANY NOTED DEFICIENCIES ADDRESSED DURING THE INITIAL MODIFICATION INSPECTION.

MODIFICATION INSPECTOR (MI)

1. THE MI SHALL CONTACT THE GC UPON AUTHORIZATION BY THE CLIENT TO:

– REVIEW THE MODIFICATION INSPECTION REPORT REQUIREMENTS.

– WORK WITH THE GC IN DEVELOPMENT OF A SCHEDULE FOR ON–SITE INSPECTIONS.

– DISCUSS CRITICAL INSPECTIONS AND PROJECT CONCERNS.
2. THE MI IS RESPONSIBLE FOR COLLECTION OF ALL INSPECTION AND TEST REPORTS, REVIEWING REPORTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING ON–SITE INSPECTIONS AND COMPILATION & SUBMISSION OF THE MODIFICATION INSPECTION REPORT TO THE CLIENT AND THE EOR.

GENERAL CONTRACTOR (GC)

1. THE GC IS REQUIRED TO CONTACT THE GC UPON AUTHORIZATION TO PROCEED WITH CONSTRUCTION BY THE CLIENT TO:

– REVIEW THE MODIFICATION INSPECTION REPORT REQUIREMENTS.

– WORK WITH THE MI IN DEVELOPMENT OF A SCHEDULE FOR ON–SITE INSPECTIONS.

– DISCUSS CRITICAL INSPECTIONS AND PROJECT CONCERNS.
2. THE GC IS RESPONSIBLE FOR COORDINATING AND SCHEDULING IN ADVANCE ALL REQUIRED INSPECTIONS AND TESTS WITH THE MI.

CORRECTION OF FAILING MODIFICATION INSPECTION

1. SHOULD THE STRUCTURAL MODIFICATION NOT COMPLY WITH THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS, THE GC SHALL WORK WITH THE MODIFICATION INSPECTOR IN A VIABLE REMEDIATION PLAN AS FOLLOWS:

– CORRECT ALL DEFICIENCIES TO COMPLY WITH THE CONTRACT DOCUMENTS AND COORDINATE WITH THE MI FOR A FOLLOW UP INSPECTION.

– WITH CLIENT AUTHORIZATION, THE GC MAY WORK WITH THE EOR TO REANALYZE THE MODIFICATION USING THE AS–BUILT CONDITION.

REQUIRED PHOTOGRAPHS

1. THE GC AND MI SHALL AT MINIMUM PHOTO DOCUMENT THE FOLLOWING FOR INCLUSION IN THE MODIFICATION INSPECTION REPORT:

– PRE–CONSTRUCTION: GENERAL CONDITION OF THE SITE.


– DURING CONSTRUCTION: RAW MATERIALS, CRITICAL DETAILS, WELD PREPARATION, BOLT INSTALLATION & TORQUE, FINAL INSTALLED CONDITION & SURFACE COATING REPAIRS.

– POST–CONSTRUCTION: FINAL CONDITION OF THE SITE

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SITE ID: CT1116C
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REDDING, CT 06896

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SPECIAL INSPECTIONS AND SPECIFICATIONS

N-2

SHEET NO. 3 OF 12

1 TYPICAL RRU MOUNTING DETAILS

2 **PROPOSED ANTENNA DETAIL**
C-3 SCALE: NOT TO SCALE

3 **PROPOSED ANTENNA DETAIL**
C-3 SCALE: NOT TO SCALE

4
C-3

PROPOSED BIAST DETAIL

SCALE: NOT TO SCALE

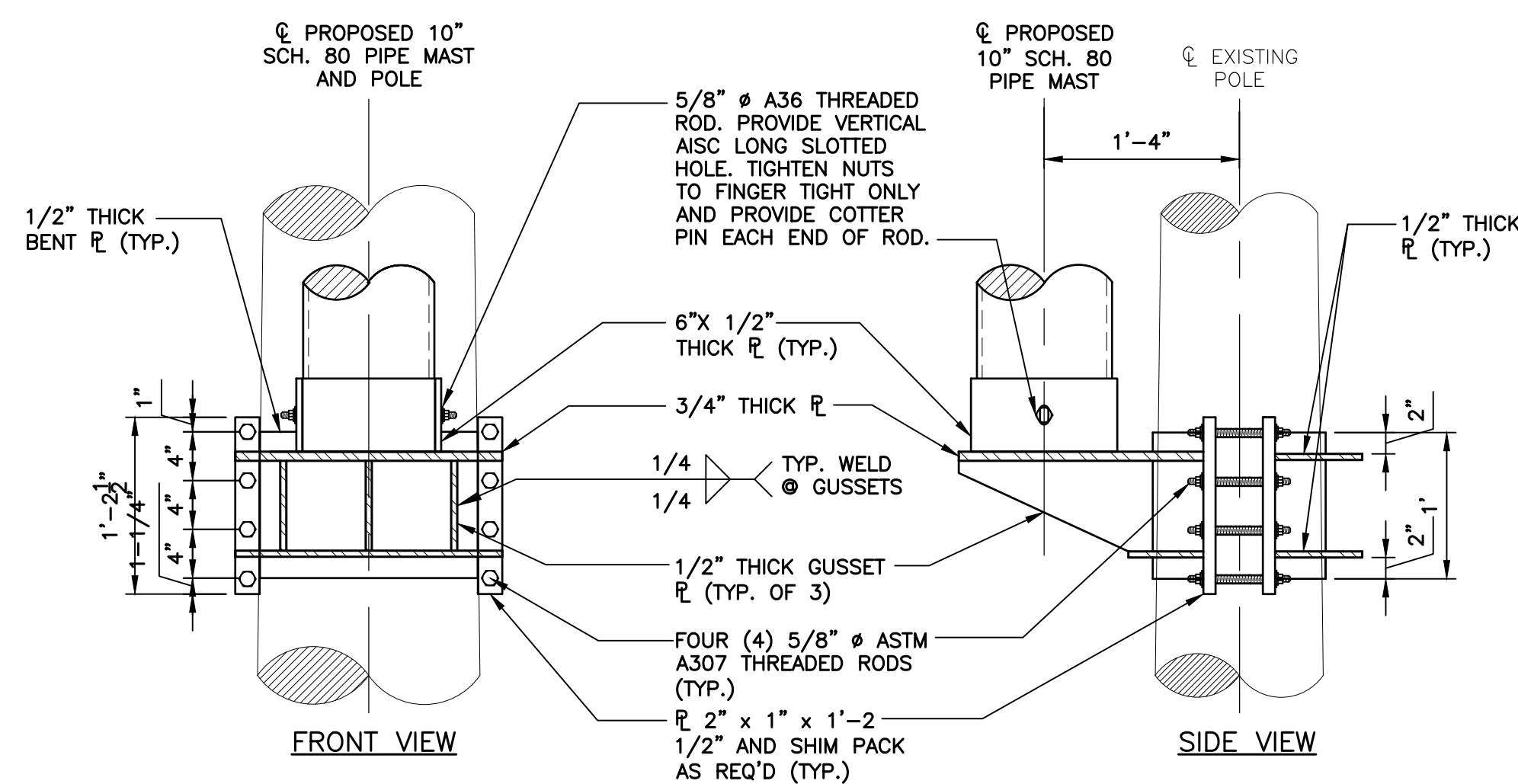
RADIO 4460 B25+B66

RADIO 4480 B71+B85

5 PROPOSED RRU DETAIL
C-3 SCALE: NOT TO SCALE

6 PROPOSED ANTENNA MOUNT DETAIL

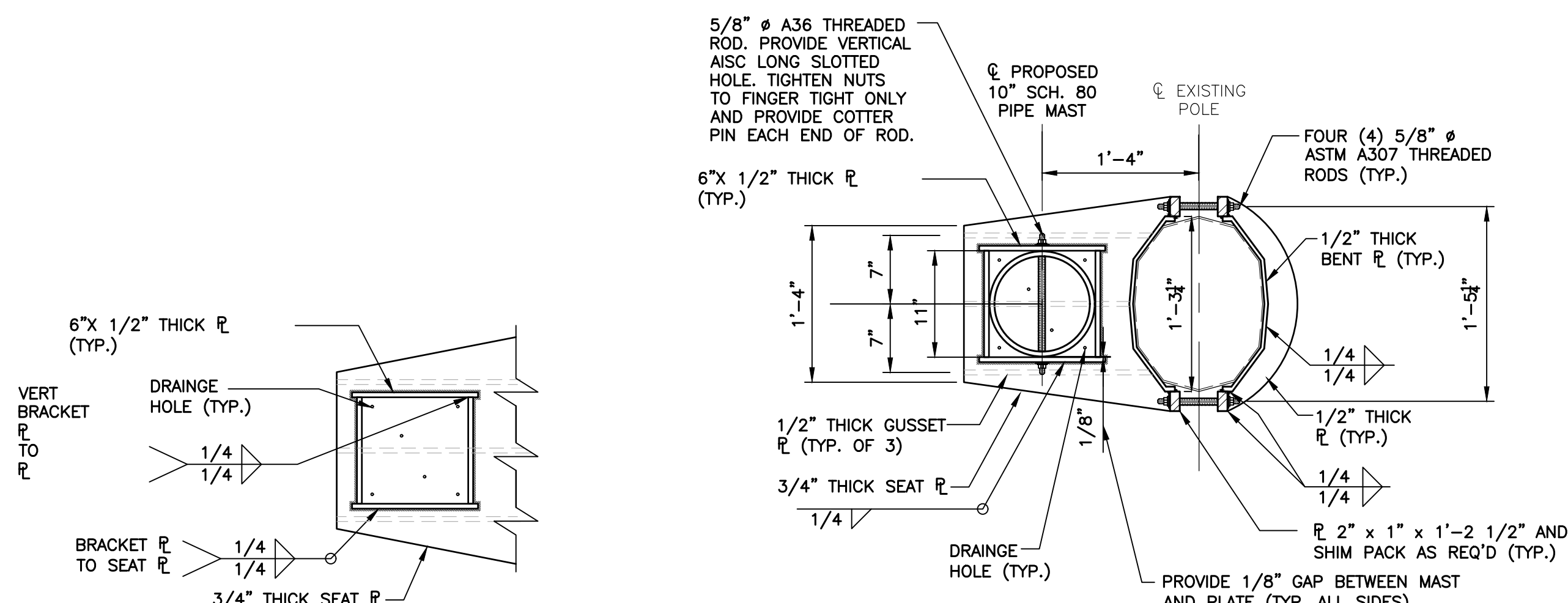
7 30 POSITION MINI PPC CABINET
C-3 SCALE: NOT TO SCALE



6
S-1

BOTTOM PCS BRACKET DETAIL

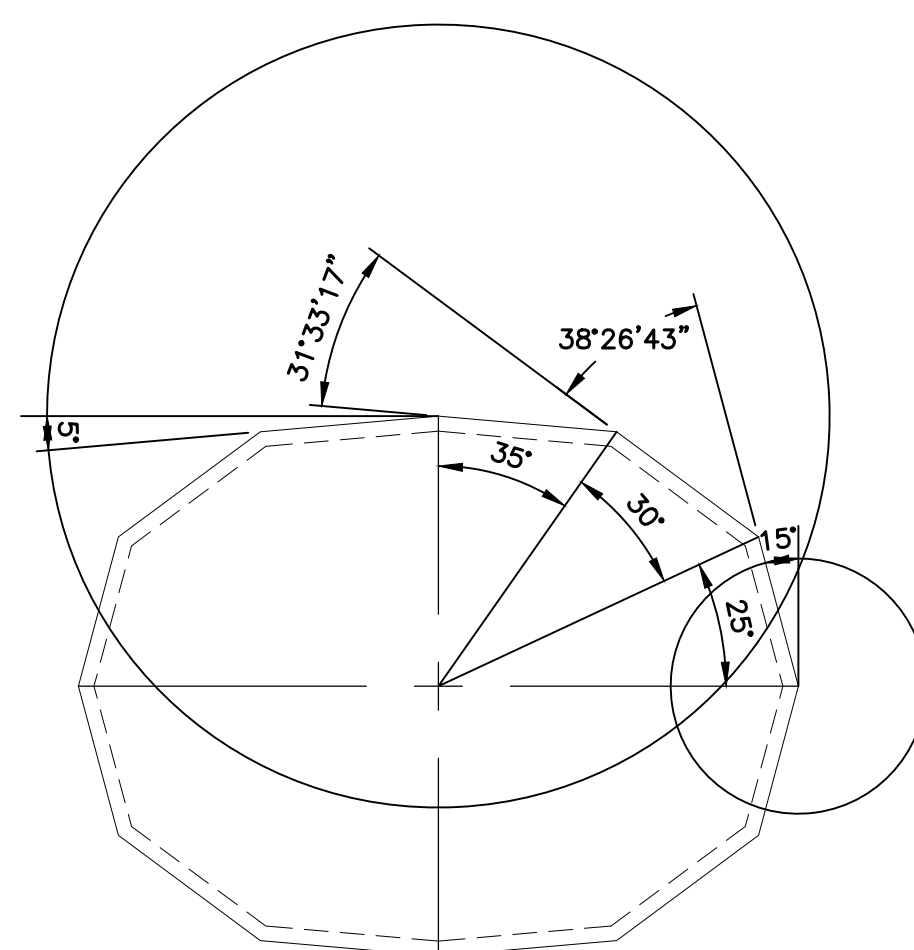
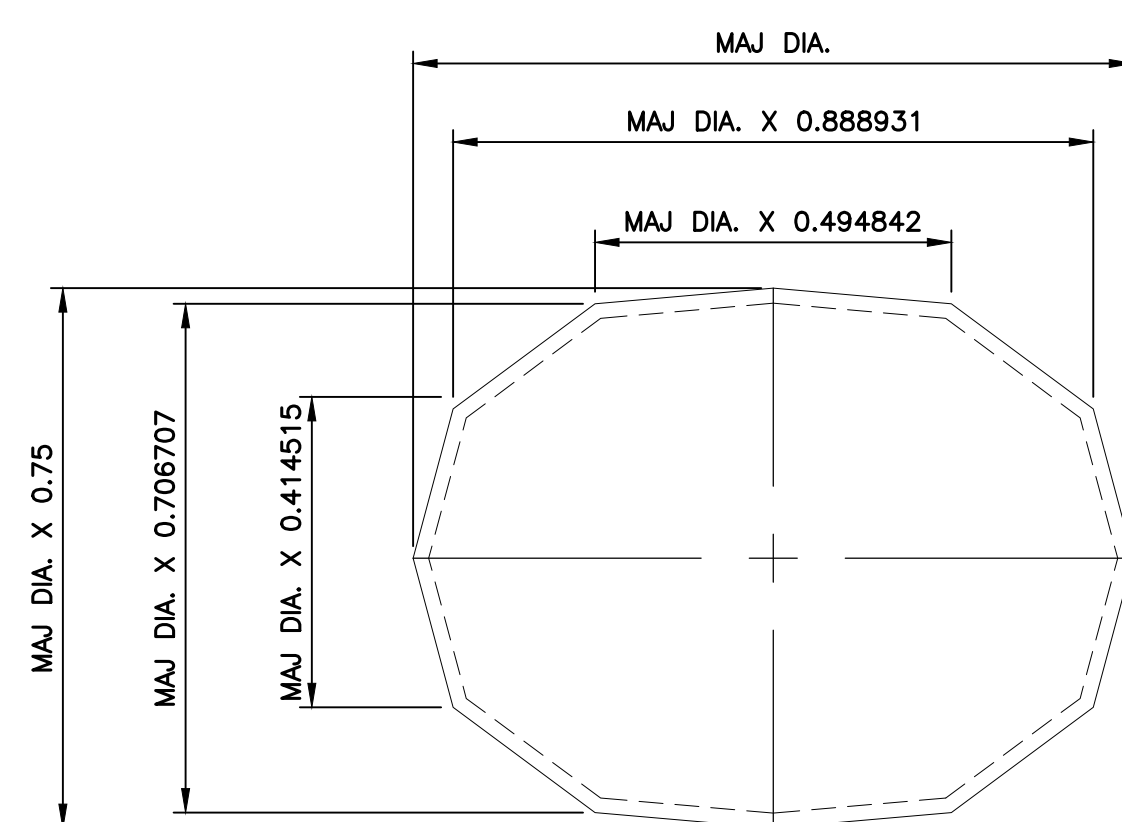
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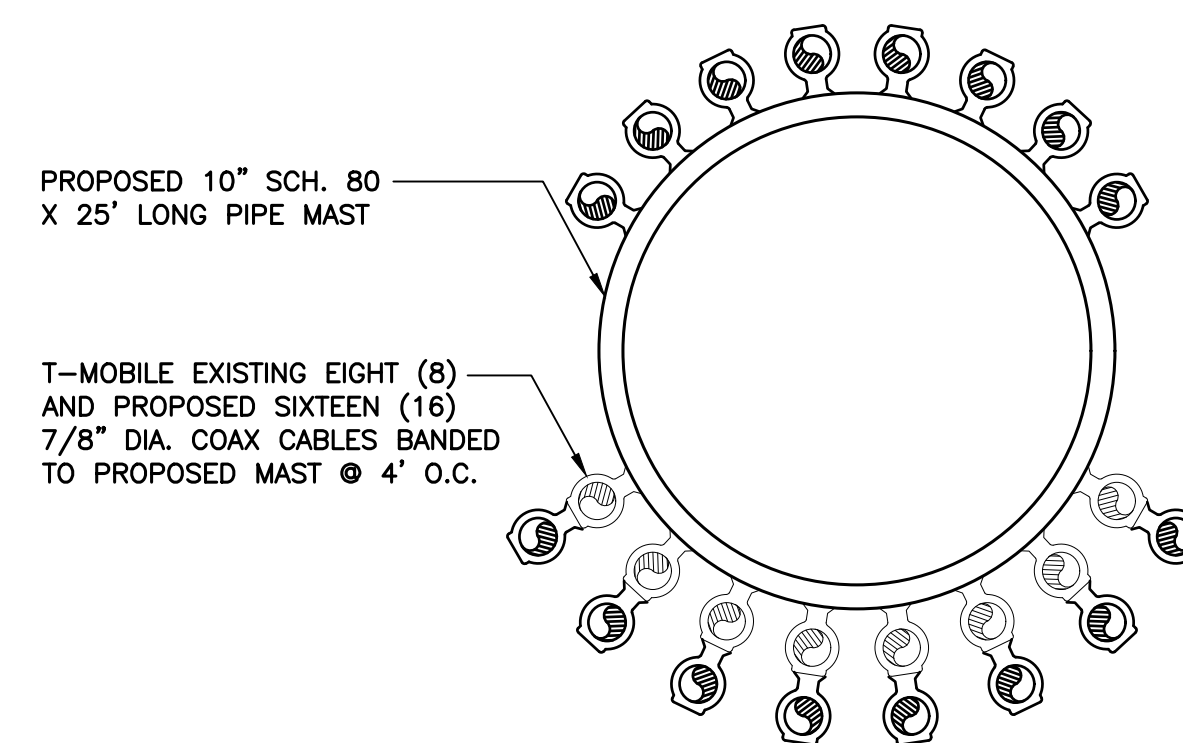
7 **BOTTOM PCS BRACKET PLAN VIEW**
S-1 SCALE: 1" = 1'-0"



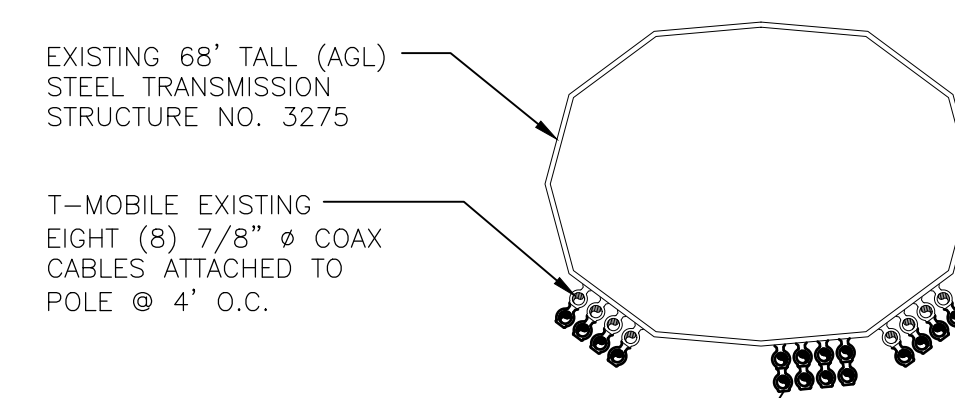
8 BRACKET ASSEMBLY DETAIL



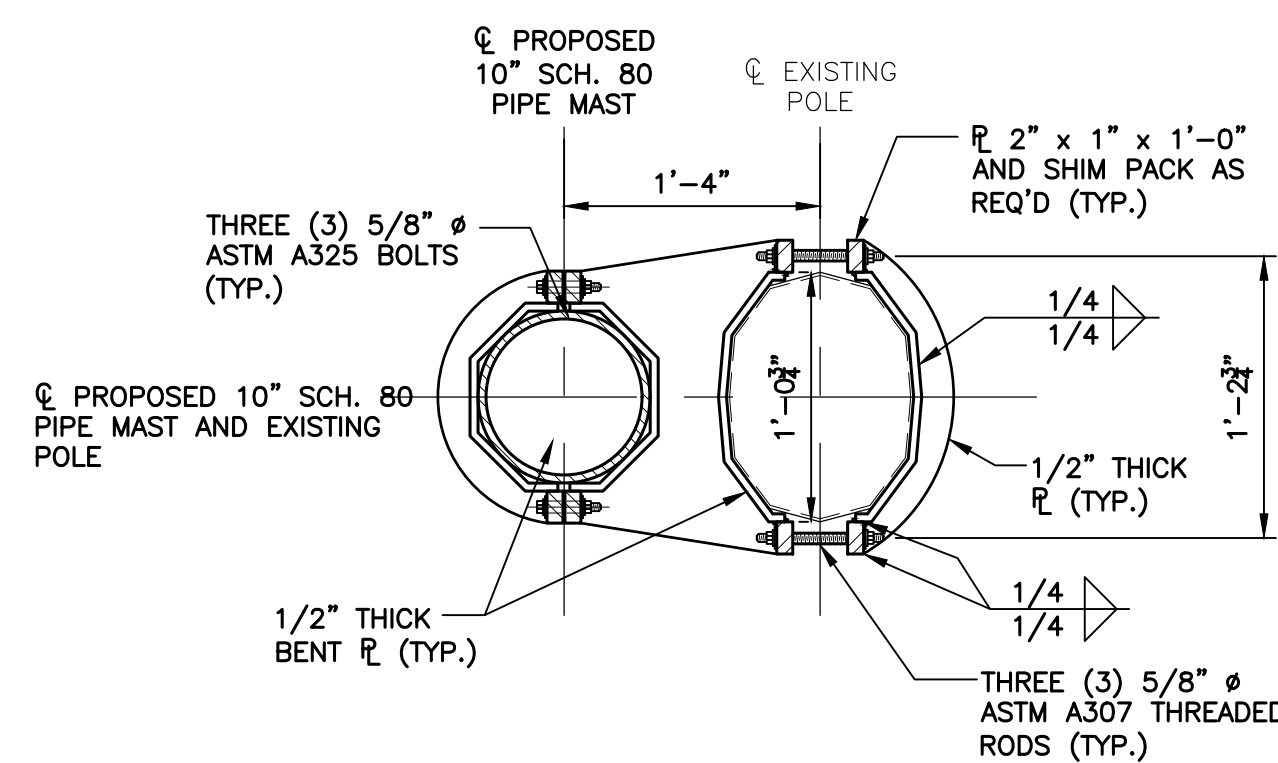
9 POLE DIMENSIONS
S-1 SCALE: 3" = 1'-0"



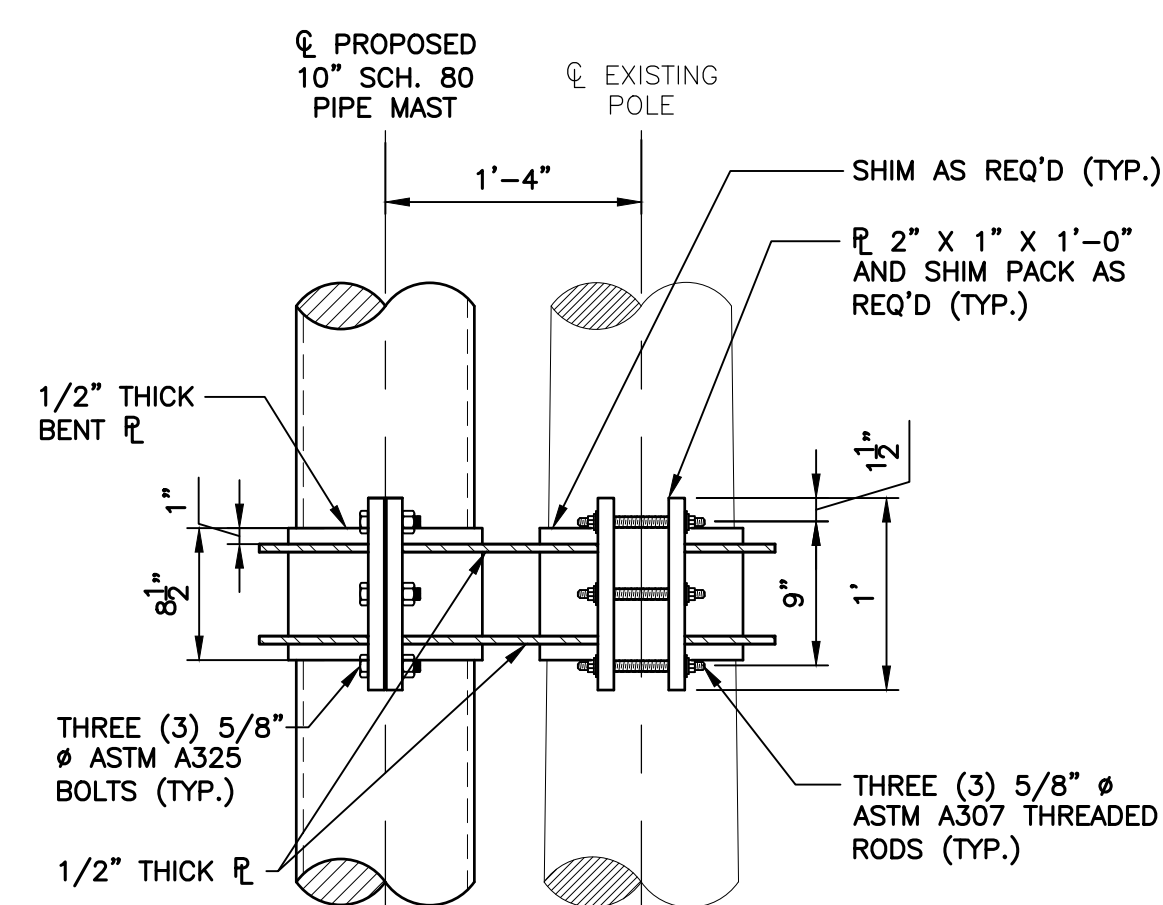
2 **COAX CABLE PLAN (55'-74' ATB)**
S-1 SCALE: 3" = 1'-0"



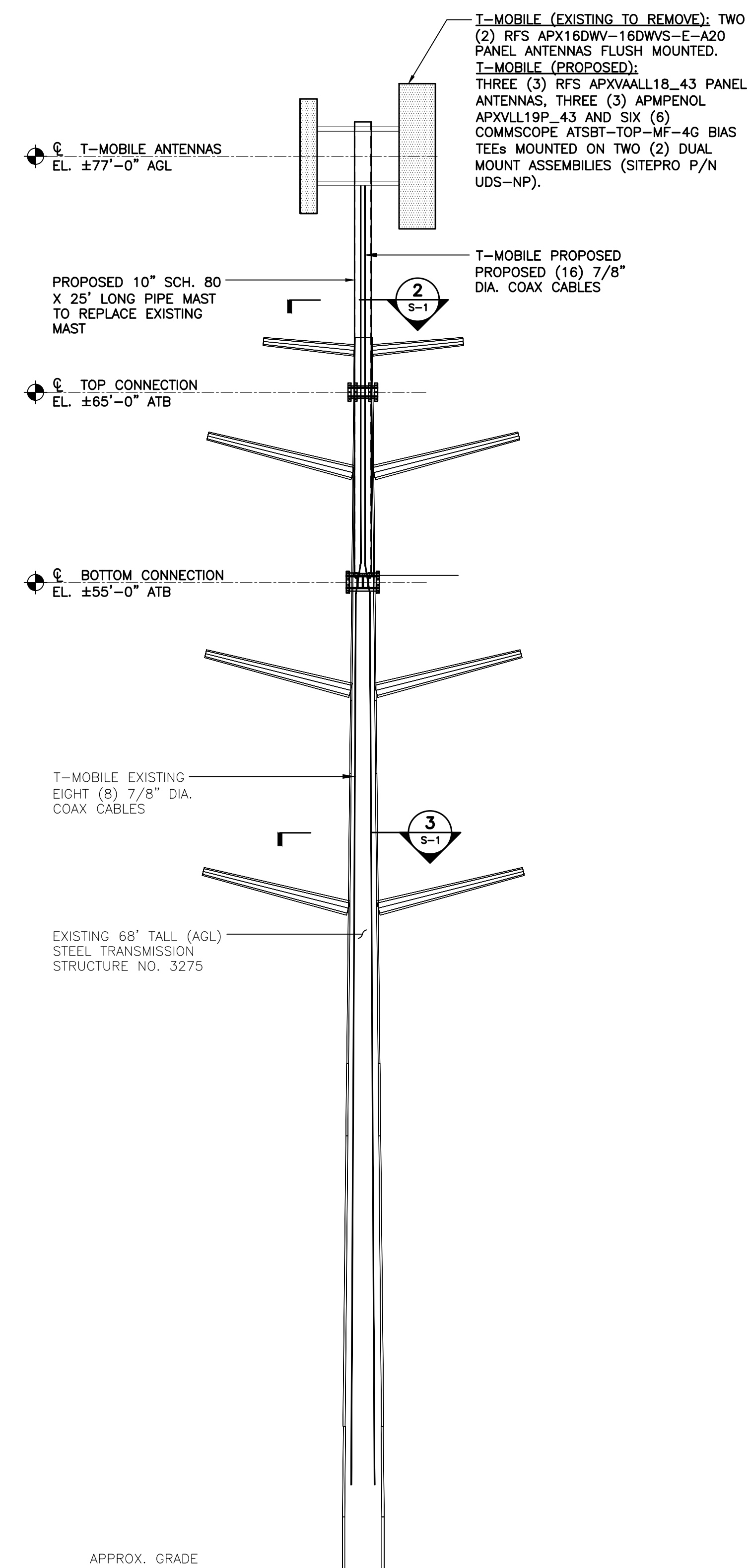
3 COAX CABLE PLAN (0'-55' ATB)
S-1 SCALE: 1" = 1'-0"



4 TOP PCS BRACKET PLAN VIEW
S-1 SCALE: 1" = 1'-0"



5 TOP PCS BRACKET DETAIL
S-1 SCALE: 1" = 1'-0"



1
S-1

TOWER AND MAST ELEVATION

SCALE: NTS

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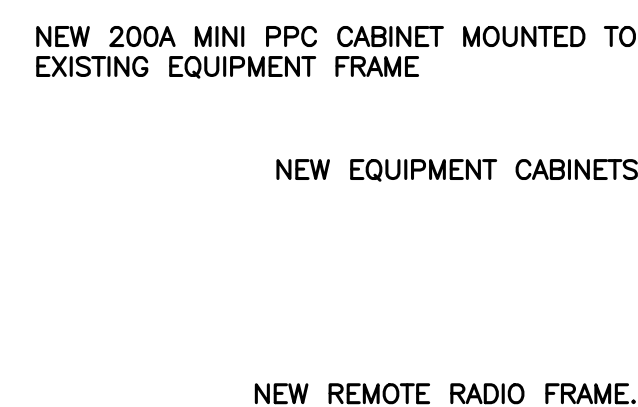
JOB NO. 22006.03

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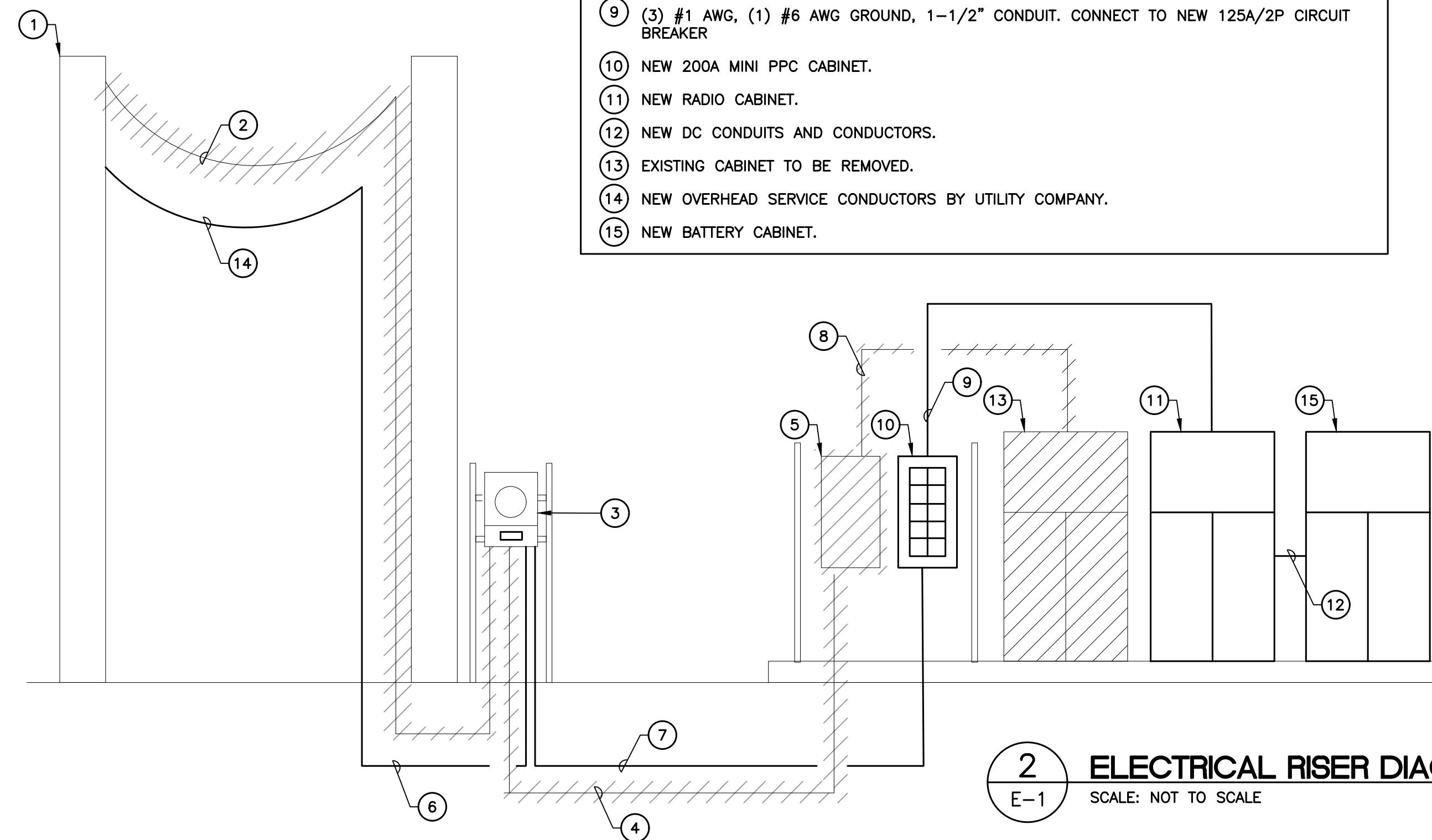
STRUCTURAL DETAILS

SHEET NO. 9 OF 12

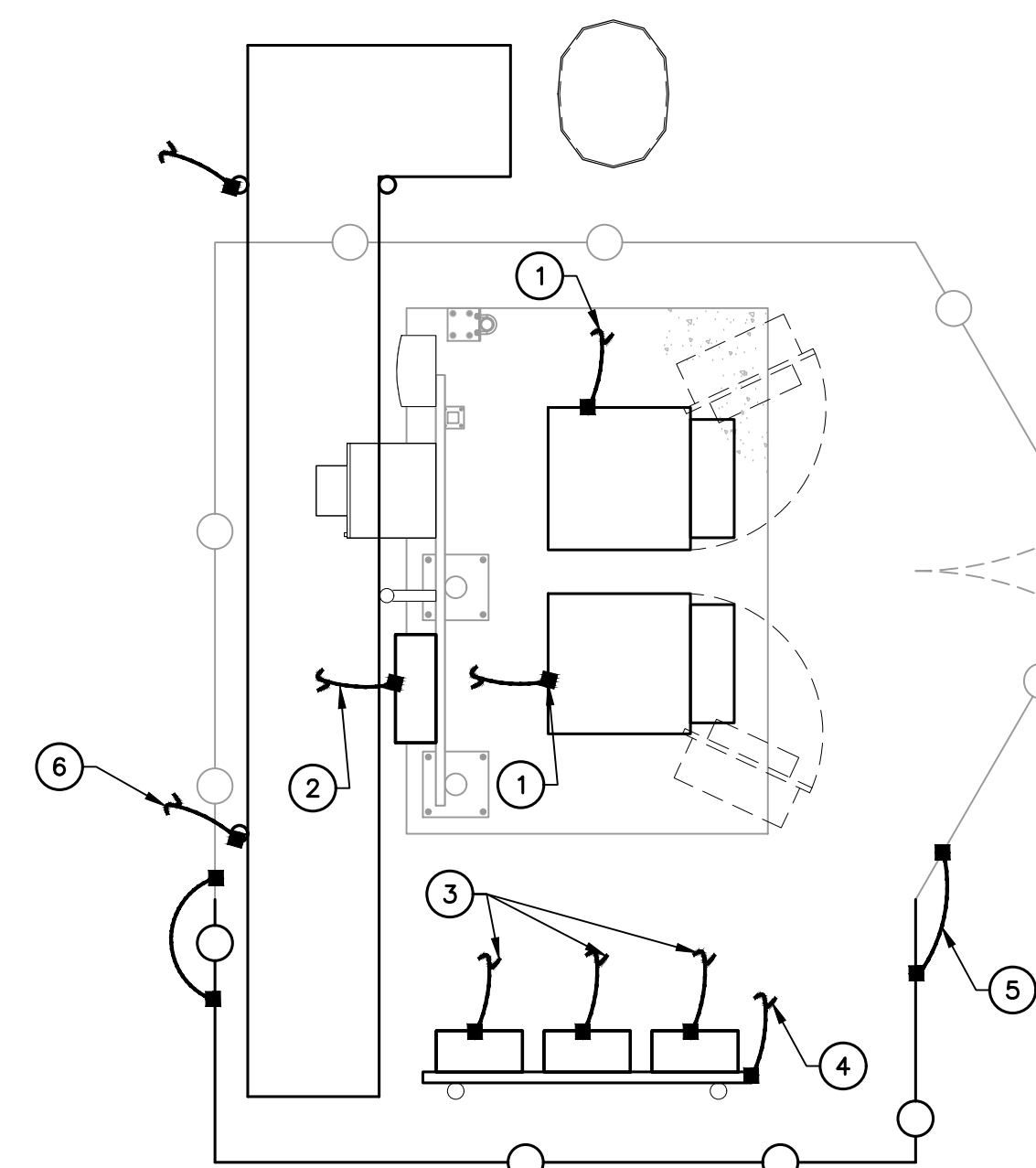
PROFESSIONAL ENGINEER SEAL						
6	11/26/24	SFG			TJR	CONSTRUCTION DRAWINGS — REVISED PER CABINET CONSOLIDATION
5	05/31/24	BSP			TJR	CONSTRUCTION DRAWINGS — REVISED PER NEWLY ISSUED RFDS
4	04/02/24	BSP			TJR	CONSTRUCTION DRAWINGS — REVISED ADDRESS PER CLIENT
3	01/13/24	BSP			TJR	CONSTRUCTION DRAWINGS — REVISED PER NEWLY ISSUED RFDS
2	11/06/23	BSP			TJR	CONSTRUCTION DRAWINGS — REVISED PER CLIENT COMMENTS
1	09/12/23	ASC			TJR	CONSTRUCTION DRAWINGS — REVISED PER CLIENT COMMENTS
0	08/10/23	ASC			TJR	CONSTRUCTION DRAWINGS — ISSUED FOR CONSTRUCTION
REV.	DATE	DRAWN BY	CHECKED BY	DESCRIPTION		



1
E-1



2 ELECTRICAL RISER DIAGRAM



3 PARTIAL GROUNDING PLAN

RISER DIAGRAM NOTES

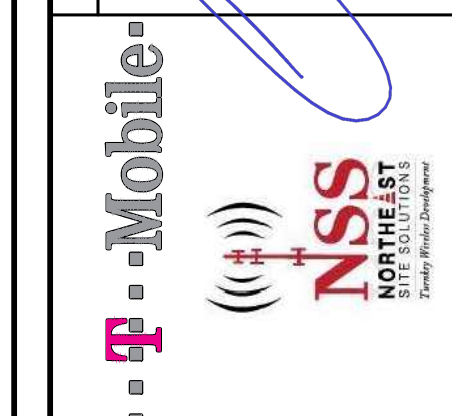
- (1) EXISTING UTILITY POLE #4903 TO BE USED.
- (2) EXISTING OVERHEAD SERVICE CONDUCTORS TO BE REMOVED BY UTILITY COMPANY.
- (3) EXISTING 200A, 240V RATED UTILITY METER WITH 100A/2P CIRCUIT BREAKER. 100A/2P CIRCUIT BREAKER TO BE REMOVED AND REPLACED WITH NEW 200A/2P CIRCUIT BREAKER. COORDINATE ALL UPGRADES WITH UTILITY COMPANY.
- (4) EXISTING UNDERGROUND CONDUITS AND CONDUCTORS TO BE REMOVED.
- (5) EXISTING 100A ELECTRICAL PANEL TO BE REMOVED AND REPLACED. RELOCATE ALL EXISTING TO REMAIN CIRCUIT BREAKERS TO NEW PPC CABINET.
- (6) (3) 3/0 AWG, 3" CONDUIT. COORDINATE EXACT CONDUCTOR SIZE WITH UTILITY COMPANY.
- (7) (3) 250KCMIL, (1) #4 AWG GROUND, 3" CONDUIT. CONDUIT TO FOLLOW ROUTING OF EXISTING TO BE REMOVED CONDUIT
- (8) EXISTING CONDUITS AND CONDUCTORS TO BE REMOVED.
- (9) (3) #1 AWG, (1) #6 AWG GROUND, 1-1/2" CONDUIT. CONNECT TO NEW 125A/2P CIRCUIT BREAKER
- (10) NEW 200A MINI PPC CABINET.
- (11) NEW RADIO CABINET.
- (12) NEW DC CONDUITS AND CONDUCTORS.
- (13) EXISTING CABINET TO BE REMOVED.
- (14) NEW OVERHEAD SERVICE CONDUCTORS BY UTILITY COMPANY.
- (15) NEW BATTERY CABINET.

GROUNDING PLAN NOTES

- ① BOND NEW EQUIPMENT CABINET TO EXISTING COMPOUND GROUND RING.
- ② BOND NEW PPC TO EXISTING COMPOUND GROUND RING.
- ③ BOND NEW REMOTE RADIO UNIT TO EXISTING COMPOUND GROUND RING.
- ④ BOND NEW RRU FRAME TO EXISTING COMPOUND GROUND RING.
- ⑤ BOND NEW SECTION OF FENCE TO EXISTING FENCE. TYPICAL OF BOTH ENDS FOR NEW SECTION OF FENCE .
- ⑥ BOND NEW ICE BRIDGE POSTS TO EXISTING COMPOUND GROUND RING. TYPICAL EACH POST.

6	11/26/24	SG	TJR	CONSTRUCTION DRAWINGS — REVISED PER CABINET CONSOLIDATION
5	05/31/24	BSP	TJR	CONSTRUCTION DRAWINGS — REVISED PER NEWLY ISSUED RFDS
4	04/02/24	BSP	TJR	CONSTRUCTION DRAWINGS — REVISED ADDRESS PER CLIENT
3	01/13/24	BSP	TJR	CONSTRUCTION DRAWINGS — REVISED PER NEWLY ISSUED RFDS
2	11/06/23	BSP	TJR	CONSTRUCTION DRAWINGS — REVISED PER CLIENT COMMENTS
1	09/12/23	ASC	TJR	CONSTRUCTION DRAWINGS — REVISED PER CLIENT COMMENTS
REV	08/10/23	ASC	TJR	CONSTRUCTION DRAWINGS — ISSUED FOR CONSTRUCTION
			CHECKED BY	DESCRIPTION

11



CENEK engineering

203) 488-0580
203) 488-8587 Fax
53-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

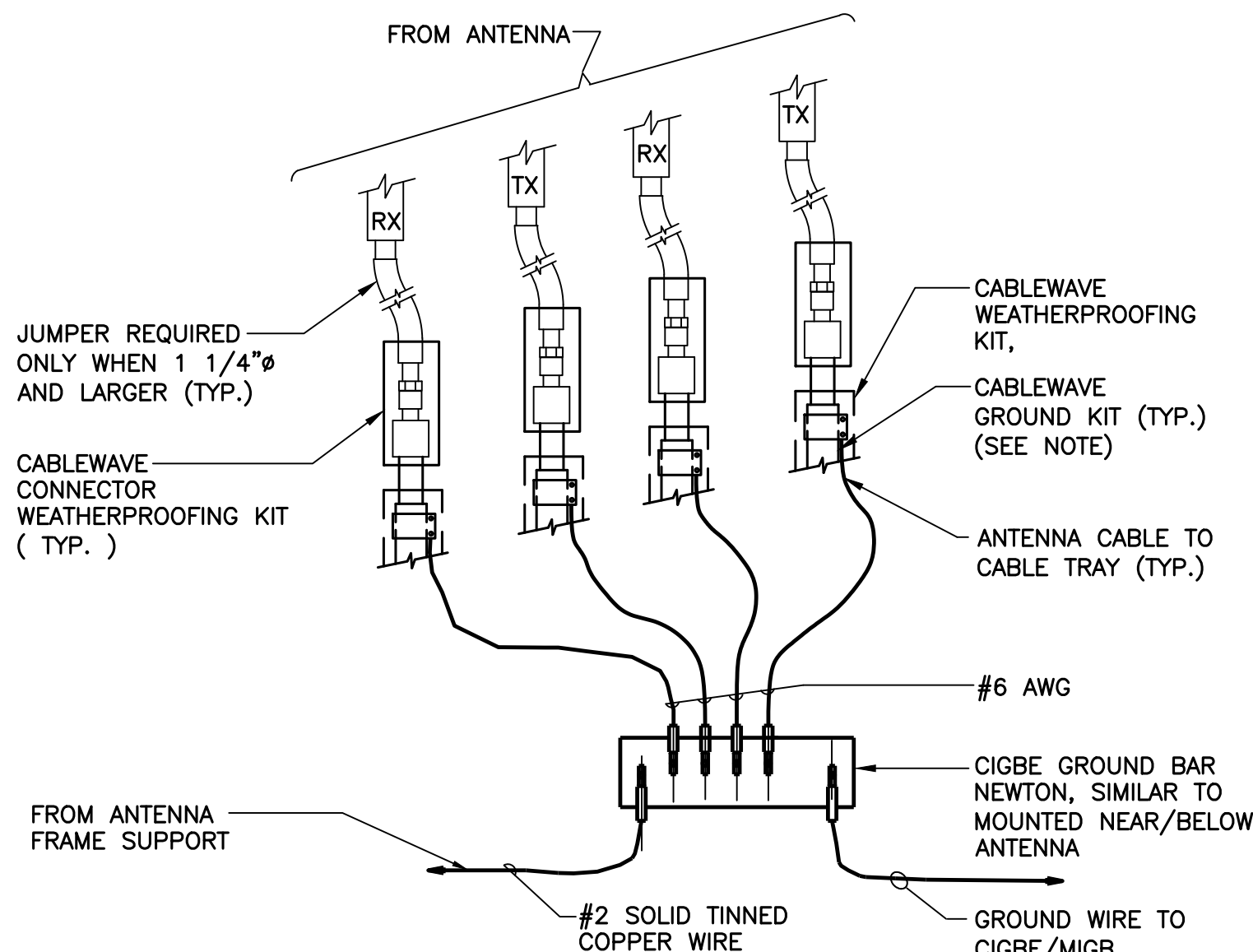
T-MOBILE NORTHEAST LLC
SITE NAME: RIDGEFIELD/ ETHAN ALLEN H SITE ID: CT11116C 99 MOUNTAIN RD. UNIT C (EVERSOURCE) REDDING, CT 06896

DATE:	08/10/23
SCALE:	AS NOTED
JOB NO.	22006.03

CONDUIT ROUTING AND RISER DIAGRAM

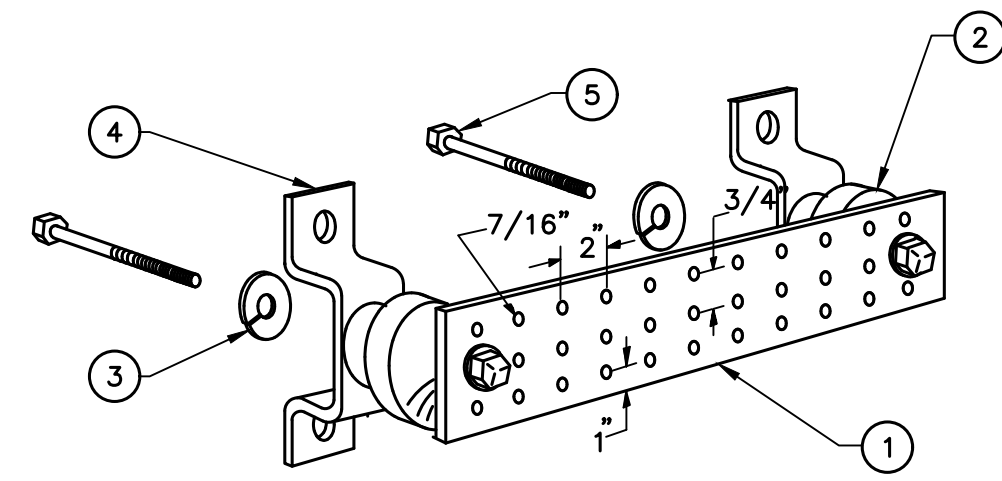
E-1

SHEET NO. 10 OF 12



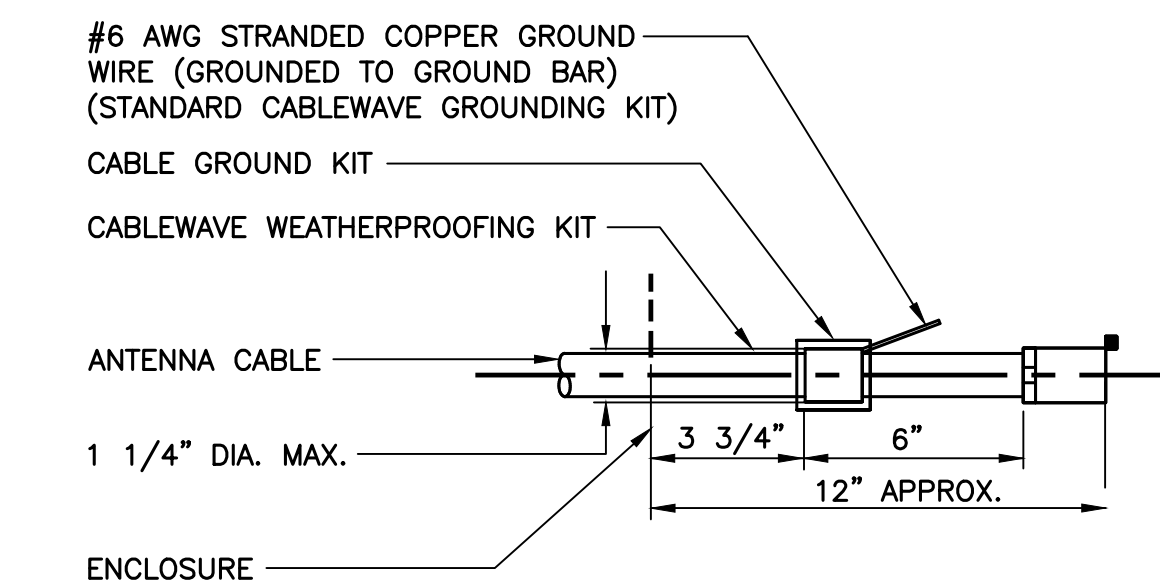
- NOTES:**
- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

1 CONNECTION OF GROUND WIRES TO GROUND BAR
E-2 SCALE: NOT TO SCALE



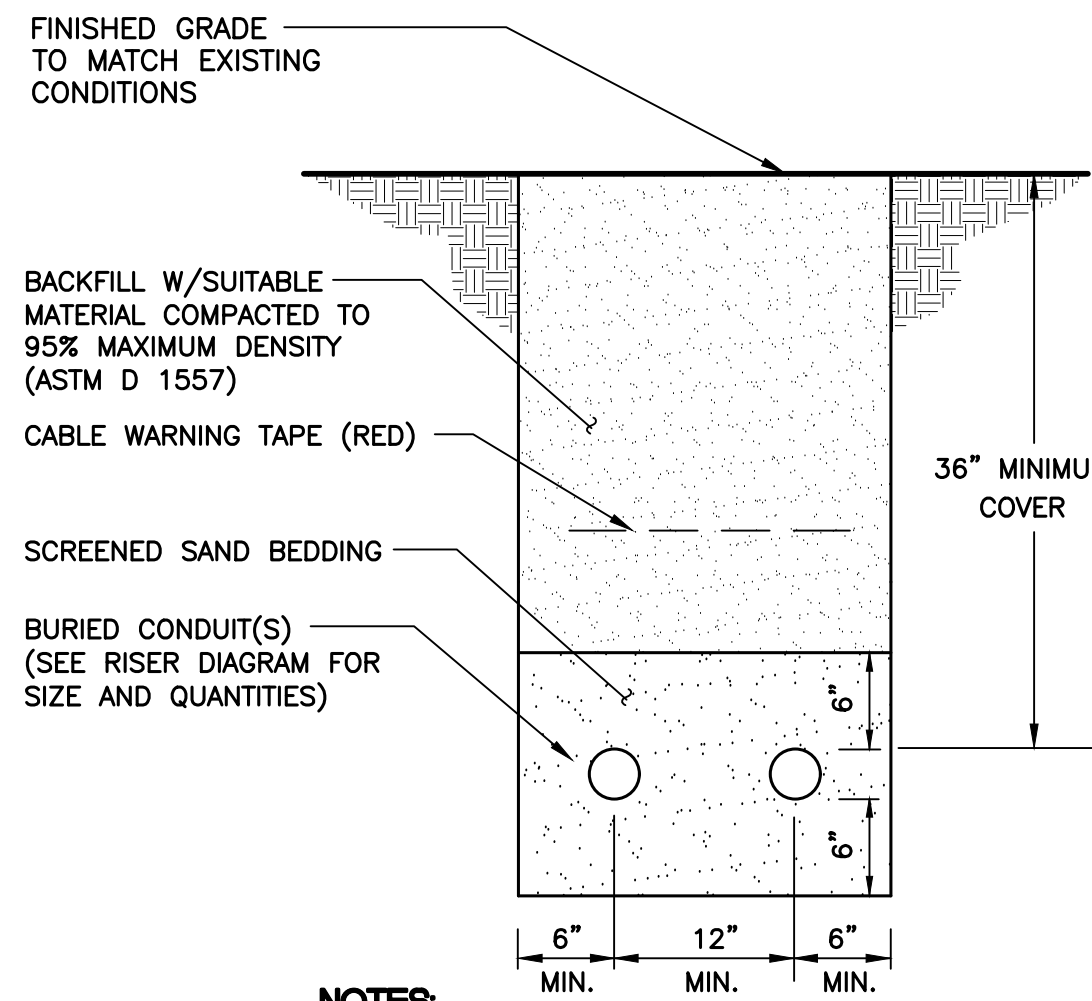
- NOTES**
- TINNED COPPER GROUND BAR, 1/4" x 4" x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
 - INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4.
 - 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
 - WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056.
 - 5/8-11 x 1" STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS.

2 GROUND BAR DETAIL
E-2 SCALE: NOT TO SCALE



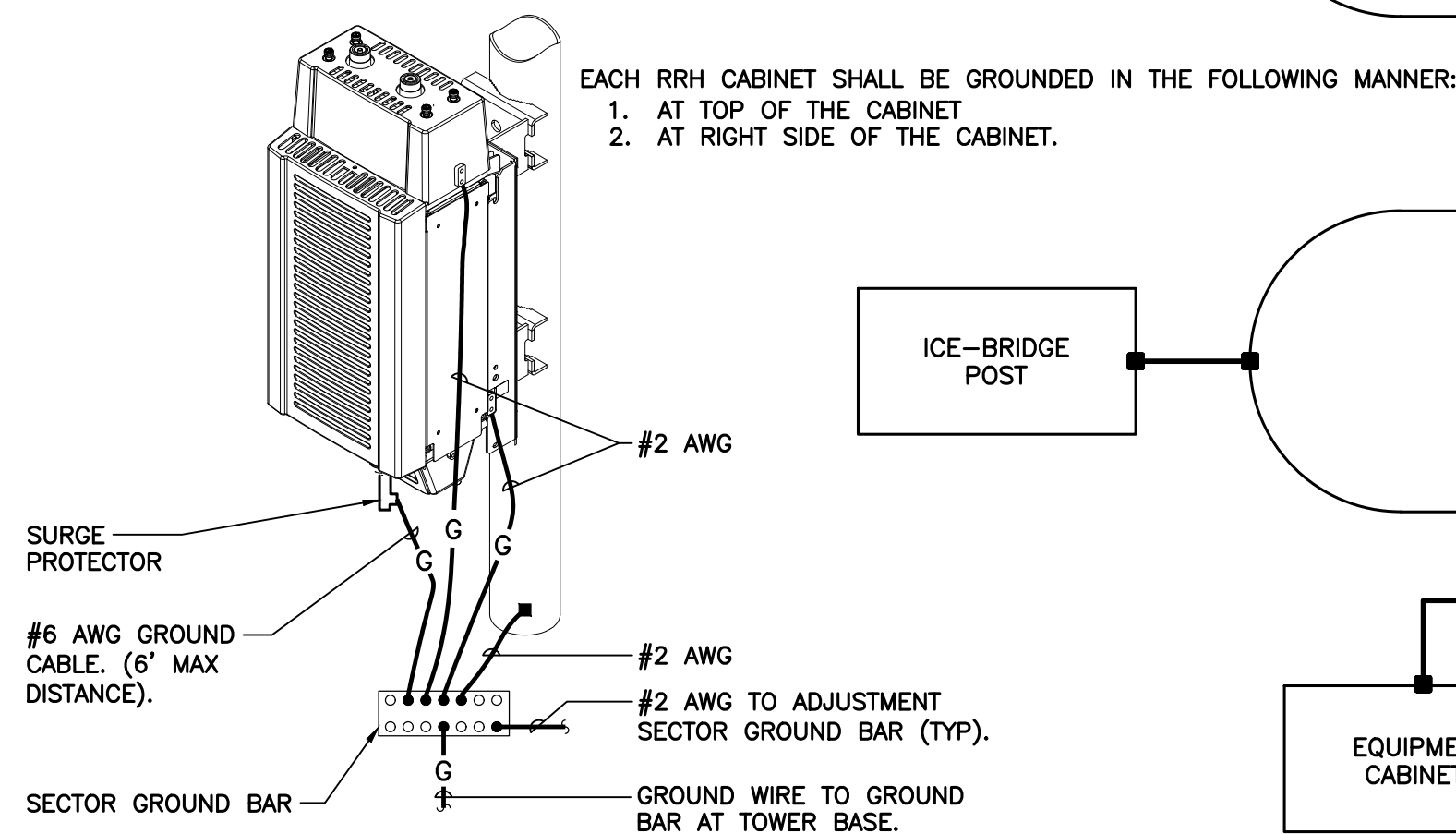
- NOTES:**
- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

3 ANTENNA CABLE GROUNDING DETAIL
E-2 SCALE: NOT TO SCALE

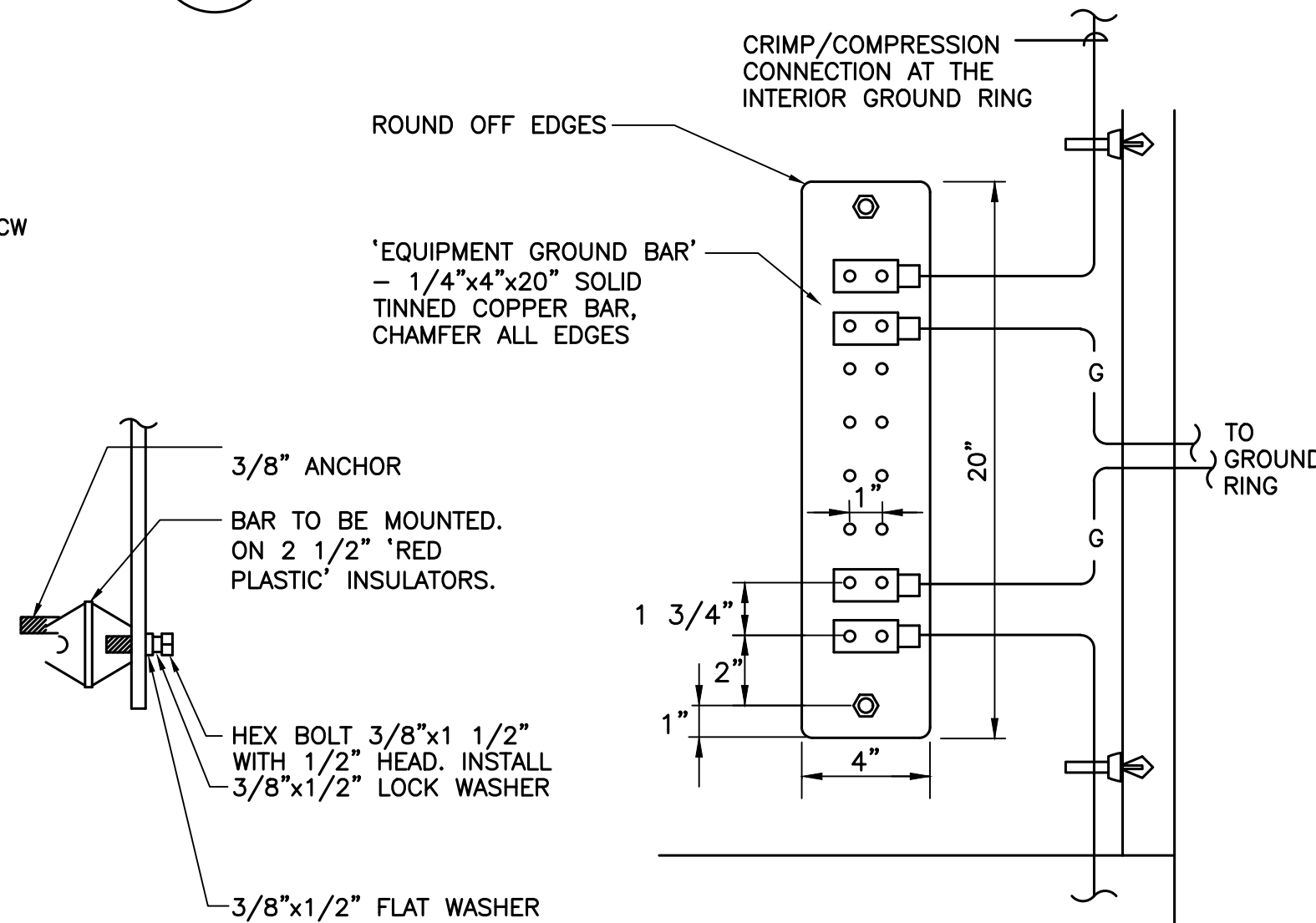


- NOTES:**
- THE CLEAN FILL SHALL PASS THROUGH A 3/8" MESH SCREEN AND SHALL NOT CONTAIN SHARP STONES. OTHER BACKFILL SHALL NOT CONTAIN ASHES, CINDERS, SHELLS, FROZEN MATERIAL, LOOSE DEBRIS OR STONES LARGER THAN 2" IN MAXIMUM DIMENSION.
 - WHERE EXISTING UTILITIES ARE LIKELY TO BE ENCOUNTERED, CONTRACTOR SHALL HAND DIG AND PROTECT EXISTING UTILITIES.
 - WHERE SHALLOW BEDROCK IS ENCOUNTERED BETWEEN UTILITY SOURCE AND SERVICE EQUIPMENT, COORDINATE WITH UTILITY COMPANY FOR BURIAL DEPTH REQUIREMENTS.
 - COORDINATE WITH ELECTRICAL ENGINEER WHERE SHALLOW BEDROCK IS ENCOUNTERED BETWEEN SERVICE EQUIPMENT AND EQUIPMENT SHELTER.

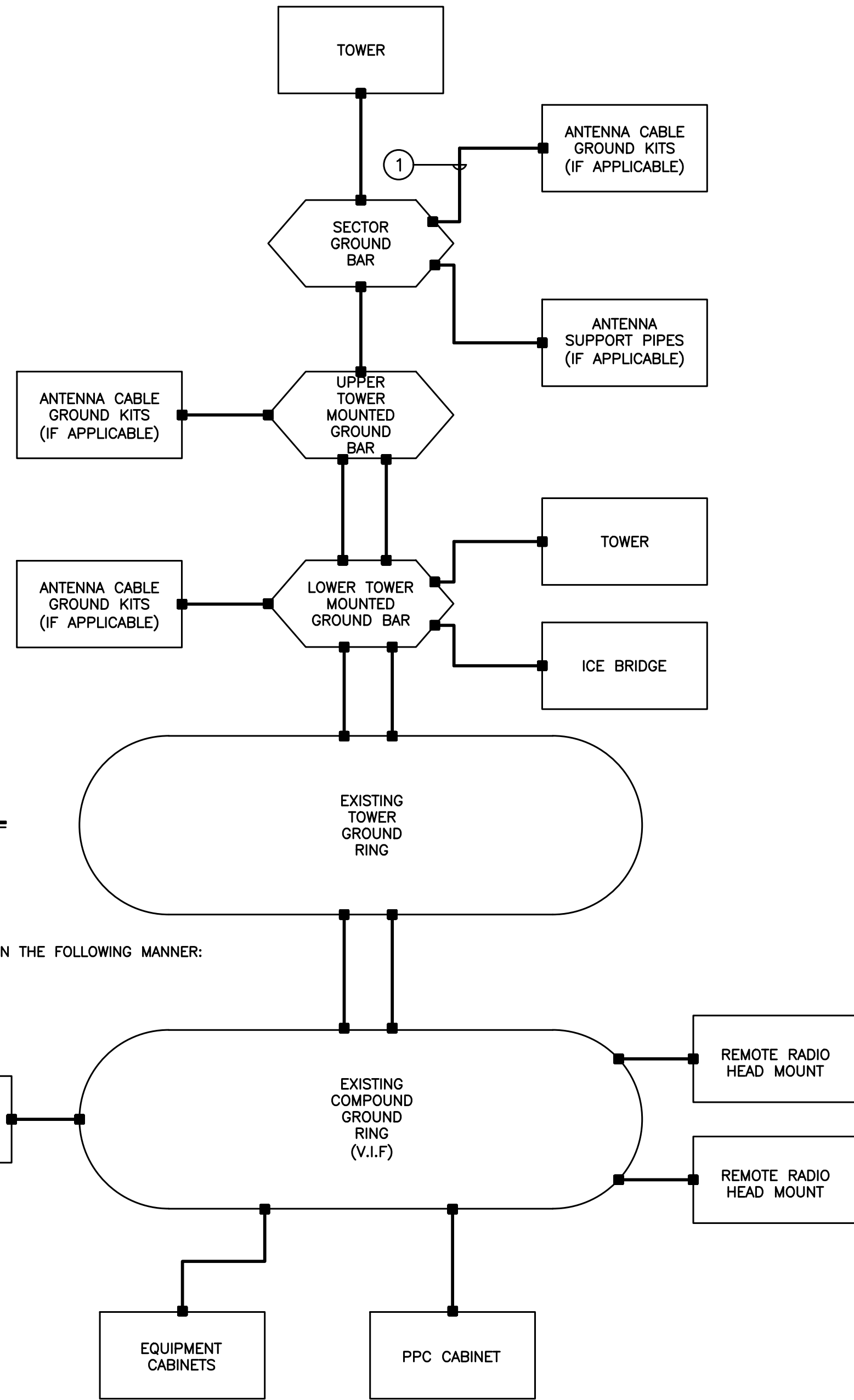
4 TYPICAL ELECTRICAL TRENCH DETAIL
E-2 SCALE: NOT TO SCALE



5 RRH POLE MOUNT GROUNDING
E-2 SCALE: NOT TO SCALE



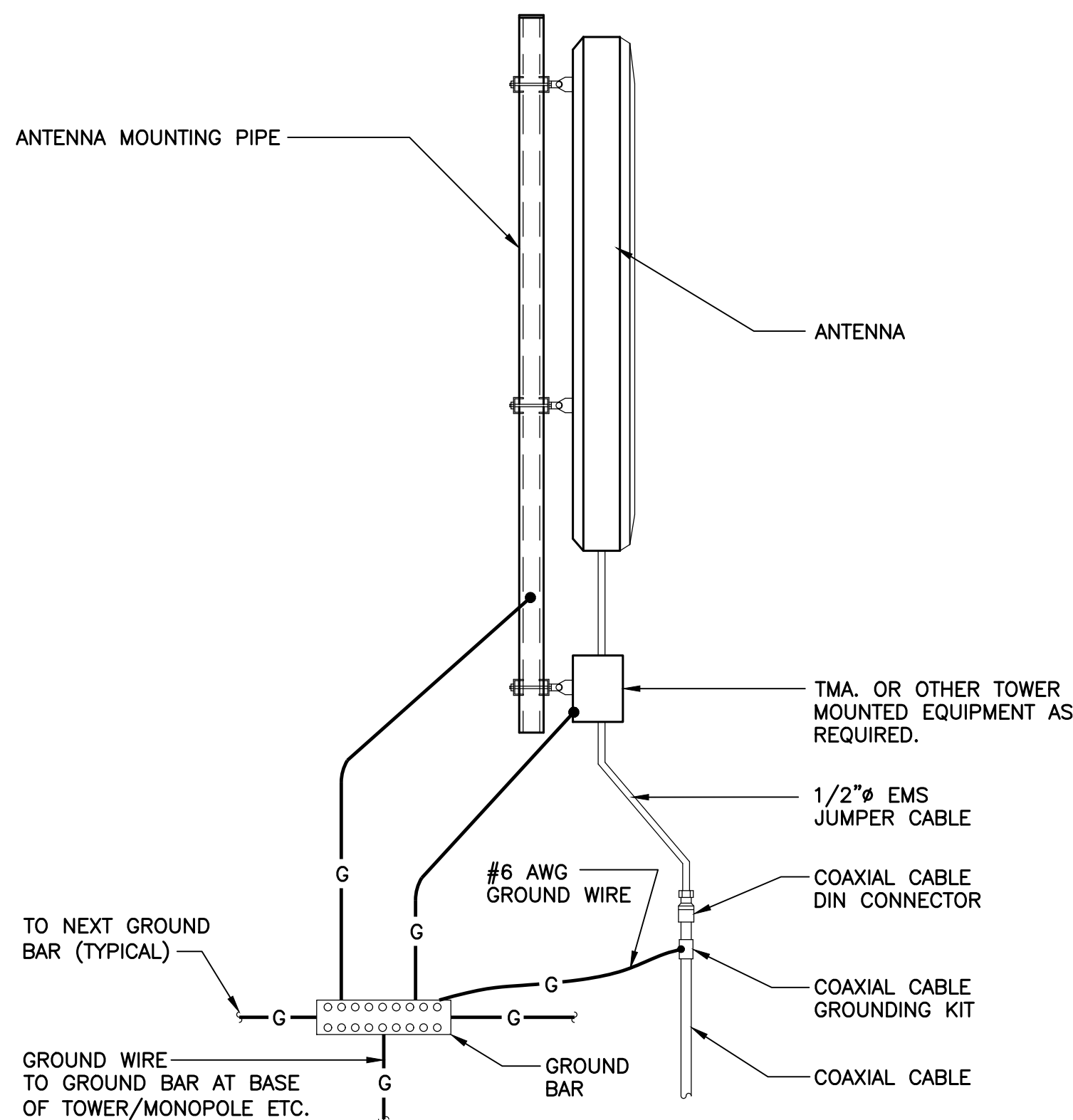
8 EQUIPMENT GROUND BAR DETAIL
E-2 SCALE: NOT TO SCALE



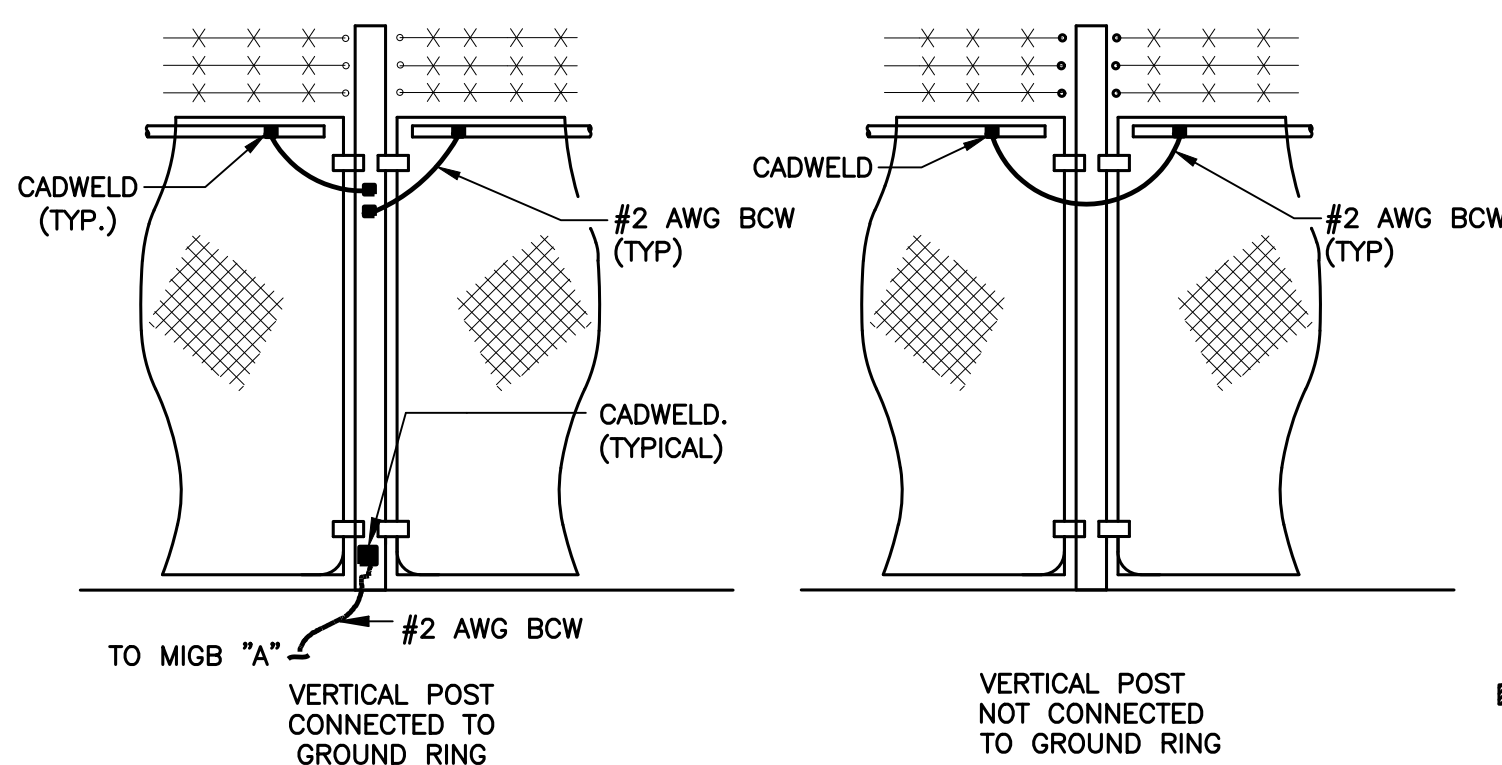
GROUNDING SCHEMATIC NOTES

- 1 #6 AWG**
- GENERAL NOTES:**
- ALL SURGE SUPPRESSION EQUIPMENT SHALL BE BONDED TO GROUND PER MANUFACTURER'S SPECIFICATIONS
 - UNLESS OTHERWISE NOTED OR REQUIRED BY CODE, GROUND CONDUCTORS SHOWN SHALL BE #2 AWG (SOLID TINNED BCW - EXTERIOR; STRANDED GREEN INSULATED - INTERIOR).
 - BOND CABLE TRAY SECTIONS TOGETHER WITH #6 AWG STRANDED GREEN INSULATED JUMPERS.
 - ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
 - BOND ALL EQUIPMENT CABINETS AND BATTERY CABINETS TO GROUND PER MANUFACTURER'S SPECIFICATIONS.
 - REFER TO ALL ELECTRICAL AND GROUNDING DETAILS.
 - COORDINATE ALL TOWER MOUNTED EQUIPMENT WITH OWNER.
 - ALL ROOF MOUNTED AMPLIFIERS AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE SECTOR GROUND BAR PER MANUFACTURER'S SPECIFICATIONS.
 - ALL GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND OWNER'S REQUIREMENTS.

9 ELECTRICAL SCHEMATIC DIAGRAM
E-2 SCALE: NOT TO SCALE



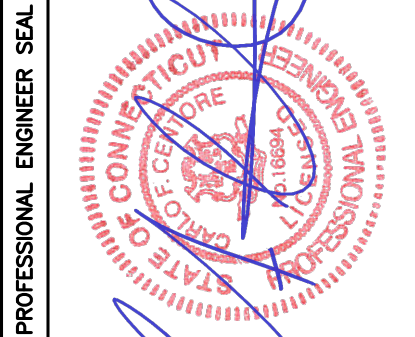
6 TYPICAL ANTENNA GROUNDING DETAIL
E-2 SCALE: NOT TO SCALE



- NOTES:**
- VERTICAL POSTS SHALL BE BONDED TO THE RING AT EACH CORNER AND AT EACH GATE POST. AS A MINIMUM ONE VERTICAL POST SHALL BE BONDED TO THE GROUND RING IN EVERY 100 FOOT STRAIGHT RUN OF FENCE.
 - HORIZONTAL POLES SHALL BE BONDED TO EACH OTHER.
 - BOND EACH HORIZONTAL POLE / BRACE TO EACH OTHER AND TO EACH VERTICAL POST THAT IS BONDED TO THE EXTERIOR GROUND RING.

7 GROUND-STD. DETAIL FENCE GROUNDING
E-2 NOT TO SCALE

REV.	DATE	DRAWN BY	CHECKED BY	DESCRIPTION
6	11/26/24	SFG	TJR	CONSTRUCTION DRAWINGS - REVISED PER CABINET CONSOLIDATION
5	05/31/24	BSP	TJR	CONSTRUCTION DRAWINGS - REVISED PER NEWLY ISSUED RFDS
4	04/02/24	BSP	TJR	CONSTRUCTION DRAWINGS - REVISED ADDRESS PER CLIENT
3	01/17/24	BSP	TJR	CONSTRUCTION DRAWINGS - REVISED PER NEWLY ISSUED RFDS
2	11/06/23	BSP	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
1	09/12/23	ASC	TJR	CONSTRUCTION DRAWINGS - REVISED PER CLIENT COMMENTS
0	08/10/23	ASC	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION



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Centered on Solutions™
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632 North Branford Road
Branford, CT 06405
www.CenterEng.com

T-MOBILE NORTHEAST LLC
SITE NAME: RIDGEFIELD/ ETHAN ALLEN H
SITE ID: CT116C
99 MOUNTAIN RD. UNIT C (EVERSOURCE)
REDDING, CT 06896

DATE:	08/10/23
SCALE:	AS NOTED
JOB NO.	22006.03

TYPICAL
ELECTRICAL
DETAILS

ATTACHMENT 4

**Structural Analysis of
Antenna Mast and Pole**

T-Mobile Site Ref: CT11116C

*Eversource Structure No. 3275
68' (AGL) Electric Transmission Pole*

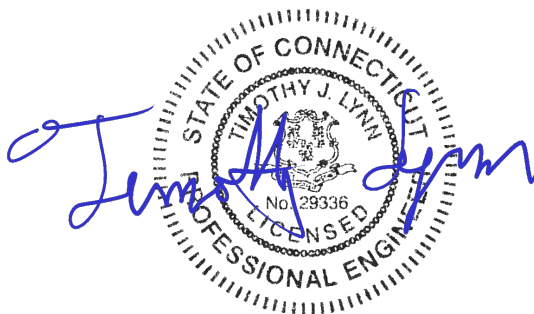
*99 Mountain Road Unit C (Eversource)
Redding, CT*

CEN TEK Project No. 24066.01

~~Date: June 3, 2024~~

Rev 2: October 3, 2024

Max Stress Ratio = 99%



Prepared for:
T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

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- ANALYSIS
- DESIGN BASIS
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- RFDS SHEET
- EQUIPMENT CUT SHEETS
- BORING LOG

Introduction

The purpose of this report is to analyze the antenna mast and 68' (AGL) utility pole located at 99 Mountain Road in Redding, CT for the proposed antenna and equipment upgrade by T-Mobile.

The existing/proposed loads consist of the following:

- **T-MOBILE (Existing to Remain):**
Mast: Eight (8) 7/8" Ø coax cables mounted to the exterior of the pole/mast.
- **T-MOBILE (Existing to be removed):**
Antennas: Two (2) APX16DWV-16DWVS panel antennas flush mounted with a RAD center elevation of 74-ft above grade.
Mast: 4" Sch. 40 Pipe
- **T-MOBILE (Proposed):**
Antennas: Three (3) RFS APXVAALL18_43 panel antennas, three (3) Amphenol APXVLL19P_43 panel antennas and six (6) CommScope ATSBT-TOP-MF Smart Bias Tees mounted one two (2) dual mount assemblies (SitePro p/n UDS-NP) with a RAD center elevation of 77-ft above grade.
Coax Cables: Sixteen (16) 7/8" Ø coax cables mounted to the exterior of the pole/mast.
Mast: 10" Sch. 80 Pipe

Primary assumptions used in the analysis

- ASCE Manual No. 48-19, "Design of Steel Transmission Pole Structures", defines steel stresses for evaluation of the utility pole.
- All utility tower members are adequately protected to prevent corrosion of steel members.
- All proposed antenna mounts are modeled as listed above.
- All coaxial cable will be installed within the antenna mast unless specified otherwise.
- Antenna mast will be properly installed and maintained.
- No residual stresses exist due to incorrect pole erection.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds conform to the requirements of AWS D1.1.
- Antenna mast and utility pole will be in plumb condition.
- Utility pole was properly installed and maintained and all members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
- Any deviation from the analyzed loading will require a new analysis for verification of structural adequacy.
- Direct embedment evaluation assumes 1/2" deflection at top of steel canister under worst case loading is acceptable.
- Backfill within the steel canister has been properly compacted to allow for transfer of tower base forces to the steel canister with minimal deflection of backfill material.
- Per Meyer Industries original pole design drawings the steel pole tapers at 0.25 in/ft from top to 68'-5" below top (with 3'-5" slip joint). The bottom 15-ft of the pole is straight (with 12-ft embedment).
- Steel canister/casing diameter based on Eversource standard size of pole base diameter + 20".

A n a l y s i s

The proposed replacement mast consisting of a 10-in x 25.0-ft long SCH. 80 pipe (O.D. = 10.75") connected at two points to the existing tower was analyzed for its ability to resist loads prescribed by the TIA-222-H standard. Section 5 of this report details these gravity and lateral wind loads. NESC prescribed loads were also applied to the mast in order to obtain reactions needed for analyzing the utility pole structure. These loads are developed in Section 7 of this report. Load cases and combinations used in RISA-3D for TIA-222-H loading and for NESC/EVERSOURCE loading are listed in report Sections 6 and 8, respectively.

D e s i g n B a s i s

Our analysis was performed in accordance with ASCE 48-19, "Design of Steel Transmission Pole Structures", NESC C2-2023 and Eversource Design Criteria.

▪ UTILITY POLE ANALYSIS

The purpose of this analysis is to determine the adequacy of the existing utility structure to support the proposed antenna loads. The loading and design requirements were analyzed in accordance with the EVERSOURCE Design Criteria Table, NESC C2-2023 ~ Construction Grade B, and ASCE Manual No. 48-19, "Design Of Steel Transmission Pole Structures".

Load cases considered:

Load Case 1: NESC Heavy

Wind Pressure.....	4.0 psf
Radial Ice Thickness.....	0.5"
Vertical Overload Capacity Factor.....	1.50
Wind Overload Capacity Factor.....	2.50
Wire Tension Overload Capacity Factor.....	1.65

Load Case 2: NESC Extreme

Wind Speed.....	110 mph ⁽¹⁾
Radial Ice Thickness.....	0"

Note 1: NESC C2-2023, Section 25, Rule 250C: Extreme Wind Loading, 1.25 x Gust Response Factor (wind speed: 3-second gust)

▪ MAST ASSEMBLY ANALYSIS

Mast, appurtenances and connections to the utility tower were analyzed and designed in accordance with TIA-222-H and AISC standards.

Load cases considered:

Load Case 1:

Wind Speed.....	125 mph (2022 CSBC Appendix-P)
Radial Ice Thickness.....	0"

Load Case 2:

Wind Pressure.....	50 mph wind pressure
Radial Ice Thickness.....	1.0"

R e s u l t s

▪ MAST ASSEMBLY

The proposed pipe mast was determined to be structurally **adequate**.

Component	Stress Ratio (percentage of capacity)	Result
10" Sch. 80	51.0%	PASS
Connection to Tower	64.9%	PASS

▪ UTILITY POLE

This analysis finds that the subject utility pole is adequate to support the antenna mast and related appurtenances. The pole stresses meet the requirements set forth by the ASCE 48-19, "Design of Steel Transmission Pole Structures" for the applied NESC Heavy and Extreme load cases. The detailed analysis results are provided in Section 9 of this report. The analysis results are summarized as follows:

A maximum usage of **99.58%** occurs in the utility pole under the **NESC Extreme** loading condition.

POLE SECTION:

The utility pole was found to be structurally **adequate**.

Tower Section	Elevation	Stress Ratio (% of capacity)	Result
Tube Number 2	28.00' - 48.00' (AGL)	99.58%	PASS

BASE REACTIONS:

From PLS-Pole analysis based on NESC/EVERSOURCE prescribed loads.

Load Case	Shear	Axial	Moment
NESC Heavy Wind	9.33 kips	33.48 kips	528.68 ft-kips
NESC Extreme Wind	15.06 kips	17.33 kips	787.18 ft-kips

Note 1 – 10% increase to be applied to tower base reactions for foundation verification per OTRM 051

POLE DIRECT EMBEDMENT:

The existing utility pole is directly embedded 12-ft into the ground, which consists of solid rock ledge (Refer to the boring log located in section 10 of this report), within a 5' diameter steel canister. The embedment was determined to be structurally sufficient to support the proposed loading.

Type	Embedment Required	Embedment Provided	Result
Direct Embedment	11.1-ft	12-ft	PASS

| Note 1: 10% increase to PLS base reactions used in embedment analysis per OTRM 051.

C o n c l u s i o n

This analysis shows that the subject utility pole **and proposed replacement antenna mast are adequate** to support the proposed equipment upgrade.

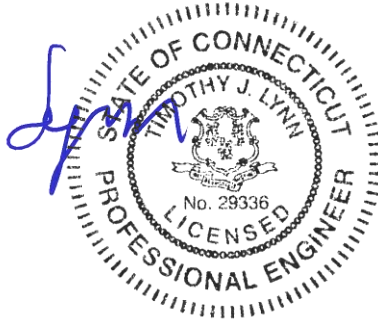
The analysis is based, in part on the information provided to this office by Eversource and T-Mobile. If the existing conditions are different than the information in this report, CENTEK engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer



STANDARD CONDITIONS FOR FURNISHING OF
PROFESSIONAL ENGINEERING SERVICES ON
EXISTING STRUCTURES

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of CENTEK engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to CENTEK engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the “as new” condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222.
- All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. CENTEK engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM ~ RISA - 3 D

RISA-3D Structural Analysis Program is an integrated structural analysis and design software package for buildings, bridges, tower structures, etc.

Modeling Features

- Comprehensive CAD-like drawing/editing environment: draw, generate, modify and load elements as well as snap, move, rotate, copy, mirror, scale, split, merge, mesh, delete, apply, trim, extend, etc.
- Versatile drawing grids (orthogonal, radial, skewed, DXF underlay)
- Universal snaps and object snaps allow drawing without grids
- Powerful graphic select/unselect tools including box, line, polygon, invert, criteria, spreadsheet based, save/recall selections with locking
- True spreadsheet editing with cut, paste, fill, math, sort, find, etc.
- Dynamic synchronization between spreadsheets and graphics
- Open multiple spreadsheets simultaneously
- Constant in-stream error checking and data validation
- Unlimited undo/redraw capability, automatic timed backup
- Generation templates for grids, disks, cylinders, cones, arcs, trusses, tanks, hydrostatic loads, geodesic domes, etc.
- Support for all units systems & conversions at any time
- Automatic interaction with RISASection custom shape libraries
- Steel Shapes: AISC, Historic, Australian, British, Canadian, Chilean, Chinese, European, Indian, Mexican
- Light Gage Shapes: AISI, SSMA, Dale/Incor, Dietrich, Marino\WARE
- Import DXF, RISA-2D, STAAD and CIS/2 files
- Export DXF, SDNF and CIS/2 files
- Robust two-way link with Revit Structure 2019
- Link with Tekla Structures 2018

Analysis Features

- Analysis of 1D members (beams, columns, braces, etc.) using Finite Element Method
- Analysis of 2D elements (plates, walls) using Finite Element Method
- Analysis of 3D elements (solids) using Finite Element Method
- Partial fixity member end releases using rotational spring constants
- Time History Analysis
- Accelerated true sparse solver for static analysis
- Flexible modeling of P-Delta effects
- Accelerated Sparse Lanczos dynamics solver, very fast and robust
- Multiple simultaneous dynamic and response spectra analysis using Gupta, CQC or SRSS with automatic calc of scaling factors
- Automatic inclusion of mass offset (5% or user defined) for dynamics when integrated with RISAFloor
- Ritz vector dynamic solver
- True physical member modeling (members are aware of interior joints)
- Plate/shell elements with plane stress only option
- 8 node solid elements
- High end mesh generation — draw a polygon with any number of sides to create a mesh of well formed quadrilateral (NO triangular) elements
- Automatic rigid diaphragm modeling with detachable joints

- Area loads with one-way or two-way distributions with optional “blow through” distribution for loading open structures
- Plate thermal loads
- Simultaneous moving loads, AASHTO/custom for bridges, cranes...
- Torsional warping calculations for stiffness, stress and design of hot rolled steel
- Member end releases, rigid end offsets, analysis offsets
- Enforced joint displacements
- One Way members, for tension only bracing, slipping, etc.
- One Way springs, for modeling soils and other effects
- Euler members: Compression up to buckling load, then disable
- Stress calculations on any arbitrary shape
- Inactivate members, plates, solids and diaphragms without deleting them
- Story drift calculations provide relative drift and ratio to height
- Automatic self-weight calculations for members, plates and solids

Graphics Features

- Unlimited simultaneous model view windows
- “True to scale” rendering with translucency, even when drawing
- High-speed redraw algorithm for instant refreshing
- Dynamically zoom, pan, rotate, scroll, snap views
- Font and color control
- Saved views to quickly restore frequent or desired views
- Rendered or wire-frame animations of deflected model and mode shapes
- Animation of moving loads with speed control
- Distance tool for measuring between points
- Force/moment summation about any arbitrary cut line
- High quality customizable graphics printing

Design Codes

- Steel Design Codes: AISC 360-16/10/05: ASD & LRFD, AISC 2nd & 3rd: LRFD, AISC 9th: ASD, CSA S16-14/09/05/01/CSA-S16.1-94, BS 5950-1: 2000, EN 1993-1-1:2014/2005, ENV 1993-1-1:1992, IS 800: 2007/1998, AS 4100-1998, NZS 3404: 1997
- Seismic design per AISC 341-10/05, including 358 prequalified connections
- Concrete Design Codes: ACI 318-14/11/08/05/02/99, CSA A23.3-14/04/94, NTC-DF 2004, BS 8110-1: 1997, BS EN 1992-1-1: 2004+A1: 2014/2004, EN 1992-1-1:1992, IS 456: 2000, AS 3600-2001, NZS 3101: 1995, SBC 304-2007
- Cold Formed Steel Design Codes: AISI S100-16/12/10/07: ASD & LRFD, AISI NAS-04/01: ASD & LRFD, AISI 1999: ASD & LRFD, CSA S136-16/12/10/07/04/01: LSD, CANACERO 16: ASD, CANACERO 12/10/07/04/01: ASD & LRFD
- Aluminum Design Codes: AA ADM1-15/10: ASD & LRFD, AA ADM1-05: ASD
- Wood Design Codes: AWC NDS-18/15/12: ASD, AF&PA NDS-08/05/01/97/91: ASD, CSA 086-14/09 Ultimate, Structural Composite Lumber, multi-ply, full sawn, Glulam, shear walls
- Masonry Design Codes: TMS 402-16: ASD & Strength, ACI 530-13/11/08/05/02: ASD & Strength, ACI 530-99: ASD, UBC 1997: ASD & Strength
- Stainless Steel Design Code: AISC 360-10: ASD & LRFD
- Wind loads are generated automatically (ASCE 7-16/10/05/02/98/95, NBC 15/10/05, NTC 2004, & IS 875: 1987) for building-type structures, including partial wind cases
- Seismic loads are generated automatically (ASCE 7-16/10/05/02, CBC 2001, IBC 2000, UBC 1997, NBC 15/10/05, NTC 2004, & IS 1893: 2002) for building-type structures, including accidental torsion

Design Features

- Designs/optimizes concrete, hot rolled & cold formed steel, masonry, wood and aluminum
- Program selected or user-defined rebar layouts for flexure and shear
- Concrete beam detailing (Rectangular, T and L).
- Concrete column interaction diagrams
- Concrete wall design including in-plane, out-of-plane & bearing loads
- Automatic spectra generation for ASCE 7, NBC, IS 1893, NTC
- Extensive user controlled generation of load combinations
- Intelligent unbraced length calculations for physical members
- Tapered wide flange design per AISC Design Guide 25
- Masonry wall design for in-plane and out-of-plane
- Wood Shapes: Complete NDS species/grade and Glulam database
- Complete wood wall design for bearing & shear walls: Segmented, Perforated & Force Transfer Around Openings design methods
- Strap and Hold Down design for Wood Shear Walls
- Seismic design of concrete walls using ACI 318-14 Chapter 18
- Concrete seismic coupling beams for multi-story walls with diaphragms

Results Features

- Graphic presentation of color-coded results and plotted designs
- Color contours on plates, solid stresses/forces with smoothing and animation
- Spreadsheet results with sorting and filtering of: deflections, forces, stresses, optimized sizes for strength or deflection, code designs, concrete reinforcing, material takeoffs, etc.
- Standard and user-defined reports
- Graphic member detail reports with force/stress/deflection diagrams and detailed design calculations and expanded diagrams

Integrated Building Design

RISA-3D, RISAFloor, RISAFoundation and RISACONNECTION are so tightly integrated that they operate as one program on the same building model. Optimize the gravity system in RISAFloor, the lateral system in RISA-3D, the connection design in RISACONNECTION and the foundation system in RISAFoundation, with a complete flow of information both ways.

General Features

- Compatible with Windows 7/8.1/10 (64-bit Windows)
- Program technical support provided by Professional Engineers

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM ~ PLS - POLE

PLS-POLE provides all of the capabilities a structural engineer requires to design transmission, substation or communications structures. It does so using a simple easy to use graphical interface that rests upon our time tested finite element engine. Regardless of whether you want to model a simple wood pole or a guyed steel X-Frame; PLS-POLE can handle the job simply, reliably and efficiently.

Modeling Features:

- Structures are made of standard reusable components that are available in libraries. You can easily create your own libraries or get them from a manufacturer
- Structure models are built interactively using interactive menus and graphical commands
- Automatic generation of underlying finite element model of structure
- Steel poles can have circular, 4, 6, 8, 12, 16, or 18-sided, regular, elliptical or user input cross sections (flat-to-flat or tip-to-tip orientations)
- Steel and concrete poles can be selected from standard sizes available from manufacturers
- Automatic pole class selection
- Cross brace position optimizer
- Capability to specify pole ground line rotations
- Capability to model foundation displacements
- Can optionally model foundation stiffness
- Guys are easily handled (modeled as exact cable elements in nonlinear analysis)
- Powerful graphics module (members color-coded by stress usage)
- Graphical selection of joints and components allows graphical editing and checking
- Poles can be shown as lines, wire frames or can be rendered as 3-d polygon surfaces

Analysis Features:

- Automatic distribution of loads in 2-part suspension insulators (v-strings, horizontal vees, etc.)
- Design checks for ASCE, AS/NZS 7000 or other requirements
- Automatic calculation of dead and wind loads
- Automated loading on structure (wind, ice and drag coefficients) according to:
 - ASCE 74-1991, 2009
 - NESC 2002, 2007, 2012, 2017
 - IEC 60826:2003
 - IS 802 : 1995, 2015
 - EN50341-1:2001 and 2012 (CENELEC)
 - EN50341-3-2:2001 (Belgium NNA)
 - EN50341-3-9:2001, EN50341-2-9:2015, 2017 (UK NNA)
 - EN50341-3-17:2001 (Portugal NNA)
 - AS/NZS 7000:2010
 - ESAA C(b)1-2003 (Australia)
 - TPNZ (New Zealand)
 - REE (Spain)
 - Russian 7th
 - ISEC-NCR-83
- Automated microwave antenna loading as per ANSI/TIA 222-H
- Detects buckling by nonlinear analysis

Results Features:

- Detects buckling by nonlinear analysis
- Easy to interpret text, spreadsheet and graphics design summaries
- Automatic determination of allowable wind and weight spans
- Automatic determination of interaction diagrams between allowable wind and weight spans
- Automatic tracking of part numbers and costs

*Criteria for Design of PCS Facilities On or
Extending Above Metal Electric Transmission
Towers & Analysis of Transmission Towers
Supporting PCS Masts* ⁽¹⁾

Introduction

This criteria is the result from an evaluation of the methods and loadings specified by the separate standards, which are used in designing telecommunications towers and electric transmission towers. That evaluation is detailed elsewhere, but in summary; the methods and loadings are significantly different. This criteria specifies the manner in which the appropriate standard is used to design PCS facilities including masts and brackets (hereafter referred to as “masts”), and to evaluate the electric transmission towers to support PCS masts. The intent is to achieve an equivalent level of safety and security under the extreme design conditions expected in Connecticut and Massachusetts.

ANSI Standard TIA-222-H covering the design of telecommunications structures specifies LRFD design approach. This approach applies the loads from extreme weather loading condition and designs the structure so that it does not exceed code defined percentage of failure strength.

ANSI Standard C2-2023 (National Electrical Safety Code) covering the design of electric transmission metal structures is based upon an ultimate strength/yield stress design approach. This approach applies a multiplier (overload capacity factor) to the loads possible from extreme weather loading conditions and designs the structure so that it does not exceed its ultimate strength (yield stress).

Each standard defines the details of how loads are to be calculated differently. Most of the Eversource effort in “unifying” both codes was to establish what level of strength each approach would provide, and then increasing the appropriate elements of each to achieve a similar level of security under extreme weather loadings.

Two extreme weather conditions are considered. The first is an extreme wind condition (hurricane) based upon a 1700-year recurrence for TIA-222-H risk category III and a 100-year recurrence for NESC Grade B. The second is a winter condition combining wind and ice loadings.

The following sections describe the design criteria for any PCS mast extending above the top of an electric transmission tower, and the analysis criteria for evaluating the loads on the transmission tower from such a mast from the lower portions of such a mast, and loads on the pre-existing electric lower portions of such a mast, and loads on the pre-existing electric transmission tower and the conductors it supports.

| Note 1: Prepared from documentation provide from Eversource.

P C S M a s t

The PCS facility (mast, external cable/trays, including the initial and any planned future support platforms, antennas, etc. extending the full height above the top level of the electric transmission structure) shall be designed in accordance with the provisions of TIA 222-H:

E L E C T R I C T R A N S M I S S I O N T O W E R

The electric transmission tower shall be analyzed using yield stress theory in accordance with the attached table titled “Eversource Design Criteria”. This specifies uniform loadings (different from the TIA loadings) on the each of the following components of the installed facility:

- PCS mast for its total height above ground level, including the initial and planned future support platforms, antennas, etc. above the top of an electric transmission structure.
- Conductors are related devices and hardware.
- Electric transmission structure. The loads from the PCS facility and from the electric conductors shall be applied to the structure at conductor and PCS mast attachment points, where those load transfer to the tower.

The uniform loadings and factors specified for the above components in the table are based upon the National Electrical Safety Code 2023 Edition Extreme Wind (Rule 250C), Combined Ice and Wind (Rule 250B-Heavy) and Combined Extreme Ice and Wind (Rule 250D – as appropriate) Loadings These provide equivalent loadings compared to TIA and its loads and factors with the exceptions noted above. (Note that the NESC does not require the projected wind surfaces of structures and equipment to be increased by the ice covering.)

In the event that the electric transmission tower is not sufficient to support the additional loadings of the PCS mast, reinforcement will be necessary to upgrade the strength of the overstressed members.

Overhead Transmission Standards

Attachment A Eversource Design Criteria

		Attachment A ES Design Criteria	Basic Wind Speed	Pressure	Height Factor	Gust Factor	Load or Stress Factor	Force Coef. - Shape Factor
			V (MPH)	Q (PSF)	Kz	Gh		
Ice Condition	TIA/EIA	Antenna Mount	TIA	TIA (0.75Wi)	TIA	TIA	TIA, Section 3.1.1.1 disallowed for connection design	TIA
	NESC Heavy	Tower/Pole Analysis with antennas extending above top of Tower/Pole (Yield Stress)	-----	4	1	1	2.5	1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with antennas below top of Tower/Pole (on two faces)	-----	4	1	1	2.5	1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:		Conductor Loads Provided by ES				
High Wind Condition	TIA/EIA	Antenna Mount	85	TIA	TIA	TIA	TIA, Section 3.1.1.1 disallowed for connection design	TIA
	NESC Extreme Wind	Tower/Pole Analysis with antennas extending above top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250C: Extreme Wind Loading Apply a 1.25 x Gust Response Factor to all telecommunication equipment projected above top of tower/pole and apply a 1.0 x Gust Response Factor to the tower/pole structure					1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with antennas below top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250C: Extreme Wind Loading Height above ground is based on overall height to top of tower/pole					1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:		Conductor Loads Provided by ES				
NESC Extreme Ice with Wind Condition*		Tower/Pole Analysis with antennas extending above top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250D: Extreme Ice with Wind Loading 4 PSF Wind Load 1.25 x Gust Response Factor Apply a 1.25 x Gust Response Factor to all telecommunication equipment projected above top of tower/pole and apply a 1.0 x Gust Response Factor to the tower/pole structure					1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with antennas below top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250D: Extreme Ice with Wind Loading 4 PSF Wind Load Height above ground is based on overall height to top of tower/pole					1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:		Conductor Loads Provided by ES				
	*Only for structures installed after 2007							

Communication Antennas on Transmission Structures

Eversource

Approved by: CPS (CT/WMA) JCC
(NH/EMA)

Design

OTRM 059

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Rev. 1

11/19/2018

Overhead Transmission Standards

determined from NESC applied loading conditions (not TIA Loads) on the structure and mount as specified below, and shall include the wireless communication mast and antenna loads per NESC criteria)

The strength reduction factor obtained from the field investigation shall be applied to the members or connections that are showing signs of deterioration from their original condition. With the written approval of Eversource Transmission Line Engineering on a case by case the existing structures may be analyzed initially using the current NESC code, then it is permitted to use the original design code with the original conductor load should the existing tower fail the current NESC code.

The structure shall be analyzed using yield stress theory in accordance with Attachment A, "Eversource Design Criteria." This specifies uniform loadings (different from the TIA loadings) on each of the following components of the installed facility:

- a) Wireless communication mast for its total height above ground level, including the initial and any planned future equipment (Support Platforms, Antennas, TMA's etc.) above the top of an electric transmission structure.
- b) Conductors and related devices and hardware (wire loads will be provided by Eversource).
- c) Electric Transmission Structure

- i) The loads from the wireless communication equipment components based on NESC and Eversource Criteria in Attachment A, and from the electric conductors shall be applied to the structure at conductor and wireless communication mast attachment points, where those loads transfer to the tower. ii)
- ii) Shape Factor Multiplier:

NESC Structure Shape	Cd
Polyround (for polygonal steel poles)	1.3
Flat	1.6
Open Lattice	3.2
Pole with Coaxial Cable	See Below Table

- iii) When Coaxial Cables are mounted alongside the pole structure, the shape multiplier shall be:

Mount Type	Cable Cd	Pole Cd
Coaxial Cables on outside periphery (One layer)	1.45	1.45
Coaxial Cables mounted on stand offs	1.6	1.6

- d) The uniform loadings and factors specified for the above components in Attachment A, "Eversource Design Criteria" are based upon the National Electric Safety Code 2007 Edition Extreme Wind (Rule 250C) and Combined Ice and Wind (Rule 250B-Heavy) Loadings. These provide equivalent loadings compared to the TIA and its loads and factors with the exceptions noted above.

Communication Antennas on Transmission Structures			
Eversource Approved by: CPS (CT/WMA) JCC (NH/EMA)	Design	OTRM 059	Rev. 1 11/19/2018
		Page 3 of 10	

Project: PCS Wire Loads for Structure 3275

Date: 4/28/2022

Engineer: RB

Purpose: Calculate wire loads for existing T-Mobile site.

Shield Wires:

7#8 ALWLD, sagged in PLS-CADD

Conductors:

336 kcmil 26/7 "Linnet" ACSR, sagged in PLS-CADD

NESC 250B

Wind: NA -

1470 Line

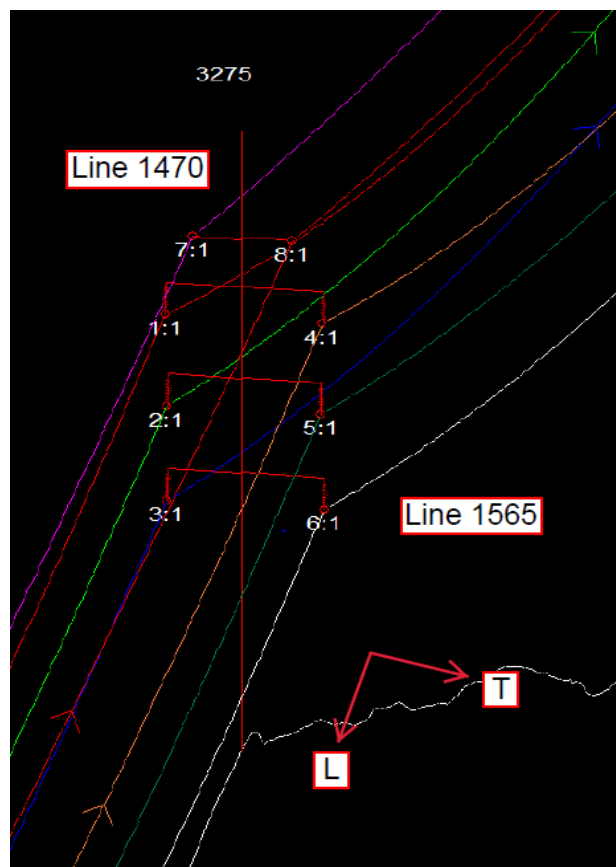
1565 Line

Shield Wire:	V	1489		1489	V
	T	-627		-640	T
	L	24		24	L

Top Phase:	V	2095		2116	V
	T	-785		-750	T
	L	22		19	L

Mid Phase:	V	2291		2186	V
	T	-809		-730	T
	L	26		20	L

Bot Phase:	V	2272		2157	V
	T	-794		-743	T
	L	25		20	L

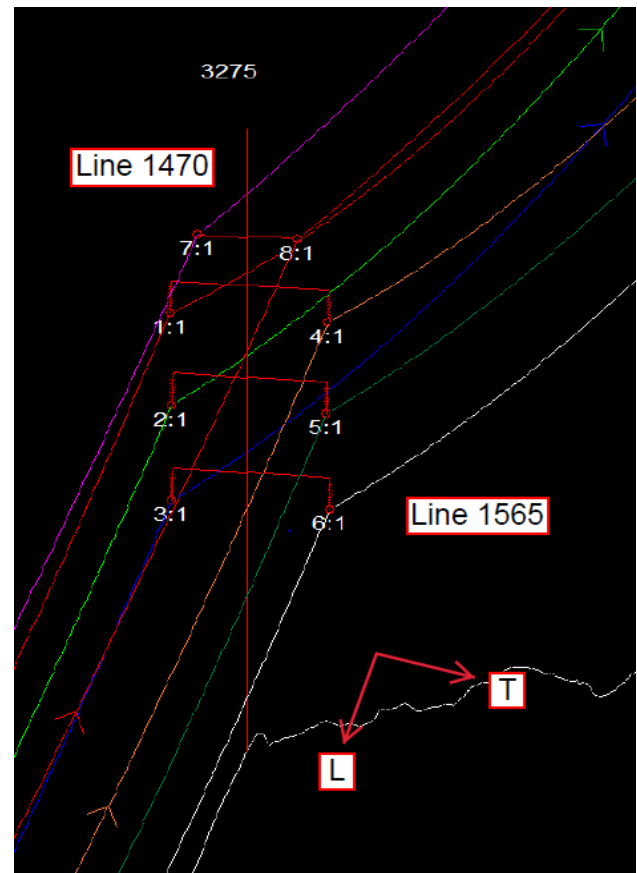


Purpose: Calculate wire loads for existing T-Mobile site.

7#8 ALWLD, sagged in PLS-CADD

336 kcmil 26/7 "Linnet" ACSR, sagged in PLS-CADD

NESC 250C			Wind: NA -	1565 Line		
1470 Line			←			
Shield Wire:	V	699		696	V	
	T	-460		-466	T	
	L	41		41	L	
Top Phase:	V	1064		1075	V	
	T	-894		-876	T	
	L	56		53	L	
Mid Phase:	V	1166		1101	V	
	T	-874		-836	T	
	L	63		55	L	
Bot Phase:	V	1134		1066	V	
	T	-826		-804	T	
	L	59		51	L	



DESIGN BASIS

1. GOVERNING CODE: 2021 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2022 CT STATE BUILDING CODE.
2. TIA-222-H, ASCE MANUAL NO. 48-19 – "DESIGN OF STEEL TRANSMISSION POLE STRUCTURES SECOND EDITION", NESC C2-2023 AND EVERSOURCE DESIGN CRITERIA.
3. DESIGN CRITERIA

WIND LOAD: (ANTENNA MAST)

ULTIMATE DESIGN WIND SPEED (V) = 125 MPH (2022 CSBC: APPENDIX 'P')

WIND LOAD: (UTILITY POLE & FOUNDATION)

BASIC WIND SPEED (V) =110 MPH (3-SECOND GUST)
BASED ON NESC C2-2023, SECTION 25 RULE 250C.

GENERAL NOTES

1. REFER TO STRUCTURAL ANALYSIS AND MAST DESIGN PREPARED BY CENTEK ENGINEERING, INC., FOR T-MOBILE, DATED 7/22/24.
2. TOWER GEOMETRY AND STRUCTURE MEMBER SIZES WERE OBTAINED FROM THE TOWER DESIGN DRAWINGS PREPARED BY MEYER INDUSTRIES INC.; JOB NO. T-4011-RR DATED FEBRUARY 26, 1973.
3. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE GOVERNING BUILDING CODE.
4. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS SCOPE OF WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
5. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK. THIS INCLUDES VERIFYING ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA. CONTRACTOR SHALL TAKE FIELD MEASUREMENTS NECESSARY TO ASSURE PROPER FIT OF ALL FINISHED WORK.
6. PCS MAST INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF TRANSMISSION STRUCTURES. ALL SAFETY PROCEDURES, RIGGING AND ERECTION METHODS SHALL BE STANDARD TO THE INDUSTRY AND IN COMPLIANCE WITH OSHA.
7. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.
8. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
9. NO DRILLING WELDING OR TAPING IS PERMITTED ON CL&P OWNED EQUIPMENT.

[illegible]

PROFESSIONAL ENGINEER SEAL



T-MOBILE
PROPOSED ANTENNA UPGRADE
CT11116C
STRUCTURE 3275
98 MOUNTAIN ROAD
REDDING, CT 06866

DATE:	7/18/24
SCALE:	AS SHOWN
JOB NO.	24066.01

DESIGN BASIS AND GENERAL NOTES

SHEET NO.

N-1

Sheet No. 2 of 8

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY LOAD RESISTANCE FACTOR DESIGN (LRFD).
 2. MATERIAL SPECIFICATIONS
 - A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
 - B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI).
 - C. STRUCTURAL STEEL (SOLID ROUND BAR)---ASTM A572_GR50 (50 KSI)
 - D. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
 - E. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
 - F. PIPE---ASTM A53 GRADE B (FY = 35 KSI)
 3. FASTENER SPECIFICATIONS
 - A. CONNECTION BOLTS---ASTM A325-N, UNLESS OTHERWISE SCHEDULED.
 - B. U-BOLTS---ASTM A307
 - C. ANCHOR RODS---ASTM F1554
 - D. WELDING ELECTRODES---ASTM E70XX FOR A36 & A572_GR50 STEEL, ASTM E80XX FOR A572_65.
 - E. BLIND BOLTS---AS1252 PROPERTY CLASS 8.8 (FU=120 KSI).
 4. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
 5. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
 6. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
 7. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
 8. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
 9. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
 - ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
 11. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
 12. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES APPEARANCE AND QUALITY OF WELDS, AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING THE SCHEDULED ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D1.1 WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION" 14TH EDITION. AT THE COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED.
 13. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
 14. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
 15. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
 16. ALL BOLTS SHALL BE INSTALLED PER THE REQUIREMENTS OF AISC 14TH EDITION & RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS".
 17. ALL BOLTS SHALL BE INSTALLED AS SNUG-TIGHT CONNECTIONS UNLESS OTHERWISE INDICATED. CONNECTIONS SPECIFIED AS PRETENSIONED OR SLIP-CRITICAL SHALL BE TIGHTENED TO A BOLT TENSION NOT LESS THAN THAT GIVEN IN TABLE J3.1 OF AISC 14TH EDITION.
 18. LOCK WASHER ARE NOT PERMITTED FOR A325 BOLTED STEEL ASSEMBLIES.
 19. LOAD INDICATOR WASHERS SHALL BE UTILIZED ON ALL PRETENSIONED OR SLIP-CRITICAL CONNECTIONS.
 20. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
 21. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.

22. FABRICATE BEAMS WITH MILL CAMBER UP.
23. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
24. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.

[illegible]

PROFESSIONAL ENGINEER SEAL



T-MOBILE
PROPOSED ANTENNA UPGRADE
CT111116C
STRUCTURE 3275
**99 MOUNTAIN ROAD
REDDING, CT 06896**

DATE:	7/18/24
SCALE:	AS SHOWN
JOB NO.	24066.01

STRUCTURAL
STEEL NOTES

SHEET NO.
N-2
Sheet No. 3 of 8

MODIFICATION INSPECTION REPORT REQUIREMENTS					
PRE-CONSTUCTION		DURING CONSTRUCTION		POST-CONSTRUCTION	
SCHEDULED ITEM	REPORT ITEM	SCHEDULED ITEM	REPORT ITEM	SCHEDULED ITEM	REPORT ITEM
X	EOR MODIFICATION INSPECTION DRAWING	—	FOUNDATIONS	X	MODIFICATION INSPECTOR RECORD REDLINE DRAWING
X	EOR APPROVED SHOP DRAWINGS	—	EARTHWORK: BACKFILL MATERIAL & COMPACTION	—	POST—INSTALLED ANCHOR ROD PULL—OUT TEST
—	EOR APPROVED POST—INSTALLED ANCHOR MP11	—	REBAR & FORMWORK GEOMETRY VERIFICATION	X	PHOTOGRAPHS
—	FABRICATION INSPECTION	—	CONCRETE TESTING		
—	FABRICATOR CERTIFIED WELDER INSPECTION	X	STEEL INSPECTION		
X	MATERIAL CERTIFICATIONS	—	POST INSTALLED ANCHOR ROD VERIFICATION		
		—	BASE PLATE GROUT VERIFICATION		
		—	CONTRACTOR’S CERTIFIED WELD INSPECTION		
		X	ON—SITE COLD GALVANIZING VERIFICATION		
		X	CONTRACTOR AS—BUILT REDLINE DRAWINGS		
<div>NOTES:</div> <div><div>1. REFER TO MODIFICATION INSPECTION NOTES FOR ADDITIONAL REQUIREMENTS</div><div>2. "X" DENOTES DOCUMENT REQUIRED FOR INCLUSION IN MODIFICATION INSPECTION FINAL REPORT.</div><div>3. "—" DENOTES DOCUMENT NOT REQUIRED FOR INCLUSION IN MODIFICATION INSPECTION FINAL REPORT.</div><div>4. EOR — ENGINEER OF RECORD</div><div>4. MP11 — "MANUFACTURER’S PRINTED INSTALLATION GUIDELINES"</div></div>					

1. THE MODIFICATION INSPECTION IS A VISUAL INSPECTION OF STRUCTURAL MODIFICATIONS, TO INCLUDE A REVIEW AND COMPILATION OF SPECIFIED SUBMITTALS AND CONSTRUCTION INSPECTIONS, AS AN ASSURANCE OF COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS PREPARED UNDER THE DIRECTION OF THE ENGINEER OF RECORD (EOR).
2. THE MODIFICATION INSPECTION IS TO CONFIRM INSTALLATION CONFIGURATION AND GENERAL WORKMANSHIP AND IS NOT A REVIEW OF THE MODIFICATION DESIGN. OWNERSHIP OF THE MODIFICATION DESIGN EFFECTIVENESS AND INTENT RESIDES WITH THE ENGINEER OF RECORD.
3. TO ENSURE COMPLIANCE WITH THE MODIFICATION INSPECTION REQUIREMENTS THE GENERAL CONTRACTOR (GC) AND THE MODIFICATION INSPECTOR (MI) COMMENCE COMMUNICATION UPON AUTHORIZATION TO PROCEED BY THE CLIENT. EACH PARTY SHALL BE PROACTIVE IN CONTACTING THE OTHER. THE EOR SHALL BE CONTACTED IF SPECIFIC GC/MI CONTACT INFORMATION IS NOT MADE AVAILABLE.
4. THE GC SHALL PROVIDE THE MI WITH A MINIMUM OF 5 BUSINESS DAYS NOTICE OF IMPENDING INSPECTIONS.
5. WHEN POSSIBLE, THE GC AND MI SHALL BE ON SITE DURING THE MODIFICATION INSPECTION TO HAVE ANY NOTED DEFICIENCIES ADDRESSED DURING THE INITIAL MODIFICATION INSPECTION.

1. THE MI SHALL CONTACT THE GC UPON AUTHORIZATION BY THE CLIENT TO:
 - REVIEW THE MODIFICATION INSPECTION REPORT REQUIREMENTS.
 - WORK WITH THE GC IN DEVELOPMENT OF A SCHEDULE FOR ON-SITE INSPECTIONS.
 - DISCUSS CRITICAL INSPECTIONS AND PROJECT CONCERNS.
2. THE MI IS RESPONSIBLE FOR COLLECTION OF ALL INSPECTION AND TEST REPORTS, REVIEWING REPORTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING ON-SITE INSPECTIONS AND COMPILATION & SUBMISSION OF THE MODIFICATION INSPECTION REPORT TO THE CLIENT AND THE EOR.

1. THE GC IS REQUIRED TO CONTACT THE GC UPON AUTHORIZATION TO PROCEED WITH CONSTRUCTION BY THE CLIENT TO:
 - REVIEW THE MODIFICATION INSPECTION REPORT REQUIREMENTS.
 - WORK WITH THE MI IN DEVELOPMENT OF A SCHEDULE FOR ON-SITE INSPECTIONS.
 - DISCUSS CRITICAL INSPECTIONS AND PROJECT CONCERNS.
2. THE GC IS RESPONSIBLE FOR COORDINATING AND SCHEDULING IN ADVANCE ALL REQUIRED INSPECTIONS AND TESTS WITH THE MI.

1. SHOULD THE STRUCTURAL MODIFICATION NOT COMPLY WITH THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS, THE GC SHALL WORK WITH THE MODIFICATION INSPECTOR IN A VIABLE REMEDIATION PLAN AS FOLLOWS:
 - CORRECT ALL DEFICIENCIES TO COMPLY WITH THE CONTRACT DOCUMENTS AND COORDINATE WITH THE MI FOR A FOLLOW UP INSPECTION.
 - WITH CLIENT AUTHORIZATION, THE GC MAY WORK WITH THE EOR TO REANALYZE THE MODIFICATION USING THE AS-BUILT CONDITION.

1. THE GC AND MI SHALL AT MINIMUM PHOTO DOCUMENT THE FOLLOWING FOR INCLUSION IN THE MODIFICATION INSPECTION REPORT:
 - PRE-CONSTRUCTION: GENERAL CONDITION OF THE SITE.
 - DURING CONSTRUCTION: RAW MATERIALS, CRITICAL DETAILS, WELD PREPARATION, BOLT INSTALLATION & TORQUE, FINAL INSTALLED CONDITION & SURFACE COATING REPAIRS.
 - POST-CONSTRUCTION: FINAL CONDITION OF THE SITE

[illegible]

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T-MOBILE
PROPOSED ANTENNA UPGRADE
CT11116C
STRUCTURE 3275
98 MOUNTAIN ROAD
REDDING, CT 06866

DATE:	7/18/24
SCALE:	AS SHOWN
JOB NO.	24066.01

MODIFICATION INSPECTION REQUIREMENTS

SHEET NO.
MI-1
Sheet No. 4 of 8



2
S-1

COAX CABLE PLAN (55'-74' ATB)

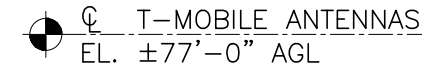
SCALE: 3" = 1'-0"

T-MOBILE EXISTING ———
EIGHT (8) 7/8" Ø COAX
CABLES ATTACHED TO
POLE @ 4' O.C.


3
S-1


COAX CABLE PLAN (0'-55' ATB)

SCALE: 1/2" = 1'-0"



PROPOSED 10" SCH. 80
X 25' LONG PIPE MAST
TO REPLACE EXISTING
MAST


 TOP CONNECTION
 EL. $\pm 65'-0"$ ATB


 BOTTOM CONNECTION
 EL. $\pm 55'-0"$ ATB

T-MOBILE EXISTING -
EIGHT (8) 7/8" DIA.
COAX CABLES

EXISTING 68' TALL (AGL)
STEEL TRANSMISSION
STRUCTURE NO. 3275

APPROX. GRADE

— T-MOBILE (EXISTING TO REMOVE): TWO
(2) RFS APX16DWV-16DWVS-E-A20
PANEL ANTENNAS FLUSH MOUNTED.

T-MOBILE (PROPOSED):

THREE (3) RFS APXVAALL18_43 PANEL
ANTENNAS, THREE (3) APMPENOL
APXVLL19P_43 AND SIX (6)
COMMScope ATSBT-TOP-MF-4G BIAS
TEEs MOUNTED ON TWO (2) DUAL
MOUNT ASSEMBLIES (SITEPRO P/N
UDS-NP).

T-MOBILE PROPOSED
PROPOSED (16) 7/8"
DIA. COAX CABLES

1 TOWER AND MAST ELEVATION

S-1 SCALE: NTS

[illegible]

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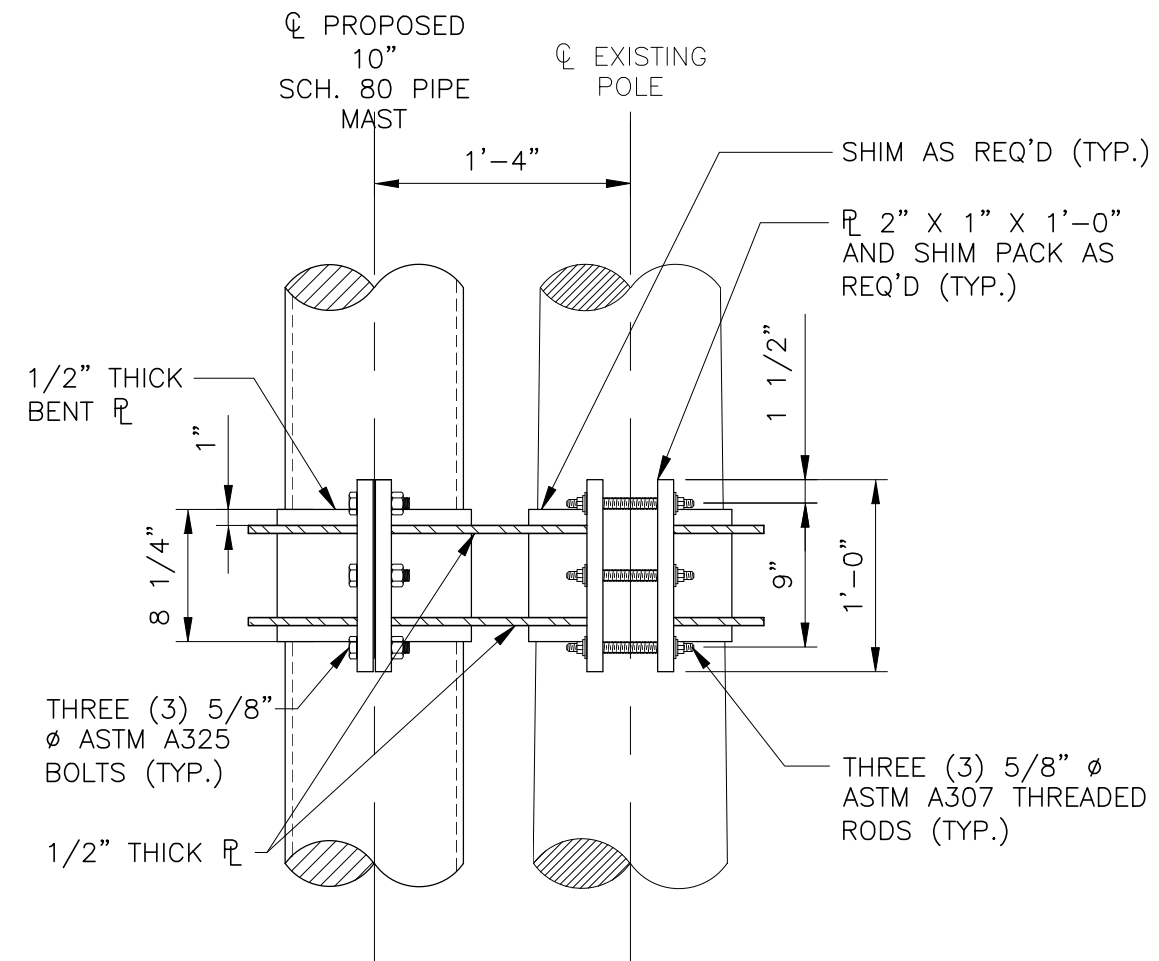
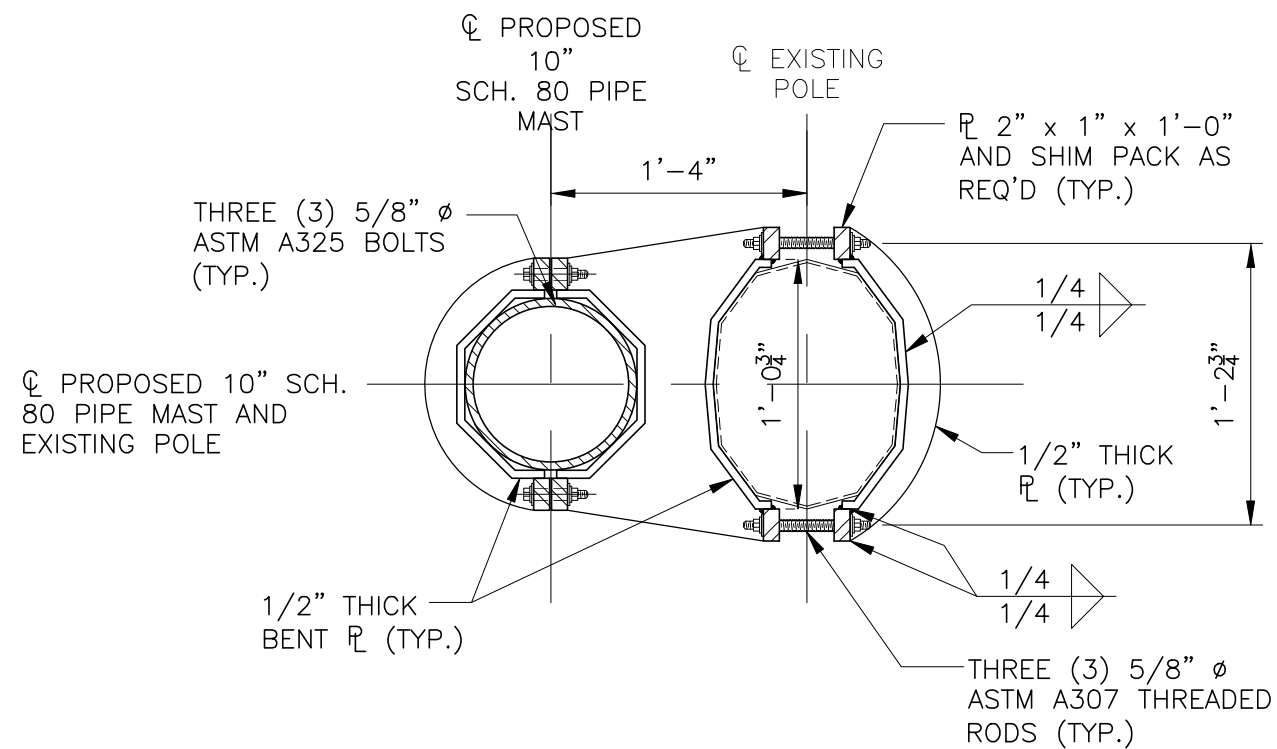
T-MOBILE		PROPOSED ANTENNA UPGRADE	
CT11116C		STRUCTURE 3275	
88 MOUNTAIN ROAD REDBORN, CT 06896			
DATE:	7/18/24		
SCALE:	AS SHOWN		
JOB NO.	24066.01		

TOWER ELEVATION AND FEEDLINE PLAN

SHEET NO.

S-1

Sheet No. 5 of 8



NOTE:

1. POLE TAPER = 0.25"/FT (V.I.F.)
2. REFER TO SHEET S-4 FOR ADDITIONAL POLE DIMENSIONS

[illegible]

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T-MOBILE PROPOSED ANTENNA UPGRADE CT11116C STRUCTURE 3275		59 MOUNTAIN ROAD REDDING, CT 06866
DATE:	7/18/24	
SCALE:	AS SHOWN	
JOB NO.	24066.01	

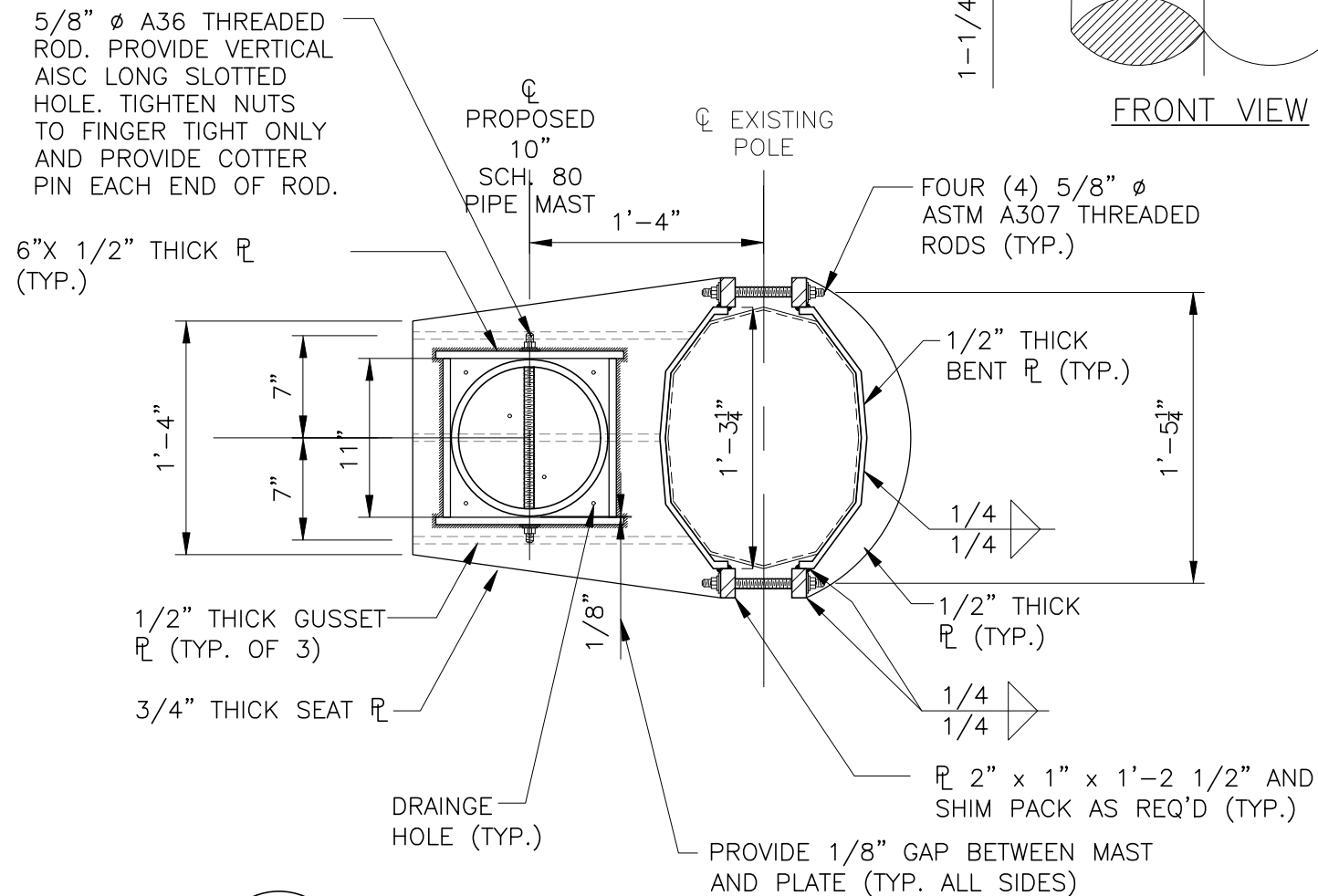
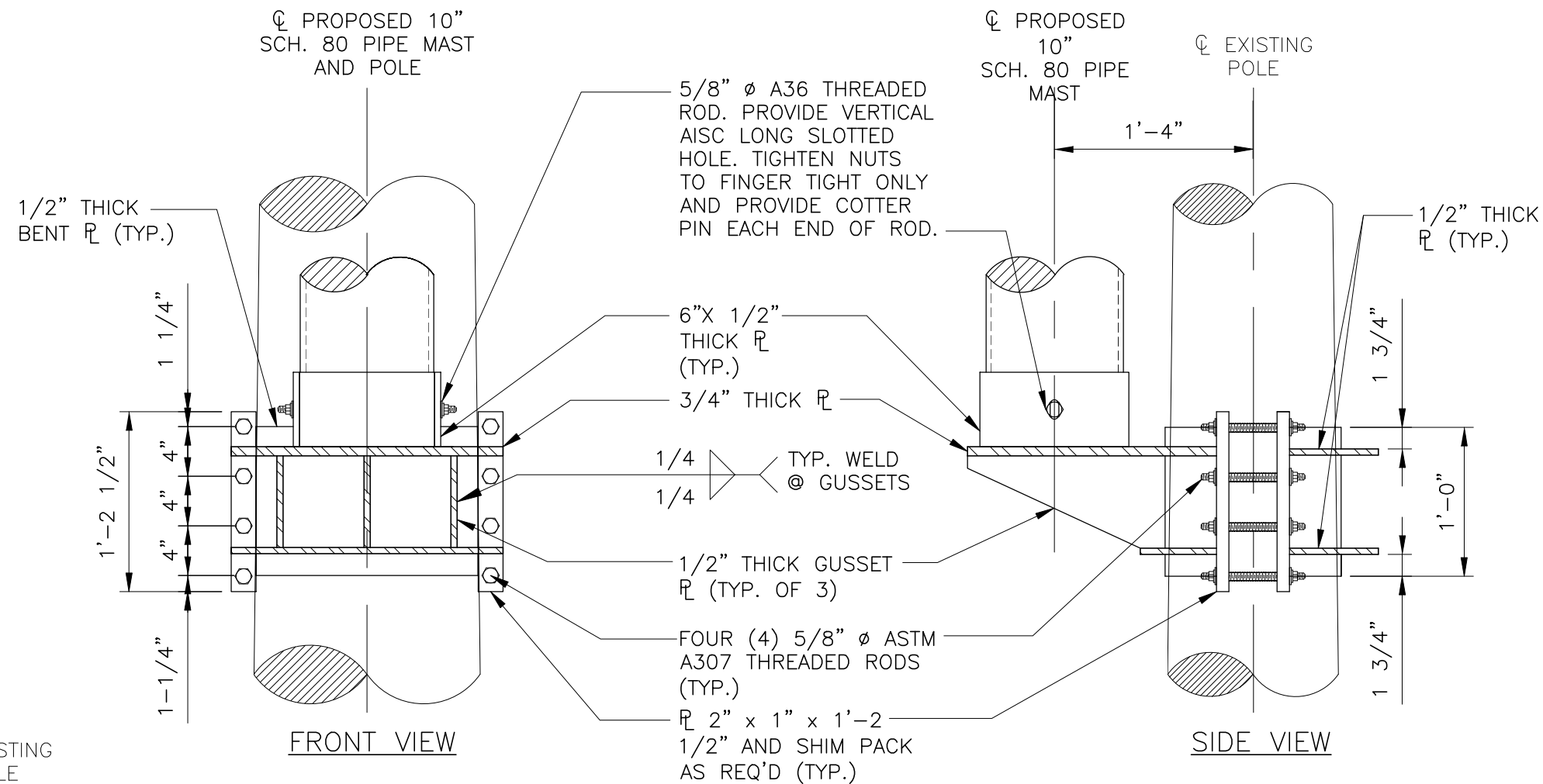
TOP
CONNECTION
DETAILS

SHEET NO.
S-2
Sheet No. 6 of 8

NOTE:

1. POLE TAPER = 0.25"/FT (V.I.F.)

2. REFER TO SHEET S-4 FOR ADDITIONAL POLE DIMENSIONS



2
S-3

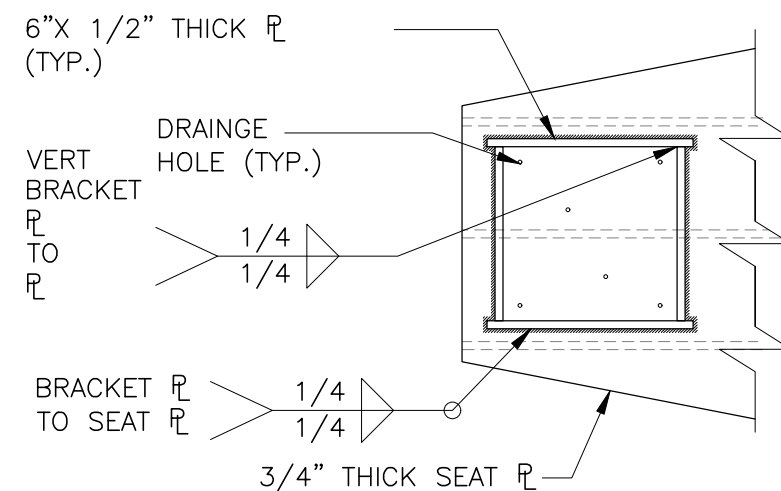
BOTTOM PCS BRACKET PLAN VIEW

SCALE: 1" = 1'-0"

1
S-3

BOTTOM PCS BRACKET DETAIL

SCALE: 1" = 1'-0"



3
S-3

BRACKET ASSEMBLY DETAIL

SCALE: 1" = 1'-0"

REV.	DATE	DRAWN BY	CHECKED BY	DESCRIPTION
1	7/22/24	T.J.L.	C.F.C.	ISSUED FOR CONSTRUCTION
0	6/13/24	T.J.L.	C.F.C.	ISSUED FOR REVIEW

PROFESSIONAL ENGINEER SEAL

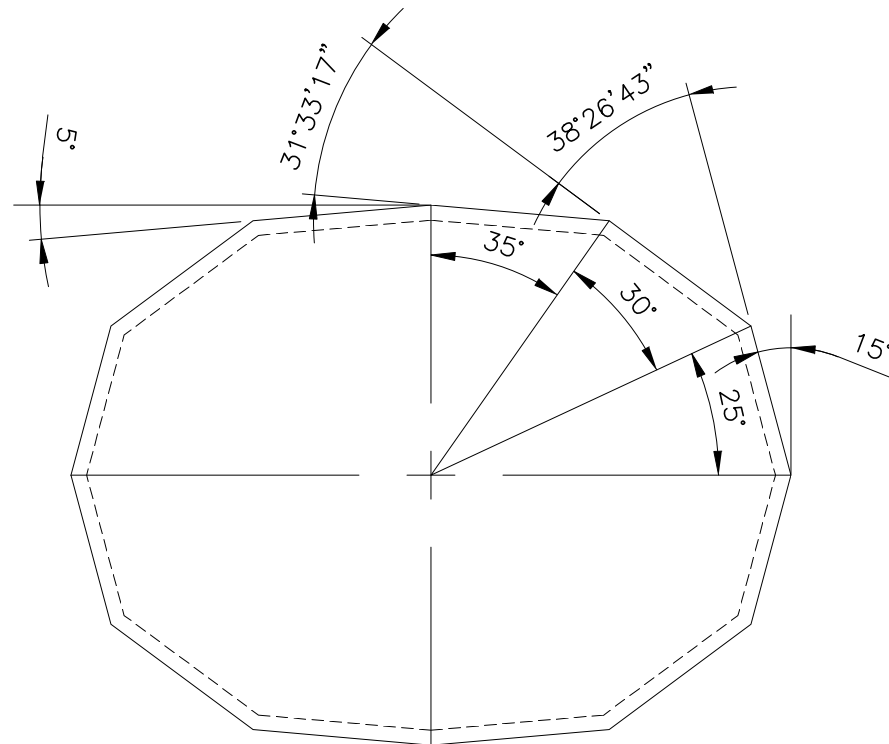
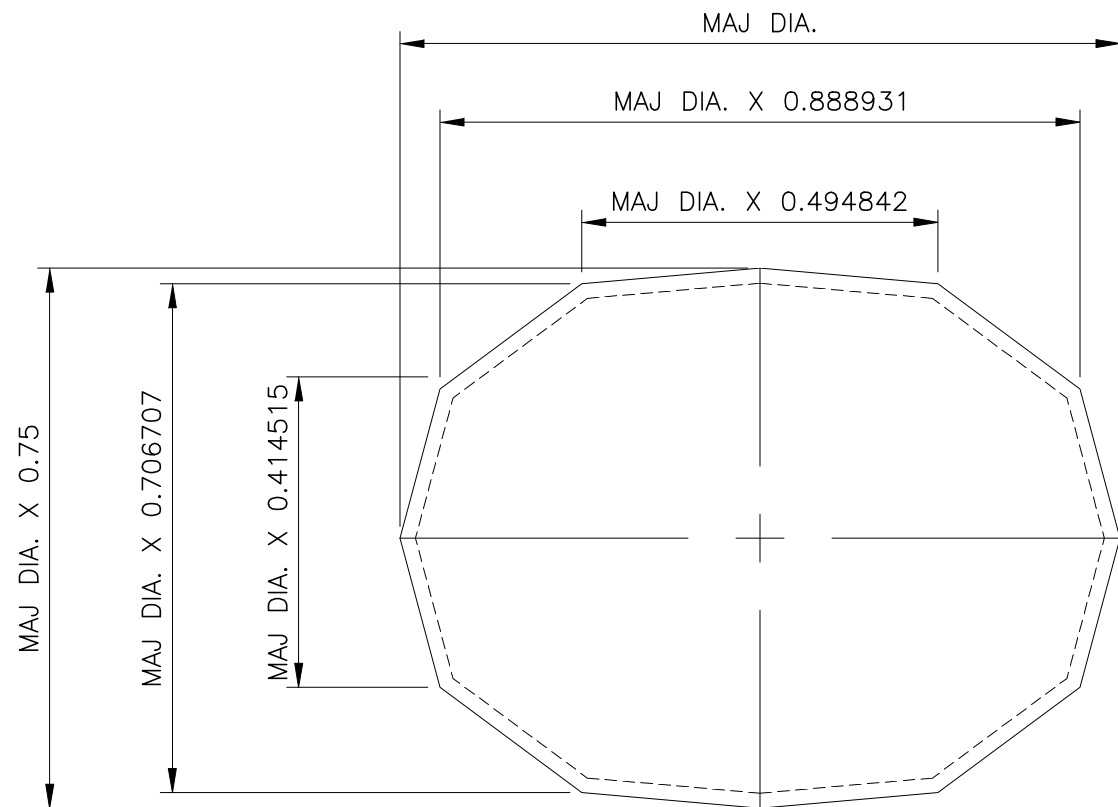
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PROPOSED ANTENNA UPGRADE
CT11116C
STRUCTURE 3275
66 MOUNTAIN ROAD
REDWING, CT 06866

DATE: 7/18/24
SCALE: AS SHOWN
JOB NO. 24066.01

BOTTOM CONNECTION DETAILS

SHEET NO.
S-3
Sheet No. 7 of 8



NOTE CONTRACTOR TO VERIFY ALL DIMENSIONS PRIOR TO FABRICATION

1

S-4

POLE DIMENSIONS

SCALE: 3" = 1'-0"

REV	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
1	7/22/24	TJL	CFC	ISSUED FOR CONSTRUCTION
0	6/3/24	TJL	CFC	ISSUED FOR REVIEW

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T-MOBILE

PROPOSED ANTENNA UPGRADE

CT11116C

STRUCTURE 3275

88 MOUNTAIN ROAD

REDON, CT 06866

DATE: 7/18/24

SCALE: AS SHOWN

JOB NO. 24066.01

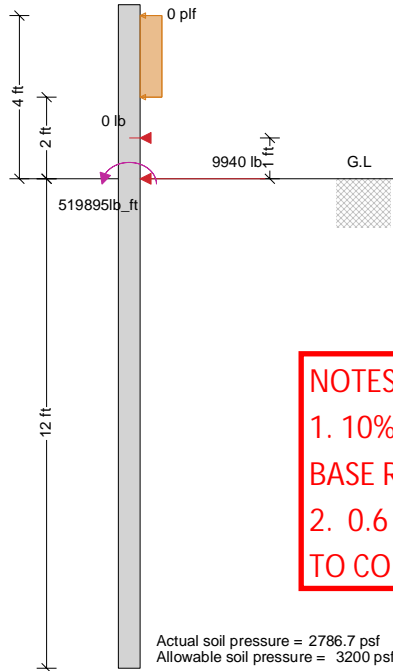
CL&P POLE DIMENSIONS

SHEET NO.
S-4
Sheet No. 8 of 8

FLAGPOLE EMBEDMENT (IBC)

In accordance with IBC 2021

Tedds calculation version 1.2.04



NOTES:

1. 10% INCREASE APPLIED TO PLS POLE BASE REACTIONS PER OTRM 051
2. 0.6 FACTOR APPLIED TO REACTIONS TO CONVERT TO ASD REACTIONS

Actual soil pressure = 2786.7 psf
Allowable soil pressure = 3200 psf

Soil capacity data

Allowable passive pressure
Maximum allowable passive pressure
Load factor 1 (1806.1)
Load factor 2 (1806.3.4)

$L_{sbc} = 400$ pcf
 $P_{max} = 2000$ psf
 $LDF_1 = 1.00$
 $LDF_2 = 2.0$

Pole geometry

Shape of the pole
Diameter of the pole
Laterally restrained

Round
Dia = 48 in
No

DIAMETER OF STEEL CANISTER

Load data

First point load
Distance of P_1 from ground surface
Second point load
Distance of P_2 from ground surface
Uniformly distributed load
Start distance of W from ground surface
End distance of W from ground surface
Applied moment
Distance of M_1 from ground surface

$P_1 = 9940$ lbs
 $H_1 = 0$ ft
 $P_2 = 0$ lbs
 $H_2 = 1$ ft
 $W = 0$ plf
 $a = 2$ ft
 $a_1 = 4$ ft
 $M_1 = 519895$ lb-ft
 $H_3 = 0$ ft

$(15.06 \text{ kips}) \times (1.1) \times (0.6) = 9940 \text{ lbs}$

$(787.72 \text{ ft-k}) \times (1.1) \times (0.6) = 519,895 \text{ lb-ft}$

Shear force and bending moment

Total shear force

$F = P_1 + P_2 + W \times (a_1 - a) = 9940 \text{ lbs}$



Centek Engineering, Inc,
63-2 North Branford Road
Branford, CT 06405

Project
Structure 3275 / T-Mobile - CT11116C

Job Ref.
24066.01

Section
Pole Embedment

Sheet no./rev.
2

Calc. by
TJL

Date
7/22/2024

Chk'd by

Date

App'd by

Date

Total bending moment at grade
Distance of resultant lateral force

$$M_g = P_1 \times H_1 + P_2 \times H_2 + W \times (a_1 - a) \times (a + a_1) / 2 + M_1 = \mathbf{519895 \text{ lb_ft}}$$
$$h = \text{abs}(M_g / F) = \mathbf{52.3 \text{ ft}}$$

Embedment depth (1807.3.2.1)

Embedment depth provided
Allowable lateral passive pressure
Factor A
Embedment depth required
Actual lateral passive pressure

$$D = \mathbf{12 \text{ ft}}$$
$$S_1 = \min(P_{\max}, L_{\text{sbc}} \times \min(D, 12 \text{ ft}) / 3) \times \text{LDF}_1 \times \text{LDF}_2 = \mathbf{3200 \text{ psf}}$$
$$A = 2.34 \times \text{abs}(F) / (S_1 \times \text{Dia}) = \mathbf{1.8 \text{ ft}}$$
$$D_1 = 0.5 \times A \times (1 + (1 + ((4.36 \times h) / A))^{0.5}) = \mathbf{11.13 \text{ ft}}$$
$$S_2 = (2.34 \times \text{abs}(F) \times ((4.36 \times h) + (4 \times D))) / (4 \times D^2 \times \text{Dia}) = \mathbf{2786.7 \text{ psf}}$$

PASS - Provided depth is adequate

Section 1 - Site Information

Site ID: CT11116C	Site Name: Ridgefield/ Ethan Allen H	Latitude: 41.27845755
Status: Draft	Site Class: Utility Lattice Tower	Longitude: -73.4425574
Version: 3	Site Type: Structure Non Building	Address: 101 Mountain Rd. CL&P Pole #3275
Project Type: L600	Plan Year: 2021	City, State: Redding, CT
Approved: Not approved	Market: CONNECTICUT CT	Region: NORTHEAST
Approved By: Not approved	Vendor: Ericsson	
Last Modified: 05/15/2024 6:11:50 AM	Landlord: Northeast Utilities	
Last Modified By: Ryan.MonteDeRamos@T-Mobile.com		
RAN Template: 67E998E 6160		AL Template: 67E998E_1OP+1QP
Sector Count: 3	Antenna Count: 6	Coax Line Count: 24
		TMA Count: 6
		RRU Count: 6

Section 2 - Existing Template Images

----- This section is intentionally blank. -----

Section 3 - Proposed Template Images

----- This section is intentionally blank. -----

Section 4 - Siteplan Images

----- This section is intentionally blank. -----

Section 5 - RAN Equipment

Existing RAN Equipment

Template: 4B Outdoor

Enclosure	1
Enclosure Type	RBS 6102
Radio	<div><div>RUS01 B2 (x3) G1900</div><div>RUS01 B2 (x3) U1900 (DECOMMISSIONED)</div><div>RUS01 B4 (x2) L2100 U2100 (DECOMMISSIONED)</div></div>
Baseband	<div><div>BB 5216 L2100</div><div>DUG20 G1900</div><div>DUW30 U1900 (DECOMMISSIONED)</div><div>DUW30 U2100 (DECOMMISSIONED)</div></div>

Proposed RAN Equipment

Template: 67E998E 6160

Enclosure	1	2	3
Enclosure Type	Enclosure 6160_v2 AC	RBS 6601	B160
Baseband	<div>RP 6651 N600 L600 (RESTRICTED) L700 L1900 L2100</div>	<div>DUG20 G1900</div>	
Transport System	CSR IXRe V2 (Gen2)		
Hybrid Cable System	Hybrid Trunk 6/24 4AWG 10m		

RAN Scope of Work:

RF NOTES:
5/14/2024 - As per discussion with TMO,3rd Sector will need to be added in this Transmission tower, we are resubmitting the design with (2) antenna per sector and let A&E run the structural feasibility of this propose design.
1/23/24- L600 is restricted technology as per spectrum. L2100 will need to activate MIMO with (2) RUS01 B4 radio per sector. Djimine4.
12/14/2023 - In order to avoid delays in resubmitting the CT Sitting Council and reduce structural loading, it is necessary to switch to a 6-foot Octo antenna. Additionally, the Rad Ctr needs to be changed to the new 77-foot rad ctr in order to provide clearance with the transmission tower.

Sector 2 (Existing) view from behind		
Coverage Type	A - Outdoor Macro	
Antenna	1	
Antenna Model	APX16DWV-16DWV-S-E-A20 (Quad)	
Azimuth	190	
M. Tilt	0	
Height (ft)	74	
Ports	P1	P2
Active Tech	G1900	L2100
Dark Tech		
Restricted Tech		
Decomm. Tech	U1900	U2100
E. Tilt	2	2
Cables	7/8" Coax - 95 ft. (x2)	7/8" Coax - 95 ft. (x2)
TMA's		
Diplexer / Combiners		
Radio		
Sector Equipment		
Unconnected Equipment:		
Scope of Work:		

Sector 2 (Proposed) view from behind							
Coverage Type	A - Outdoor Macro						
Antenna	1				2		
Antenna Model	APXVAALL18_43-U-NA20 (Octo)				APXVLL19P_43-C-A20 (Quad)		
Azimuth	110				110		
M. Tilt	0				0		
Height (ft)	77				77		
Ports	P1	P2	P3	P4	P5	P6	
Active Tech	N600 L700	N600 L700			N1900 L1900 L2100 G1900	L1900 G1900 L2100 N1900	
Dark Tech							
Restricted Tech							
Decomm. Tech							
E. Tilt							
Cables	7/8" Coax - 95 ft. (x2) Coax Jumper (x2)	7/8" Coax - 95 ft. (x2) Coax Jumper (x2)			7/8" Coax - 95 ft. (x2) Coax Jumper (x2)	7/8" Coax - 95 ft. (x2) Coax Jumper (x2)	
TMA's		Commscope - Smart BiasT - ATSBT-TOP-MF-4G (At Antenna)				Commscope - Smart BiasT - ATSBT-TOP-MF-4G (At Antenna)	
Diplexer / Combiners							
Radio	Radio 4480 B71+B85 (At Cabinet)	Radio 4480 B71+B85 (At Cabinet)			Radio 4460 B25+B66 (At Cabinet)	Radio 4460 B25+B66 (At Cabinet)	
Sector Equipment							
Unconnected Equipment:							
Scope of Work:							
*A dashed border indicates shared connected equipment. Any shared equipment, besides the first, is denoted with the SHARED keyword.							

RAN Template: 67E998E 6160	A&L Template: 67E998E_1OP+1QP
--------------------------------------	---

CT11116C_L600_3_draft

Print Name:
Standard

Project IDs with associated PORs:
CT11116C-0002058692
L600_L600 Coverage

Sector 3 (Existing) view from behind		
Coverage Type	A - Outdoor Macro	
Antenna	1	
Antenna Model	APX16DWV-16DWV-S-E-A20 (Quad)	
Azimuth	330	
M. Tilt	0	
Height (ft)	74	
Ports	P1	P2
Active Tech	G1900	L2100
Dark Tech		
Restricted Tech		
Decomm. Tech	U1900	U2100
E. Tilt	2	2
Cables	7/8" Coax - 95 ft. (x2)	7/8" Coax - 95 ft. (x2)
TMA's		
Diplexer / Combiners		
Radio		
Sector Equipment		
Unconnected Equipment:		
Scope of Work:		
<div></div>		

Sector 3 (Proposed) view from behind							
Coverage Type	A - Outdoor Macro						
Antenna	1				2		
Antenna Model	APXVAALL18_43-U-NA20 (Octo)				APXVLL19P_43-C-A20 (Quad)		
Azimuth	200				200		
M. Tilt	0				0		
Height (ft)	77				77		
Ports	P1	P2	P3	P4	P5	P6	
Active Tech	N600 L700	N600 L700			N1900 L1900 L2100 G1900	N1900 L1900 L2100 G1900	
Dark Tech							
Restricted Tech							
Decomm. Tech							
E. Tilt							
Cables	7/8" Coax - 95 ft. (x2) Coax Jumper (x2)	7/8" Coax - 95 ft. (x2) Coax Jumper (x2)			7/8" Coax - 95 ft. (x2) Coax Jumper (x2)	7/8" Coax - 95 ft. (x2) Coax Jumper (x2)	
TMA's		Commscope - Smart BiasT - ATSBT-TOP-MF-4G (At Antenna)				Commscope - Smart BiasT - ATSBT-TOP-MF-4G (At Antenna)	
Diplexer / Combiners							
Radio	Radio 4480 B71+B85 (At Cabinet)	Radio 4480 B71+B85 (At Cabinet)			Radio 4460 B25+B66 (At Cabinet)	Radio 4460 B25+B66 (At Cabinet)	
Sector Equipment							
Unconnected Equipment:							
Scope of Work:							
*A dashed border indicates shared connected equipment. Any shared equipment, besides the first, is denoted with the SHARED keyword.							



Dual Slant Polarized Quad Band (8 Port) Antenna, 617-894/617-894/1695-2690/1695-2690MHz, 65deg, 15.0/14.6/18.4/18.3dBi, 1.8m (6ft), RET, 2-12°/2-12°/2-12°/2-12°

FEATURES / BENEFITS

This antenna provides a 8 Port multi-band flexible platform for advanced use for flexible use in deployment scenarios for encompassing 600, 700, 800, AWS, PCS & BRS applications.

- ➔ 24 Inch Width For Easier Zoning
- ➔ Field Replaceable (Integrated) AISG RET platform for reduced environmental exposure and long lasting quality
- ➔ Superior elevation pattern performance across the entire electrical down tilt range
- ➔ Includes three AISG RET motors - Includes 0.5m AISG jumper for optional daisy chain of two high band RET motors for one single AISG point of high band tilt control.
- ➔ Low band arrays driven by a single RET motor



Technical Features

LOW BAND LEFT ARRAY (617-894 MHZ) [R1]

Frequency Band	MHz	617-698	698-746	746-806	806-894
Gain Typical	dBi	14.3	15.0	14.8	15.0
Gain Over All Tilts	dBi	13.8+/-0.5	14.5+/-0.5	14.3+/-0.5	14.6+/-0.4
Horizontal Beamwidth @3dB	Deg	65+/-2	64+/-2	66+/-2	62+/-5
Vertical Beamwidth @3dB	Deg	14+/-1	13+/-0.9	12+/-0.7	11+/-0.9
Electrical Downtilt Range	Deg	2 to 12			
Upper Side Lobe Suppression Peak to +20	dB	15	15	15	14
Front-to-Back, at +/-30°, Copolar	dB	22	22	24	27
Cross Polar Discrimination (XPD) @ Boresight	dB	18	18	16	15
Cross Polar Discrimination (XPD) @ +/-60	dB	4	3	7	5
3rd Order PIM 2 x 43dBm	dBc	-153			
VSWR	-	1.5:1			
Cross Polar Isolation	dB	25			
Maximum Effective Power per Port	Watt	400			



Dual Slant Polarized Quad Band (8 Port) Antenna, 617-894/617-894/1695-2690/1695-2690MHz, 65deg, 15.0/14.6/18.4/18.3dBi, 1.8m (6ft), RET, 2-12°/2-12°/2-12°/2-12°

HIGH BAND RIGHT ARRAY (1695-2690 MHZ) [Y2]

Frequency Band	MHz	1695-1880	1850-1990	1920-2200	2200-2490	2490-2690
Gain Typical	dBi	17.5	17.8	18.3	18.1	17.9
Gain Over All Tilts	dBi	17+/-5	17.3+/-5	17.6+/-7	17.4+/-7	17.1+/-8
Horizontal Beamwidth @3dB	Deg	66+/-6	64+/-5	64+/-7	62+/-4	61+/-7
Vertical Beamwidth @3dB	Deg	5.5+/-3	5.1+/-2	4.9+/-3	4.4+/-3	4+/-3
Electrical Downtilt Range	Deg	2 to 12				
Upper Side Lobe Suppression Peak to +20	dB	14	16	15	14	13
Front-to-Back, at +/-30°, Copolar	dB	25	23	23	23	20
Cross Polar Discrimination (XPD) @ Boresight	dB	22	17	16	17	17
Cross Polar Discrimination (XPD) @ +/-60	dB	8	8	9	4	1
3rd Order PIM 2 x 43dBm	dBc	-153				
VSWR	-	1.5:1				
Cross Polar Isolation	dB	25				
Maximum Effective Power per Port	Watt	300				

ELECTRICAL SPECIFICATIONS

Impedance	Ohm	50.0
Polarization	Deg	±45°

MECHANICAL SPECIFICATIONS

Dimensions - H x W x D	mm (in)	1829 x 609 x 215 (72 x 24 x 8.5)
Weight (Antenna Only)	kg (lb)	42 (92.6)
Weight (Mounting Hardware only)	kg (lb)	11.5 (25.3)
Shipping Weight	kg (lb)	63 (138.9)
Connector type		8 x 4.3-10 female at bottom
Radome Material / Color		Fiber Glass / Light Grey RAL7035

TESTING AND ENVIRONMENTAL

Temperature Range	°C (°F)	-40 to 60 (-40 to 140)
Lightning protection		Direct Ground
Survival/Rated Wind Velocity	km/h	240 (150)
Wind Load @Rated Wind Front	N	1072.0
Wind Load @Rated Wind Side	N	326.0
Wind Load @Rated Wind Rear	N	1160.0

APXVLL19P_43-C-A20

Features

A combination of two x-polarized antennas in a single radome, the Amphenol Quad-Pol antennas are designed for applications requiring a minimum number of antennas at a cell site and reduced tower loading. They offer the rugged construction of our new series of high band antennas that feature both high RF performance and energy efficiency. They are ideal for 1800, 2100 and 2600 networks where high gain is required. These antennas are especially well-suited for MIMO applications.

- Ultra-broadband design
- Best-in-the-industry gain values
- Two x-polarized broadband panels in a single narrow radome - reduced tower loading and lower profile
- Variable electrical downtilt - provides enhanced precision in controlling intercell interference
- Single ACU-A20-S RET drives both arrays
- High suppression of all upper sidelobes
- High front-to-back ratio



PRODUCT OVERVIEW	Frequency Range (MHz)	(2x) 1695-2690	
	Array	Y1	Y2
	Connector	1-2	3-4
		4 PORTS	
	Polarization	XPOL	
	Azimuth Beamwidth (avg)	65°	
	Electrical Downtilt	0-12°	
	Dimensions	1925 x 288 x 118 mm (75.8 x 11.3 x 4.6 in)	

ORDERING OPTIONS

Select from the following ordering options

ANTENNA MODEL NUMBER	CONFIGURATION	MOUNTING HARDWARE	MOUNTING PIPE DIAMETER	SHIPPING WEIGHT
APXVLL19P_43-C-A20	One ACU-A20-S External RET Included	APM40-2 Beam Tilt Kit and APM40-E10 Included	50-120 mm (2.0-4.7 in)	30 kg (66 lbs)

APXVLL19P_43-C-A20

MECHANICAL SPECIFICATIONS

Length		mm (in)	1925 (75.8)
Width		mm (in)	288 (11.3)
Depth		mm (in)	118 (4.6)
Net Weight - Antenna Only		kg (lbs)	19 (42)
Net Weight - Mounting Hardware Only		kg (lbs)	3.8 (8.4)
Wind Load Rated at 150 km/h (93 mph)	Front	N (lbf)	1000 (225)
	Side	N (lbf)	420 (94)
	Rear	N (lbf)	1100 (247)
Survival Wind Speed / Rated Wind Speed		km/h (mph)	241 (160)
Connector Type		--	(4x) 4.3-10 Female, (2x) AISG Connectors (1 Male, 1 Female) at Bottom
Radome Color		---	Light Grey RAL7035
Radome Material		---	ASA
Lightning Protection		---	Direct Ground
Shipping	Packing Size (Length x Width x Depth)	mm (in)	2275 x 370 x 225 (89.6 x 14.6 x 8.9)
	Shipping Weight	kg (lbs)	30 (66)

ENVIRONMENTAL SPECIFICATIONS

Environmental Standard	---	ETS 300 019
Operating Temperature	degrees	-40° to +60° C (-40° to +140° F)
Product Environmental Compliance	---	Product is RoHS Compliant

ATSBT-TOP-MF-4G



Top Smart Bias Tee

- Reduces cable and site lease costs by eliminating the need for AISG home run cables
- AISG 1.1 and 2.0 compliant
- Operates at 10-30 Vdc
- Weatherproof AISG connectors
- Intuitive schematics simplify and ensure proper installation
- Enhanced lightning protection plus grounding stud for additional surge protection
- 7-16 DIN female connector (ANT)
- 7-16 DIN male connector (BTS)

Product Classification

Product Type RET bias tee

General Specifications

AISG Input Connector	8-pin DIN Female
Antenna Interface	7-16 DIN Female
Antenna Interface Signal	RF dc Blocked
BTS Interface	7-16 DIN Male
BTS Interface Signal	AISG data RF dc
Color	Silver
EU Certification	CE
Grounding Lug Thread Size	M8
Smart Bias Tee Type	10~30 V Top

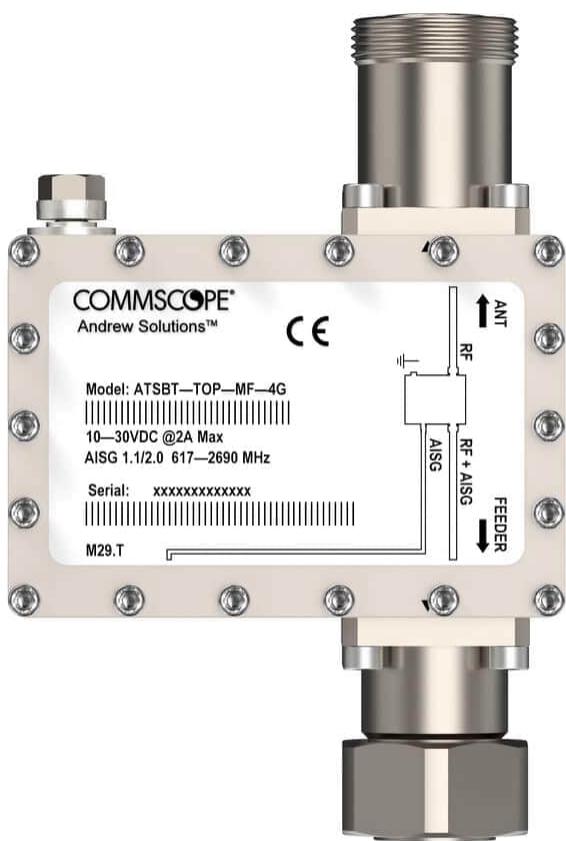
Dimensions

Height	143 mm 5.63 in
Width	94 mm 3.701 in
Depth	50 mm 1.969 in

Electrical Specifications

3rd Order IMD	-158 dBc
3rd Order IMD Test Method	Two +43 dBm carriers
Insertion Loss, typical	0.1 dB
Electromagnetic Compatibility (EMC)	CFR 47 Part 15, Subpart B, Class B EN 55022, Class B ICES-003 Issue 4 CAN

ATSBT-TOP-MF-4G



Material Specifications

Material Type Aluminum

Environmental Specifications

Operating Temperature -40 °C to +70 °C (-40 °F to +158 °F)

Ingress Protection Test Method IEC 60529:2001, IP66

Packaging and Weights

Weight, net 0.8 kg | 1.764 lb

Regulatory Compliance/Certifications

Agency	Classification
--------	----------------

TEST BORING & SOIL SAMPLING RECORD

PROJECT PEACEABLE STREET TO RIDGEFIELD						HOLE NO.	9
TOWN RIDGEFIELD, CONN.						MAP NO.	
CONTRACTOR CLARENCE WELTI ASSOCIATES						STRUCTURE NO.	
STATION OR OFFSET BAR SOUNDING						DRILLER	MASON
ELEVATION		DATE START 12/8/72				FINISH 12/8/72	HELPER
SCALE IN FEET	STRATA CHANGE	CASING BLOWS PER FOOT	SAMPLER BLOWS PER 6 IN.	SAMPLE NO.	SAMPLE DEPTH RANGE	ROCK CORE RECD	FIELD CLASSIFICATION AND REMARKS
5	1.5						BROKEN LEDGE
							REFUSAL AT 1.5

GROUNDWATER			CASING	HAMMER	_____ lbs.
DEPTH	HOUR	DATE	SIZE	_____	IN.
			SPOON	HAMMER	_____ lbs.
			SPOON	SIZE	_____ IN.
			HAMMER	FALL	_____ IN.
			SIZE OF CORE	_____	IN.

TRACE	1 - 10 %
LITTLE	10 - 20
SOME	20 - 35
AND	35 - 50
+ = UPPER LIMIT OF RANGE	
- = LOWER LIMIT OF RANGE	

Project

Structural Analysis Report Antenna Mounts Proposed T-Mobile Equipment Upgrade Site Ref: CT11116C 99 Mountain Road Redding, CT 06896

Centek Project No.: 24066.01

Date Issued: July 23, 2024 - Rev. 0

Prepared For

T-Mobile
35 Griffin Road
Bloomfield, CT 06002

Prepared By

Centek Engineering, Inc.

Timothy J. Lynn, PE
63 North Branford Road
Branford, CT 06405
T: 203.488.0580
F: 203.488.8587

www.centekeng.com



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Centered on SolutionsSM

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1.00 REPORT

1.01 INTRODUCTION

This Mount Analysis Report was prepared to address the structural viability of installing T-Mobile's proposed antenna configurations on the Transmission Pole located on 99 Mountain Road in Redding, Connecticut.

The proposed antenna configurations are to be supported by the proposed tower mounts (SitePro P/N: UDS-NP). The antennas are to be connected to the mounts via pipe masts. For further details on the configuration of the proposed antenna mounts and equipment, refer to the Construction Drawings prepared by Centek Engineering, job no. 24066.01.

The host's structure geometry and member size information were obtained through a site visit to investigate the current conditions, performed by Centek Engineering personnel on 03/21/2022 and structural analysis prepared by Centek Engineering, job number 24066.01.

1.02 PRIMARY ASSUMPTIONS USED IN THE ANALYSIS

- The host structure's theoretical capacity does not include any assessment of the condition of the host structure.
- The proposed antenna frames carry horizontal and vertical loads due to the weight of equipment, and wind and transfers into the host structure.
- The structure is in a plumb condition.
- Loading for equipment is as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All members are assumed to be as observed during mapping.
- All members are "hot dipped" galvanized in accordance with ASTM A123 ASTM A153 Standards.
- All members' protective coatings are in good condition.

1.03 ANTENNA AND EQUIPMENT SUMMARY

Appurtenance / Equipment	Rad Center Elevation (AGL)	Mount Type
(3) RFS APXVAALL18_43 Panel Antenna (3) Amphenol APXVLL19P_43 Panel Antenna (6) Commscope ATSBT-TOP-MF-4G Bias Tee Antennas	±77-ft	Tower Mount

Equipment – Indicates equipment to be installed.

1.04 ANALYSIS

The tower mounts and pipe masts were analyzed using a comprehensive computer program titled Risa3D. The program analyzes the mounts and masts using the worst-case code prescribed loading condition. The structures were considered to be loaded by concentric forces, and the model assumes that the members are subjected to bending, axial, and shear forces.

1.05 DESIGN LOADING

Loading was determined per the requirements of the 2021 International Building Code amended by the 2022 Connecticut State Building Code and ASCE 7 – 16 “Minimum Design Loads for Buildings and Other Structures”.

Wind Speed:	$V_{ult} = 125$ mph	<i>Appendix P of the 2022 CSBC.</i>
Wind Speed w/Ice:	$V_{ice} = 50$ mph	<i>TIA-222-H Annex B.</i>
Wind Speed w/Maintenance:	$V_m = 30$ mph	<i>TIA-222-H Section 16.3.</i>
Risk Category:	III	<i>2021 IBC; Table 1604.05</i>
Exposure Category:	Surface Roughness C	<i>ASCE 7-16; Section 26.7.2</i>
Dead Load:	Equipment and framing self-weight	<i>Identified within SAR design calculations</i>

1.06 REFERENCE STANDARDS

2021 International Building Code

- AISC 360 – 16: Specification for Structural Steel Buildings
- ASCE/SEI 7 – 16: Minimum Design Loads and Associated Criteria for Building and Other Structures

1.07 RESULTS

Member stresses and design reactions were calculated utilizing the structural analysis software RISA 3D. The mounts and masts were found to be structurally acceptable as presented in the following table:

Sector	Component	Stress Ratio (percentage of capacity)	Result
All Sectors	Pipe 2.0 STD. (Pipe Mast)	33%	PASS
	Pipe 3.0 STD. (Horizontal Support Member)	15%	PASS

1.08 CONCLUSION

This analysis finds the existing mounts and masts to **HAVE SUFFICIENT CAPACITY** to accommodate the structural loading of the proposed antenna and equipment configuration.

The analysis is based, in part, on the information provided to this office by T-Mobile. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer

2.00 CONDITIONS AND SOFTWARE

2.01 STANDARD ENGINEERING CONDITIONS

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, and other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the “as new” condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

2.02 GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

RISA-3D Structural Analysis Program is an integrated structural analysis and design software package for buildings, bridges, tower structures, etc.

Modeling Features:

- Comprehensive CAD-like graphic drawing/editing capabilities that let you draw, modify and load elements as well as snap, move, rotate, copy, mirror, scale, split, merge, mesh, delete, apply, etc.
- Versatile drawing grids (orthogonal, radial, skewed)
- Universal snaps and object snaps allow drawing without grids.
- Versatile general truss generator
- Powerful graphics select/unselect tools including box, line, polygon, invert, criteria, spreadsheet selection, with locking.
- Saved selections to quickly recall desired selections.
- Modification tools that modify single items or entire selections
- Real spreadsheets with cut, paste, fill, math, sort, find, etc.
- Dynamic synchronization between spreadsheets and views so you can edit or view any data in the plotted views or in the spreadsheets.
- Simultaneous view of multiple spreadsheets
- Constant in-stream error checking and data validation
- Unlimited undo/redo capability

- Generation templates for grids, disks, cylinders, cones, arcs, trusses, tanks, hydrostatic loads, etc.
- Support for all units' systems & conversions at any time.
- Automatic interaction with RISASection libraries
- Import DXF, RISA-2D, STAAD and ProSteel 3D files.
- Export DXF, SDNF and ProSteel 3D files.

Analysis Features:

- Static analysis and P-Delta effects
- Multiple simultaneous dynamic and response spectra analysis using Gupta, CQC or SRSS mode combinations.
- Automatic inclusion of mass offset (5% or user defined) for dynamic analysis.
- Physical member modeling that does not require members to be broken up at intermediate joints.
- State of the art 3 or 4 node plate/shell elements
- High-end automatic mesh generation — draw a polygon with any number of sides to create a mesh of well-formed quadrilateral (NOT triangular) elements.
- Accurate analysis of tapered wide flanges - web, top and bottom flanges may all taper independently.
- Automatic rigid diaphragm modeling
- Area loads with one-way or two-way distributions
- Multiple simultaneous moving loads with standard AASHTO loads and custom moving loads for bridges, cranes, etc.
- Torsional warping calculations for stiffness, stress, and design
- Automatic Top of Member offset modeling.
- Member end releases & rigid end offsets
- Joint master-slave assignments
- Joints detachable from diaphragms
- Enforced joint displacements.
- 1-Way members, for tension only bracing, slipping, etc.
- 1-Way springs, for modeling soils and other effects
- Euler members that take compression up to their buckling load, then turn off.
- Stress calculations on any arbitrary shape.
- Inactive members, plates, and diaphragms allow you to quickly remove parts of structures from consideration.
- Story drift calculations provide relative drift and ratio to height.
- Automatic self-weight calculations for members and plates
- Automatic subgrade soil spring generator

Graphics Features:

- Unlimited simultaneous model view windows
- Extraordinary “true to scale” rendering, even when drawing
- High-speed redraw algorithm for instant refreshing.
- Dynamic scrolling stops right where you want.
- Plot & print virtually everything with color coding & labeling.
- Rotate, zoom, pan, scroll and snap views.
- Saved views to quickly restore frequent or desired views.
- Full render or wire-frame animations of deflected model and dynamic mode shapes with frame and speed control
- Animation of moving loads with speed control
- High quality customizable graphics printing

Design Features:

- Designs concrete hot rolled steel, cold formed steel, and wood.
- ACI 1999/2002, BS 8110-97, CSA A23.3-94, IS456:2000, EC 2-1992 with consistent bar sizes through adjacent spans
- Exact integration of concrete stress distributions using parabolic or rectangular stress blocks
- Concrete beam detailing (Rectangular, T and L)
- Concrete column interaction diagrams
- Steel Design Codes: AISC ASD 9th, LRFD 2nd & 3rd, HSS Specification, CAN/CSA-S16.1-1994 & 2004, BS 5950-1-2000, IS 800-1984, Euro 3-1993 including local shape databases.
- AISI 1999 cold formed steel design
- NDS 1991/1997/2001 wood design, including Structural Composite Lumber, multi-ply, full sawn.
- Automatic spectra generation for UBC 1997, IBC 2000/2003
- Generation of load combinations: ASCE, UBC, IBC, BOCA, SBC, ACI
- Unbraced lengths for physical members that recognize connecting elements and full lengths of members.
- Automatic approximation of K factors
- Tapered wide flange design with either ASD or LRFD codes.
- Optimization of member sizes for all materials and all design codes, controlled by standard or user-defined lists of available sizes and criteria such as maximum depths.
- Automatic calculation of custom shape properties
- Steel Shapes: AISC, HSS, CAN, ARBED, British, Euro, Indian, Chilean
- Light Gage Shapes: AISI, SSMA, Dale / Incor, Dietrich, Marino\WARE
- Wood Shapes: Complete NDS species/grade database
- Full seamless integration with RISAFoot (Ver 2 or better) for advanced footing design and detailing
- Plate force summation tool.

Results Features:

- Graphic presentation of color-coded results and plotted designs
- Color contours of plate stresses and forces with quadratic smoothing, the contours may also be animated.
- Spreadsheet results with sorting and filtering of: reactions, member & joint deflections, beam & plate forces/stresses, optimized sizes, code designs, concrete reinforcing, material takeoffs, frequencies and mode shapes
- Standard and user-defined reports
- Graphic member detail reports with force/stress/deflection diagrams and detailed design calculations and expanded diagrams that display magnitudes at any dialed location.
- Saved solutions quickly restore analysis and design results.

ATTACHMENT 5



LINCOLN MALL
560 LINCOLN ST STE 8
WORCESTER, MA 01605-1925
(800)275-8777

12/31/2024

11:28 AM

Product	Qty	Unit Price	Price
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Prepaid Mail	1		\$0.00
Brimfield, MA 01010			
Weight: 2 lb 7.70 oz			
Acceptance Date:			
Tue 12/31/2024			
Tracking #:			
9405 5036 9930 0735 7082 01			

First-Class Mail®	1		\$0.73
Letter			
Wilton, CT 06897			
Weight: 0 lb 0.40 oz			
Estimated Delivery Date			
Sat 01/04/2025			
Certified Mail®			\$4.85
Tracking #:			
9589 0710 5270 1856 8150 29			
Return Receipt			\$4.10
Tracking #:			
9590 9402 9153 4225 1053 68			

Total \$9.68

First-Class Mail®	1		\$0.73
Letter			
Redding, CT 06896			
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Estimated Delivery Date			
Sat 01/04/2025			
Certified Mail®			\$4.85
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Total \$9.68

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Ridgefield, CT 06877			
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Hartford, CT 06141
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Redding, CT 06896
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Tracking #: 9590 9402 9153 4225 1053 20
Total \$9.68

First-Class Mail® 1 \$0.73
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Redding, CT 06896
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Return Receipt \$4.10
Tracking #: 9590 9402 9153 4225 1053 37
Total \$9.68

Grand Total: \$67.76

Credit Card Remit \$67.76
Card Name: VISA
Account #: XXXXXXXXXXXX7594
Approval #: 04520G
Transaction #: 600

9589 0710 5270 1856 8150 50

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<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
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<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00

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City, State, ZIP+4[®] Redding CT 06896

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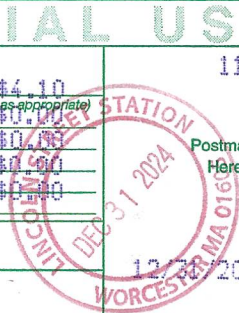
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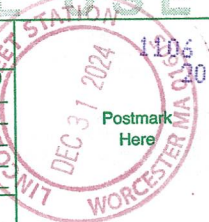
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☐ Adult Signature Restricted Delivery \$0.00

Postage \$0.73

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Street and Apt. No., or PO Box No. 219 Ethan Allen Highway

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1106
12/31/2024
50910
LINCOLN STREET STATION
WORCESTER MA 01605

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☐ Return Receipt (electronic) \$0.00
☐ Certified Mail Restricted Delivery \$0.00
☐ Adult Signature Required \$0.00
☐ Adult Signature Restricted Delivery \$0.00

Postage \$0.73

Total Postage and Fees \$9.68

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Street and Apt. No., or PO Box No. 97 Mountain Road

City, State, ZIP+4[®] Redding, CT 06898

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1106
12/31/2024
50910
LINCOLN STREET STATION
WORCESTER MA 01605

Postmark Here

9589 0710 5270 1856 8150 29

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For delivery information, visit our website at www.usps.com.
Wilton, CT 06897

Certified Mail Fee \$4.85

Extra Services & Fees (check box, add fee as appropriate)
☐ Return Receipt (hardcopy) \$0.00
☐ Return Receipt (electronic) \$0.00
☐ Certified Mail Restricted Delivery \$0.00
☐ Adult Signature Required \$0.00
☐ Adult Signature Restricted Delivery \$0.00

Postage \$0.73

Total Postage and Fees \$9.68

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City, State, ZIP+4[®] Wilton CT 06897

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1106
12/31/2024
50910
LINCOLN STREET STATION
WORCESTER MA 01605

Postmark Here

ATTACHMENT 6



FOX HILL TELECOM

Radio Frequency Emissions Analysis Report



Site ID: CT11116C

Ridgefield/ Ethan Allen H
101 Mountain Rd. CL&P Pole #3275
Redding, CT 06896

January 30, 2024

Fox Hill Telecom Project Number: 231001

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	4.99 %



January 30, 2024

T-MOBILE
Attn: RF Manager
35 Griffin Road South
Bloomfield, CT 06009

Emissions Analysis for Site: **CT11116C – Ridgefield/ Ethan Allen H**

Fox Hill Telecom, Inc (“Fox Hill”) was directed to analyze the proposed upgrades to the T-MOBILE facility located at **101 Mountain Rd. CL&P Pole #3275, Redding, CT**, for the purpose of determining whether the emissions from the Proposed T-MOBILE Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 600 MHz & 700 MHz bands are approximately $400 \mu\text{W}/\text{cm}^2$ and $467 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS) bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report the percentage of MPE rather than power density.



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Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.



CALCULATIONS

Calculations were performed for the proposed upgrades to the T-MOBILE antenna facility located at **101 Mountain Rd. CL&P Pole #3275, Redding, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65 for far field modeling calculations.

In OET-65, plane wave power densities in the Far Field of an antenna are calculated by considering antenna gain and reflective waves that would contribute to exposure.

Since the radiation pattern of an antenna has developed in the **Far Field** region the power gain in specific directions needs to be considered in exposure predictions to yield an Effective Radiated Power (ERP) in each specific direction from the antenna. Also, since the vertical radiation pattern of the antenna is considered, the exposure calculations would most likely be reduced significantly at ground level, resulting in a more realistic estimate of the actual exposure levels. To determine a worst-case scenario at each point along the calculation radials, each point was calculated using the antenna gain value at each angle of incident and compared against the result using an isotropic radiator at the antenna height with the greater of the two used to yield the more pessimistic far field value for each point along the calculation radial.

Additionally, to model a truly "worst case" prediction of exposure levels at or near a surface, such as at ground-level or on a rooftop, reflection off the surface of antenna radiation power can be assumed, resulting in a potential 1.6 times increase in power density in calculating far field power density values.

With these factors Considered, the worst case **Far Field prediction model** utilized in this analysis is determined by the following equation:

Equation 9 per FCC OET65 for Far Field Modeling

$$S = \frac{33.4 \text{ ERP}}{R^2}$$

S = Power Density (in $\mu\text{W}/\text{cm}^2$)

ERP = Effective Radiated Power from antenna (watts)

R = Distance from the antenna (meters)

Predicted far field power density values for all carriers identified in this report were calculated 6 feet above the ground level and are displayed as a percentage of the applicable FCC standards. All emissions values for other carriers were calculated using the same Far Field model outlined above, using industry standard radio configurations and frequency band selection based upon available licenses in this geographic area for emissions contribution estimates.



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For each T-Mobile sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
LTE / 5G NR	600 MHz	2	60
LTE	700 MHz	2	20
LTE	1900 MHz (PCS)	4	40
GSM	1900 MHz (PCS)	1	15
LTE	2100 MHz (AWS)	4	40

Table 1: Channel Data Table



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The following T-Mobile antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz, 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
B	1	RFS APXVAALL18_43-C-NA20	78
C	1	RFS APXVAALL18_43-C-NA20	78

Table 2: Antenna Data

All calculations were done with respect to uncontrolled / general population threshold limits.



RESULTS

Per the calculations completed for the proposed T-MOBILE configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna B1	RFS APXVAALL18_43-C-NA20	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	12.85 / 13.55 / 15.85 / 17.15	13	495	18,250.04	4.99
Sector B Composite MPE%							4.99
Antenna C1	RFS APXVAALL18_43-C-NA20	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	12.85 / 13.55 / 15.85 / 17.15	13	495	18,250.04	4.99
Sector C Composite MPE%							4.99

Table 3: T-MOBILE Emissions Levels



The Following table (*table 4*) shows all additional identified carriers on site and their emissions contribution estimates, along with the newly calculated maximum T-MOBILE MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, both T-Mobile sectors have the same configuration yielding the same results for both sectors. *Table 5* below shows a summary for each T-MOBILE Sector as well as the composite estimated MPE value for the site.

Site Composite MPE%	
Carrier	MPE%
T-MOBILE – Max Per Sector Value	4.99 %
No Additional Carriers on Site	NA
Site Total MPE %:	4.99 %

Table 4: All Carrier MPE Contributions

T-MOBILE Sector B Total:	4.99 %
T-MOBILE Sector C Total:	4.99 %
Site Total:	4.99 %

Table 5: Site MPE Summary



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Table 6 below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated T-MOBILE sector(s). For this site, both T-Mobile sectors have the same configuration yielding the same results for both sectors.

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 600 MHz LTE / 5G NR	2	1,390.44	78	8.32	600 MHz	400	2.08%
T-Mobile 700 MHz LTE	2	485.32	78	2.76	700 MHz	467	0.59%
T-Mobile 1900 MHz (PCS) LTE	4	1,849.52	78	11.10	1900 MHz (PCS)	1000	1.11%
T-Mobile 1900 MHz (PCS) GSM	1	693.57	78	1.00	1900 MHz (PCS)	1000	0.10%
T-Mobile 2100 MHz (AWS) LTE	4	1,981.80	78	11.10	2100 MHz (AWS)	1000	1.11%
						Total:	4.99 %

Table 6: T-MOBILE Maximum Sector MPE Power Values



Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the T-MOBILE facility as well as the site composite emissions estimates value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:




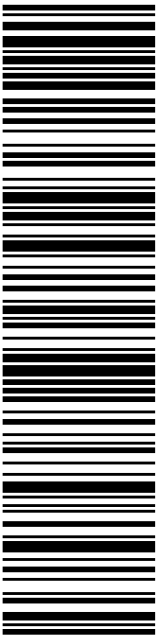

T-MOBILE Sector	Power Density Value (%)
Sector B:	4.99 %
Sector C:	4.99 %
T-MOBILE Maximum Total (per sector):	4.99 %
Site Total:	4.99 %
Site Compliance Status:	COMPLIANT

The estimated composite MPE value for this site assuming all carriers present is **4.99 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon the far field calculations performed for all carriers identified in this report.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite estimated values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
Principal RF Engineer
Fox Hill Telecom, Inc
Worcester, MA 01609
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ATTACHMENT 7

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9405 5036 9930 0736 8433 83			
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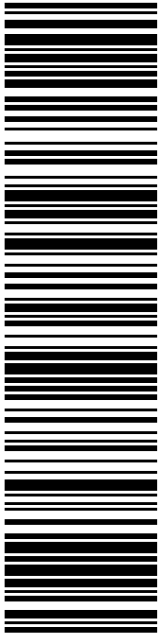

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To: JULIA PEMBERTON FIRST SELECTWOMAN- REDDING PO BOX 1028 REDDING CTR CT 06875-1028	
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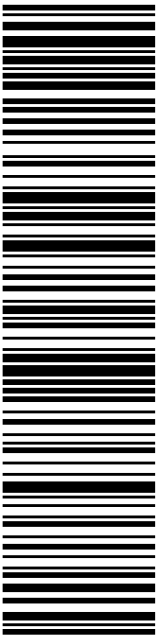

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To: AIMEE PARDEE LAND USE DIRECTOR PO BOX 1028 REDDING CTR CT 06875-1028	
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		B060	
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Priority Mail® Postage: **\$10.45**
Total: **\$10.45**

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Grand Total:			\$0.00
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