Northeast Site Solutions
Victoria Masse
5 Melrose Drive
Farmington, CT 06032
victoria@northeastsitesolutions.com

February 11, 2025

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
437 Hobart Street, Southington CT 06489
Latitude: 41.6083000
Longitude: -72.8628000
T-Mobile Site#: CT11734B_Radio Upgrade

Dear Ms. Bachman:

T-Mobile currently maintains three (3) antennas at the 100-foot level of the existing 105-foot lattice tower located at 437 Hobart Street, Southington CT. The lattice tower is owned by CL&P (pole #1814) and property is owned by Frederick & Bonnie Lasky. T-Mobile now intends to remove (24) existing coax cables and replace with (24) new coax cables as well as install nine (9) new Smart Bias Tees. The new Bias Tees would be installed at the 100-foot level of the lattice tower. This modification includes B2, B5 hardware that is both 4G (LTE), and 5G capable.

T-Mobile Planned Modifications:

Remove: N/A

Remove and Replace:
(24) 7/8" Coax Cables – (24) 1-5/8' Coax Cables

Install New:
(9) ATSBT-TOP-FM-4G Smart Bias Tees

Existing to Remain:
(3) RFS-APXVAARR24_43U-NA20 Antenna 600/700/1900/2100 MHz

Groundwork:
(1) 6102 Cabinet (Remove) – B160 Cabinet (Replace)
(1) 3106 Cabinet (Remove) – 6160 Cabinet (Replace)
(3) Radio 4460 B25+B66 (Add)

This facility was approved by the Connecticut Siting Petition No.764A, on September 16, 2016. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Alex J. Ricciardone, Town Manager, Matthew A. Reimondo, Zoning Official, as well as the property owner and the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under

R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Victoria Masse
Mobile: 860-306-2326
Fax: 413-521-0558
Office: 5 Melrose Drive, Farmington, CT 06032
Email: victoria@northeastsitesolutions.com

Attachments
Cc:
Alex J. Ricciardone, Town Manager
Municipal Center
75 Main Street
Southington, CT 06489

Matthew Reimondo, Zoning Enforcement Officer
Municipal Center
196 North Main Street
Southington, CT 06489

Eversource, Tower Owner
107 Selden St
Berlin, CT 06037

Frederick & Bonnie Lasky, Property Owner
437 Hobart Street
Southington, CT 06489

Exhibit A

Original Facility Approval

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

September 16, 2016

Eric Dahl
Vertical Development
20 Commercial Street
Branford, CT 06405

RE: **PETITION NO. 764A –** T-Mobile Northeast LLC (T-Mobile) request to amend its declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required to relocate an existing T-Mobile facility attached to an Eversource transmission line structure (#1814) onto an approved replacement electric transmission line structure (#1814) within the existing Eversource right-of-way located at 437 Hobart Street, Southington, Connecticut.

Dear Mr. Dahl:

At a public meeting held on September 15, 2016, the Connecticut Siting Council (Council) considered and ruled that the above-referenced proposal to amend its declaratory ruling would not have a substantial adverse environmental effect, and pursuant to Connecticut General Statutes § 16-50k, would not require a Certificate of Environmental Compatibility and Public Need with the following conditions:

1. Use of off-road construction equipment that meets the latest EPA or California Air Resources Board standards, or in the alternative, equipment with the best available controls on diesel emissions, including, but not limited to, retrofitting with diesel oxidation catalysts, particulate filters and use of ultra-low sulfur fuel;

2. Compliance with the provisions of Section 22a-174-18(b)(3)(C) of the Regulations of Connecticut State Agencies that limit the idling of mobile sources to 3 minutes;

3. Approval of any minor project changes be delegated to Council staff;

4. Deployment and operation of a temporary facility subject to the submission of final design details to the Executive Director for review and final authorization;

5. A final copy of the structural evaluation letter dated July 22, 2016, stamped by a Professional Engineer, duly licensed in the State of Connecticut, shall be submitted to the Council prior to construction;

6. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed within three years from the date of the mailing of the Council's decision, this decision shall be void, and the facility owner/operator shall dismantle the facility and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The facility owner/operator shall provide written notice to the Executive Director of any schedule changes as soon as is practicable;

7. Any request for extension of the time period to fully construct the facility shall be filed with the Council not later than 60 days prior to the expiration date of this decision and shall be served on all parties and intervenors, if applicable, and the Town of Southington;

8. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;

9. Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by the Petitioner shall be removed within 60 days of the date the antenna ceased to function;

10. The facility owner/operator shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v;

11. This Declaratory Ruling may be transferred, provided the facility owner/operator/transferor is current with payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v and the transferee provides written confirmation that the transferee agrees to comply with the terms, limitations and conditions contained in the Declaratory Ruling, including timely payments to the Council for annual assessments and invoices under Conn. Gen. Stat. §16-50v; and

12. If the facility owner/operator is a wholly owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the facility within 30 days of the sale and/or transfer.

This decision is under the exclusive jurisdiction of the Council and is not applicable to any other modification or construction. All work is to be implemented as specified in the petition dated August 16, 2016.

Enclosed for your information is a copy of the staff report on this project.

Very truly yours,

Robert Stein MAB

Robert Stein
Chairman

RS/MP/lm

Enclosure: Staff Report dated September 15, 2016

c: The Honorable Michael Riccio, Chairman, Town of Southington
Garry Brumback, Town Manager, Town of Southington
Robert Phillips, Director of Planning and Community Development, Town of Southington

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

Petition No. 764A
T-Mobile
Southington, Connecticut
Staff Report
September 15, 2016

On August 18, 2016, the Connecticut Siting Council (Council) received a petition from T-Mobile Northeast LLC (T-Mobile) to amend its declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed relocation of an existing telecommunications facility attached to an existing Eversource electric transmission structure. On or about August 11, 2016, T-Mobile notified the Town, the property owner of record, and abutting property owners of the proposed project. To date, the Council has not received any comments regarding the petition filing.

On May 17, 2006, T-Mobile (formerly Omnipoint) received approval from the Council in Petition No. 764 to install a telecommunications facility on an existing 90-foot tall electric transmission line structure (#1814) located at 437 Hobart Street in Southington. T-Mobile's existing facility consists of three panel antennas installed on a pipe mast extending about ten feet above the existing lattice structure and associated ground equipment installed within a fenced compound at the base of the lattice structure.

On January 21, 2016, the Council approved Petition No. 1201, filed by Eversource, which includes rebuilding and reconductoring of approximately 1.85 miles of the existing double-circuit lattice towers that support the existing #1800 and #1810 lines from Southington Substation to structure #1815 in Southington. The petition included the replacement of existing transmission structure #1814. Eversource designed the replacement transmission structure as a 105-foot above ground level (agl) double-circuit monopole to accommodate both T-Mobile and Eversource's necessary transmission line clearance requirements. The new replacement structure would be installed adjacent to Eversource's existing lattice transmission structure that would be removed as part of Petition No. 1201. T-Mobile's existing compound would remain in the same location.

T-Mobile's proposed replacement facility would consist of new amplifiers attached to Unistrut framing within the existing compound and six new panel antennas installed on T-arms at a centerline height of 100 feet agl on the replacement transmission structure. The top of T-Mobile's antennas would extend to 104 feet agl, which is slightly below the 105-foot agl height of the new Eversource transmission structure. Coax would be installed along one side of the monopole, connecting the new antennas to the radio equipment within the compound. T-Mobile would utilize the existing access road from Hobart Street.

All work would be within Eversource's existing right-of-way. T-Mobile's proposed project would not require site clearing and would not impact wetlands. The site is not located within a shaded area of the Natural Diversity Database. The maximum worst-case power density from T-Mobile's antennas would be 3.7 percent of the applicable Federal Communications Commission limit for radio frequency power density.

The areas surrounding the transmission structure and the transmission right-of-way are residential in nature. However, the incremental visual impact is not expected to be significant because the approved replacement transmission structure that T-Mobile would co-locate on will be comparable in height to the existing structure and will have a more narrow visual profile as a monopole versus the existing lattice tower. Furthermore, T-Mobile's antennas would not extend above the top of the replacement structure. T-Mobile would maintain the same equipment compound.

Due to potential for complications associated with reconstruction of Eversource's 115-kV transmission line, T-Mobile may need to deploy a temporary telecommunications facility in order to maintain wireless service to the surrounding area.

If the Petition is approved, staff suggests including the following conditions:

1. Use of off-road construction equipment that meets the latest EPA or California Air Resources Board standards, or in the alternative, equipment with the best available controls on diesel emissions, including, but not limited to, retrofitting with diesel oxidation catalysts, particulate filters and use of ultra-low sulfur fuel;
2. Compliance with the provisions of Section 22a-174-18(b)(3)(C) of the Regulations of Connecticut State Agencies that limit the idling of mobile sources to 3 minutes;
3. Approval of any minor project changes be delegated to Council staff;
4. Deployment and operation of a temporary facility subject to the submission of final design details to the Executive Director for review and final authorization; and
5. A final copy of the structural evaluation letter dated July 22, 2016, stamped by a Professional Engineer, duly licensed in the State of Connecticut, shall be submitted to the Council prior to construction.

Site location at 437 Hobart Street, Southington.

Exhibit B

Property Card

437 HOBART ST

Location	437 HOBART ST	**Mblu**	123/ / 084/ /
Acct#	8556	**Owner**	LASKY FREDERICK W & BONNIE G
Assessment	$149,900	**Appraisal**	$214,140
PID	12734	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$142,030	$72,110	$214,140
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$99,420	$50,480	$149,900

Owner of Record

Owner	LASKY FREDERICK W & BONNIE G	**Sale Price**	$145,900
Co-Owner		**Certificate**	
Address	437 HOBART ST SOUTHINGTON, CT 06489-3354	**Book & Page**	0515/0244
		Sale Date	07/11/1991
		Instrument	00

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
LASKY FREDERICK W & BONNIE G	$145,900		0515/0244	00	07/11/1991

Building Information

Building 1 : Section 1

Year Built: 1991
Living Area: 1,134
Building Percent Good: 83

Building Attributes	
Field	**Description**

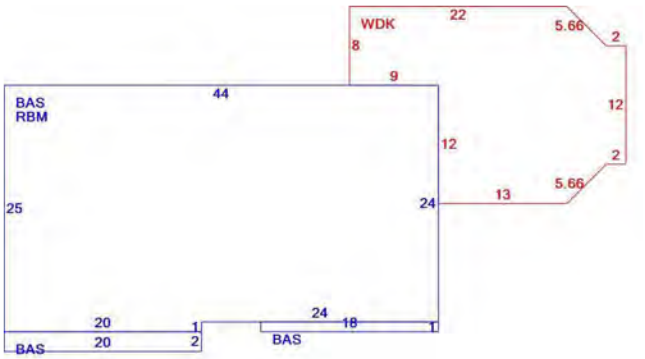
Style	Raised Ranch
Model	Residential
Grade:	C+
Stories	1
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Asphalt / Arch Shingle
Interior Wall 1	Average
Interior Wall 2	
Interior Flr 1	Average
Interior Flr 2	
Heat Fuel	Electric
Heat Type:	Elec Baseboard
AC Type:	Central
Total Bedrooms:	3
Full Bthrms:	1
Half Baths:	0
Extra Fixtures	0
Total Rooms:	5
Bath Style:	Average
Kitchen Style:	Average
Total Kitchens	1
Fireplaces	0
Whirlpool Tubs	
Fin Bsmt Area	
Fin Bsmt Quality	
Bsmt Garages	2
.	
Bsmt Type	Full
Attic Type	None
Cath Ceiling	No
Fndtn Cndtn	
Basement	

Building Photo

123 084 05/20/2015

(https://images.vgsi.com/photos2/SouthingtonCTPhotos//\00\04\55\02.JPG

Building Layout



(ParcelSketch.ashx?pid=12734&bid=12734)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,134	1,134
RBM	Raised Basement	1,076	0
WDK	Deck	420	0
		2,630	1,134

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	101
Description	Single Family
Zone	R-20/25
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.54
Depth	

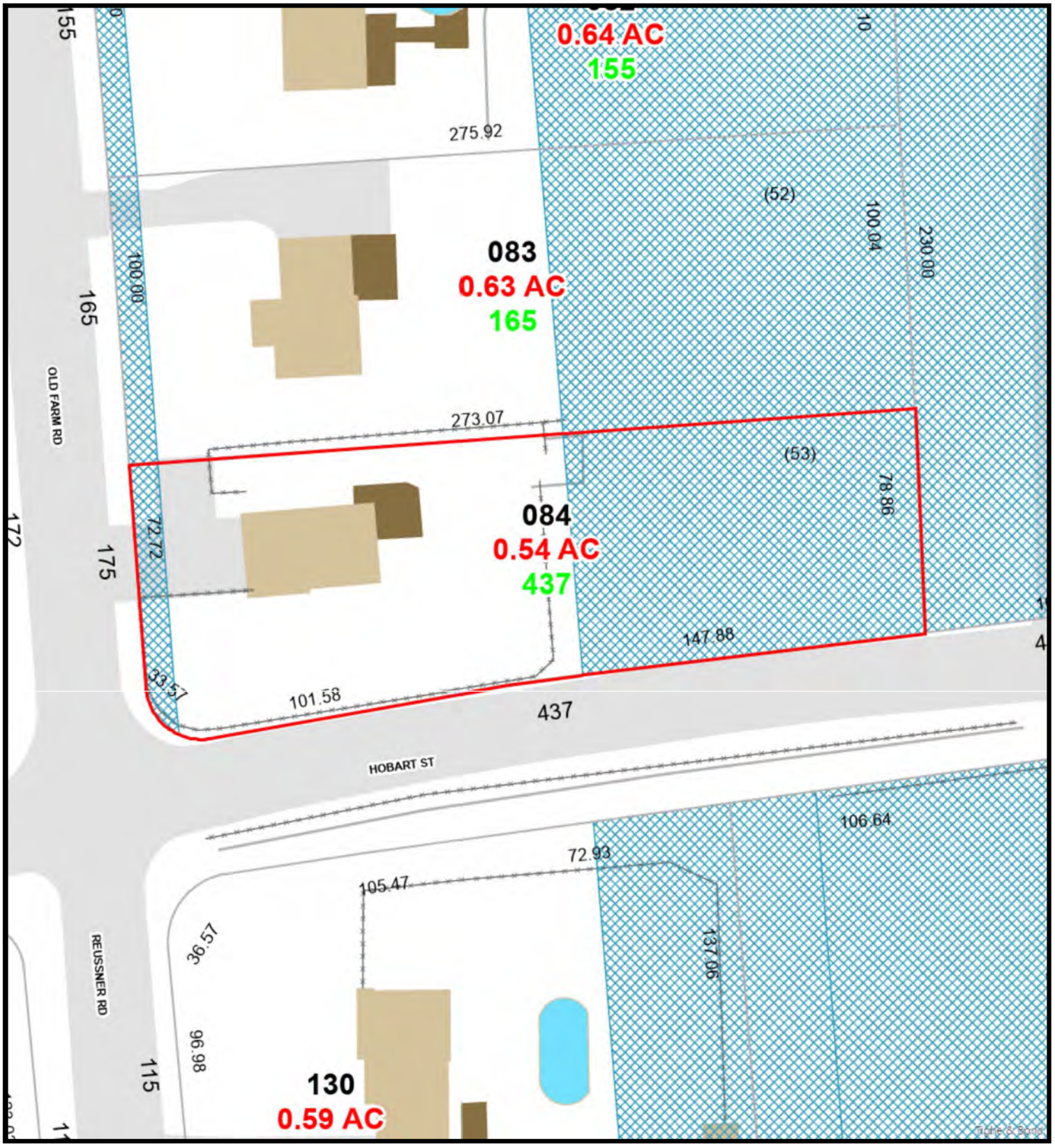
Outbuildings

Outbuildings					Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Bldg #**
SPL4	Above Ground Pool			452.00 Units	1
SHD1	Shed	FR	Frame	120.00 S.F.	1
SHD3	Metal Shed			80.00 S.F.	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2024	$142,030	$72,110	$214,140
2023	$142,030	$72,110	$214,140
2022	$142,030	$72,110	$214,140
2021	$142,030	$72,110	$214,140
2020	$142,030	$72,110	$214,140

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2024	$99,420	$50,480	$149,900
2023	$99,420	$50,480	$149,900
2022	$99,420	$50,480	$149,900
2021	$99,420	$50,480	$149,900
2020	$99,420	$50,480	$149,900



2/10/2025 3:25:12 PM

Scale: 1"=47'

Scale is approximate

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.

Exhibit C

Construction Drawings

T-Mobile

SITE ID: CT11734B
437 HOBART STREET
SOUTHINGTON, CT 06489

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.

SITE LOCATION MAP

SITE COORDINATES: LATITUDE: 41° 36' 30" N
LONGITUDE: 72° 51' 47" W
GROUND ELEVATION: ±230' AMSL

SITE COORDINATES AND GROUND ELEVATION ARE REFERENCED FROM GOOGLE EARTH ONLINE SOFTWARE

NORTH

PROJECT SUMMARY

1. THE PROPOSED UPGRADE SCOPE OF WORK AT THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY GENERALLY INCLUDES THE FOLLOWING:

GROUND WORK:

- REMOVE (2) EQUIPMENT CABINETS
- REMOVE ALL EXISTING TMAS AND DIPLEXERS
- INSTALL (3) RADIO 4460 B25+B66 WITH PROPOSED UNITSTRUT ON EXISTING EQUIPMENT FRAME
- INSTALL (2) EQUIPMENT CABINETS (B160 & 6160)

TOWER WORK:

- INSTALL (9) SMART BIAS-T
- INSTALL (24) 1-5/8" COAX CABLES
- REMOVE ALL EXISTING COAX CABLES

PROJECT INFORMATION

SITE ID:	CT11734B
SITE ADDRESS:	437 HOBART STREET SOUTHINGTON, CT 06489
LESSEE/TENANT:	T-MOBILE NORTHEAST, LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT. 06002
CONTACT PERSON:	DAN REID (PROJECT MANAGER) NORTHEAST SITE SOLUTIONS (203) 592-8291
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT. 06405 (203) 488-0580
PROJECT COORDINATES:	LATITUDE: 41° 36' 30" N LONGITUDE: 72° 51' 47" W GROUND ELEVATION: ±230' AMSL SITE COORDINATES AND GROUND ELEVATION ARE REFERENCED FROM GOOGLE EARTH ONLINE SOFTWARE

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
N-1	NOTES, SPECIFICATIONS AND ANTENNA SCHEDULE	0
C-1	COMPOUND PLAN AND TOWER ELEVATION	0
C-2	ANTENNA PLAN AND ELEVATIONS	0
C-3	TYPICAL DETAILS	0
RF-1	RF EQUIPMENT DETAILS	0
E-1	ELECTRICAL RISER DIAGRAM	0
E-2	TYPICAL ELECTRICAL DETAILS	0
E-3	ELECTRICAL SPECIFICATIONS	0

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
A	11/01/24	SFG	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW
0	01/24/25	SFG	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

T-Mobile

NSS NORTHEAST Site Solutions

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE

SITE ID: CT11734B

437 HOBART STREET
SOUTHINGTON, CT 06489

DATE: 11/01/2024
SCALE: AS NOTED
JOB NO. 24066.05

TITLE SHEET

T-1

Sheet No. 1 of 9

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.

ANTENNA/APPURTENANCE SCHEDULE

SECTOR	(E/P) ANTENNA (QTY)	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	(E/P) RRU (QTY) AT GRADE	(E/P) MISC. (QTY) AT TOWER	(E/P) HYBRID/COAX (QTY)
A1	(E) APXVAARR24_43-U-NA20 (1)	95.9 x 24 x 8.5	100'	30°	(P) RADIO 4460 B25+B66 (1) (E) RADIO 4449 B71+B85 (1)	(P) BIAS-T (3)	(P) HYBRID CABLE 6/24 (2) (P) 1-5/8" COAX CABLES (24)
B1	(E) APXVAARR24_43-U-NA20 (1)	95.9 x 24 x 8.5	100'	150°	(P) RADIO 4460 B25+B66 (1) (E) RADIO 4449 B71+B85 (1)	(P) BIAS-T (3)	
C1	(E) APXVAARR24_43-U-NA20 (1)	95.9 x 24 x 8.5	100'	270°	(P) RADIO 4460 B25+B66 (1) (E) RADIO 4449 B71+B85 (1)	(P) BIAS-T (3)	

CONTRACTOR NOTE:

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

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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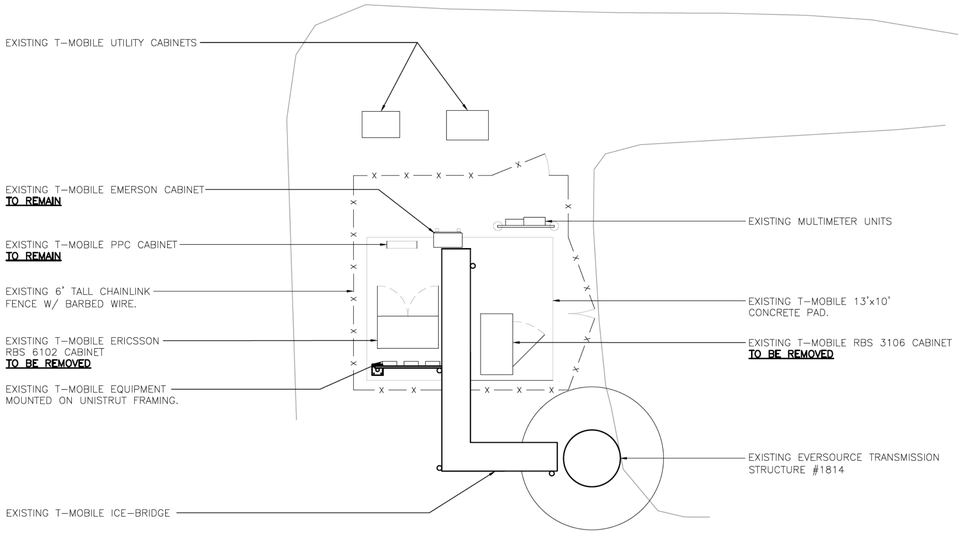
NOTES, SPECIFICATIONS AND ANTENNA SCHEDULE

N-1

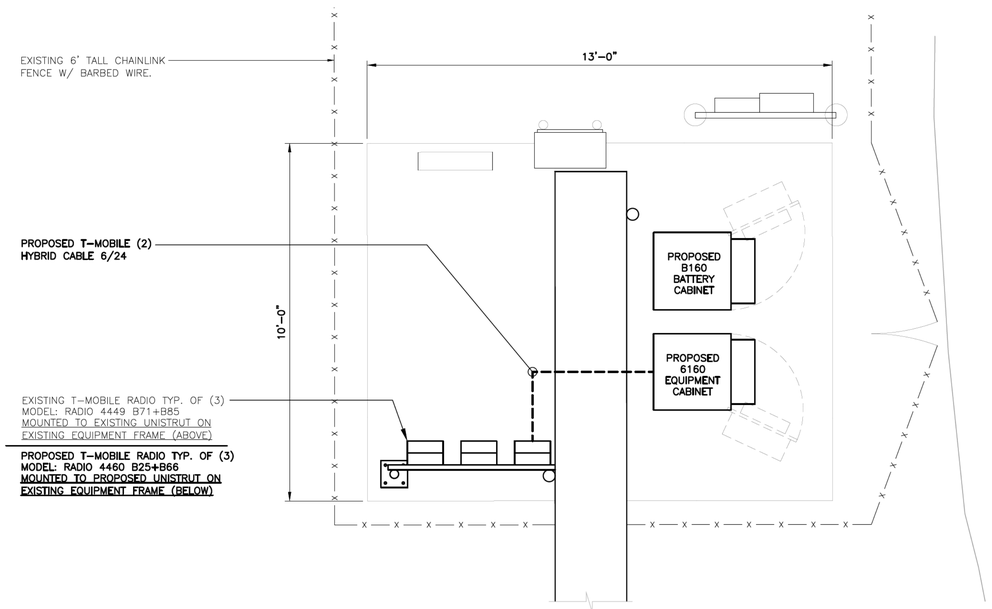
Sheet No. 2 of 9



1 / C-2 **COMPOUND PLAN - EXISTING**
SCALE: 1" = 5'

TRUE NORTH

GRAPHIC SCALE
5 0 2.5 5 10 20
(IN FEET)
1 inch = 5 ft.



2 / C-2 **EQUIPMENT PLAN - PROPOSED**
SCALE: 1" = 5'

TRUE NORTH

GRAPHIC SCALE
5 0 2.5 5 10 20
(IN FEET)
1 inch = 2 ft.

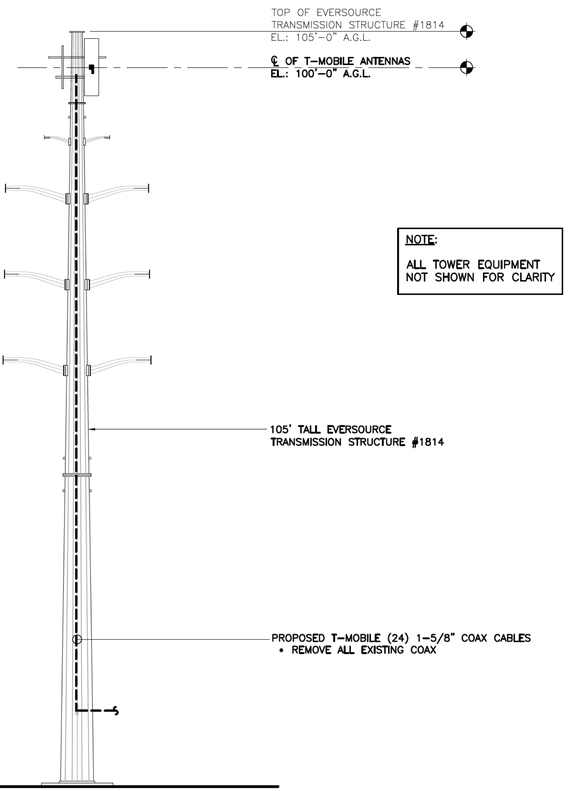
STRUCTURAL COMPLIANCE

TOWER AND TOWER FOUNDATION

A STRUCTURAL ANALYSIS OF THE TOWER AND TOWER FOUNDATION WAS PERFORMED FOR THE PROPOSED EQUIPMENT INSTALLATION AND THEY WERE FOUND TO BE STRUCTURALLY SUFFICIENT TO ACCOMMODATE THE PROPOSED LOADING.

REFER TO THE STRUCTURAL ANALYSIS REPORT PREPARED BY CENTEK ENGINEERING (PROJECT # 24066.05) DATED 12/11/24 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

NOTE: NO EQUIPMENT SHALL BE INSTALLED ON THE HOSTING STRUCTURE WITHOUT A PASSING STRUCTURAL ANALYSIS REPORT AND CONTRACTOR PRIOR CONFIRMATION THAT ANY AND ALL REQUISITE MODIFICATIONS HAVE BEEN COMPLETED.



3 / C-2 **TOWER ELEVATION**
SCALE: 1" = 10'

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.

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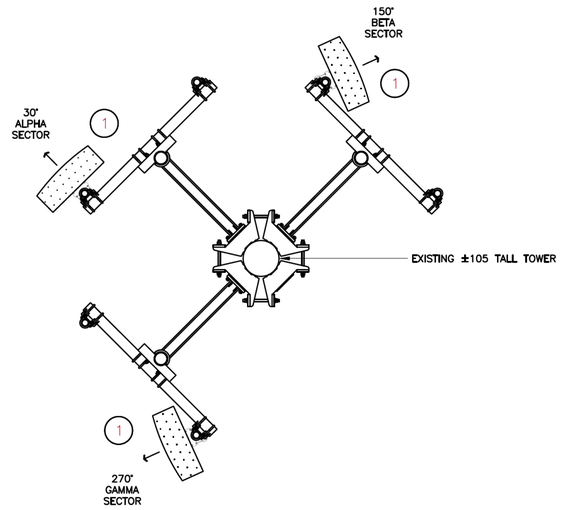
COMPOUND PLAN AND TOWER ELEVATION

C-1

Sheet No. 3 of 9

SIM. 1A / C-2

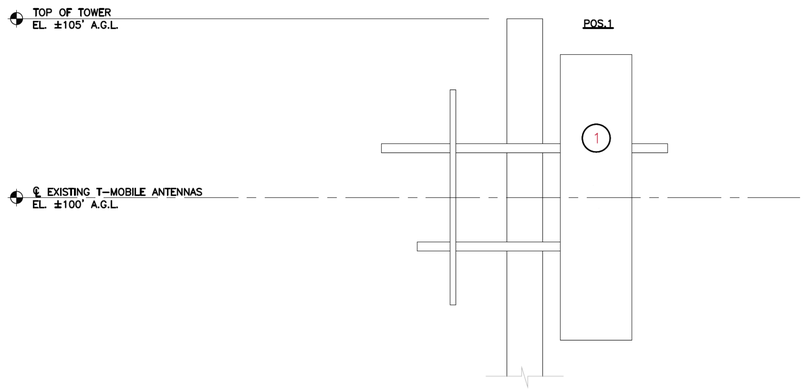


1 / C-2 **EXISTING ANTENNA CONFIGURATION PLAN**
SCALE: 1/2" = 1'

TRUE NORTH

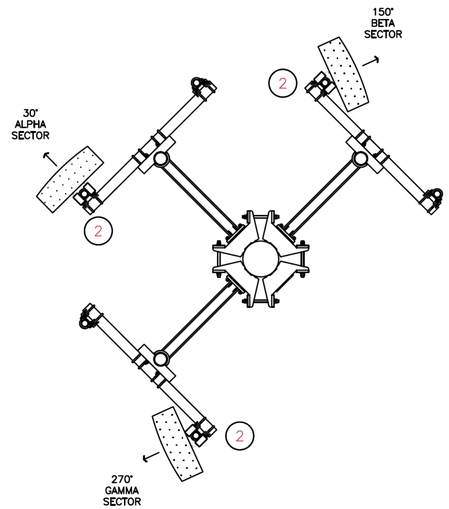
KEY/LEGEND

	(E/P) RF EQUIPMENT	QTY.
1	(E) RFS: APXVAARR24_43-U-NA20	3
2	(P) COMMSCOPE: ATSBT-TOP-MF-4G	9



1A / C-2 **EXISTING ANTENNA CONFIGURATION ELEVATION**
SCALE: 1/2" = 1'

SIM. 2A / C-2

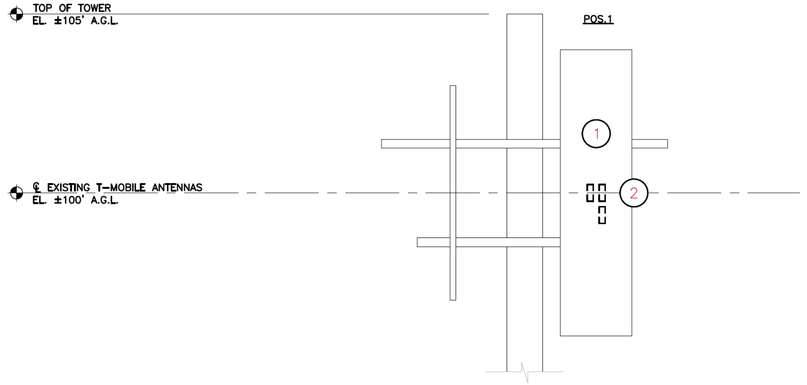


2 / C-2 **PROPOSED ANTENNA CONFIGURATION PLAN**
SCALE: 1/2" = 1'

TRUE NORTH

KEY/LEGEND

	(E/P) RF EQUIPMENT	QTY.
1	(E) RFS: APXVAARR24_43-U-NA20	3
2	(P) COMMSCOPE: ATSBT-TOP-MF-4G	9



2A / C-2 **PROPOSED ANTENNA CONFIGURATION ELEVATION**
SCALE: 1/2" = 1'

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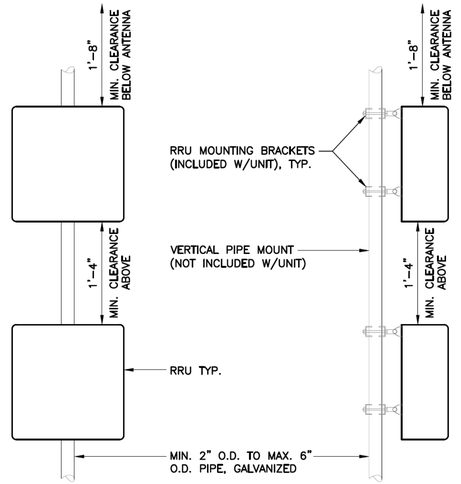
ANTENNA PLAN AND ELEVATIONS

C-2

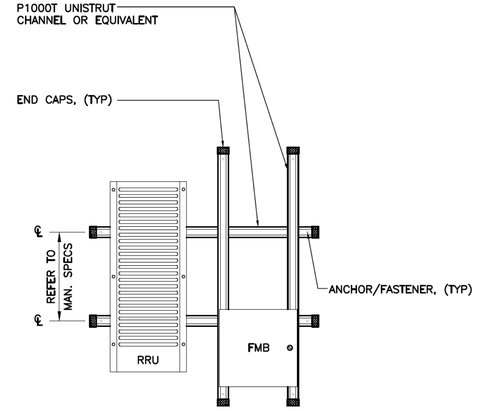


FRONT ELEVATION

SIDE ELEVATION

NOTES: (PIPE MOUNTING)

1. T-MOBILE SHALL SUPPLY RRU, AND RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE-MOUNTING BRACKET.
2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.



FRONT ELEVATION

NOTES: (UNISTRUT MOUNTING)

1. INSTALL A MINIMUM OF (2) ANCHORS PER UNISTRUT (± 16"o/c MIN).
2. MOUNT RRU TO UNISTRUT WITH 3/8"ø UNISTRUT BOLTING HARDWARE AND SPRING NUTS. TYPICAL FOUR PER BRACKET.
3. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

1 / C-3 TYPICAL RRU MOUNTING DETAILS

SCALE: NOT TO SCALE

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TYPICAL DETAILS

C-3

Sheet No. 5 of 9

4460 B25+466

RADIO			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RADIO 4460 B25+B66	19.6"L x 15.7"W x 12.1"D	±109 LBS.	BEHIND ANT.: 8" MIN. BELOW ANT.: 20" MIN. BELOW RRU: 16" MIN.

NOTES:

1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T-MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.

1 RF-1 **PROPOSED RADIO DETAIL**
SCALE: NOT TO SCALE

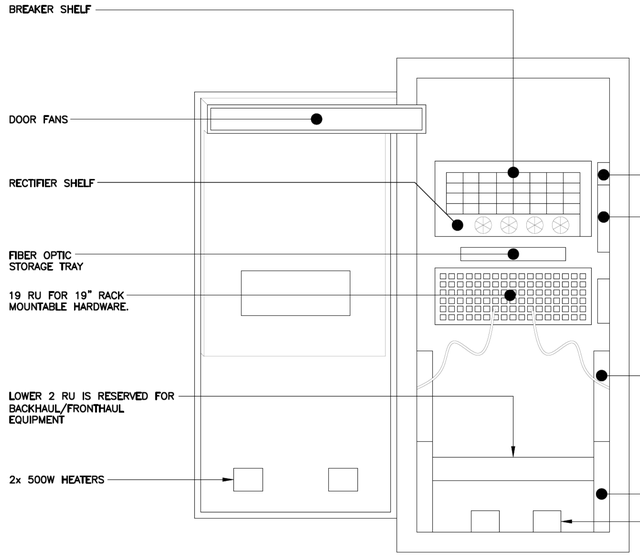
ATSBT-TOP-MF-4G

BIAS-T		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: COMMSCOPE MODEL: ATSBT-TOP-MF-4G	5.63"L x 3.7"W x 2"D	±1.7 LBS.

NOTES:

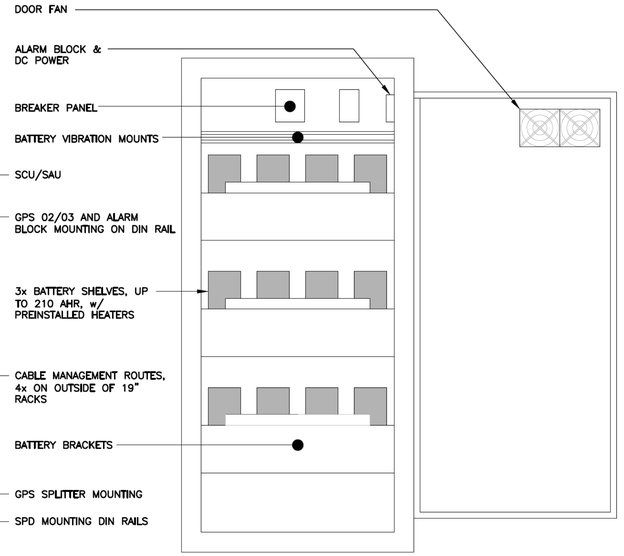
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T-MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.

2 RF-1 **PROPOSED BIAST DETAIL**
SCALE: NOT TO SCALE



EQUIPMENT CABINET		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: ENCLOSURE 6160 CABINET	62.0"H x 26.0"W x 26.0"D	±1200 LBS

3 RF-1 **ENCLOSURE 6160 CABINET DETAIL**
SCALE: NOT TO SCALE



EQUIPMENT CABINET		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: BATTERY B160 CABINET	62.0"H x 26.0"W x 26.0"D	±1883 LBS

4 RF-1 **BATTERY B160 CABINET DETAIL**
SCALE: NOT TO SCALE

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RF EQUIPMENT DETAILS

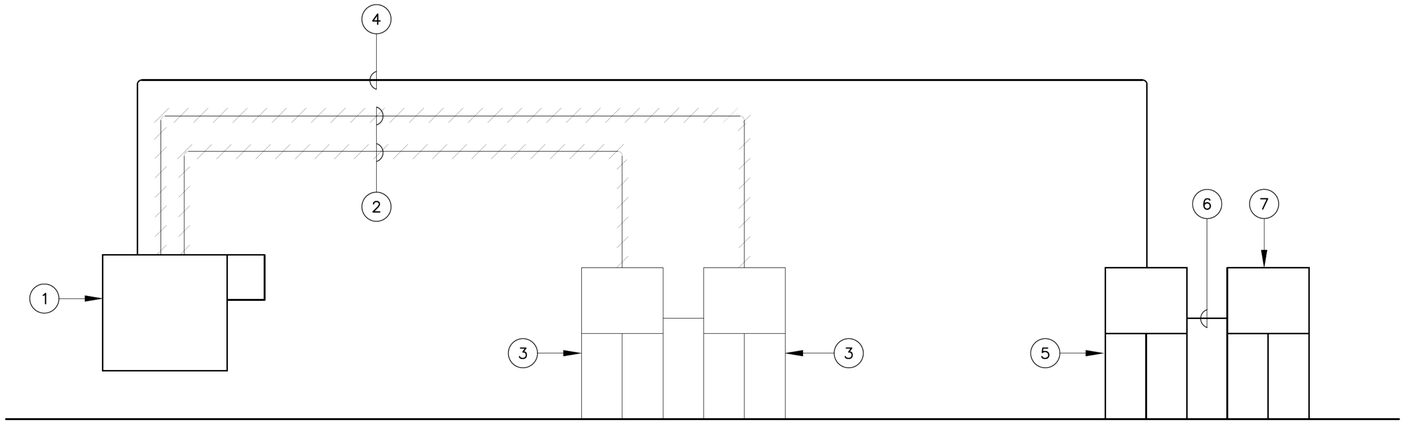
RF-1

GENERAL NOTES

1. CONDUCTOR SIZES SHALL NOT BE REDUCED OR SUBSTITUTED WITHOUT ENGINEERS APPROVAL.
2. ALL CONDUCTORS AND CONDUCTOR TERMINATIONS SHALL BE RATED FOR 75° C OPERATION.

RISER NOTES

1. EXISTING 200A, 240V, SINGLE PHASE PPC TO REMAIN.
2. EXISTING CONDUITS AND CONDUCTORS TO BE REMOVED
3. EXISTING EQUIPMENT CABINET AND ALL ASSOCIATED ACCESSORIES AND WIRING TO BE REMOVED
4. (3) #1 AWG, (1) #6 AWG GROUND, 1-1/2" CONDUIT CONNECTED TO NEW 125A/2P CIRCUIT BREAKER IN EXISTING PPC
5. NEW EQUIPMENT CABINET
6. DC CONDUITS AND CONDUCTORS FOR BATTERY CABINET CONNECTION PER MANUFACTURERS REQUIRMENTS
7. NEW BATTERY CABINET



1 / E-1 **ELECTRICAL RISER DIAGRAM**
SCALE: NOT TO SCALE

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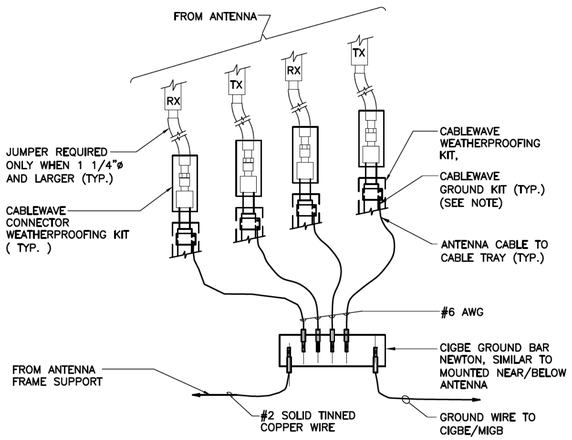
ELECTRICAL RISER DIAGRAM

E-1

Sheet No. 7 of 9

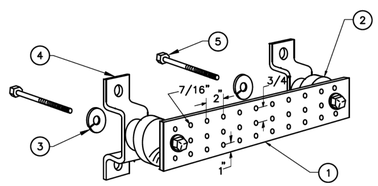


NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

1 / E-2 CONNECTION OF GROUND WIRES TO GROUND BAR

SCALE: NOT TO SCALE

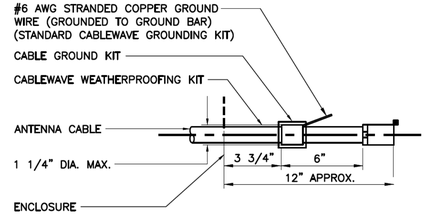


NOTES

1. TINNED COPPER GROUND BAR, 1/4" x 4" x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4.
3. 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-6056.
5. 5/8-11 x 1" STAINLESS STEEL TRUSS SPANNER MACHINE SCREWS.

2 / E-2 GROUND BAR DETAIL

SCALE: NOT TO SCALE

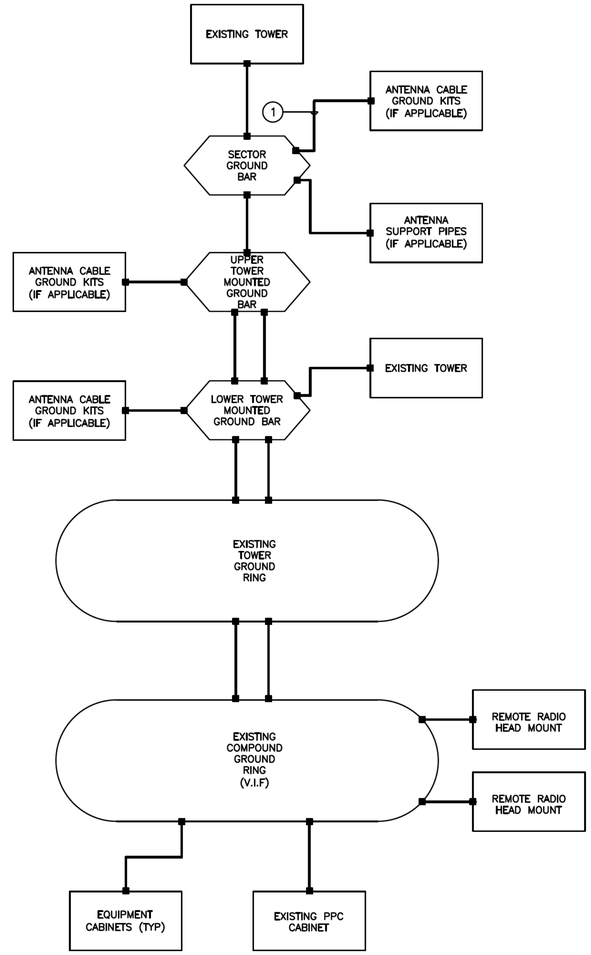


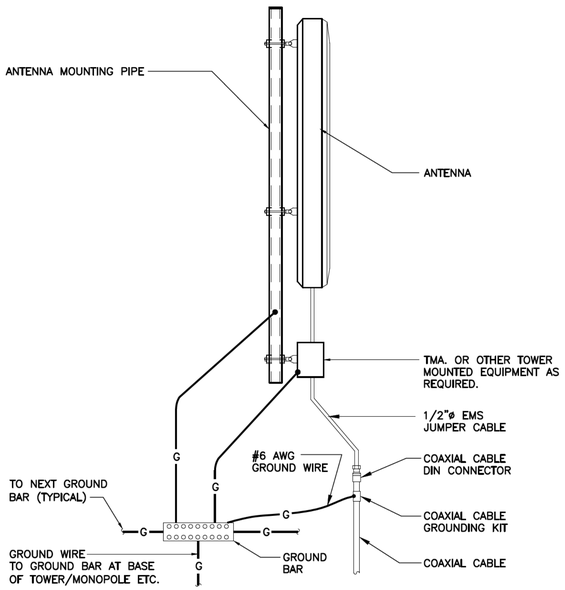
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

3 / E-2 ANTENNA CABLE GROUNDING DETAIL

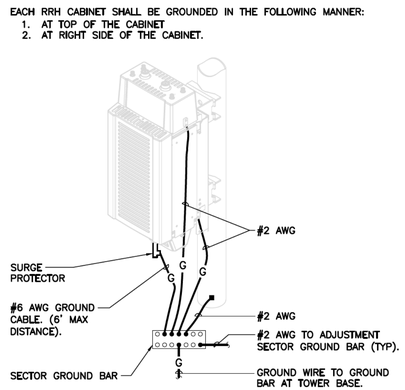
SCALE: NOT TO SCALE





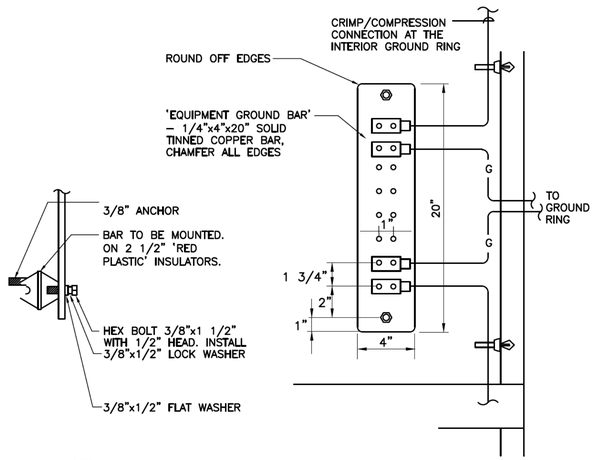
4 / E-2 TYPICAL ANTENNA GROUNDING DETAIL

SCALE: NOT TO SCALE



5 / E-2 RRH POLE MOUNT GROUNDING

SCALE: NOT TO SCALE



6 / E-2 EQUIPMENT GROUND BAR DETAIL

SCALE: NOT TO SCALE

GROUNDING SCHEMATIC NOTES

(1) #6 AWG

GENERAL NOTES:

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

7 / E-2 ELECTRICAL SCHEMATIC DIAGRAM

SCALE: NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
A	11/01/24	SFG	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CLIENT REVIEW
B	01/24/25	SFG	TJR	CONSTRUCTION DRAWINGS – ISSUED FOR CONSTRUCTION

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T-MOBILE

SITE ID: CT11734B

437 HOBART STREET
SOUTHINGTON, CT 06489

DATE:	11/01/2024
SCALE:	AS NOTED
JOB NO.	24066.05

TYPICAL ELECTRICAL DETAILS

E-2

Sheet No. 8 of 9

ELECTRICAL SPECIFICATIONS

SECTION 16010

1.02. GENERAL REQUIREMENTS

A. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.

B. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNERS REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES THAT MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR THE SCHEDULING OF ALL INSPECTIONS THAT MAY BE REQUIRED BY THE LOCAL AUTHORITY.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.

E. NO MATERIAL OTHER THAN THAT CONTAINED IN THE "LATEST LIST OF ELECTRICAL FITTINGS" APPROVED BY THE UNDERWRITERS' LABORATORIES, SHALL BE USED IN ANY PART OF THE WORK. ALL MATERIAL FOR WHICH LABEL SERVICE HAS BEEN ESTABLISHED SHALL BEAR THE U.L. LABEL.

F. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.

G. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.

H. THE ELECTRICAL CONTRACTOR SHALL SUPPLY THREE (3) COMPLETE SETS OF APPROVED DRAWINGS, ENGINEERING DATA SHEETS, MAINTENANCE AND OPERATING INSTRUCTION MANUALS FOR ALL SYSTEMS AND THEIR RESPECTIVE EQUIPMENT. THESE MANUALS SHALL BE INSERTED IN VINYL COVERED 3-RING BINDERS AND TURNED OVER TO OWNER'S REPRESENTATIVE ONE (1) WEEK PRIOR TO FINAL PUNCH LIST.

I. ALL WORK SHALL BE INSTALLED IN A NEAT AND WORKMAN LIKE MANNER AND WILL BE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE.

J. ALL EQUIPMENT AND MATERIALS TO BE INSTALLED SHALL BE NEW, UNLESS OTHERWISE NOTED.

K. BEFORE FINAL PAYMENT, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF PRINTS (AS-BUILTS), LEGIBLY MARKED IN RED PENCIL TO SHOW ALL CHANGES FROM THE ORIGINAL PLANS.

L. PROVIDE TEMPORARY POWER AND LIGHTING IN WORK AREAS AS REQUIRED.

M. SHOP DRAWINGS:

1. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF SHOP DRAWINGS ON ALL EQUIPMENT AND MATERIALS PROPOSED FOR USE ON THIS PROJECT, GIVING ALL DETAILS, WHICH INCLUDE DIMENSIONS, CAPACITIES, ETC.

2. CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF ALL TEST REPORTS CALLED FOR IN THE SPECIFICATIONS AND DRAWINGS.

N. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH OWNER'S SPECIFICATIONS, AND REQUIREMENTS OF ALL LOCAL AUTHORITIES HAVING JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH APPROPRIATE INDIVIDUALS TO OBTAIN ALL SUCH SPECIFICATIONS AND REQUIREMENTS. NOTHING CONTAINED IN, OR OMITTED FROM, THESE DOCUMENTS SHALL RELIEVE CONTRACTOR FROM THIS OBLIGATION.

SECTION 16111

1.01. CONDUITS

A. MINIMUM CONDUIT SIZE FOR BRANCH CIRCUITS, LOW VOLTAGE CONTROL AND ALARM CIRCUITS SHALL BE 3/4". CONDUITS SHALL BE PROPERLY FASTENED AS REQUIRED BY THE N.E.C.

B. THE INTERIOR OF RACEWAYS/ENCLOSURES INSTALLED UNDERGROUND SHALL BE CONSIDERED TO BE WET LOCATION, INSULATED CONDUCTORS SHALL BE LISTED FOR USE IN WET LOCATIONS. PROVIDE WEATHERPROOF CONSTRUCTION IN WET LOCATIONS.

C. CONDUIT INSTALLED UNDERGROUND SHALL BE INSTALLED TO MEET MINIMUM COVER REQUIREMENTS OF TABLE 300.5.

D. PROVIDE RIGID GALVANIZED STEEL CONDUIT (RMC) FOR THE FIRST 10 FOOT SECTION WHEN LEAVING A BUILDING OR SECTIONS PASSING THROUGH FLOOR SLABS

E. ONLY LISTED PVC CONDUIT AND FITTINGS ARE PERMITTED FOR THE INSTALLATION OF ELECTRICAL CONDUCTORS, SUITABLE FOR UNDERGROUND APPLICATIONS.

CONDUIT SCHEDULE SECTION 16111

CONDUIT TYPE	NEC REFERENCE	APPLICATION	MIN. BURIAL DEPTH (PER NEC TABLE 300.5) [2,3]
EMT	ARTICLE 358	INTERIOR CIRCUITING, EQUIPMENT ROOMS, SHELTERS	N/A
RMC, RIGID GALV. STEEL	ARTICLE 344, 300.5, 300.50	ALL INTERIOR/ EXTERIOR CIRCUITING, ALL UNDERGROUND INSTALLATIONS.	6 INCHES
PVC, SCHEDULE 40	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE NOT SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
PVC, SCHEDULE 80	ARTICLE 352, 300.5, 300.50	INTERIOR/ EXTERIOR CIRCUITING AND GROUNDING SYSTEMS, UNDERGROUND INSTALLATIONS, WHERE SUBJECT TO PHYSICAL DAMAGE. [1]	18 INCHES
LIQUID TIGHT FLEX. METAL	ARTICLE 350	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A
FLEX. METAL	ARTICLE 348	SHORT LENGTHS (MAX. 3FT.) WIRING TO VIBRATING EQUIPMENT IN WET LOCATIONS.	N/A

[1] PHYSICAL DAMAGE IS SUBJECT TO THE AUTHORITY HAVING JURISDICTION.

[2] UNDERGROUND CONDUIT INSTALLED UNDER ROADS, HIGHWAYS, DRIVEWAYS, PARKING LOTS SHALL HAVE MINIMUM DEPTH OF 24".

[3] WHERE SOLID ROCK PREVENTS COMPLIANCE WITH MINIMUM COVER DEPTHS, WIRING SHALL BE INSTALLED IN PERMITTED RACEWAY FOR DIRECT BURIAL. THE RACEWAY SHALL BE COVERED BY A MINIMUM OF 2" OF CONCRETE EXTENDING DOWN TO ROCK.

SECTION 16123

1.01. CONDUCTORS

A. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION:

	120/208/240V	277/480V
LINE	COLOR	COLOR
A	BLACK	BROWN
B	RED	ORANGE
C	BLUE	YELLOW
N	CONTINUOUS WHITE	GREY
G	CONTINUOUS GREEN	GREEN WITH YELLOW STRIPE

B. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.

SECTION 16450

1.01. GROUNDING

A. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.

B. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.

C. GROUNDING OF PANELBOARDS:

1. PANELBOARD SHALL BE GROUNDED BY TERMINATING THE PANELBOARD FEEDER'S EQUIPMENT GROUND CONDUCTOR TO THE EQUIPMENT GROUND BAR KIT(S) LUGGED TO THE CABINET. ENSURE THAT THE SURFACE BETWEEN THE KIT AND CABINET ARE BARE METAL TO BARE METAL. PRIME AND PAINT OVER TO PREVENT CORROSION.

2. CONDUIT(S) TERMINATING INTO THE PANELBOARD SHALL HAVE GROUNDING TYPE BUSHINGS. THE BUSHINGS SHALL BE BONDED TOGETHER WITH BARE #10 AWG COPPER CONDUCTOR WHICH IN TURN IS TERMINATED INTO THE PANELBOARD'S EQUIPMENT GROUND BAR KIT(S).

D. EQUIPMENT GROUNDING CONDUCTOR:

1. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122.

2. THE MINIMUM SIZE OF EQUIPMENT GROUND CONDUCTOR SHALL BE #12 AWG COPPER.

3. EACH FEEDER OR BRANCH CIRCUIT SHALL HAVE EQUIPMENT GROUND CONDUCTOR(S) INSTALLED IN THE SAME RACEWAY(S).

E. CELLULAR GROUNDING SYSTEM:

CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 10 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

PROVIDE THE CELLULAR GROUNDING SYSTEM AS SPECIFIED ON DRAWINGS, INCLUDING, BUT NOT LIMITED TO:

1. GROUND BARS

2. EXTERIOR GROUNDING (WHERE REQUIRED DUE TO MEASURED AC RESISTANCE GREATER THAN SPECIFIED).

3. ANTENNA GROUND CONNECTIONS AND PLATES.

F. CONTRACTOR, AFTER COMPLETION OF THE COMPLETE GROUNDING SYSTEM BUT PRIOR TO CONCEALMENT/BURIAL OF SAME, SHALL NOTIFY OWNER'S PROJECT ENGINEER WHO WILL HAVE A DESIGN ENGINEER VISIT SITE AND MAKE A VISUAL INSPECTION OF THE GROUNDING GRID AND CONNECTIONS OF THE SYSTEM.

G. ALL EQUIPMENT SHALL BE BONDED TO GROUND AS REQUIRED BY N.E.C., MFG. SPECIFICATIONS, AND OWNER'S SPECIFICATIONS.

SECTION 16960

1.01. TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

TEST 1: THERMAL OVERLOAD AND MAGNETIC TRIP TEST, AND CABLE INSULATION TEST FOR ALL CIRCUIT BREAKERS RATED 100 AMPS OR GREATER.

TEST 2: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM.

THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:

1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.

2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.

3. GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.

B. THESE TESTS SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNER'S CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION REPRESENTATIVE AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.

C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM'S REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.

D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

SECTION 16961

1.01. TESTS BY CONTRACTOR

A. ALL TESTS AS REQUIRED UPON COMPLETION OF WORK, SHALL BE MADE BY THIS CONTRACTOR. THESE SHALL BE CONTINUITY AND INSULATION TESTS; TEST TO DETERMINE THE QUALITY OF MATERIALS, ETC. AND SHALL BE MADE IN ACCORDANCE WITH N.E.C. RECOMMENDATIONS. ALL FEEDERS AND BRANCH CIRCUIT WIRING (EXCEPT CLASS 2 SIGNAL CIRCUITS) MUST BE TESTED FREE FROM SHORT CIRCUIT AND GROUND FAULT CONDITIONS AT 500V IN A REASONABLY DRY AMBIENT OF APPROXIMATELY 70 DEGREES F.

B. CONTRACTOR SHALL PERFORM LOAD PHASE BALANCING TESTS. CIRCUITS SHALL BE CONNECTED TO THE PANELBOARDS SO THAT THE NEW LOAD IS DISTRIBUTED AS EQUALLY AS POSSIBLE BETWEEN EACH LOAD AND NEUTRAL. 10% SHALL BE CONSIDERED AS A REASONABLE AND ACCEPTABLE ALLOWANCE. BRANCH CIRCUITS SHALL BE BALANCED ON THEIR OWN PANELBOARDS; FEEDER LOADS SHALL, IN TURN, BE BALANCED ON THE SERVICE EQUIPMENT. REASONABLE LOAD TEST SHALL BE ARRANGED TO VERIFY LOAD BALANCE IF REQUESTED BY THE ENGINEER.

C. ALL TESTS, UPON REQUEST, SHALL BE REPEATED IN THE PRESENCE OF OWNER'S REPRESENTATIVE. ALL TESTS SHALL BE DOCUMENTED AND TURNED OVER TO OWNER. OWNER SHALL HAVE THE AUTHORITY TO STOP ANY OF THE WORK NOT BEING PROPERLY INSTALLED. ALL SUCH DETECTED WORK SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER AND THE TESTS SHALL BE REPEATED.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
A	11/01/24	SFG	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CLIENT REVIEW
0	01/24/25	SFG	TJR	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

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NSS NORTHEAST

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T-MOBILE

SITE ID: CT11734B

437 HOBART STREET
SOUTHINGTON, CT 06489

DATE: 11/01/2024
SCALE: AS NOTED
JOB NO. 24066.05

ELECTRICAL SPECIFICATIONS

E-3

Sheet No. 9 of 9

Exhibit D

Structural Analysis Report

CENTEK engineering

Centered on Solutions℠

Structural Analysis of Antenna Mast and Pole

T-Mobile Site Ref: CT11734B

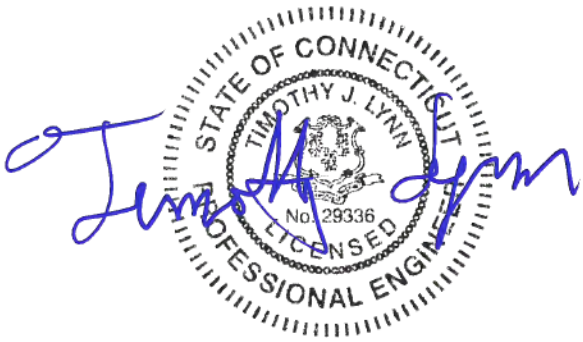
Eversource Structure No. 1814
105' Electric Transmission Pole

437 Hobart Street
Southington, CT

CENTEK Project No. 24066.05

~~Date: October 25, 2024~~
Rev 1: December 11, 2024

Max Stress Ratio = 79%



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

Table of Contents

Introduction

The purpose of this report is to analyze the 105' pole located at 437 Hobart Street Southington, CT for the proposed equipment installation by T-Mobile.

The existing/proposed loads consist of the following:

- T-MOBILE (Existing to Remain):
  Antennas: Three (3) RFS APXVAARR24_43 panel antennas mounted on a SitePro 5-ft triple T-Arm with handrail to the existing utility pole with a RAD center elevation of 100-ft above grade.
- **T-MOBILE (Existing to Remove):**
  Coax Cables: Twenty-four (24) 7/8" ∅ coax cables mounted to the outside of the pole as indicated in Section 4 of this report.
- **T-MOBILE (Proposed):**
  Antennas: Nine (9) Commscope ATSBT-TOP-FM-4G Smart Bias Tees mounted on a SitePro 5-ft triple T-Arm with handrail to the existing utility pole with a RAD center elevation of 100-ft above grade.
  Coax Cables: Twenty-four (24) 1-5/8" ∅ coax cables mounted to the outside of the pole as indicated in Section 4 of this report.

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 antenna mounts are modeled as listed above.
- All coaxial cable will be installed as indicated in this report.
- 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.
- 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.

Analysis

Structural analysis of the utility pole was completed using the current version of PLS-Pole computer program licensed to CENTEK Engineering. Loading was developed per the requirements of the NESC standard and Eversource Design Criteria. These loads are developed in Section 5 of this report.

Design Basis

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

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

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

  Load Case 3: NESC Extreme Ice w/ Wind

Wind Pressure.....	4.0 psf
Radial Ice Thickness.....	1.0"
Vertical Overload Capacity Factor.....	1.0
Wind Overload Capacity Factor.....	1.0

  Note 1: NESC C2-2023, Section25, Rule 250C: Extreme Wind Loading, 1.25 x Gust Response Factor (wind speed: 3-second gust)

Results

- 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 **78.61%** occurs in the utility pole base plate 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 3	0.00' -43.00' (AGL)	53.38%	**PASS**

FLANGE:

The flange bolts and flange plate were found to be within allowable limits.

Tower Component	Design Limit	Stress Ratio (% of capacity)	Result
Flange Bolts	Tension	47.7%	**PASS**
Flange Plate	Bending	34.2%	**PASS**

- FOUNDATION AND ANCHORS

The existing foundation consists of a 8-ft diameter x 30.0-ft long reinforced concrete caisson. The base of the tower is connected to the foundation by means of sixteen (16) 2.25"∅, ASTM A615-75 anchor bolts embedded into the concrete foundation structure.

BASE REACTIONS:

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

Load Case	Shear	Axial	Moment
NESC Heavy Wind	23.37 kips	77.65 kips	1643.45 ft-kips
NESC Extreme Wind	44.46 kips	38.28 kips	3002.38 ft-kips
NESC Extreme Ice w/ Wind	14.19 kips	73.97 kips	1034.36 ft-kips

Note 1 – 10% increase will be applied to tower base reactions per OTRM 051

ANCHOR BOLTS AND BASEPLATE:

The anchor bolts and baseplate were found to be structurally **adequate**.

Tower Component	Design Limit	Stress Ratio (% of capacity)	Result
Anchor Bolts	Tension	52.57%	**PASS**
Base Plate	Bending	78.61%	**PASS**

FOUNDATION:

The foundation was found to be within allowable limits.

Foundation	Design Limit	Proposed Loading	Result
Reinforced Concrete Caisson	Moment Capacity	33.4%	**PASS**
	Shear Capacity	18.6%	**PASS**

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

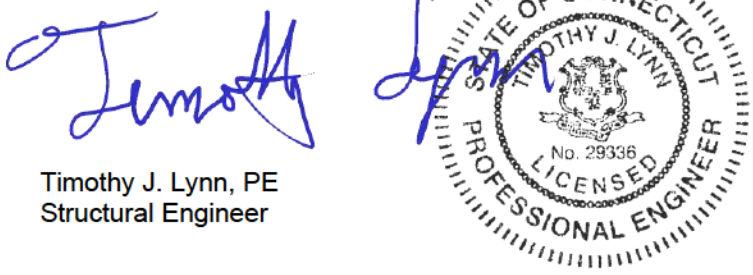
Conclusion

This analysis shows that the subject utility pole is 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~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 (Austalia)
    - 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.

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						

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.

TYPE 10-SCSP-095-091-FULL DE-FDN STR. 1814
115-kV CONDUCTOR: 1 - 1272 KCMIL 54/19 ACSS "PHEASANT" CONDUCTOR PER PHASE (10000# @ NESC HEAVY, FINAL)
OHGW : 1 - 19#10 ALUMOWELD 0.509" DIA. (5500# @ NESC HEAVY, FINAL)
WIND SPAN: 700 FT
WEIGHT SPAN: 1100 FT
LINE ANGLE: 91 DEGREES
RULING SPAN: 710 FT.

STR. 1814

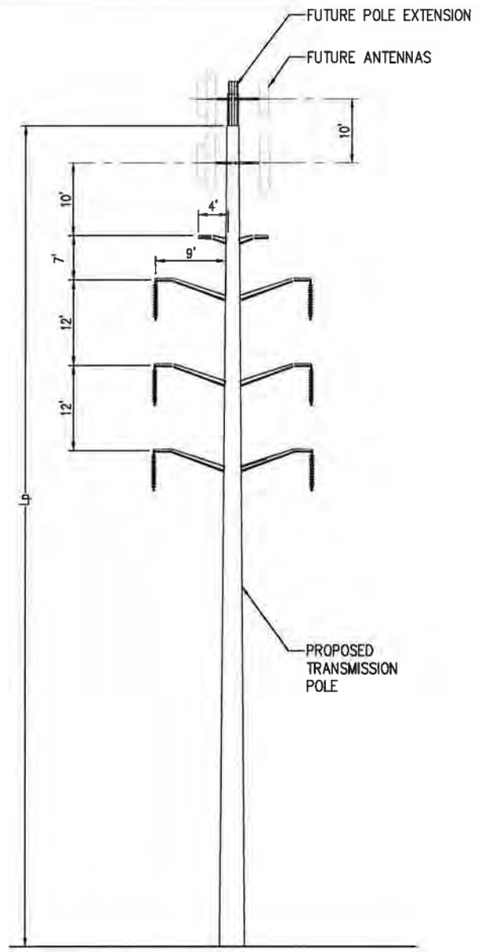
LOADING CASE					TRANSMISSION LINE DESIGN LOADS														
NO.	DESCRIPTION	TEMP F	ICE R-IN.	WIND MPH	V_{SL}	T_{SL}	L_{SL}	V_{SR}	T_{SR}	L_{SR}	V_{PL}	T_{PL}	L_{PL}	V_{PR}	T_{PR}	L_{PR}	W psf	Θ	K
1	NESC HEAVY (250 B)	0	0.50	39.50	1938	1343	0	1938	1343	0	5497	2271	0	5497	2271	0	4.00	0.00	1.50
2	NESC EXT. WIND (250 C)	60	0.00	110	539	1327	0	539	1327	0	2260	3815	0	2260	3815	0	35.00	0.00	1.10
3	NESC EXT. WIND (250 C) LONGITUDINAL ON POLE ONLY	60	0.00	117	539	73	0	539	73	0	2260	176	0	2260	176	0	40.00	0.00	1.10
4	NESC EXT. ICE (250D)	15	1.00	39.50	2792	1018	0	2792	1018	0	5816	1522	0	5816	1522	0	4.00	0.00	1.10
5	NESC HEAVY (250B) NO OLR	0	0.50	39.50	1292	645	0	1292	645	0	3665	1104	0	3665	1104	0	4.00	0.00	1.10
6	DEFLECTION	60	0.00	0.00	539	73	0	539	73	0	2260	176	0	2260	176	0	0.00	0.00	1.10
7A	BROKEN SW AND PHASE (250B/261C)	0	0.50	39.50	1292	672	-6050	1292	672	0	3590	1136	-11000	3590	1136	0	4.00	0.00	1.10
7B	BROKEN SW OR PHASE (250B/261)	0	0.50	39.50	0	0	0	0	0	0	0	0	0	0	0	0	0.00	0.00	1.10

TELECOMMUNICATION EQUIPMENT PROPERTIES

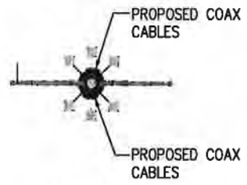
Equipment Property Label	Weight (lbs)	Wind Area (ft^2)	Ice Area (ft^2)	Shape or EIA	Drag Coef.	Diameter (ft)	Height (ft)	Vertical Offset (ft)
APX16DWV-16DWVS-C	60	10	12	Square	14	1.3	5	0
LNX-651DS-VTM	60	16	18	Square	1	1.3	8	0
Coax Cable	15	0.363	0.8	Circle	1	0.3	5	0

TELECOMMUNICATION EQUIPMENT CONNECTIVITY TABLE

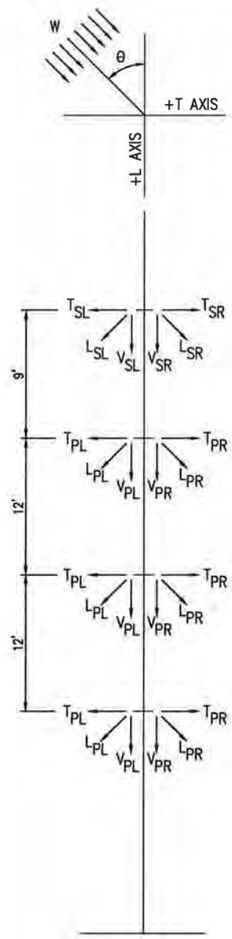
Equipment Label	Attach Label	Equipment Property Set	Azimuth (deg)	Offset (ft)	Measured Relative To	Mount Location
Antenna 1	P:A1	APX16DWV-16DWVS-C	45	3	Face	Bottom
Antenna 2	P:A1	APX16DWV-16DWVS-C	90	3	Face	Bottom
Antenna 3	P:A1	APX16DWV-16DWVS-C	225	3	Face	Bottom
Antenna 4	P:A1	APX16DWV-16DWVS-C	270	3	Face	Bottom
Antenna 5	P:A1	APX16DWV-16DWVS-C	315	3	Face	Bottom
Antenna 6	P:A1	LNX-651DS-VTM	135	3	Face	Bottom
Antenna 7	P:A1	LNX-651DS-VTM	225	3	Face	Bottom
Antenna 8	P:A2	APX16DWV-16DWVS-C	90	3	Face	Top
Antenna 9	P:A2	APX16DWV-16DWVS-C	225	3	Face	Top
Antenna 10	P:A2	APX16DWV-16DWVS-C	270	3	Face	Top
Antenna 11	P:A2	LNX-651DS-VTM	315	3	Face	Top
Antenna 12	P:A2	LNX-651DS-VTM	135	3	Face	Top
Antenna 13	P:A2	LNX-651DS-VTM	225	3	Face	Top
Antenna 14	P:A2	LNX-651DS-VTM	45	3	Face	Top



POLE CONFIGURATION



TRANSMISSION PLAN VIEW



LOADING TREE

NOTES:

1. ALL INDICATED LOADS ARE ULTIMATE AND INCLUDE ALL OVERLOAD FACTORS.
2. V, T & L ARE IN LBS AND ARE THE STRUCTURES VERTICAL, TRANSVERSE AND LONGITUDINAL AXIS RESPECTIVELY.
3. W IS THE WIND LOAD APPLIED TO THE STRUCTURE IN PSF. A SHAPE FACTOR OF 1.3 SHALL BE APPLIED TO "W".
4. THETA IS THE ANGLE IN DEGREES BETWEEN THE L-AXIS AND THE WIND DIRECTION AS SHOWN ON THE LOADING TREE DIAGRAM.
5. THE DEAD LOAD OF THE STRUCTURE SHALL BE MULTIPLIED BY K.

REV 1

REVISIONS DURING CONSTRUCTION				
1	12/2015	PER W.O. # 40372810	RRH	EQ

NO.	DATE	AS BUILT REVISIONS	BY	CHK	APP	APP

EVERSOURCE ENERGY

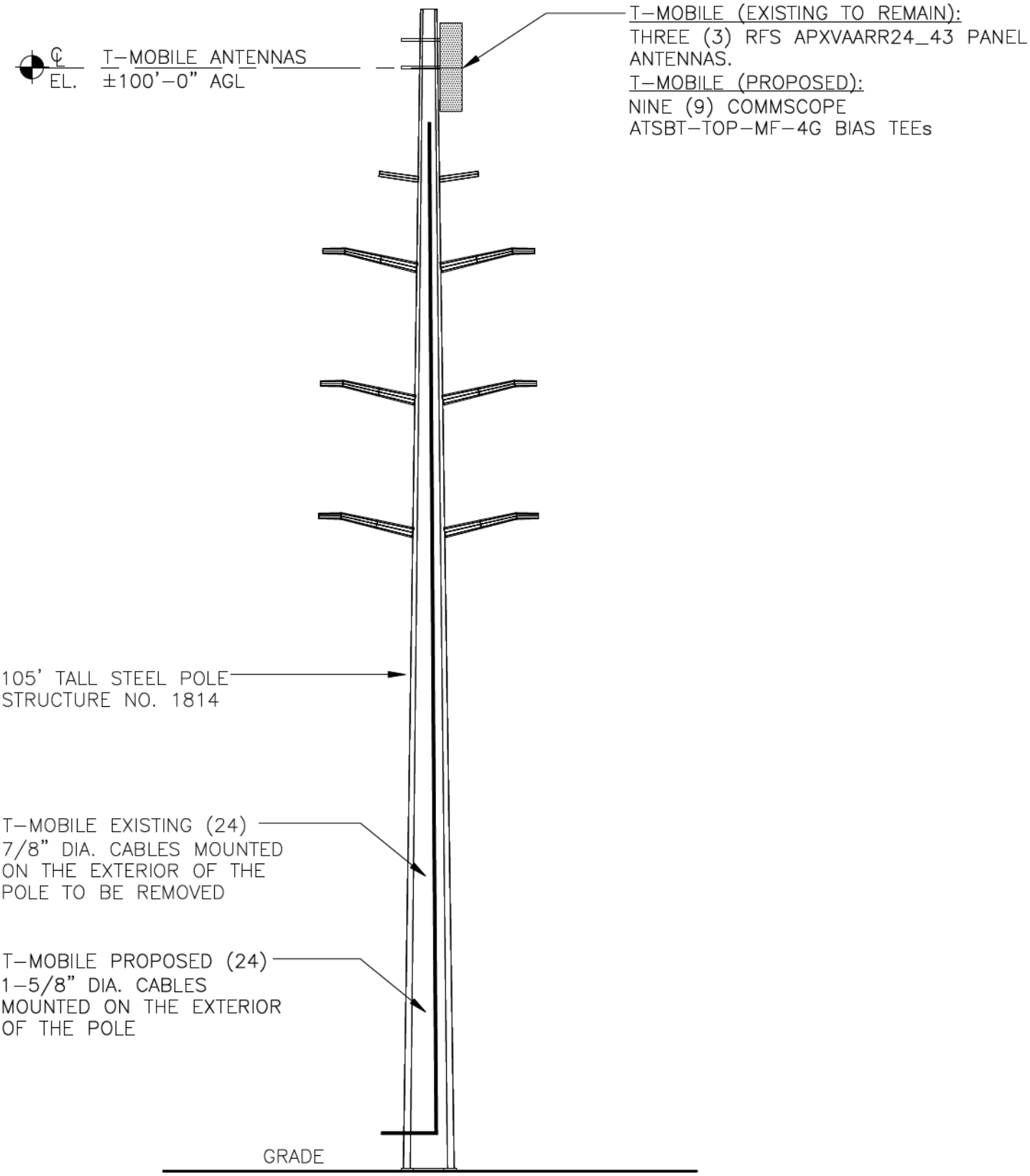
1810 TRANSMISSION LINE - UPGARED PROJECT
115 KV DCVSP ON FOUNDATION
DETAILS

BY	RRH	CHKD	EQ	APP		APP	
DATE	11/30/15	DATE	11/30/15	DATE		DATE	
SCALE	N.T.S.	SHT	D	FIELD BOOK & PAGE			
V-SCALE	N.T.S.	W.O.		W.O. ITEM			
W.O. PROJ. NUMBER				WBS NO.			

SKETCH 5

ES VER: 05/2015

12/10/2015 7:45 AM - hamfer - K:\Engineering\Transmission Engineering\OPEC\Line 1810-1 Reconductoring\Design\Steel Pole Spec\Loading Tree\Loading Tree\SKETCH 5.dwg - Construction-All



1 / EL-1 **TOWER ELEVATION**

SCALE: NOT TO SCALE

REVISIONS		
00	10/24/24	ISSUED FOR REVIEW
01	12/11/24	CONSTRUCTION

CENTEK engineering
Centered on Solutions℠
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63-2 North Branford Road, Branford, CT 06405

CT11734B
EVERSOURCE 1814

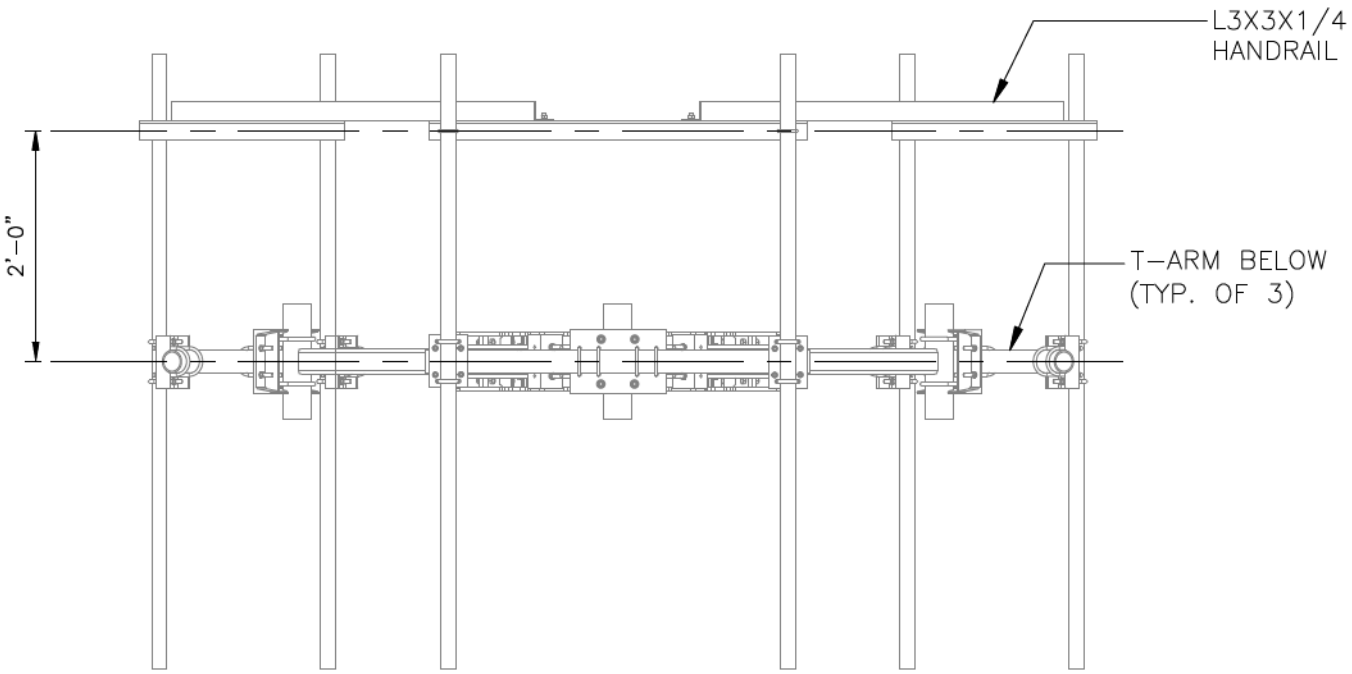
437 HOBART STREET
SOUTHINGTON, CT 06489

PROJECT NO:	24066.05
DRAWN BY:	TJL
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	10/23/24

TOWER ELEVATION

EL-1

DWG. 1 OF 2



1
M-1

MOUNT ELEVATION

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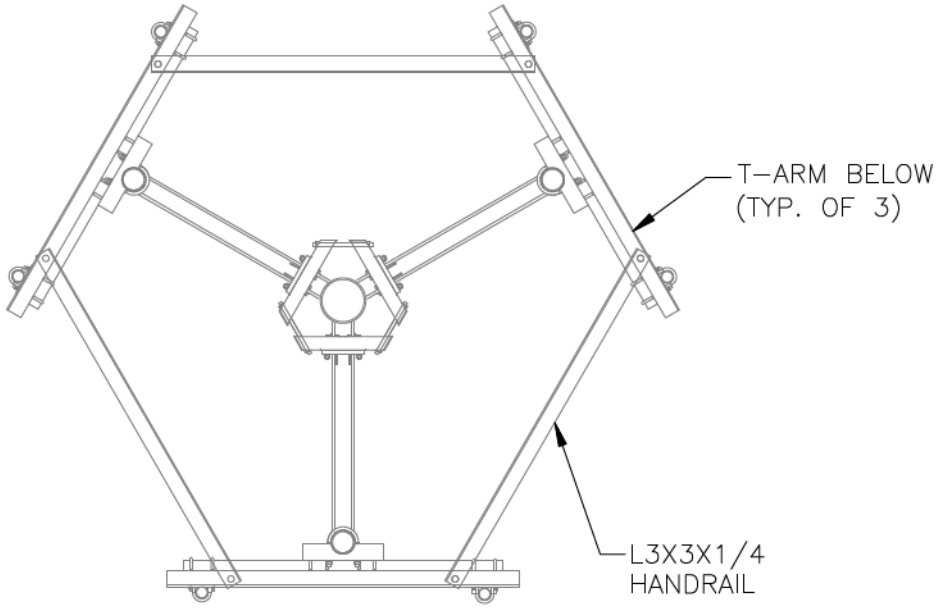

2
M-1

MOUNT PLAN

SCALE: NOT TO SCALE

REVISIONS		
00	10/24/24	ISSUED FOR REVIEW
01	12/11/24	CONSTRUCTION

CENTEK engineering
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CT11734B
EVERSOURCE 1814

437 HOBART STREET
SOUTHINGTON, CT 06489

PROJECT NO:	24066.05
DRAWN BY:	TJL
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	10/23/24

MOUNT

M-1

DWG. 2 OF 2

RAN Template:	A&L Template:
67G998G 6160	67G998G_1HP

CT11734B_Equipment Upgrade_8_draft

Print Name:
Standard
Project IDs with associated PORs:
CT11734B-0002434596
Radio Upgrade_4460

Section 1 - Site Information

Site ID: CT11734B
Status: Draft
Version: 8
Project Type: Equipment Upgrade
Approved: Not approved
Approved By: Not approved
Last Modified: 09/15/2024 9:24:34 PM
Last Modified By: Ryan.MonteDeRamos@T-Mobile.com

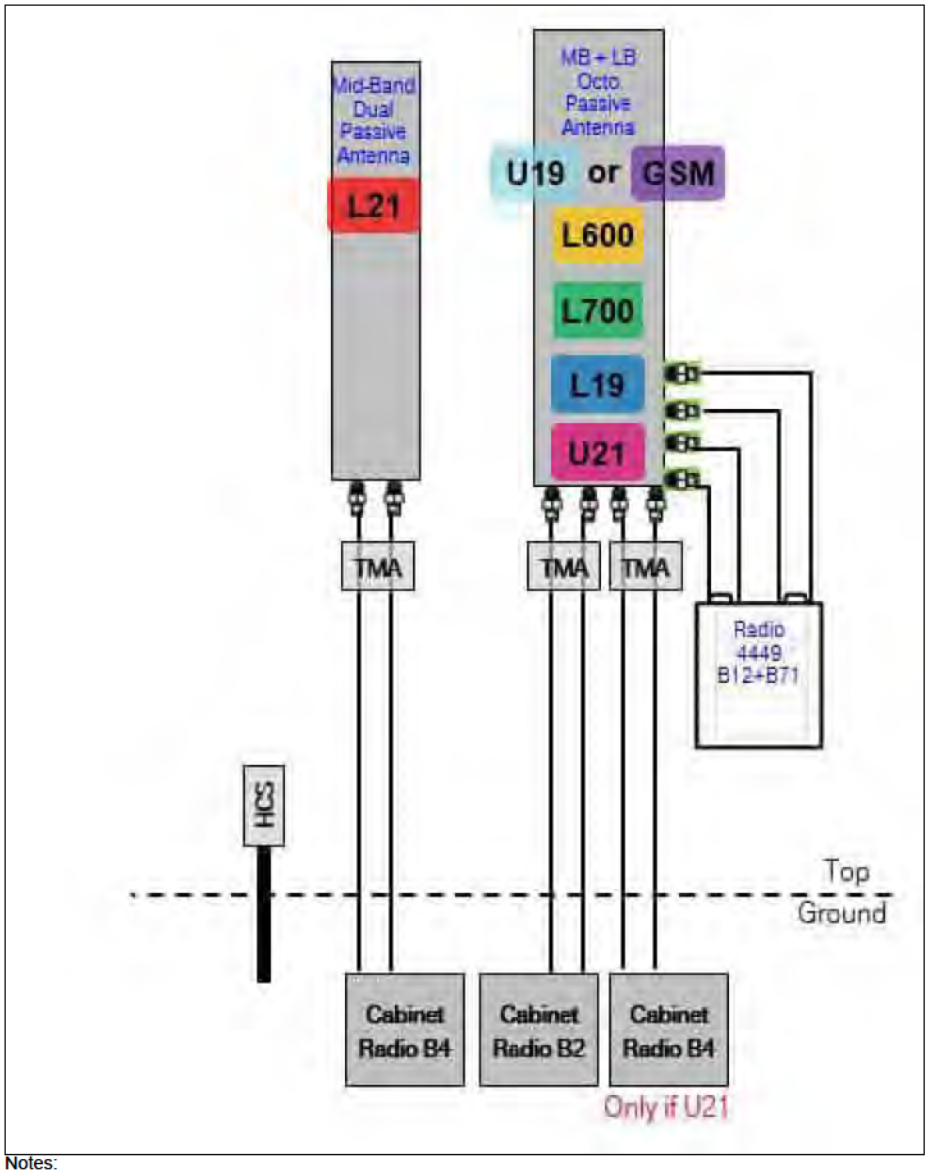
Site Name: CT734/CL&P Stanchion
Site Class: Utility Lattice Tower
Site Type: Structure Non Building
Plan Year: 2024
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: Northeast Utilities

Latitude: 41.6083
Longitude: -72.8628
Address: 437 Hobart Street
City, State: Southington, CT
Region: NORTHEAST

RAN Template: 67G998G 6160			AL Template: 67G998G_1HP	
Sector Count: 3	**Antenna Count:** 3	**Coax Line Count:** 24	**TMA Count:** 9	**RRU Count:** 6

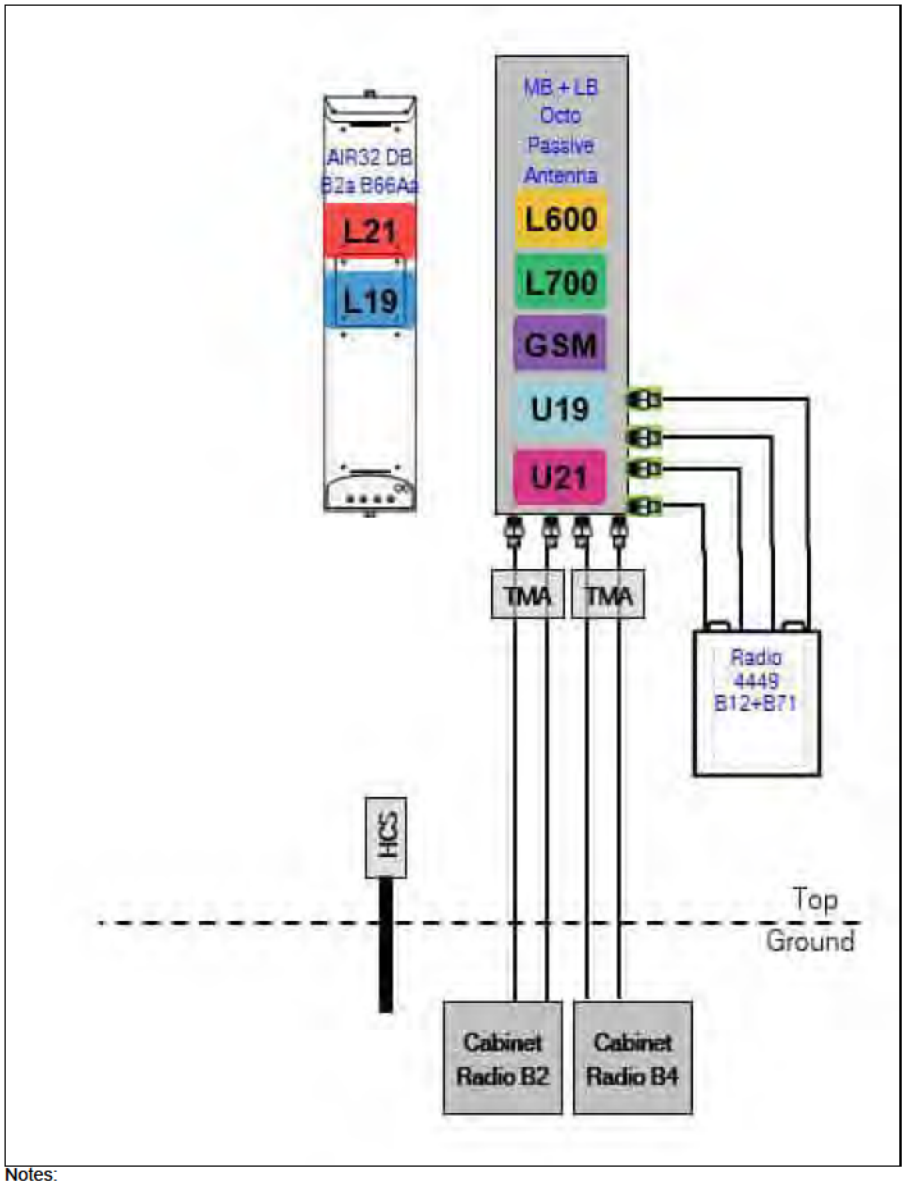
Section 2 - Existing Template Images

67D94B_1DP+1OP.JPG



Notes:

67D94DB_1xAIR+1OP.JPG


AIR32 DB
B2a B66Aa
L21
L19
MB + LB
Octo
Passive
Antenna
L600
L700
GSM
U19
U21
TMA
TMA
Radio
4449
B12+B71
HCS
Top
Ground
Cabinet
Radio B2
Cabinet
Radio B4

Notes:

Section 3 - Proposed Template Images

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

Section 4 - Siteplan Images

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

RAN Template:	A&L Template:
67G998G 6160	67G998G_1HP

CT11734B_Equipment Upgrade_8_draft

Print Name:
Standard
Project IDs with associated PORs:
CT11734B-0002434596
Radio Upgrade_4460

Section 5 - RAN Equipment

Existing RAN Equipment

Template: 67D94B Outdoor

Enclosure	1
Enclosure Type	RBS 6102
Radio	RUS01 B2 (x3): L1900, G1900 · RUS01 B4 (x6): L2100 · RUS01 B4 (x3): U2100 (DECOMMISSIONED)
Baseband	BB 6630: L1900, L2100 · BB 6630: N600, L600 (DECOMMISSIONED), L700 · DUG20: G1900 · DUW30: U2100 (DECOMMISSIONED)

Proposed RAN Equipment

Template: 67G998G 6160

Enclosure	1	2
Enclosure Type	Enclosure 6160_v2 AC	B160
Baseband	BB 6630: N1900, L1900, L2100 · BB 6630: N600, L600 (DECOMMISSIONED), L700	
Transport System	CSR IXRe V2 (Gen2)	
Hybrid Cable System	Hybrid Trunk 6/24 4AWG 10m	

RAN Scope of Work:

RF NOTES:
9/12/2024 - Swapping all 24 coax lines with 1-5/8" since we are not installing any TMAs on top

RAN Template:	A&L Template:
67G998G 6160	67G998G_1HP

CT11734B_Equipment Upgrade_8_draft

Print Name:
Standard
Project IDs with associated PORs:
CT11734B-0002434596
Radio Upgrade_4460

Section 6 - A&L Equipment

Existing Template: 67D94B_1DP+1OP
Proposed Template: 67G998G_1HP

Sector 1 (Existing) view from behind

Coverage Type	A - Outdoor Macro			
Antenna	1			
Antenna Model	APXVAARR24_43-U-NA20 (Octo)			
Azimuth	30			
M. Tilt				
Height (ft)	100			
Ports	**P1**	**P2**	**P3**	**P4**
Active Tech	L700, N600	L700, N600	L1900, G1900	L2100
Dark Tech				
Restricted Tech				
Decomm. Tech	L600	L600	U2100	
E. Tilt	2	2	2	2
Cables	7/8" Coax - 130 ft. **(x2)**	7/8" Coax - 130 ft. **(x2)**	7/8" Coax - 130 ft. **(x2)**	7/8" Coax - 130 ft. **(x2)**
TMAs				Generic Twin Style 1B - AWS (At Cabinet)
Diplexer / Combiners			Generic AWS/PCS Diplexer (At Cabinet) **(x2)**	
Radio	Radio 4449 B71+B85 (At Cabinet)			
Sector Equipment				

Unconnected Equipment:

Scope of Work:

Add 6 new coax for L6/L7. Swap PCS TMA for AWS/PCS diplexer. Swap L7 RRU for 4449 with 4 coax per RRU.

RAN Template:	A&L Template:
67G998G 6160	67G998G_1HP

CT11734B_Equipment Upgrade_8_draft

Print Name:
Standard
Project IDs with associated PORs:
CT11734B-0002434596
Radio Upgrade_4460

Sector 1 (Proposed) view from behind

Coverage Type	A - Outdoor Macro			
Antenna	1			
Antenna Model	APXVAARR24_43-U-NA20 (Octo)			
Azimuth	30			
M. Tilt				
Height (ft)	100			
Ports	**P1**	**P2**	**P3**	**P4**
Active Tech	N600 L700	N600 L700	L1900 L2100 N1900	L1900 L2100 N1900
Dark Tech				
Restricted Tech				
Decomm. Tech	L600	L600	G1900 U2100	G1900 U2100
E. Tilt	2	2	2	2
Cables	1-5/8" Coax - 130 ft. **(x2)** Coax Jumper **(x2)**	1-5/8" Coax - 130 ft. **(x2)** Coax Jumper **(x2)**	1-5/8" Coax - 130 ft. **(x2)** Coax Jumper **(x2)**	1-5/8" Coax - 130 ft. **(x2)** Coax Jumper **(x2)**
TMAs		Commscope - Smart BiasT - ATSBT-TOP-MF-4G (At Antenna)		Commscope - Smart BiasT - ATSBT-TOP-MF-4G (At Antenna) **(x2)**
Diplexer / Combiners				
Radio	Radio 4449 B71+B85 (At Cabinet)	--- Radio 4449 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:	A&L Template:
67G998G 6160	67G998G_1HP

CT11734B_Equipment Upgrade_8_draft

Print Name:
Standard
Project IDs with associated PORs:
CT11734B-0002434596
Radio Upgrade_4460

Sector 2 (Existing) view from behind

Coverage Type	A - Outdoor Macro			
Antenna	1			
Antenna Model	APXVAARR24_43-U-NA20 (Octo)			
Azimuth	150			
M. Tilt				
Height (ft)	100			
Ports	**P1**	**P2**	**P3**	**P4**
Active Tech	L700 N600	L700 N600	L1900 G1900	L2100
Dark Tech				
Restricted Tech				
Decomm. Tech	L600	L600	U2100	
E. Tilt	2	2	2	2
Cables	7/8" Coax - 130 ft. **(x2)**	7/8" Coax - 130 ft. **(x2)**	7/8" Coax - 130 ft. **(x2)**	7/8" Coax - 130 ft. **(x2)**
TMAs				Generic Twin Style 1B - AWS (At Cabinet)
Diplexer / Combiners			Generic AWS/PCS Diplexer (At Cabinet) **(x2)**	
Radio	Radio 4449 B71+B85 (At Cabinet)			
Sector Equipment				

Unconnected Equipment:

Scope of Work:

Add 6 new coax for L6/L7. Swap PCS TMA for AWS/PCS diplexer. Swap L7 RRU for 4449 with 4 coax per RRU.

RAN Template:	A&L Template:
67G998G 6160	67G998G_1HP

CT11734B_Equipment Upgrade_8_draft

Print Name:
Standard
Project IDs with associated PORs:
CT11734B-0002434596
Radio Upgrade_4460

Sector 2 (Proposed) view from behind

Coverage Type	A - Outdoor Macro			
Antenna	1			
Antenna Model	APXVAARR24_43-U-NA20 (Octo)			
Azimuth	150			
M. Tilt				
Height (ft)	100			
Ports	**P1**	**P2**	**P3**	**P4**
Active Tech	N600 L700	N600 L700	N1900 L2100 L1900	N1900 L2100 L1900
Dark Tech				
Restricted Tech				
Decomm. Tech	L600	L600	G1900 U2100	G1900 U2100
E. Tilt	2	2	2	2
Cables	1-5/8" Coax - 130 ft. **(x2)** Coax Jumper **(x2)**	1-5/8" Coax - 130 ft. **(x2)** Coax Jumper **(x2)**	1-5/8" Coax - 130 ft. **(x2)** Coax Jumper **(x2)**	1-5/8" Coax - 130 ft. **(x2)** Coax Jumper **(x2)**
TMAs		Commscope - Smart BiasT - ATSBT-TOP-MF-4G (At Antenna)		Commscope - Smart BiasT - ATSBT-TOP-MF-4G (At Antenna) **(x2)**
Diplexer / Combiners				
Radio	Radio 4449 B71+B85 (At Cabinet)	--- Radio 4449 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:	A&L Template:
67G998G 6160	67G998G_1HP

CT11734B_Equipment Upgrade_8_draft

Print Name:
Standard
Project IDs with associated PORs:
CT11734B-0002434596
Radio Upgrade_4460

Sector 3 (Existing) view from behind

Coverage Type	A - Outdoor Macro			
Antenna	1			
Antenna Model	APXVAARR24_43-U-NA20 (Octo)			
Azimuth	270			
M. Tilt				
Height (ft)	100			
Ports	**P1**	**P2**	**P3**	**P4**
Active Tech	L700, N600	L700, N600	L1900, G1900	L2100
Dark Tech				
Restricted Tech				
Decomm. Tech	L600	L600	U2100	
E. Tilt	2	2	2	2
Cables	7/8" Coax - 130 ft. **(x2)**	7/8" Coax - 130 ft. **(x2)**	7/8" Coax - 130 ft. **(x2)**	7/8" Coax - 130 ft. **(x2)**
TMAs				Generic Twin Style 1B - AWS (At Cabinet)
Diplexer / Combiners			Generic AWS/PCS Diplexer (At Cabinet) **(x2)**	
Radio	Radio 4449 B71+B85 (At Cabinet)			
Sector Equipment				

Unconnected Equipment:

Scope of Work:

Add 6 new coax for L6/L7. Swap PCS TMA for AWS/PCS diplexer. Swap L7 RRU for 4449 with 4 coax per RRU.

RAN Template:	A&L Template:
67G998G 6160	67G998G_1HP

CT11734B_Equipment Upgrade_8_draft

Print Name:
Standard
Project IDs with associated PORs:
CT11734B-0002434596
Radio Upgrade_4460

Sector 3 (Proposed) view from behind

Coverage Type	A - Outdoor Macro			
Antenna	1			
Antenna Model	APXVAARR24_43-U-NA20 (Octo)			
Azimuth	270			
M. Tilt				
Height (ft)	100			
Ports	**P1**	**P2**	**P3**	**P4**
Active Tech	L700 N600	L700 N600	L1900 N1900 L2100	L1900 N1900 L2100
Dark Tech				
Restricted Tech				
Decomm. Tech	L600	L600	U2100 G1900	U2100 G1900
E. Tilt	2	2	2	2
Cables	1-5/8" Coax - 130 ft. **(x2)** Coax Jumper **(x2)**	1-5/8" Coax - 130 ft. **(x2)** Coax Jumper **(x2)**	1-5/8" Coax - 130 ft. **(x2)** Coax Jumper **(x2)**	1-5/8" Coax - 130 ft. **(x2)** Coax Jumper **(x2)**
TMAs		Commscope - Smart BiasT - ATSBT-TOP-MF-4G (At Antenna)		Commscope - Smart BiasT - ATSBT-TOP-MF-4G (At Antenna) **(x2)**
Diplexer / Combiners				
Radio	Radio 4449 B71+B85 (At Cabinet)	--- Radio 4449 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.

RADIO FREQUENCY SYSTEMS
The Clear Choice®

Dual Slant Polarized Quad Band (8 Port) Antenna, 617-746/617-746/1695-2200/1695-2200MHz, 65deg, 15/15/18/18dBi, 2.4m (8ft), VET, RET, 0-12°/0-12°/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 600MHz, 700MHz, AWS & PCS 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 diasy 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 (617-746 MHZ) [R1]

Frequency Band	MHz	617-698	698-746
Gain	dBi	15.1	15.5
Horizontal Beamwidth @3dB	Deg	65	62
Vertical Beamwidth @3dB	Deg	11.4	10.4
Electrical Downtilt Range	Deg	0-12	0-12
Upper Side Lobe Suppression 0 to +20	dB	19	20
Front-to-Back, at +/-30°, Copolar	dB	25	24
Cross Polar Discrimination (XPD) @ Boresight	dB	19	19
Cross Polar Discrimination (XPD) @ +/-60	dB	5	3
3rd Order PIM 2 x 43dBm	dBc		-153
VSWR	-	1.5:1	1.5:1
Cross Polar Isolation	dB	25	25
Maximum Effective Power per Port	Watt	250	250

LOW BAND RIGHT ARRAY (617-746 MHZ) [R2]

Frequency Band	MHz	617-698	698-746
Gain	dBi	14.8	15.1
Horizontal Beamwidth @3dB	Deg	65	62
Vertical Beamwidth @3dB	Deg	11.4	10.3
Electrical Downtilt Range	Deg	0-12	0-12
Upper Side Lobe Suppression 0 to +20	dB	19	20
Front-to-Back, at +/-30°, Copolar	dB	25	23
Cross Polar Discrimination (XPD) @ Boresight	dB	19	19
Cross Polar Discrimination (XPD) @ +/-60	dB	5	3
3rd Order PIM 2 x 43dBm	dBc		-153
VSWR	-	1.5:1	1.5:1
Cross Polar Isolation	dB	25	25
Maximum Effective Power per Port	Watt	250	250

RADIO FREQUENCY SYSTEMS
The Clear Choice®

Dual Slant Polarized Quad Band (8 Port) Antenna, 617-746/617-746/1695-2200/1695-2200MHz, 65deg, 15/15/18/18dBi, 2.4m (8ft), VET, RET, 0-12°/0-12°/2-12°/2-12°

ELECTRICAL SPECIFICATIONS

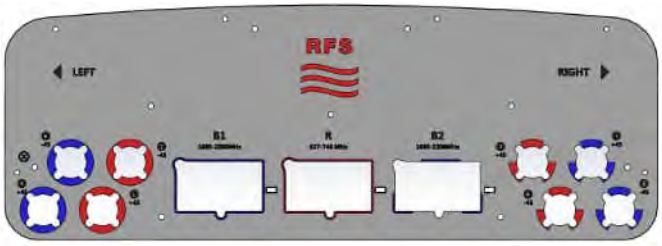
Impedance	Ohm	50.0
Polarization	Deg	±45°

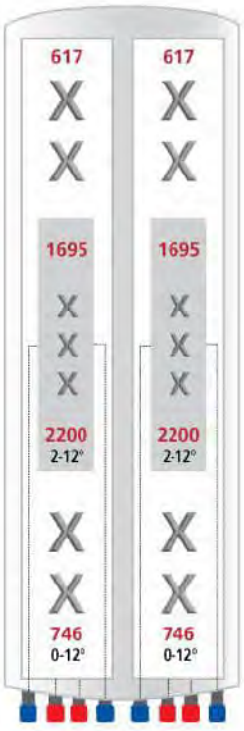
MECHANICAL SPECIFICATIONS

Dimensions - H x W x D	mm (in)	2436 x 609 x 222 (95.9 x 24 x 8.7)
Weight (Antenna Only)	kg (lb)	58 (128)
Weight (Mounting Hardware only)	kg (lb)	11.5 (25.3)
Shipping Weight	kg (lb)	80 (176)
Connector type		8 x 4.3-10 female at bottom + 6 AISG connectors (3 male, 3 female)
Adjustment mechanism		Integrated RET solution AISG compliant (Field Replaceable) + Manual Override + External Tilt Indicator
Mounting Hardware Material		Galvanized steel
Radome Material / Color		Fiber Glass / Light Grey RAL7035

TESTING AND ENVIRONMENTAL

Temperature Range	°C (°F)	-40 to 60 (-40 to 140)
Lightning protection		IEC 61000-4-5
Survival/Rated Wind Velocity	km/h	241 (150)
Environmental		ETSI 300-019-2-4 Class 4.1E





ORDERING INFORMATION

Order No.	Configuration	Mounting Hardware	Mounting pipe Diameter	Shipping Weight
APXVAARR24_43-U-NA20	Field Replace RET included (3)	APM40-5E Beam tilt kit (included)	60-120mm	80 Kg

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**

Exhibit E

Mount Analysis

Project

Structural Analysis Report
Antenna Mounts
Proposed T-Mobile Antenna Upgrade
Site Ref: CT11734B
437 Hobart Street
Southington, CT 06489

Centek Project No.: 24066.05

Date Issued: February 6, 2025 - Rev. 0

Prepared For

T-Mobile
35 Griffin Road
Bloomfield, CT 06002

Prepared By

Centek Engineering, Inc.
Timothy J. Lynn, PE
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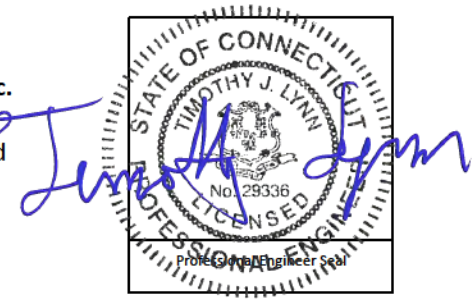
www.centekeng.com



CENTEK engineering
Centered on Solutions℠

Table of Contents

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 at 437 Hobart Street in Southington, Connecticut.

The proposed antenna configurations are to be supported by the existing triple T-Arm kit (SitePro P/N: RMV5-296). 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 latest revision of Construction Drawings prepared by Centek Engineering, job no.24066.05.

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 10/21/2024 and previous structural analysis prepared by Centek Engineering, job number 18098.02, dated: 08/6/2018.

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 APXVAALL24_43 Panel Antennas **(9) Commscope ATSBS-TOP_MF-4G Bias Tees**	±100-ft	Triple T-Arm w/ Pipe masts

Equipment – Indicates equipment to be installed.

Equipment – Indicates equipment to remain.

1.04 ANALYSIS

The 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, ASCE 7 – 16 "Minimum Design Loads for Buildings and Other Structures" and TIA-222-H "Structural Standard for Antenna Supporting Structures, Antennas and Small Wind Turbine Support Structures".

Wind Speed:	V_{ult} = 130 mph	*Appendix P of the 2022 CSBC.*
Wind Speed w/Ice:	V_{ice} = 50 mph	*TIA-222-H Annex B.*
Wind Speed w/Maintenance:	V_m = 30 mph	*TIA-222-H Section 16.3.*
Risk Category:	III	*2021 IBC; Table 1604.05*
Exposure Category:	Surface Roughness C	*ASCE 7-16; Section 26.7.2*
Dead Load:	Equipment and framing self-weight	*Identified within SAR design calculations*

1.06 REFERENCE STANDARDS

<u>2021 International Building Code amended by the 2022 Connecticut State Building Code</u>

- AISC 360 – 16: Specification for Structural Steel Buildings
- ASCE/SEI 7 – 16: Minimum Design Loads and Associated Criteria for Building and Other Structures
- TIA-222-H: Structural Standard for Antenna Supporting Structures, Antennas and Small Wind Turbine Support 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)	94%	**PASS**
	HSS4x4x4 (Outrigger)	26%	**PASS**
	L3x3x4 (Handrail)	51%	**PASS**

1.08 CONCLUSION

This analysis finds the existing mounts and masts to **HAVE SUFFCIENT 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

Prepared by:

Christian Tomaso, EIT
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.

<u>Modeling Features:</u>

- 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.

Exhibit F

Power Density/RF Emissions Report

FOX HILL TELECOM

Radio Frequency Emissions Analysis Report

T-Mobile

Site ID: CT11734B

CT734/CL&P Stanchion
437 Hobart Street
Southington, CT 06489

February 14, 2025

Fox Hill Telecom Project Number: 250019

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	4.18 %

February 14, 2025

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

Emissions Analysis for Site: **CT11734B – CT734/CL&P Stanchion**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **437 Hobart Street, Southington, 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (µW/cm2). The number of $\mu W/cm^2$ 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 people in a nearby residential area.

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz & 700 MHz bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS) bands is 1000 $\mu W/cm^2$. 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.

Occupational/controlled exposure limits apply to situations in which people 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 **437 Hobart Street, Southington, 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

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

S = Power Density (in $\mu w/cm^2$)
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.

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)
5G	600 MHz	4	40
LTE	700 MHz	2	20
LTE	1900 MHz (PCS)	4	35
5G	1900 MHz (PCS)	4	40
LTE	2100 MHz (AWS)	4	60

Table 1: Channel Data Table

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)
A	1	RFS APXVAARR24_43-U-NA20	100
B	1	RFS APXVAARR24_43-U-NA20	100
C	1	RFS APXVAARR24_43-U-NA20	100

Table 2: Antenna Data

All calculations were analyzed 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 A1	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	12.95 / 13.35 / 15.65 / 16.35	18	740	25,395.89	4.18
						Sector A Composite MPE%	**4.18**
Antenna B1	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	12.95 / 13.35 / 15.65 / 16.35	18	740	25,395.89	4.18
						Sector B Composite MPE%	**4.18**
Antenna C1	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	12.95 / 13.35 / 15.65 / 16.35	18	740	25,395.89	4.18
						Sector C Composite MPE%	**4.18**

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, all three T-Mobile sectors have the same configuration, yielding the same results for all three 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	**4.18 %**
No Additional Carriers on Site	NA
Site Total MPE %:	**4.18 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	4.18 %
T-MOBILE Sector B Total:	4.18 %
T-MOBILE Sector C Total:	4.18 %
Site Total:	4.18 %

Table 5: Site MPE Summary

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, all three T-Mobile sectors have the same configuration, yielding the same results for all three sectors.

T-MOBILE Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 600 MHz 5G	4	788.97	100	6.52	600 MHz	400	1.63%
T-Mobile 700 MHz LTE	2	432.54	100	1.63	700 MHz	467	0.35%
T-Mobile 1900 MHz (PCS) LTE	4	1,285.49	100	5.70	1900 MHz (PCS)	1000	0.57%
T-Mobile 1900 MHz (PCS) 5G	4	1,469.13	100	6.50	1900 MHz (PCS)	1000	0.65%
T-Mobile 2100 MHz (AWS) LTE	4	2,589.11	100	9.80	2100 MHz (AWS)	1000	0.98%
						Total:	**4.18 %**

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 A:	4.18 %
Sector B:	4.18 %
Sector C:	4.18 %
T-MOBILE Maximum Total (per sector):	4.18 %
Site Total:	4.18 %
Site Compliance Status:	**COMPLIANT**

The estimated composite MPE value for this site assuming all carriers present is **4.18 %** 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
(978)660-3998

Exhibit G

Letter of Authorization

EVERSOURCE ENERGY

56 Prospect Street,
Hartford, CT 06103

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

February 07, 2025

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

RE: T-Mobile Antenna Site CT11734B, Hobart Street, Southington, CT, Eversource Structure 1814

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,

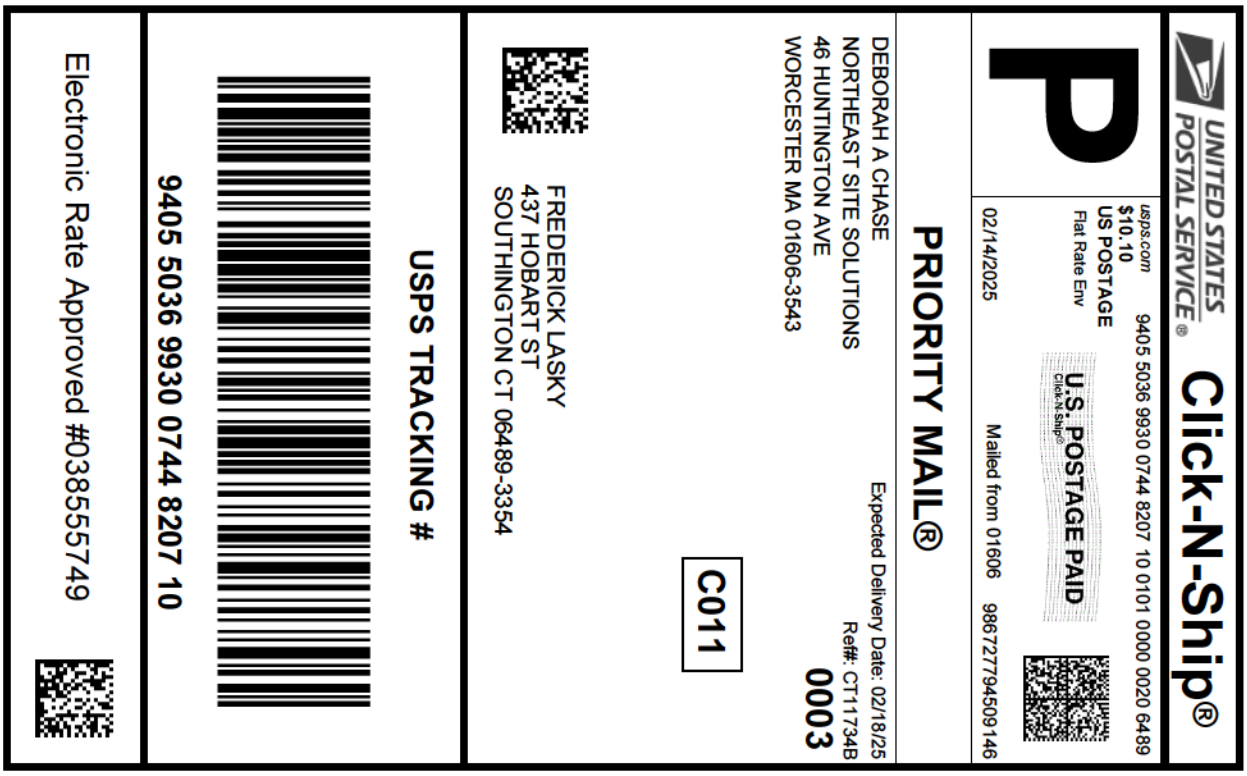
Masie Hartt

Masie Hartt
Transmission Line Engineering

Ref: 2024-1211 - CT11734B - Structural Analysis Rev1 (24066.05)
2025-0124_24066.05 CT11734B - Rev0 CDs (S&S)
2025_0206 - CT11734B Mount Analysis (24066.05)

Exhibit H

Recipient Mailings



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Priority Mail® Postage:	**$10.10**
Total:	**$10.10**

From: DEBORAH A CHASE
NORTHEAST SITE SOLUTIONS
46 HUNTINGTON AVE
WORCESTER MA 01606-3543

Ref#: CT11734B

To: FREDERICK LASKY
437 HOBART ST
SOUTHINGTON CT 06489-3354

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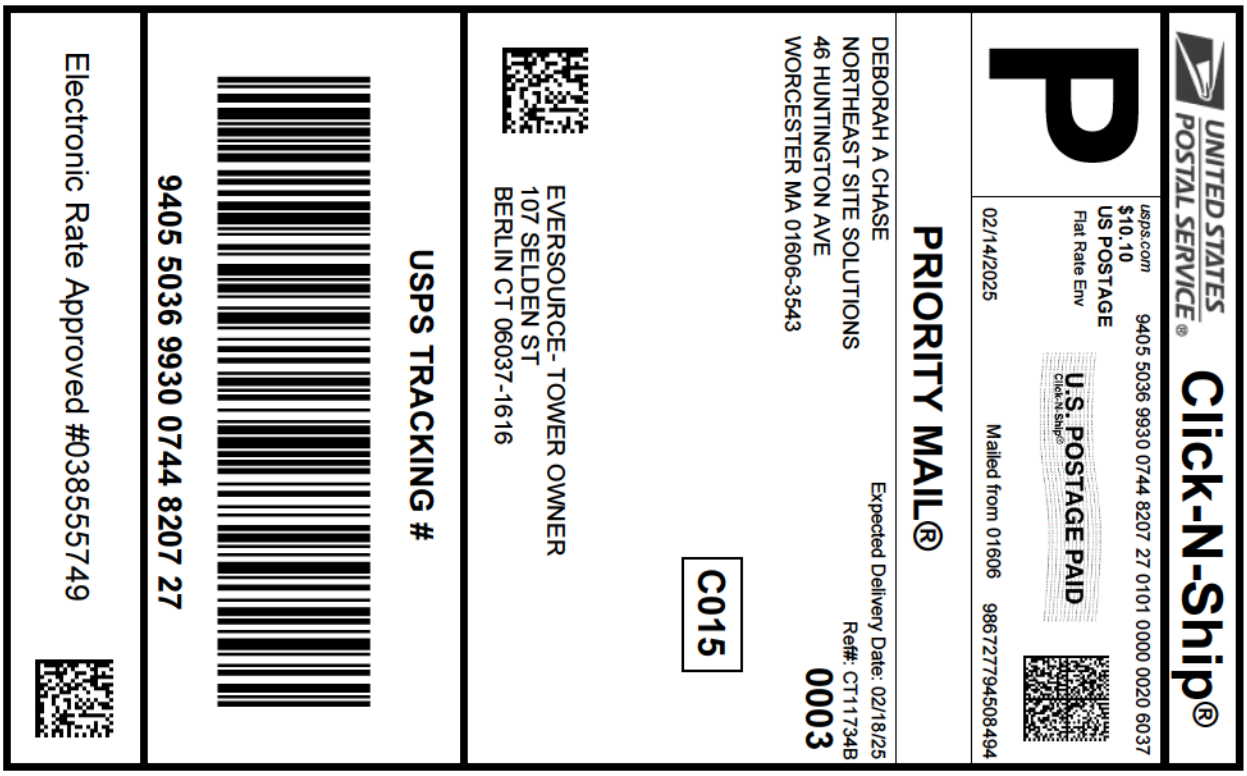

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Total:	**$10.10**

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NORTHEAST SITE SOLUTIONS
46 HUNTINGTON AVE
WORCESTER MA 01606-3543

Ref#: CT11734B

To: EVERSOURCE- TOWER OWNER
107 SELDEN ST
BERLIN CT 06037-1616

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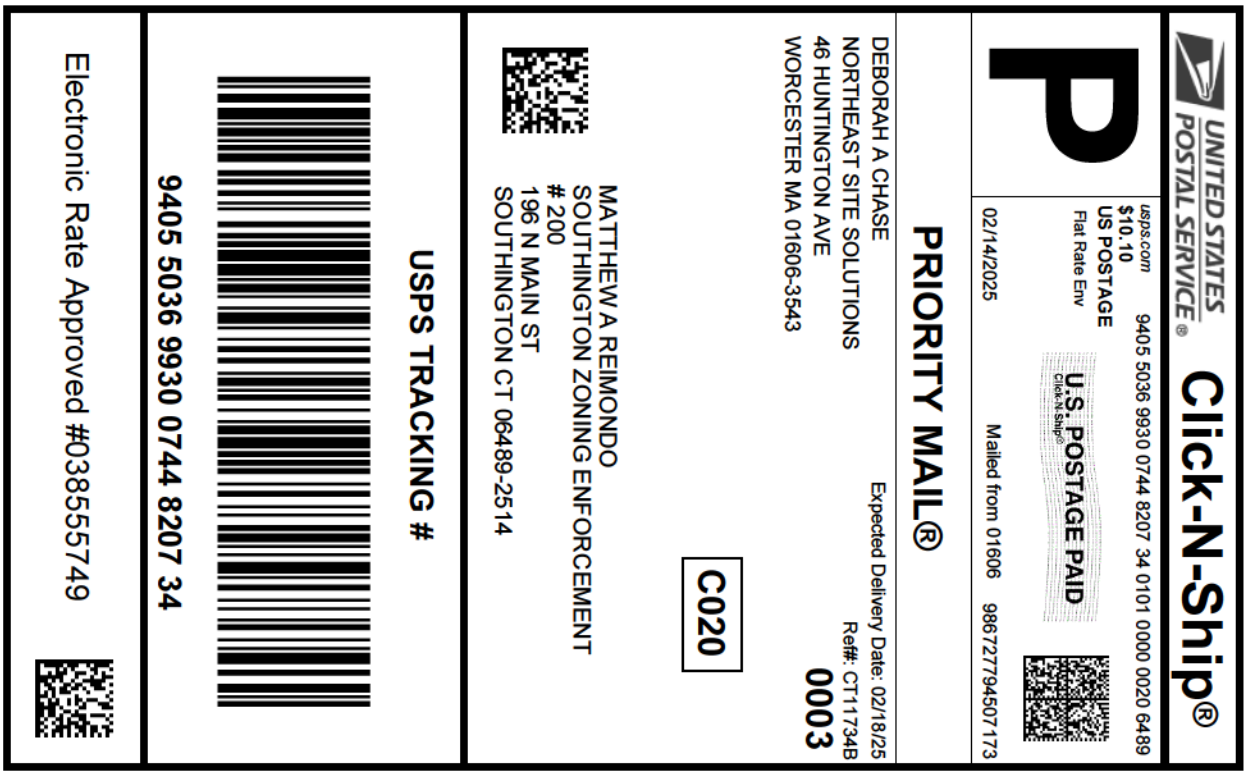

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Ship Date:	02/14/2025
Expected Delivery Date:	02/18/2025

Priority Mail® Postage:	**$10.10**
Total:	**$10.10**

From: DEBORAH A CHASE
NORTHEAST SITE SOLUTIONS
46 HUNTINGTON AVE
WORCESTER MA 01606-3543

Ref#: CT11734B

To: MATTHEW A REIMONDO
SOUTHINGTON ZONING ENFORCEMENT OFFICER
200
196 N MAIN ST
SOUTHINGTON CT 06489-2514

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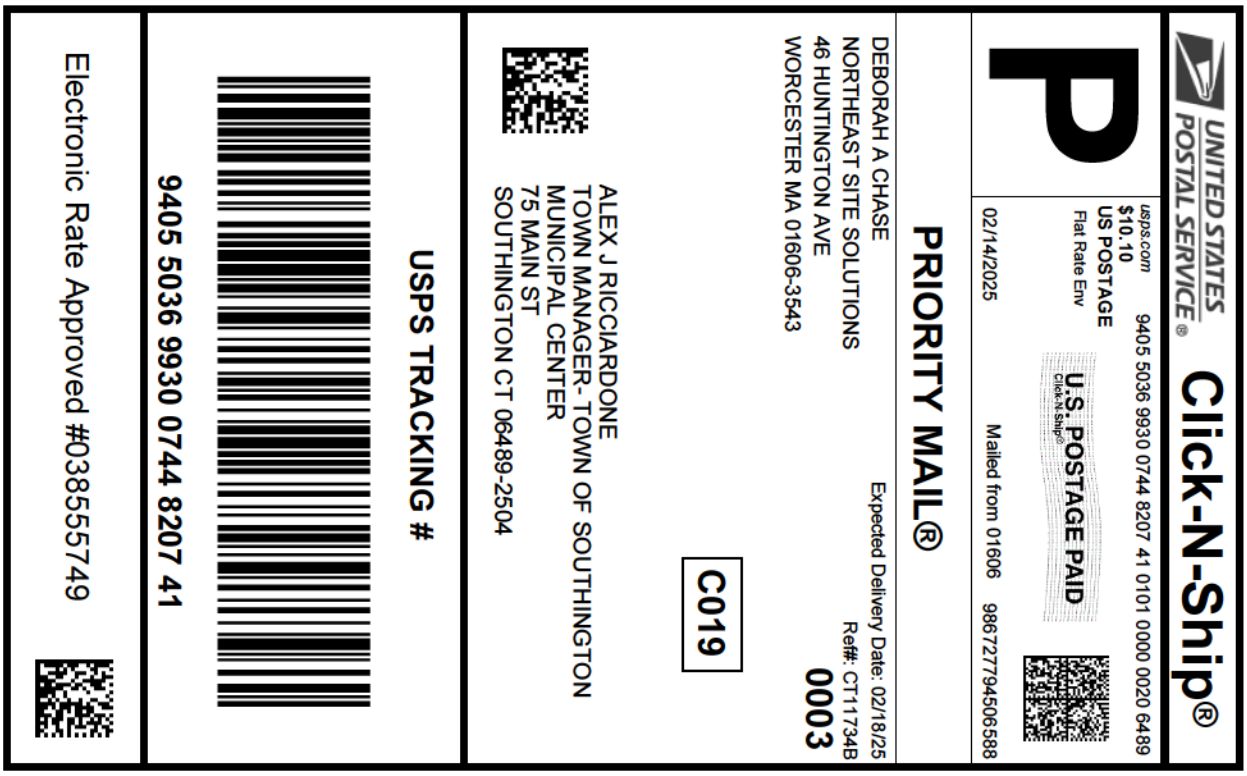

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Ship Date:	02/14/2025
Expected Delivery Date:	02/18/2025

Priority Mail® Postage:	**$10.10**
Total:	**$10.10**

From: DEBORAH A CHASE
NORTHEAST SITE SOLUTIONS
46 HUNTINGTON AVE
WORCESTER MA 01606-3543

Ref#: CT11734B

To: ALEX J RICCIARDONE
TOWN MANAGER- TOWN OF SOUTHINGTON
MUNICIPAL CENTER
75 MAIN ST
SOUTHINGTON CT 06489-2504

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CT 11734b - Southington

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Product	Qty	Unit Price	Price
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Prepaid Mail Southington, CT 06489 Weight: 0 lb 13.60 oz Acceptance Date: Fri 02/14/2025 Tracking #: 9405 5036 9930 0744 8207 41	1		$0.00
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