Filed by:
Kri Pelletier, Property Specialist - SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
508.251.0720 x 3804 - kpelletier@sbasite.com

February 7, 2022

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
237 Sandy Hollow Road, Groton, CT 06355
Latitude: 41.369510
Longitude: -71.982463
T-Mobile Site #: CTNL053A_Anchor

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 127-foot level of the existing 130-foot Monopole Tower at **237 Sandy Hollow Road, Groton**, CT. The 130-foot tower is owned by SBA Infrastructure, LLC. The property is owned by Mystic River Ambulance Association Inc. T-Mobile now intends to replace remove (6) antennas and replace with (6) new L1900/L2100/2500 MHz antennas.

- The new antennas would be installed at the 127-foot level of the tower and support 5G services.

Planned Modifications:

TOWER

Remove:

- N/A

Remove and Replace:

- (3) Ericsson AIR21 B2a/B4P antennas (Remove) -- (3) Ericsson AIR6449 B41 2500 MHz antennas (Replace)
- (3) Ericsson AIR21 B4A/B2P Antennas (remove) – (3) Commscope VV-65A-R1 L1900/L2100 MHz antennas (replace)

Install New:

- (3) Ericsson Radio 4460 B25+B66 RRUs

Remain:

- (3) RFS – APXVAARR24-43-U-NA20 – Panel
- (3) Ericsson KRY 112 144/1 TMAs
- (3) Ericsson 4449 B71+B85 RRUs
- (3) 1.9" Fiber
- (1) Platform w/Support Rails

Entitlements:

- (9) 1-5/8" Coax

GROUND

Install New:

- (1) 2" RGS Conduit for Power from exist. PPC to Prop. Equip. Cabinet
- (1) 1" RGS conduit for DC power from Exist. Fiber Cabinet to Prop. Equip. Cabinet
- (1) 2" RGS conduit for AAV from Exist. Fiber cabinet to Prop. Equip. Cabinet
- (1) 2" RGS conduit w/LBs for DC power
- Ericsson B160 Battery Cabinet
- (2) 2" RGS conduits for Alarm & Spare
- Ericsson 6160 Equip. Cabinet
- Reconnect exit. Conduit for generator to Prop. 6160 Equip. Cabinet
- Slackbox mounted to Prop. Unistrut P1000 Secured to Exist. Ice Bridge Post

Remain:

- GPS antenna mounted to existing Ice Bridge
- Existing 9'-0" x 25'-0" Lease area
- Existing 25kw diesel generator
- Emerson Nextend Compact 2416 Fiber Cabinet
- Existing conduit run from exist. generator
- Ice Bridge
- PPC
- T-Mobile ATS

Remove:

- Existing RBS6131 Equip. Cabinet & Assoc. conduit
- Existing PTS 8003 Battery cabinet

This facility was approved by the Council on March 26, 2008 under Docket 343. Approval was given for a monopole no taller than necessary to provide space for public and private entities, but not to exceed 130' above ground level. The height of the top of antennas was also not to excel 130' above ground level. An updated EME report was to be provided when operations would cause a change in power density levels. The certificate holder was to provide public and private entities shared reasonable space and space was to be provided to Town public safety services for zero compensation. And any non-functioning equipment was to be removed within 60 days. There were no further post construction stipulations set. 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 the City of Groton's Town Manager, John Burt, and Deborah G. Jones, Asst. Director Planning & Zoning, as well as to the property owner. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. §16.50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modification 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 modification 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 telecommunication facility constitute an exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Scott Shepherd
Site Development Specialist II
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581

508.251.0720 x3807 + T
508.366.2610 + F
kpelletier@sbasite.com

Attachments

cc: John Burt, Town Manager / with attachments
45 Fort Hill Rd., Groton, CT 06340
Deborah G. Jones, Asst. Director Planning & Zoning / with attachments
134 Groton Long Point Rd., Groton, CT 06340
Mystic River Ambulance Association Inc. / with attachments
PO Box 64, West Mystic CT 06388

EXHIBIT LIST

Exhibit 1	Check Copy	x
Exhibit 2	Notification Receipts	x
Exhibit 3	Property Card	x
Exhibit 4	Property Map	x
Exhibit 5	Original Zoning Approval	CSC 3/26/2008 Docket 343
Exhibit 6	Construction Drawings	Chappell 2/3/22
Exhibit 7	Structural Analysis	TES dated 1/19/22
Exhibit 8	Mount Analysis	TES dated 1/11/22
Exhibit 10	EME Report	EBI Consulting 2/6/22

EXHIBIT 1

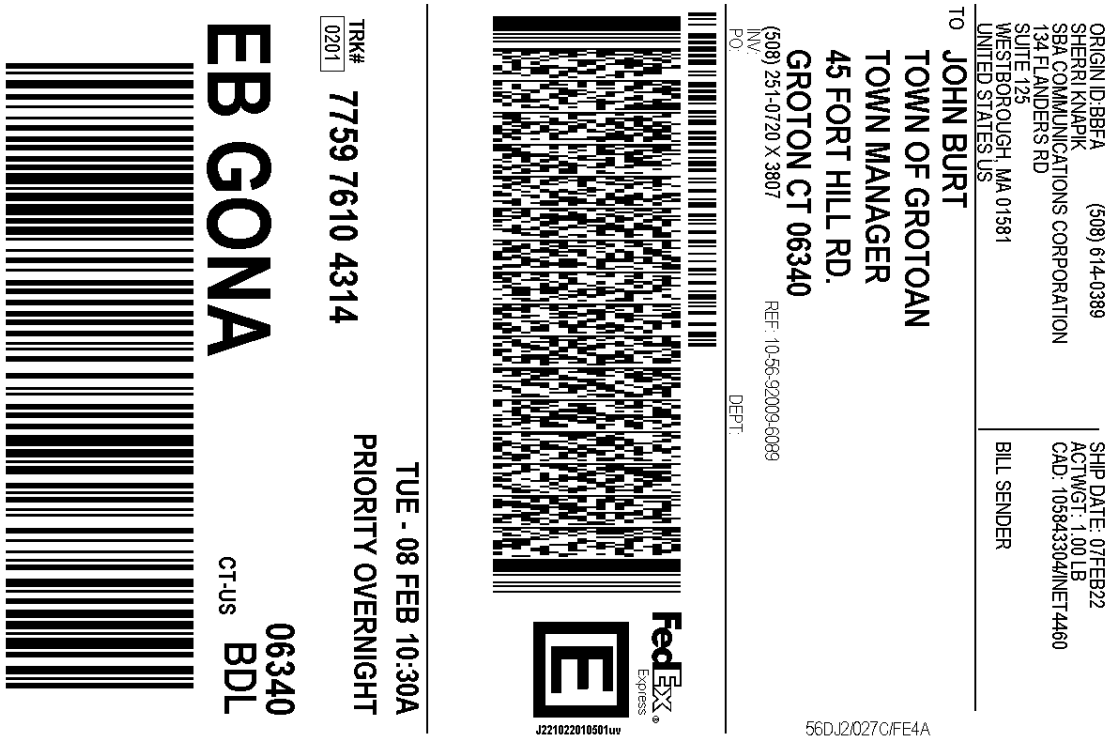
Copy of Check

EXHIBIT 2

Mailing Labels

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.



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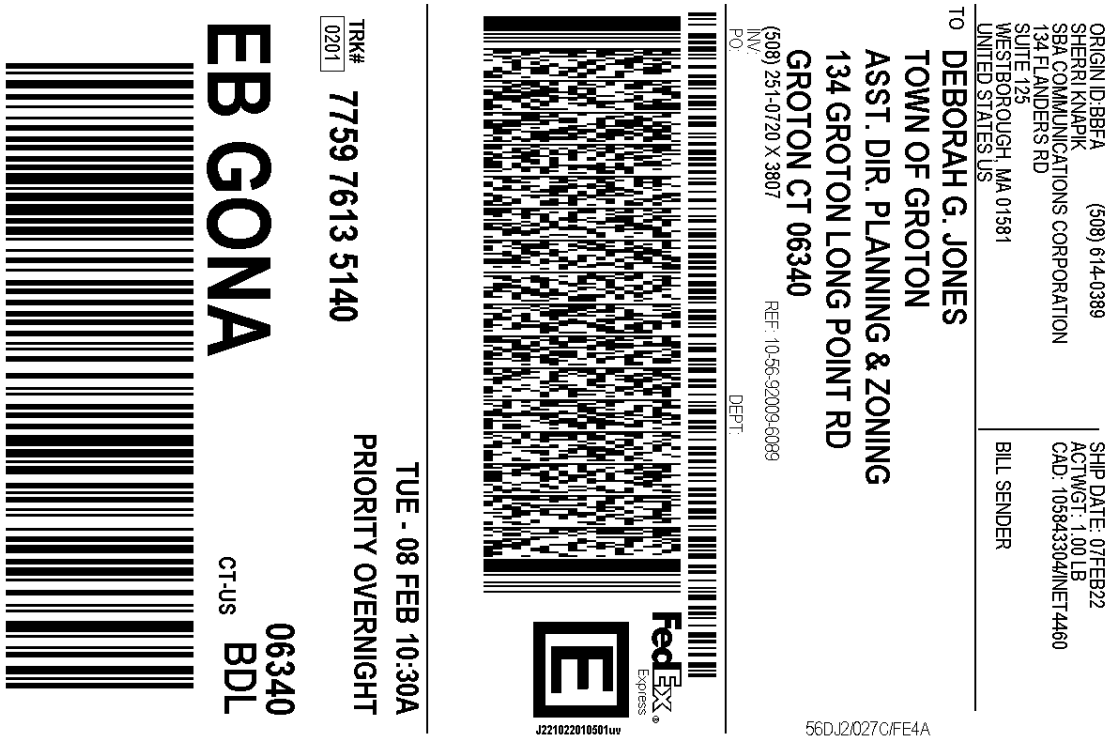

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ANDERS RD.
025
ROUGH, MA 01581

MYSTIC RIVER AMBULANCE, I
P.O. BOX 64
WEST MYSTIC, CT 06388

UNITED STATES POSTAL SERVICE.

WESTBOROUGH
150 E MAIN ST
WESTBOROUGH, MA 01581-9998
(800)275-8777

02/07/2022 04:11 PM

Product	Qty	Unit Price	Price
Priority Mail® 2-Day 1			$8.70
West Mystic, CT 06388			
Weight: 0 lb 10.00 oz			
Expected Delivery Date Thu 02/10/2022			
Tracking #: 9505 5112 4894 2038 6932 79			
Insurance			$0.00
Up to $50.00 included			
Total			$8.70
Grand Total:			$8.70
Debit Card Remitted			$8.70
Card Name: VISA			
Account #: XXXXXXXXXXXX9733			
Approval #: 298110			
Transaction #: 561			
Receipt #: 033517			
Debit Card Purchase: $8.70			
AID: A0000000980840		Chip	
AL: US DEBIT			
PIN: Verified			

****
USPS is experiencing unprecedented volume increases and limited employee availability due to the impacts of COVID-19. We appreciate your patience.
****

EXHIBIT 3

Property Card

Commercial Property Card

Print Date: 2/7/2022

Card 1 of 1

Account	Location	Zoning	Deed Book/Page	Acres
261909065371 E	237 SANDY HOLLOW RD	RS-20	518/	3.35

District	Use Code
OLD MYSTIC	ALL OTHER CHARITABLE ORGANIZATIONS

Current Owner

MYSTIC RIVER AMBULANCE ASSOC
P O BOX 64
W MYSTIC CT 06388

Property Picture

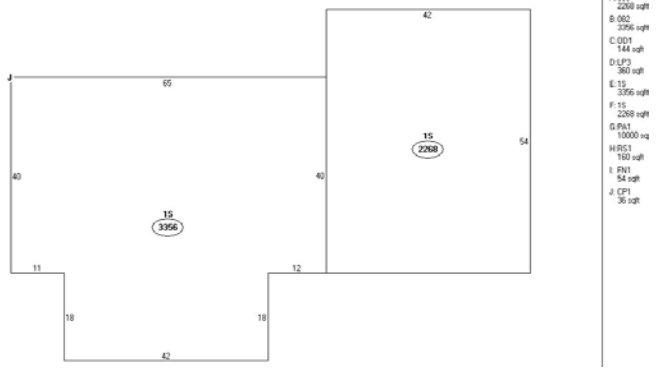
Building Information

Building No:	1
Year Built:	1992
No of Units:	1
Structure Type:	POLICE/FIRE STATION
Building Total Area:	5624 sqft.
Grade:	B-
Identical Units:	1

Valuation

Land:	$737,000
Building:	$420,400
Total:	$1,157,400
Total Assessed Value:	$810,180

Building Sketch



Recent Sales

Book/Page	Date	Price
518/656	9/25/1990	$141,900

Sketch Legend

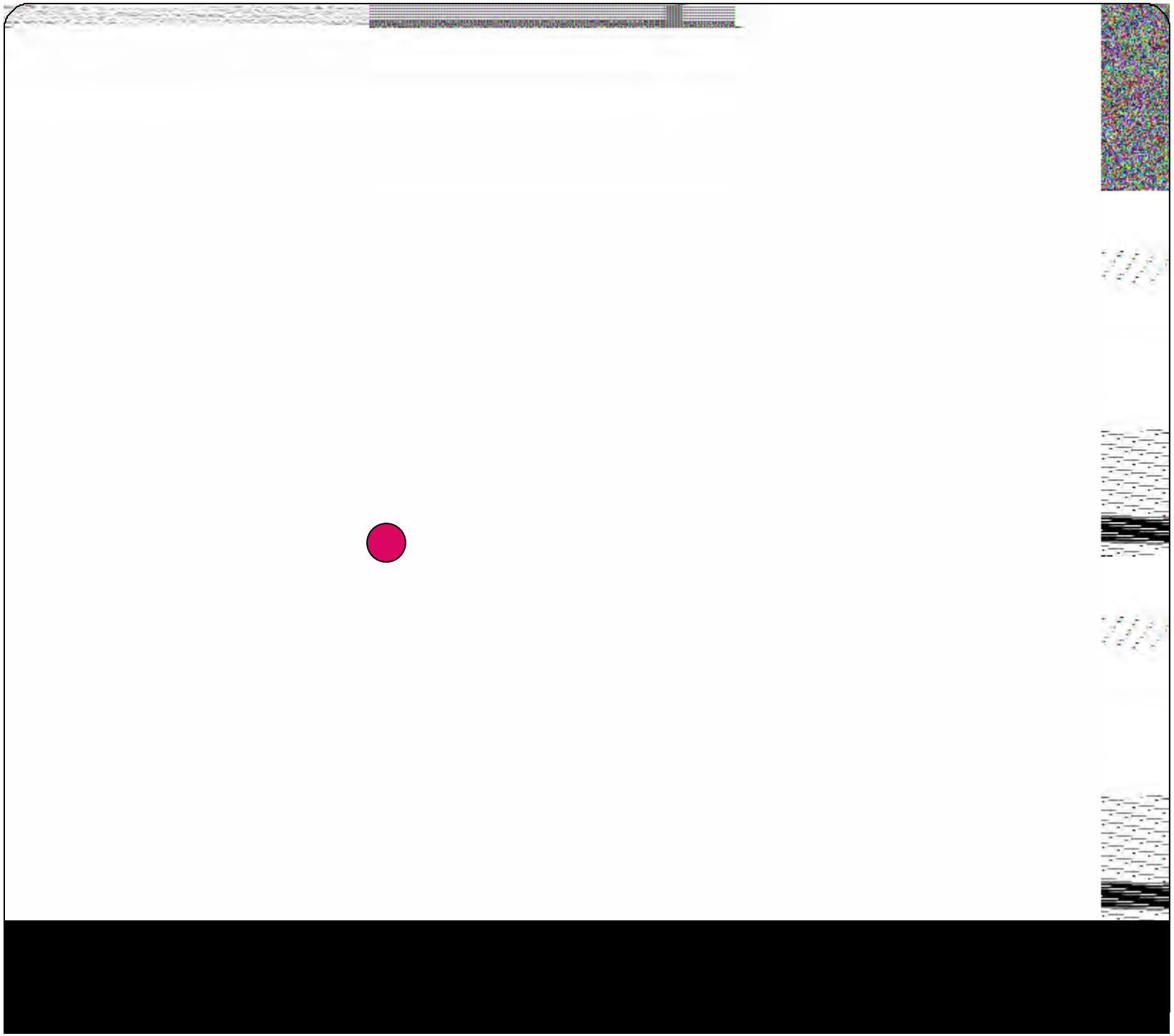
----	Main Living Area	1SMA	Masonry	GRHS	Attached Greenhouse
1FR	Frame	OMP	Open Masonry Porch	CAT	Cathedral Ceiling
OFP	Open Frame Porch	EMP	Enclosed Msry Porch	SOP	Screen Open Frame Prch
EFP	Enclosed Frame Porch	MUB	Masonry Utility	SMP	Screen Open Msnry Prch
FUB	Frame Utility Building	MB	Masonry Bay	CPAT	Concrete Patio
FB	Frame Bay	MOH	Masonry Overhang	B	Basement
FG	Frame Garage	.5MA	1/2 Story Masonry		
FOH	Frame Overhang	MP	Masonry Patio		
.5FR	1/2 Story Frame	WD	Wood Deck		
A(U)	Attic (Unfinished)	CPY	Canopy		
A(F)	Attic (Finished)				

Exterior/Interior Information

Levels	Use Type	Ext. Walls	Const. Type	Heating	A/C	Condition
01 - 01	PARKING GARAGE	FRAME	WOOD JOIST	HOT AIR	NONE	NORMAL
01 - 01	MULTI-USE OFFICE	FRAME	WOOD JOIST	HOT AIR	CENTRAL	NORMAL

EXHIBIT 4

Property Map



TOWN OF GROTON

GIS Map

Disclaimer:

The planimetric and topographic information depicted on this map was compiled by Fugro based on an aerial flight performed in April 2020. The parcel and property line information depicted on this map has been compiled from recorded deeds, maps, assessor records, and other sources of information in the Town of Groton. The intent of this map is to depict a graphical representation of real property information relative to the planimetric features for the Town of Groton and is subject to change as a more accurate survey may disclose. The Town of Groton and the mapping companies assume no legal responsibility for the information contained in this data.
THIS MAP IS NOT TO BE USED FOR THE TRANSFER OF PROPERTY.

Horizontal Datum:
Connecticut State Plane Coordinates, North American Datum of 1983 (NAD83 Feet).

Vertical Datum:
North American Vertical Datum of 1988 (NAVD88)

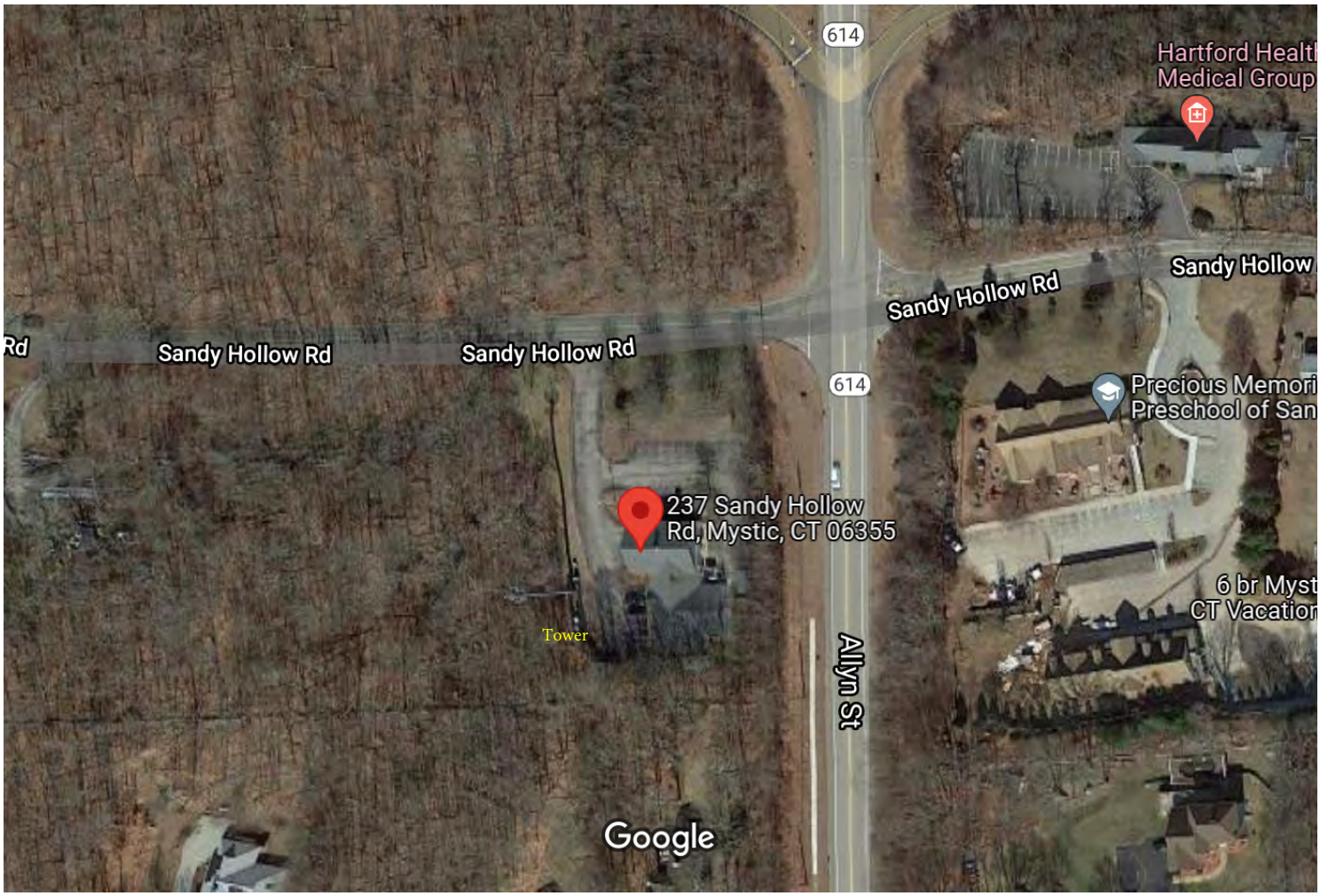
N
W E
S

1 inch = 651 feet

February 07, 2022

Map Created using the Town of Groton, Connecticut GIS Web Application

Google Maps 237 Sandy Hollow Rd



Imagery ©2022 Maxar Technologies, USDA Farm Service Agency, Map data ©2022 100 ft

EXHIBIT 5

Zoning Documents

SITE NAME: Groton 2 SITE ID: CT11561-A

Transaction: MCF Communications Jennifer

ZONING/PERMITTING COMPLETION FORM

Address: 237 Sandy Hollow Rd, Groton, CT 06355

Jurisdiction: CSC/Town of Groton Zoning District: RS-20

Zoning Approval Type: Cert. of Env. Comp. & Public Need Case #: Docket No.343

Approval Date: 3/26/08 Approved Height: 130 Tower Build Date: _____

If tower is destroyed or drop/swap required, tower can likely be rebuilt? ☐ YES ☐ NO

Conditions of Approval:

	Yes	No	N/A
Removal Bond	☐	☒	☐
Site Plan Submittal	☐	☒	☐
Fall Zone	☐	☒	☐
Periodic Inspections	☐	☒	☐
Periodic Reporting	☐	☒	☐
Approval Renewal	☐	☒	☐
Additional Conditions (See approval for all conditions)	☒	☐	☐

Monopole type NTE 130 ft. Tower to be installed 60 ft. N of proposed compound.
Equipment compound = 35'x50' fenced area.

JURISDICTION POC/DEPT.

Planning/Zoning: _____

Phone: _____ Fax: _____

Bldg./Code Enforcement: Kevin Quinn (Town of Groton)

Phone: 860-446-5982 x2 Fax: _____

Submitted by: Patches Estes Date: 10/22/08
Zoning Compliance

TO BE COMPLETED BY CORPORATE

	Yes	No	N/A	
Zoning Approval Attached (required)	☒	☐	☐	
Building Permit Attached (required) BP08-380	☒	☐	☐	Date Recd 9/9/08
Certificate of Occupancy or Compliance (CO) attached (required)	☐	☐	☐	

Zoning Manager Approval: D E Borchardt Date 10/22/2008
Diane E. Borchardt, AICP

TOWN OF GROTON

PLANNING AND DEVELOPMENT SERVICES
Inspection Services

134 Groton Long Point Road
Groton, Connecticut 06340-4873
Telephone (860) 446-5982
Fax (860) 446-5978

October 20, 2008

To Whom It May Concern:

SUBJECT: 237 Sandy Hollow Road, Groton, CT; PIN #: 261909065371 E

The use of the cell tower and associated equipment at 237 Sandy Hollow Road, Groton, CT at this time with temporary power is acceptable to this office. A Certificate of Use will be issued upon connection of permanent power.

If you have any questions regarding the above please contact me.

Sincerely,

Kevin A. Quinn
Manager of Inspection Services

KAQ:lg

FAX MEMO
DATE 9-9-08 PAGES 1
TO Fred Cannon FAX # 343-2352
DEPT Town of Groton
FROM FAX #

Town of Groton
BUILDING/ZONING PERMIT APPLICATION

Please Print

(office use only)
Permit No. BP08-380
Fees: Bldg. 80 Zon. 10 C.O. 16.20 State 14.40 Total $850.60

Estimated Cost: $80,000
Address of Building: 237 Sandy Hollow RD
Zone: Commercial PIN:
Owner: MCF Communications Ph. #:
Address: Turnpike ST N. ANDOVER
Contractor: North East Towers Ph. #: 401-524-6439
Address: 199 Buckyard RD. Farmington CT.
Nature of Proposed Work and Use: Cell Tower per Submitted plans

Plans: Type of Construction: Size:
No. of Stories: No. of Rooms: -0- No. of Baths: -0-
Fireplace(s): -0- Garage: -0- Bay(s) No. of Units: -0-

ZP08-185 ZONING PERMIT

(To be filled out in conjunction with a building permit involving any new structure, addition to an existing structure, or change of use.)

Flood Hazard District: HDC #: ZBA #:
Site Plan Approval #: Special Zoning Permit #:
Wetlands: Coastal Area Management:
Site Suitability #: Sewer #: A2 Survey: Site plan

Zoning Official 9-9-08 Date

CERTIFICATION: I hereby certify that: ☐ I am the owner of record of the named property or ☐ that the proposed work is authorized by the owner of record and/or I have been authorized to make this application as an authorized agent, and we agree to conform to all applicable laws, codes, regulations and ordinances. All information contained within is true and accurate to the best of my knowledge and belief.

Guy Daniels 401-524-6439 # 900747
Print Name in Ink Phone # Lic. #

Signature (in INK) of Owner/Authorized Agent 8-19-08 Date

Building Official 9-9-08 Completed Application Received Date

This permit shall become invalid unless the work authorized by such permit is commenced within 180 days after its issuance. Refunds will be subject to the refund policy.

DOCKET NO. 343 - MCF Communications bg, Inc and Omnipoint Communications, Inc. application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility located at 237 Sandy Hollow Road, Groton, Connecticut.	}	Connecticut Siting Council March 26, 2008

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to MCF Communications bg, Inc and Omnipoint Communications, Inc., hereinafter referred to as the Certificate Holders, for a telecommunications facility at 237 Sandy Hollow Road, Groton, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of T-Mobile and other entities, both public and private, but such tower shall not exceed a height of 130 feet above ground level. The height at the top of the antennas shall not exceed 130 feet above ground level.

2. The tower shall be installed 60 feet north of the proposed compound.

3. The equipment compound shall be located within a 35-foot by 50-foot fenced area.

4. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Groton for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:

    a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping; and
    b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

5. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

6. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

7. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of Groton public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.

8. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower 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 Final Decision shall not be counted in calculating this deadline.

9. Any request for extension of the time period referred to in Condition 8 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Groton. Any proposed modifications to this Decision and Order shall likewise be so served.

10. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

11. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.

12. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction and the commencement of site operation.

Pursuant to General Statutes § 16-50p, the Council hereby directs that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Day, the Norwich Bulletin and The Groton Times.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

Applicant	**Its Representative**
MCF Communications bj, Inc and Omnipoint Communications, Inc	Julie Kohler, Esq. Carrie Larson, Esq. Cohen and Wolf, P.C 1115 Broad Street Bridgeport, CT 06604

Intervenor

Charles E. Stevens
12 Stony Hill Drive
Mystic, CT 06355-1636

EXHIBIT 6

Construction Drawings

NL053/MCF_AMBULANCE

237 SANDY HOLLOW ROAD
GROTON, CT 06355
NEW LONDON COUNTY

SITE NO.: CTNL053A

SITE TYPE: 130'± MONOPOLE

RF DESIGN GUIDELINE: 67D5A998E 6160

APPROVALS

PROJECT MANAGER:	DATE:	ZONING/SITE ACQ.:	DATE:
CONSTRUCTION:	DATE:	OPERATIONS:	DATE:
RF ENGINEERING:	DATE:	TOWER OWNER:	DATE:

T-MOBILE TECHNICIAN SITE SAFETY NOTES

LOCATION	SPECIAL RESTRICTIONS
SECTOR A:	ACCESS BY CERTIFIED CLIMBER
SECTOR B:	ACCESS BY CERTIFIED CLIMBER
SECTOR C:	ACCESS BY CERTIFIED CLIMBER
SECTOR D:	ACCESS BY CERTIFIED CLIMBER
GPS/LMU:	UNRESTRICTED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

SCOPE OF WORK

REMOVE:
- 6 ANTENNAS
- 1 RBS6131 EQUIPMENT CABINET
- 1 PTS 8003 BATTERY CABINET

INSTALL:
- 6 ANTENNAS
- 3 RADIOS
- 1 6160 EQUIPMENT CABINET
- 1 B160 BATTERY CABINET
- 1 SLACKBOX
- 1 HYBRID CABLE
- 1 125A-2P BREAKER
- 1 25A-1P BREAKER

SITE NOTES

1. THIS IS AN UNMANNED AND RESTRICTED ACCESS TELECOMMUNICATION FACILITY, AND IS NOT FOR HUMAN HABITATION. IT WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNAL FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE.
   - ADA COMPLIANCE NOT REQUIRED.
   - POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
   - NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.
2. CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3. NEW CONSTRUCTION WILL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES.
   - BUILDING CODE: 2018 CONNECTICUT STATE BUILDING CODE
   - ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
   - STRUCTURAL CODE: TIA/EIA-222-G STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

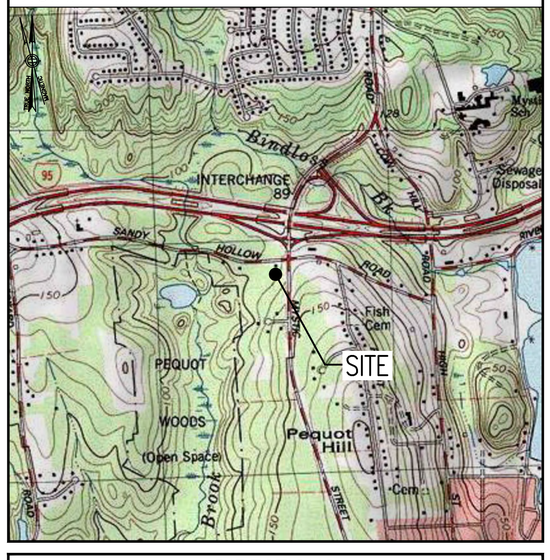
GENERAL NOTES

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE OMNIPOINT REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
10. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY CONSTRUCTION CONTROL SURVEYS, ESTABLISHING AND MAINTAINING ALL LINES AND GRADES REQUIRED TO CONSTRUCT ALL IMPROVEMENTS AS SHOWN HEREIN.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
12. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
13. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
14. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
15. THE CONTRACTOR SHALL NOTIFY THE PROJECT OWNER'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE LESSEE/LICENSEE REPRESENTATIVE.
16. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
17. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK.

AT LEAST 72 HOURS PRIOR TO DIGGING, THE CONTRACTOR IS REQUIRED TO CALL DIG SAFE AT 811

VICINITY MAP

SCALE: 1" = 1000'-0"



DIRECTIONS

MERGE ONTO I-495 NORTH TOWARD MANSFIELD/MARLBORO. TAKE EXIT 33B FOR I-95 SOUTH TOWARD PROVIDENCE RI. KEEP LEFT TO CONTINUE TOWARD I-95 SOUTH. CONTINUE ONTO I-95 SOUTH. KEEP RIGHT AT FORK TO STAY ON I-95 SOUTH. TAKE EXIT 89 TOWARD ALLYN STREET. TURN LEFT ONTO STATE HIGHWAY 614/MYSTIC STREET. TURN RIGHT ONTO SANDY HOLLOW ROAD. SITE IS LOCATED ON THE LEFT HAND SIDE.

SHEET INDEX

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DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT SUMMARY

SITE NUMBER:	CTNL053A
SITE NAME:	NL053/MCF_AMBULANCE
SBA SITE NUMBER:	CT11561-A
SBA SITE NAME:	GROTON 2, CT
SITE ADDRESS:	237 SANDY HOLLOW ROAD GROTON, CT 06355
PROPERTY OWNER:	MYSTIC RIVER AMBULANCE ASSOCIATION, INC. P.O. BOX 64 WEST MYSTIC, CT 06388
TOWER OWNER:	SBA INFRASTRUCTURE, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	NEW LONDON
ZONING DISTRICT:	C (COMMERCIAL)
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	130'±
APPLICANT:	T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766
ARCHITECT:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
STRUCTURAL ENGINEER:	CHAPPELL ENGINEERING ASSOCIATES, LLC. 201 BOSTON POST ROAD WEST, SUITE 101 MARLBOROUGH, MA 01752
SITE CONTROL POINT:	LATITUDE: 41.370002° N41°22'12.01" LONGITUDE: -71.982496° W71°58'56.99"

SPECIAL ZONING NOTE:
BASED ON INFORMATION PROVIDED BY T-MOBILE REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AN ELIGIBLE FACILITY UNDER THE MIDDLE CLASS TAX RELIEF AND JOB CREATION ACT OF 2012, 47 USC 1455(A), SECTION 6409(A), AND IS SUBJECT TO AN ELIGIBLE FACILITY REQUEST, EXPEDITED REVIEW, AND LIMITED/PARTIAL ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW, OR ADMINISTRATIVE REVIEW).

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

SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
(508) 251-0720

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil ·Structural ·Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
www.chappellengineering.com

STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED
PROFESSIONAL CIVIL ENGINEER
2/3/2022

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	02/03/22	ISSUED FOR CONSTRUCTION	CMC
0	12/21/21	ISSUED FOR REVIEW	CMC

SITE NUMBER:
CTNL053A

SITE ADDRESS:
237 SANDY HOLLOW ROAD
GROTON, CT 06355

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

1815.379

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR – T–MOBILE
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – T–MOBILE
   OEM – ORIGINAL EQUIPMENT MANUFACTURER

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL 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 CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.

4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL, STATE AND FEDERAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

5. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER, T1 CABLES AND GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR AND/OR LANDLORD PRIOR TO CONSTRUCTION.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION AND RETURN DISTURBED AREAS TO ORIGINAL CONDITIONS.

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

14. SUBCONTRACTOR SHALL NOTIFY CHAPPELL ENGINEERING ASSOCIATES, LLC 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS AND POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEERING REVIEW.

15. CONSTRUCTION SHALL COMPLY WITH ALL T–MOBILE STANDARDS AND SPECIFICATIONS.

16. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

17. THE EXISTING CELL SITES ARE IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

18. IF THE EXISTING CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.

2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.

3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.

4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.

5. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.

6. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

7. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.

8. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF ENGINEERING, OWNER AND/OR LOCAL UTILITIES.

9. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION AS SPECIFIED IN THE PROJECT SPECIFICATIONS.

10. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

11. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE T–MOBILE SPECIFICATION FOR SITE SIGNAGE.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.

2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 381 CODE REQUIREMENTS

3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.

4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST EARTH.....3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER .....2 IN.
   #5 AND SMALLER & WWF .....1½ IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER
   OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALL .....¾ IN.
   BEAMS AND COLUMNS .....1½ IN.

5. A CHAMFER ¾" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHORS SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO THE MANUFACTURERS RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY SIMPSON OR APPROVED EQUAL.

7. CONCRETE CYLINDER TIES ARE NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER;
   (A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIERS PLANT.
   (B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE GRADE SUPPLIED.
FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.

8. AS AN ALTERNATIVE TO ITEM 7. TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLANT.

9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND T–MOBILE SPECIFICATIONS UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM–A–36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".

2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. PAINTED SURFACES SHALL BE TOUCHED UP.

3. BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (¾"ø) AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.

4. NON–STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE ⅝" DIA. ASTM A 307 BOLTS (GALV) UNLESS NOTED OTHERWISE.

5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL

6. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL TO EXPOSE NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.

2. COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.

3. AS AN ALTERNATE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.

4. COMPACTED SUBBASE SHALL BE UNIFORM AND LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING #1 SIEVE.

5. AS AN ALTERNATE TO ITEMS 2 AND 3, THE SUBGRADE SOILS WITH 5 PASSES OR A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND–OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E). AND SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL–GRADED GRANULAR FILL AND COMPACTED AS STATED ABOVE.

COMPACTION EQUIPMENT:

1. HAND OPERATED DOUBLE DRUN, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, T–MOBILE ANTENNA PLATFORM LOCATION AND UTILITY TRENCHWORK.

2. COORDINATION OF WORK:
SUBCONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH CONTRACTOR.

3. CABLE LADDER RACK:
SUBCONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY AND/OR ICE BRIDGE, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

ELECTRICAL INSTALLATION NOTES:

1. WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.

2. SUBCONTRACTOR SHALL MODIFY OR INSTALL CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLING TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR FOR APPROVAL.

3. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.

4. CABLES SHALL NOT BE ROUTED THROUGH LADDER–STYLE CABLE TRAY RUNGS.

5. EACH END OF EVERY POWER, GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA, AND MATCH INSTALLATION REQUIREMENTS.

6. POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, ½ INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC AND OSHA.

7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).

8. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.

9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.

10. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.

12. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.

13. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN–2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.

14. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY HARGER (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).

15. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

16. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

17. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.

18. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.

19. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.

20. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.

21. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.

22. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.

23. CABINETS, BOXES AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.

24. CABINETS, BOXES AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.

25. WIREWAYS SHALL BE EPOXY–COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

26. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.

27. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED, OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

28. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.

29. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.

30. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.

31. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.

32. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED
PROFESSIONAL CIVIL ENGINEER

2/3/2022

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APPROVED BY:	JMT

SUBMITTALS

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SITE NUMBER:
CTNL053A

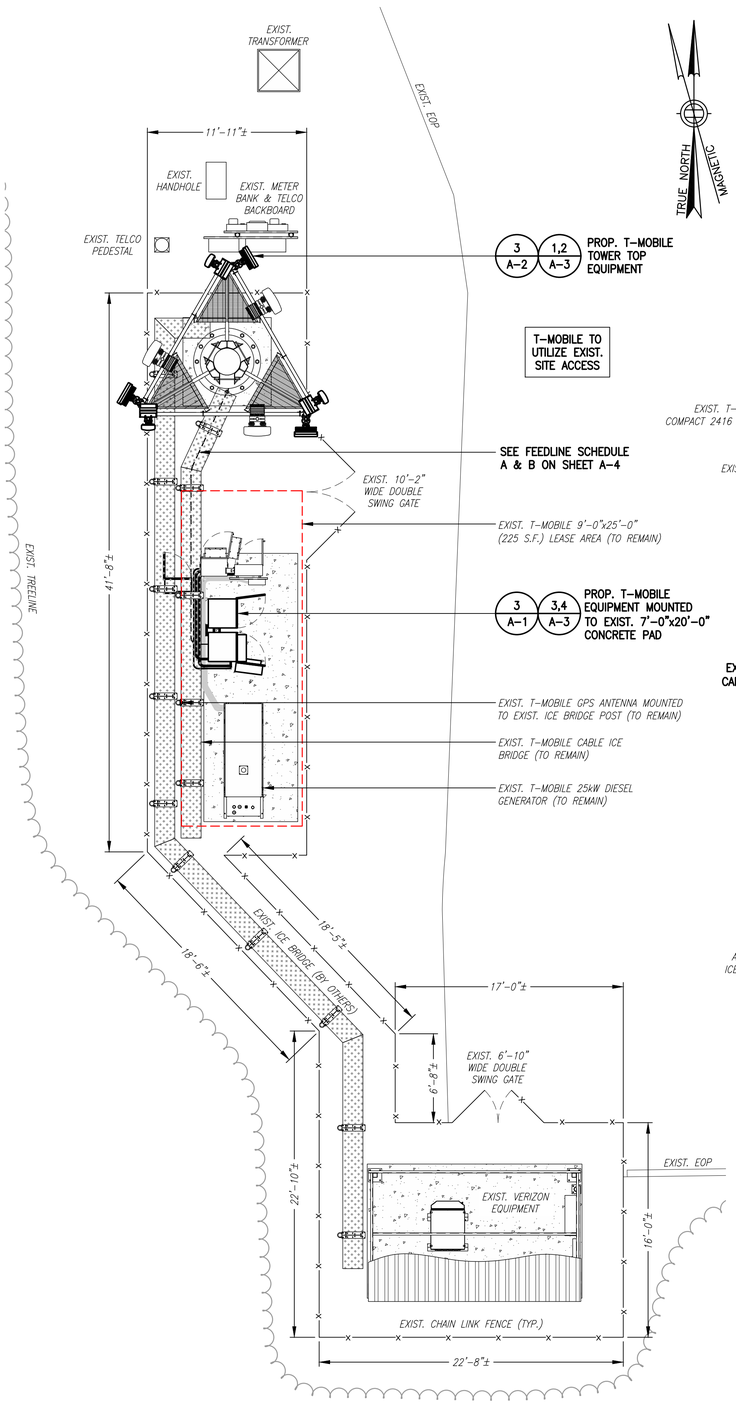
SITE ADDRESS:
237 SANDY HOLLOW ROAD
GROTON, CT 06355

SHEET TITLE
GENERAL NOTES

SHEET NUMBER
GN-1

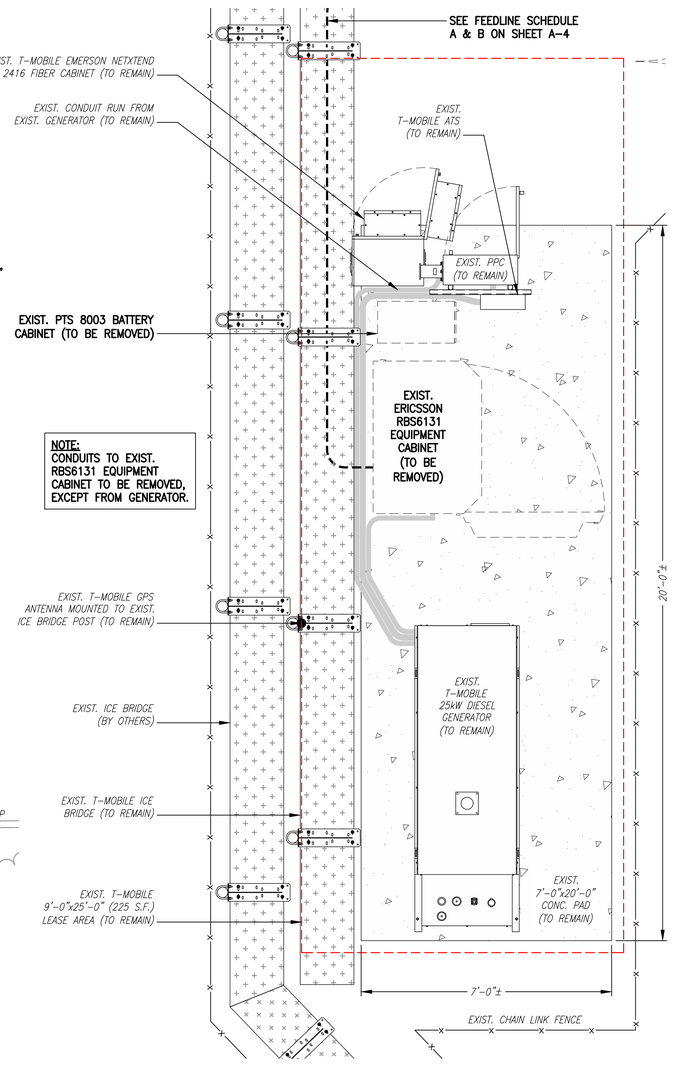
1815.379

SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.



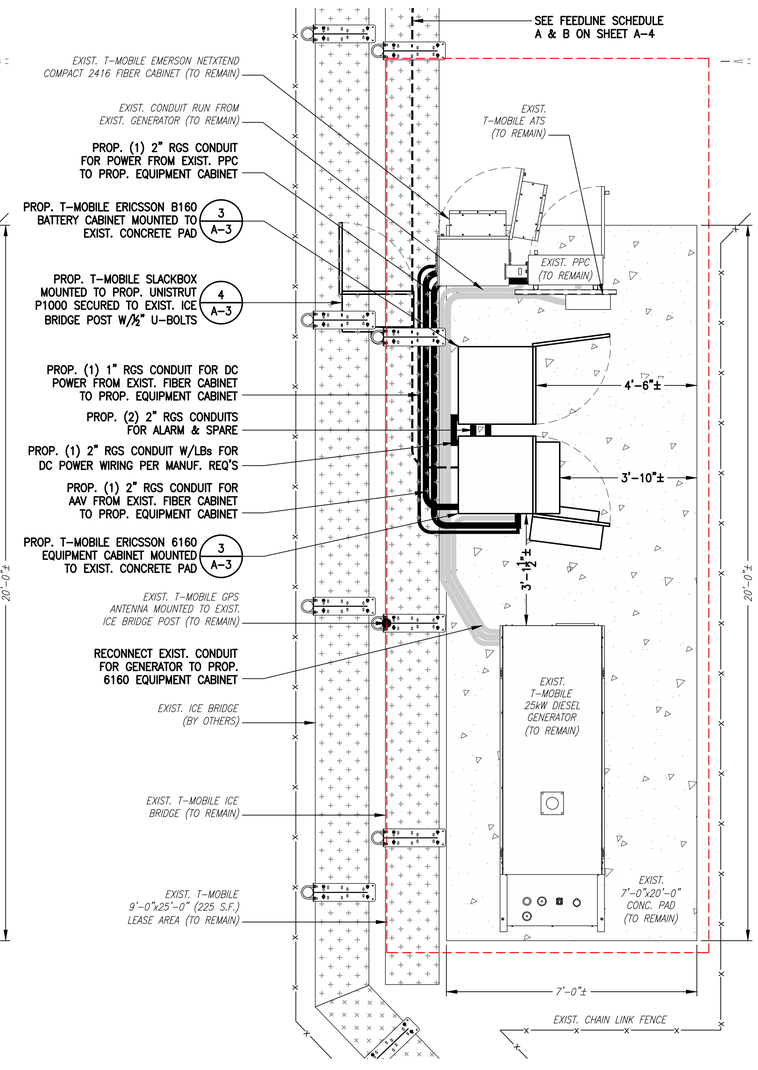
COMPOUND PLAN 1/A-1
SCALE: 3/16" = 1'-0"
0 2'-8" 5'-4" 10'-8" 16'-0"

NOTE:
CONDUITS TO EXIST. RBS6131 EQUIPMENT CABINET TO BE REMOVED, EXCEPT FROM GENERATOR.



EXISTING EQUIPMENT PLAN 2/A-1
SCALE: 1/2" = 1'-0"
0 2'-0" 4'-0" 6'-0"

NOTE:
ALL PROP. CONDUITS TO BE BURIED TO PREVENT TRIP HAZARD.



PROPOSED EQUIPMENT PLAN 3/A-1
SCALE: 1/2" = 1'-0"
0 2'-0" 4'-0" 6'-0"

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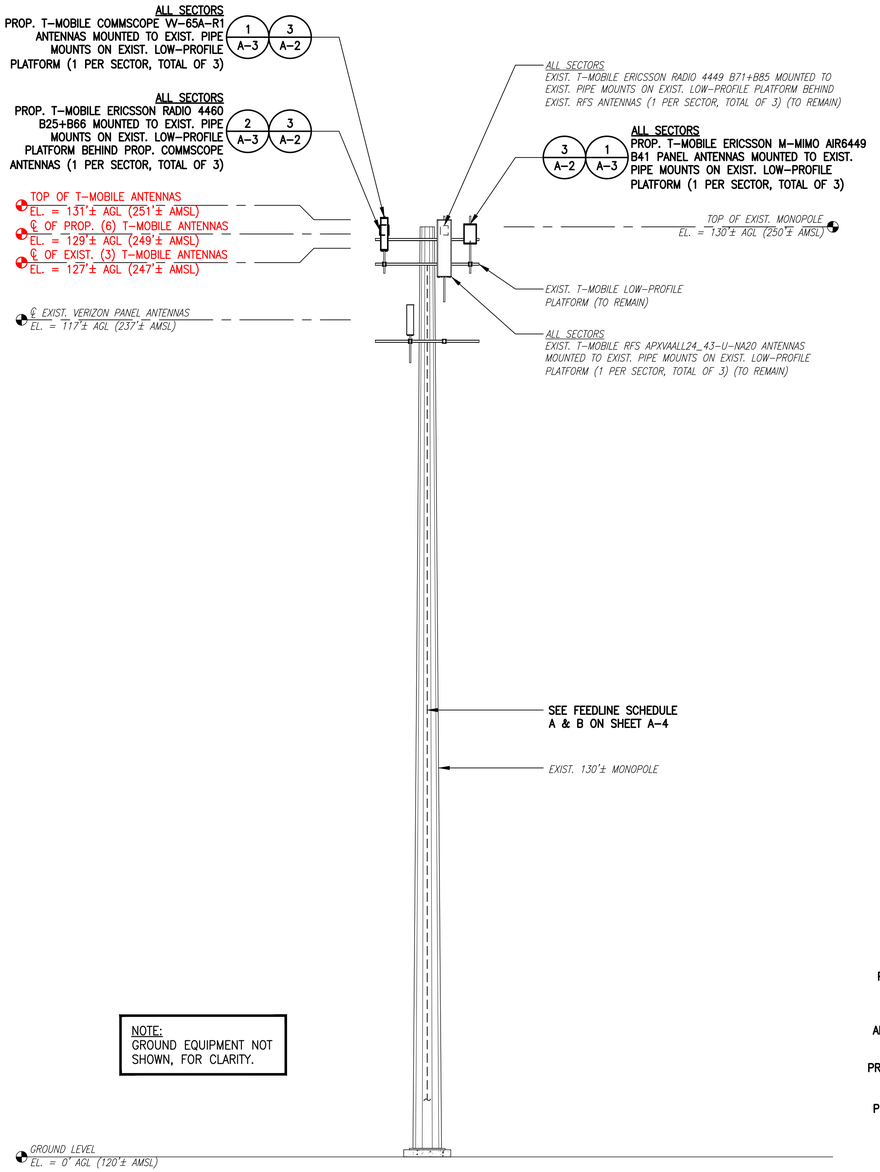
SHEET TITLE
COMPOUND & EQUIPMENT PLAN

SHEET NUMBER
A-1

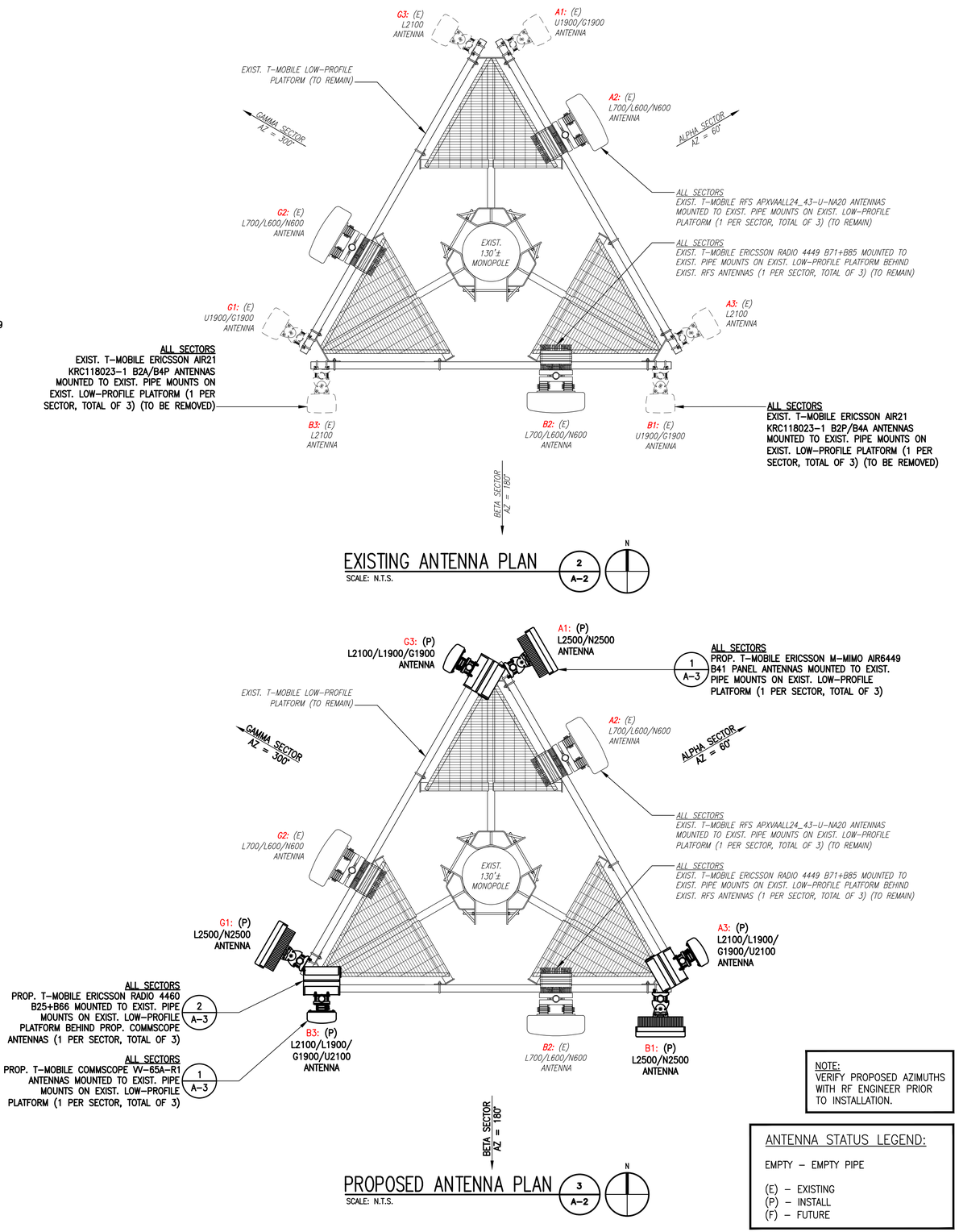
1815.379

RAD CENTER NOTE:
T-MOBILE RAD CENTER SHOWN IN RED TEXT BASED ON SBA-PROVIDED CO-LOCATION APPLICATION, EQUIPMENT DATABASE, AND STRUCTURAL ANALYSIS. THE SBA-PROVIDED ANTENNA RAD CENTER SHALL SUPERSEDE ANY CONFLICTING INFORMATION DERIVED FROM THE T-MOBILE RFDS.



NOTE:
GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.

TOWER ELEVATION (1 / A-2)
SCALE: 1" = 10'-0"
0 10' 20' 30'



EXISTING ANTENNA PLAN (2 / A-2)
SCALE: N.T.S.

PROPOSED ANTENNA PLAN (3 / A-2)
SCALE: N.T.S.

NOTE:
VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION.

ANTENNA STATUS LEGEND:

EMPTY – EMPTY PIPE

(E) – EXISTING
(P) – INSTALL
(F) – FUTURE

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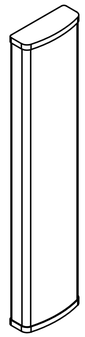
SHEET TITLE
TOWER ELEVATION & ANTENNA PLANS

SHEET NUMBER
A-2

1815.379



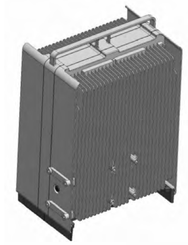
COMMSCOPE VV-65A-R1 ANTENNA

DIMENSIONS: 54.7"H x 12.1"W x 4.6"D
WEIGHT: 23.8 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

ERICSSON M-MIMO AIR6449 B41 ANTENNA

DIMENSIONS: 33.1"H x 20.5"W x 8.3"D
WEIGHT: 103.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

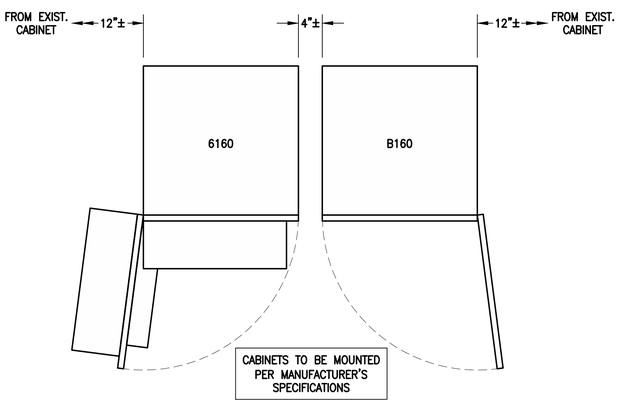
ANTENNA DETAILS (1 / A-3)
SCALE: N.T.S.



ERICSSON RADIO 4460 B25+B66

DIMENSIONS: 17.0"H x 15.1"W x 11.9"D
WEIGHT: 104.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

RADIO DETAILS (2 / A-3)
SCALE: N.T.S.



ERICSSON 6160 SITE SUPPORT CABINET

DIMENSIONS: 63.25"H x 26.0"W x 34.0"D
WEIGHT: 680.0 lbs
QUANTITY: TOTAL OF 1

ERICSSON B160 BATTERY CABINET

DIMENSIONS: 63.25"H x 26.0"W x 26.0"D
WEIGHT: 1771.0 lbs
QUANTITY: TOTAL OF 1

EQUIPMENT DETAIL (3 / A-3)
SCALE: N.T.S.

SLACKBOX – HOFFMAN 32FH91 NEMA 3R ENCLOSURE

DIMENSIONS: 24.0"H x 24.0"W x 12.0"D
QUANTITY: TOTAL OF 1

SSC DETAILS (4 / A-3)
SCALE: N.T.S.

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SHEET TITLE
SITE DETAILS

SHEET NUMBER
A-3

1815.379

FINAL ANTENNA CONFIGURATION

SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	CABLES
ALPHA	A1 ERICSSON M-MIMO AIR6449 B41	129'± AGL	60°	0°	2°	L2500/N2500	–	EXIST. (3) 1-5/8" (6x12) HCS FIBER CABLES PROP. (1) 2" (6x24) HCS FIBER CABLE
	A2 *RFS APXVAALL24_43-U-NA20*	*127'± AGL*	*60°*	*0°*	*2°*	*L700/L600/N600*	*ERICSSON RADIO 4449 B71+B85*	
	A3 COMMSCOPE VV-65A-R1	129'± AGL	60°	0°	2°	L2100/L1900/G1900/U1900	ERICSSON RADIO 4460 B25+B66	
BETA	B1 ERICSSON M-MIMO AIR6449 B41	129'± AGL	180°	0°	2°	L2500/N2500	–	
	B2 *RFS APXVAALL24_43-U-NA20*	*127'± AGL*	*180°*	*0°*	*2°*	*L700/L600/N600*	*ERICSSON RADIO 4449 B71+B85*	
	B3 COMMSCOPE VV-65A-R1	129'± AGL	180°	0°	2°	L2100/L1900/G1900/U1900	ERICSSON RADIO 4460 B25+B66	
GAMMA	G1 ERICSSON M-MIMO AIR6449 B41	129'± AGL	300°	0°	2°	L2500/N2500	–	
	G2 *RFS APXVAALL24_43-U-NA20*	*127'± AGL*	*300°*	*0°*	*2°*	*L700/L600/N600*	*ERICSSON RADIO 4449 B71+B85*	
	G3 COMMSCOPE VV-65A-R1	129'± AGL	300°	0°	2°	L2100/L1900/G1900/U1900	ERICSSON RADIO 4460 B25+B66	

CABLE NOTE: NO CHANGES. SEE FEEDLINE SCHEDULE A & B BELOW.

NOTE: RFDS REV4 – 11/12/21

FEEDLINE SCHEDULE

SCHEDULE	FEEDLINES	LOCATION
A	*EXISTING TO REMAIN:* *(1) 1/2" COAX FOR GPS ANTENNA* *(3) 1-5/8" (6x12) HCS FIBER CABLES* *EXISTING TO BE REMOVED:* *NONE*	ROUTED PER STRUCTURAL ANALYSIS
B	PROPOSED: (1) 2" (6x24) HCS FIBER CABLE	

NOTE:
EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.

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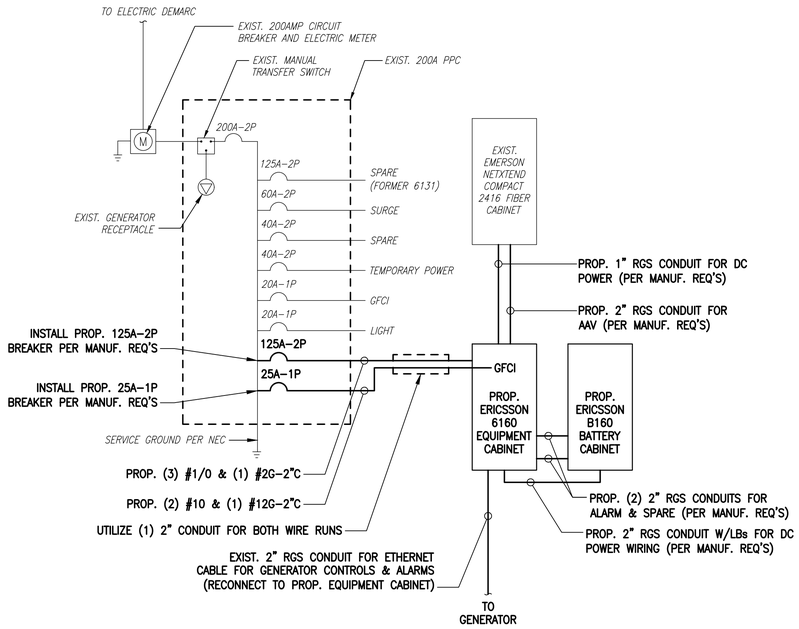
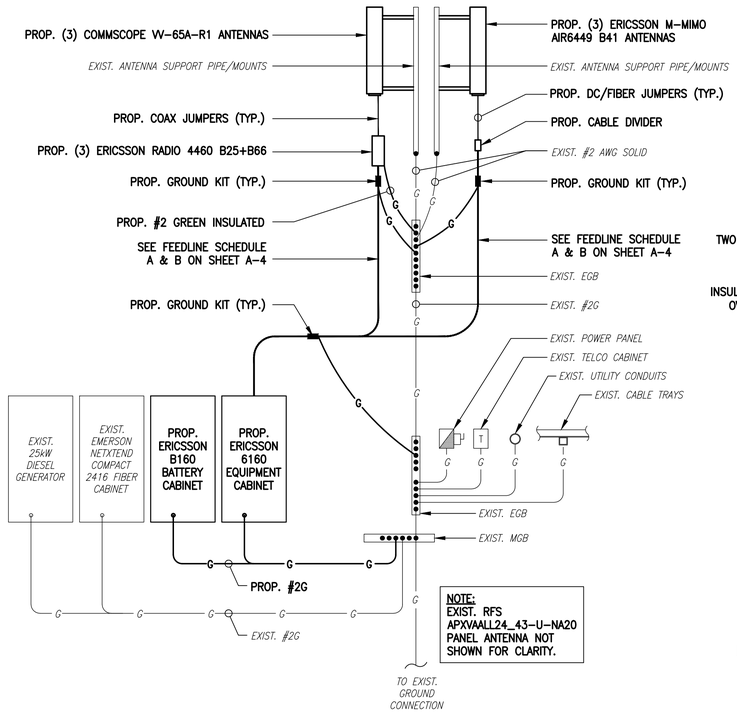
SHEET TITLE
ANTENNA & FEEDLINE CHARTS

SHEET NUMBER
A-4

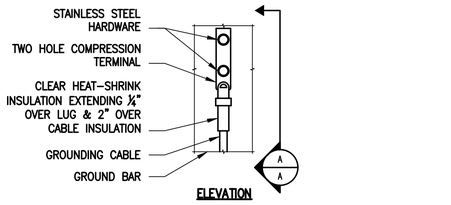
1815.379



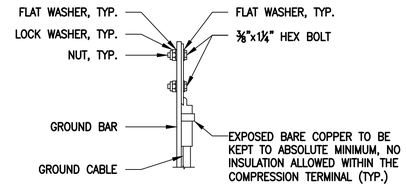
ONE LINE DIAGRAM
SCALE: NOT TO SCALE — 1 / E–1



GROUNDING RISER DIAGRAM
SCALE: NOT TO SCALE — 2 / E–1



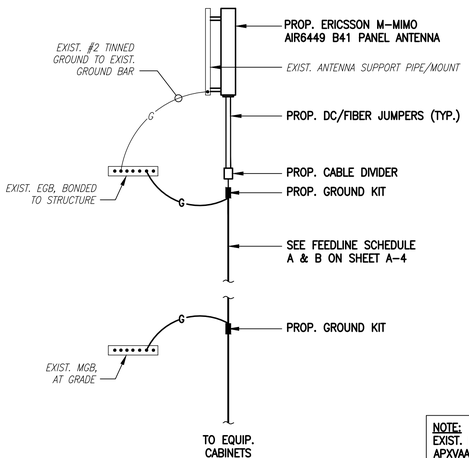
ELEVATION



SECTION A–A

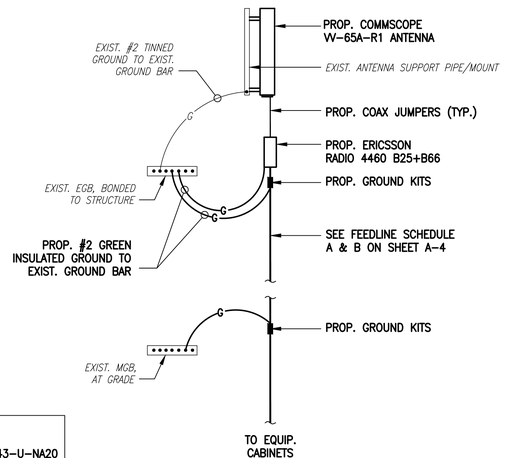
NOTES:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELL DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.

TYPICAL GROUND BAR CONNECTIONS DETAIL
SCALE: NOT TO SCALE — 3 / E–1



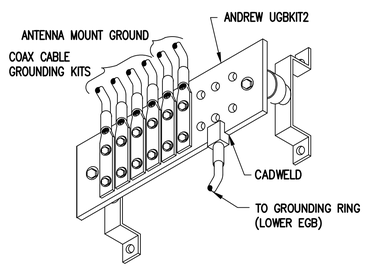
L2500/N2500 ANTENNA

NOTE: EXIST. RFS APXVAALL24_43–U–NA20 PANEL ANTENNA NOT SHOWN FOR CLARITY.



L2100/L1900/G1900/U2100 ANTENNA

COAX CABLE CONNECTION AND GROUNDING DETAIL
SCALE: NOT TO SCALE — 4 / E–1



GROUND BAR (EGB)
SCALE: NOT TO SCALE — 5 / E–1

ELECTRICAL AND GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THHNINSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
11. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
12. PPC SUPPLIED BY PROJECT OWNER.
13. GROUNDING SHALL COMPLY WITH NEC ART. 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTNING PROTECTION SHALL BE DONE IN ACCORDANCE WITH "T–MOBILE BTS SITE GROUNDING STANDARDS".
14. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
15. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
16. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
17. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
18. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
19. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
20. CONTRACTOR SHALL PROVIDE AND INSTALL OMNI DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALLS OVER EACH GROUND ROD AND BONDING POINT BETWEEN EXIST. TOWER/ MONOPOLE GROUNDING RING AND EQUIPMENT GROUNDING RING.
21. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE–OUT DOCUMENTATION. 5 OHMNS MINIMUM RESISTANCE REQUIRED.
22. CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN–LOSS AND DISTANCE– TO–FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.

T-MOBILE NORTHEAST LLC
15 COMMERCE WAY, SUITE B
NORTON, MA 02766
(508) 286–2700

SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
(508) 251–0720

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil ·Structural ·Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752
(508) 481–7400
www.chappellengineering.com

STATE OF CONNECTICUT · JAMES M. FITZGERALD · No. 25937 · LICENSED PROFESSIONAL CIVIL ENGINEER

2/3/2022

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	02/03/22	ISSUED FOR CONSTRUCTION	CMC
0	12/21/21	ISSUED FOR REVIEW	CMC

SITE NUMBER:
CTNL053A

SITE ADDRESS:
237 SANDY HOLLOW ROAD
GROTON, CT 06355

SHEET TITLE
ELECTRIC & GROUNDING DETAILS

SHEET NUMBER
E–1

1815.379

EXHIBIT 7

Structural Analysis

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 130 ft Nudd Corporation Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT11561-A

Customer Site Name: Groton 2, CT

Carrier Name: Multiple Pending Carriers (App#: 183891, V1)

Carrier Site ID / Name: CTNL053A / Groton

Site Location: 237 Sandy Hollow Road

Groton, Connecticut

New London County

Latitude: 41.369510

Longitude: -71.982463

Analysis Result:

Max Structural Usage: 69.0% [Pass]

Max Foundation Usage: 39.3% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Karzan Habeeb

Introduction

The purpose of this report is to summarize the analysis results on the 130 ft Nudd Corporation Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Monopole original shaft section data prepared by Fred. A. Nudd Corp. Dated 05-09-2008. Drawing No 208-13077-1. Monopole previous structural report prepared by FDH Engineering, Inc. Dated 06-17-2015. Project No 15BORZ1400 Rev 1.
Foundation Drawing	Monopole original foundation drawings prepared by Fred. A. Nudd Corp. Dated 05-09-2008. Drawing No 208-13077-1.
Geotechnical Report	Monopole geotechnical report prepared by FDH Engineering, Inc. Dated 03-26-2014. Project No 1424W71600.
Modification Drawings	N/A
Mount Analysis	TES, Project # 121752, Dated 01/11/2022

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2**.** In accordance with this standard, the structure was analyzed using **TESPoles,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 135.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 105.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.16, S_1 = 0.058

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
-	127.0	3	Ericsson Air 21 B2A/B4P - Panel	(1) Low profile platform	(9) 1 5/8" (3) 1.9" Fiber	T-Mobile
-		3	Ericsson Air 21 B4A/B2P - Panel			
-		3	RFS APXVAALL24_43-U-NA20 - Panel			
-		3	Ericsson KRY 112 144/1 TMAs			
-		3	Ericsson 4449 B71 + B85 RRU's			
7	117.0	2	Commscope HBX-6513DS-A1M - Panel	Low Profile Platform w/ Modification [Support Rail with End Connection]	(2) 1 5/8" Fiber	Verizon
8		2	Samsung MT6407-77A - Panel			
9		2	Samsung B2/B66A RRH-BR049 (RFV01U-D1A) RRU's			
10		2	Raycap DB-C1-12C-24AB-0Z OVP Box			
11		2	Commscope CBC1923Q-43 Diplexer			
12	107.0	3	JMA Wireless MX08FRO665-21 Panel	Commscope MC-PK8-DSH Platform w/HRK	(1) 1.6" Hybrid	Dish Wireless
13		3	Fujitsu TA08025-B605 RRU			
14		3	Fujitsu TA08025-B604 RRU			
15		1	Raycap RDIDC-9181-PF-48 OVP			

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	127.0	3	Ericsson AIR6449 B41 - Panel	(1) Low profile platform	(8) 1 5/8" (3) 1.9" Fiber (1) 1 5/8" Fiber	T-Mobile
2		3	Commscope VV-65A-R1 - Panel			
3		3	RFS APXVAALL24_43-U-NA20 - Panel			
4		3	Ericsson KRY 112 144/1 TMAs			
5		3	Ericsson 4449 B71 + B85 RRU's			
6		3	Ericsson 4460 B25 + B66 RRU's			

See the attached coax layout for the line placement considered in the analysis.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate	Flange Connection
Max. Usage:	**54.5%**	**48.7%**	**34.9%**	**69.0%**
Pass/Fail	**Pass**	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	2034.6	21.3	30.9

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.7976 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Ratio 54.53% at 90.0ft

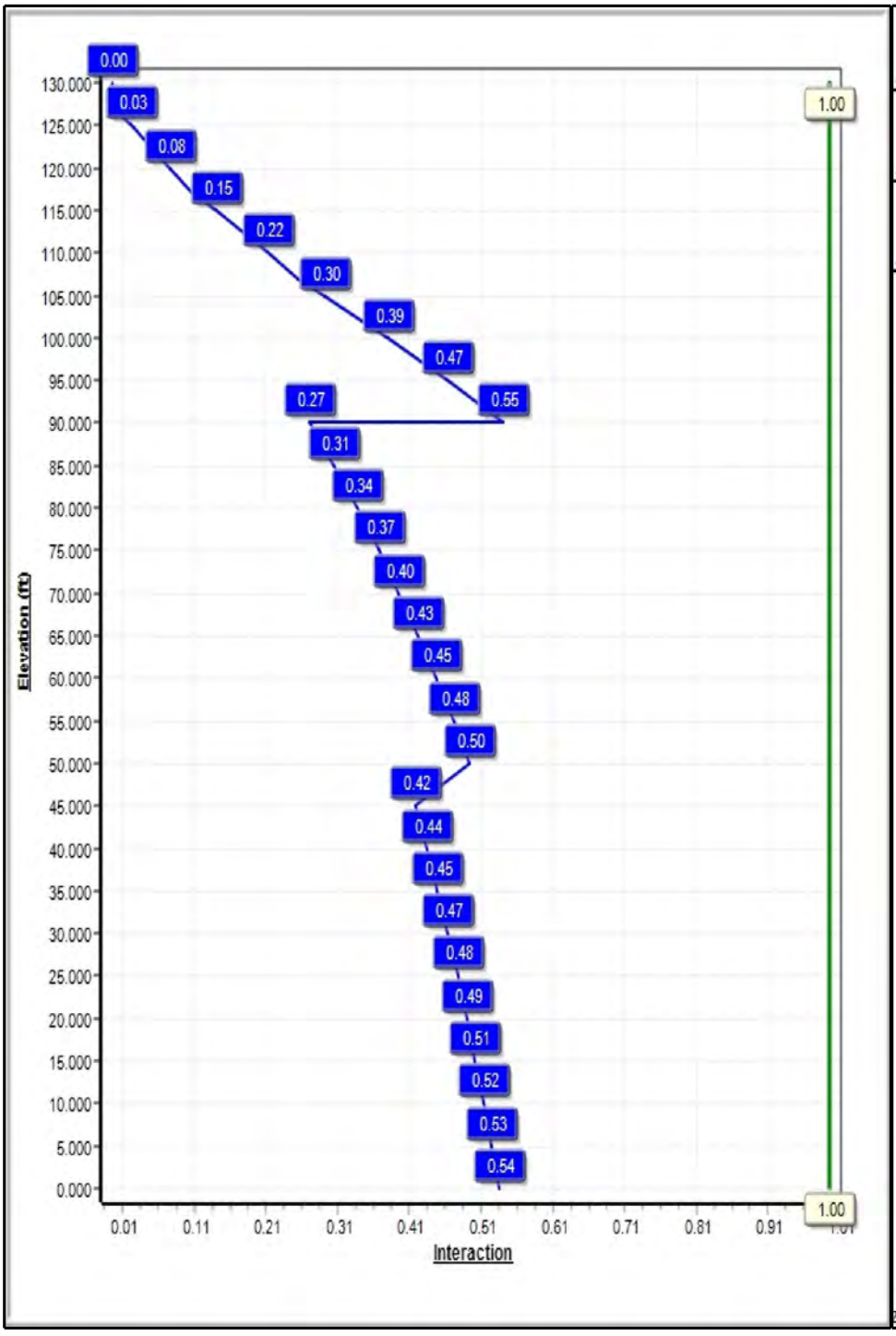
Structure:	CT11561-A-SBA	**Code:**	EIA/TIA-222-G	1/19/2022
Site Name:	Groton 2, CT	**Exposure:**	B	
Height:	130.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

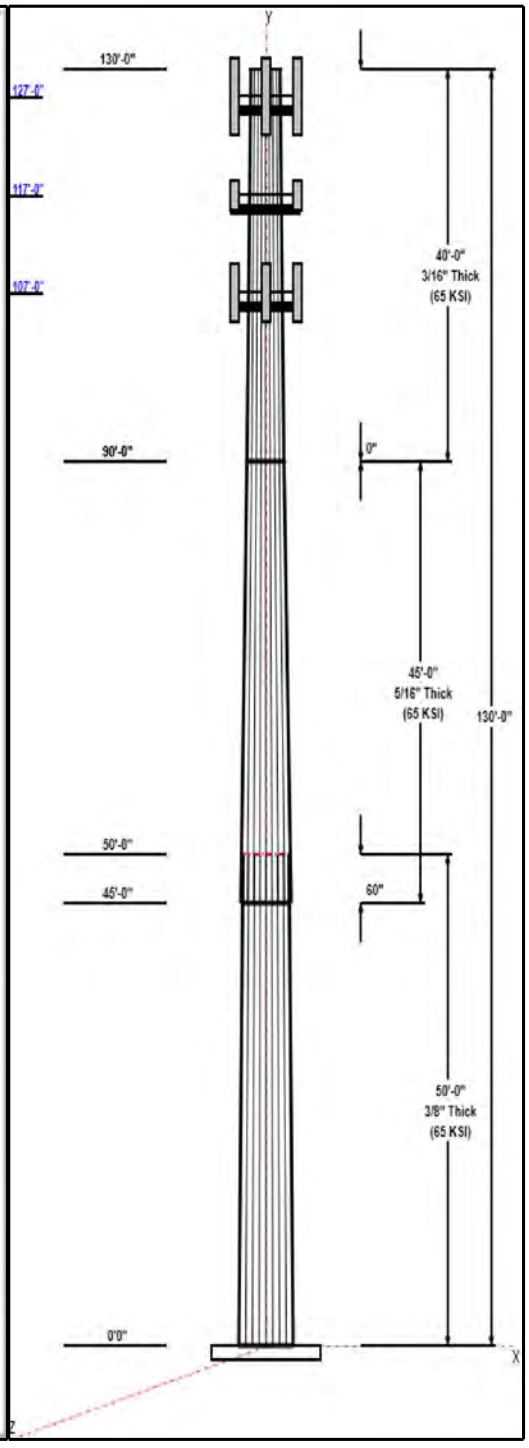
Tower Engineering Solutions

Dead Load Factor:	1.20
Wind Load Factor:	1.60

Load Case : 1.2D + 1.6W 105 mph Wind

Iterations: 22





Structure: CT11561-A-SBA

Type: Tapered
Site Name: Groton 2, CT
Height: 130.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.18942

1/19/2022

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	50.00	38.53	48.00	0.375		0.18942	65
2	45.00	31.58	40.10	0.313	Slip	0.18942	65
3	40.00	24.00	31.58	0.188	Butt	0.18942	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
127.00	127.00	3	RFS	T-Mobile
127.00	127.00	3	Ericsson KRY 112 144/1	T-Mobile
127.00	127.00	3	Ericsson 4449 B71 + B85	T-Mobile
127.00	127.00	3	Ericsson 4460 B25 + B66	T-Mobile
127.00	127.00	3	Ericsson AIR6449 B41	T-Mobile
127.00	127.00	3	Commscope VV-65A-R1	T-Mobile
127.00	127.00	1	Platform w/ Hand Rails	T-Mobile
117.00	117.00	2	CBC1923Q-43	Verizon
117.00	117.00	2	Commscope	Verizon
117.00	117.00	2	Samsung MT6407-77A	Verizon
117.00	117.00	2	Samsung B2/B66A	Verizon
117.00	117.00	2	Raycap	Verizon
117.00	117.00	1	Low Profile Platform	Verizon
117.00	119.50	1	Support Rail Kit	Verizon
107.00	107.00	3	MX08FRO665-21	Dish Wireless
107.00	107.00	1	MC-PK8-DSH	Dish Wireless
107.00	107.00	3	TA08025-B605	Dish Wireless
107.00	107.00	3	TA08025-B604	Dish Wireless
107.00	107.00	1	RDIDC-9181-PF-48	Dish Wireless

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
3.00	127.00	Inside	1 5/8" Fiber	T-Mobile
3.00	127.00	Inside	1 5/8" Coax	T-Mobile
3.00	127.00	Inside	1.9" Fiber	T-Mobile
3.00	117.00	Inside	1 5/8" Fiber	Verizon
3.00	107.00	Inside	1.6" Hybrid	Dish Wireless

Anchor Bolts

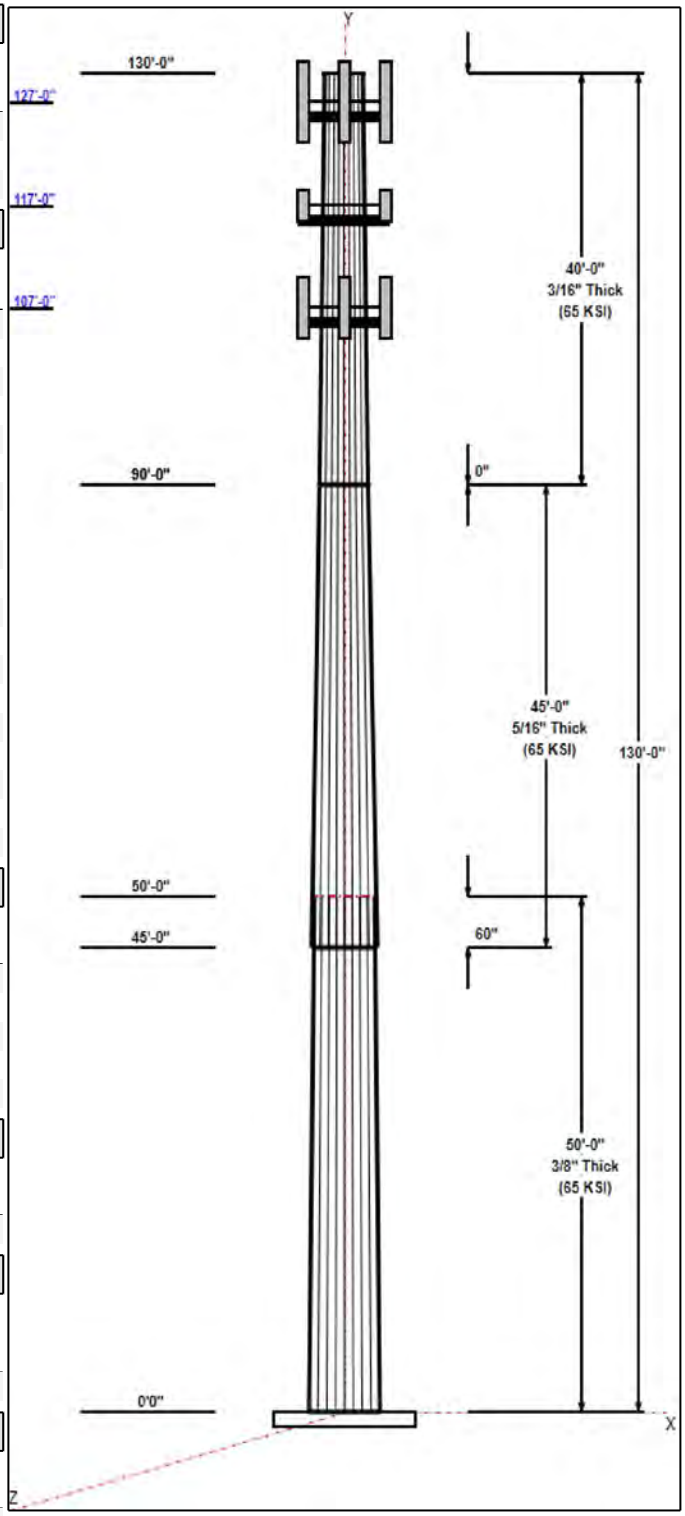
Qty	Specifications	Grade (ksi)	Arrangement
12	2.25" A193 B7	105.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.5000	60.0	50.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 105 mph Wind	2034.6	21.3	30.9
0.9D + 1.6W 105 mph Wind	2017.5	21.2	23.2
1.2D + 1.0Di + 1.0Wi 50 mph Wind	496.3	5.3	48.9
1.2D + 1.0E	142.9	1.3	31.0
0.9D + 1.0E	141.6	1.3	23.2



1.0D + 1.0W 60 mph Wind	413.1	4.3	25.8

Structure: CT11561-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Groton 2, CT
Height: 130.00 (ft)

1/19/2022

Shaft Properties

Structure:	CT11561-A-SBA		**Code:**	EIA/TIA-222-G	1/19/2022
Site Name:	Groton 2, CT		**Exposure:**	B	
Height:	130.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	50.000	0.3750	65		0.00	8,685
2	18	45.000	0.3125	65	Slip	60.00	5,396
3	18	40.000	0.1875	65	Flange	0.00	2,236
					Total Shaft Weight:		**16,316**

	Bottom						Top						
Sec. No.	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Taper**
1	48.00	0.00	56.68	16243.54	21.16	128.00	38.53	50.00	45.41	8352.00	16.71	102.7	0.189423
2	40.10	45.00	39.46	7893.43	21.22	128.32	31.58	90.00	31.01	3829.53	16.41	101.0	0.189423
3	31.58	90.00	18.68	2325.39	28.28	168.41	24.00	130.00	14.17	1015.22	21.16	128.0	0.189423

Load Summary

Structure:	CT11561-A-SBA	**Code:**	EIA/TIA-222-G	1/19/2022	
Site Name:	Groton 2, CT	**Exposure:**	B		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Discrete Appurtenances

				No Ice			Ice				
No.	**Elev (ft)**	**Description**	**Qty**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Hor. Ecc. (ft)**	**Vert Ecc (ft)**
1	127.00	RFS APXVAALL24_43-U-NA20	3	122.80	20.24	0.72	542.58	22.108	0.72	0.00	0.00
2	127.00	Ericsson KRY 112 144/1 TMAs	3	11.00	0.35	0.60	21.60	0.749	0.60	0.00	0.00
3	127.00	Ericsson 4449 B71 + B85 RRU's	3	75.00	1.95	0.67	154.84	2.529	0.67	0.00	0.00
4	127.00	Ericsson 4460 B25 + B66	3	104.00	2.85	0.67	171.48	3.513	0.67	0.00	0.00
5	127.00	Ericsson AIR6449 B41	3	103.00	5.65	0.71	237.86	6.585	0.71	0.00	0.00
6	127.00	Commscope VV-65A-R1	3	23.81	5.92	0.74	160.42	6.982	0.74	0.00	0.00
7	127.00	Platform w/ Hand Rails	1	2000.00	40.00	1.00	4059.69	60.597	1.00	0.00	0.00
8	117.00	CBC1923Q-43	2	7.90	0.32	1.00	24.18	0.588	1.00	0.00	0.00
9	117.00	Commscope HBX-6513DS-A1M	2	6.20	1.58	1.00	45.59	2.634	1.00	0.00	0.00
10	117.00	Samsung MT6407-77A	2	87.10	4.69	1.00	201.33	5.629	1.00	0.00	0.00
11	117.00	Samsung B2/B66A RRH-BR049	2	84.40	1.88	1.00	158.63	2.428	1.00	0.00	0.00
12	117.00	Raycap DB-C1-12C-24AB-0Z OVP	2	32.00	4.06	1.00	273.40	4.793	1.00	0.00	0.00
13	117.00	Low Profile Platform (Valmont	1	1500.00	25.00	1.00	2776.79	44.578	1.00	0.00	0.00
14	117.00	Support Rail Kit (VZWSMART-PLK1)	1	261.72	6.75	1.00	564.69	13.185	1.00	0.00	2.50
15	107.00	MX08FRO665-21	3	64.50	12.49	0.74	345.71	13.906	0.74	0.00	0.00
16	107.00	MC-PK8-DSH	1	1727.00	37.59	1.00	3358.77	83.255	1.00	0.00	0.00
17	107.00	TA08025-B605	3	75.00	1.96	0.67	125.57	2.502	0.67	0.00	0.00
18	107.00	TA08025-B604	3	63.90	1.96	0.67	112.85	2.502	0.67	0.00	0.00
19	107.00	RDIDC-9181-PF-48	1	21.85	2.01	1.00	73.21	2.559	1.00	0.00	0.00
		Totals:	**42**	**7,874.80**			**17,858.09**				

Linear Appurtenances

Bottom Elev. (ft)	**Top Elev. (ft)**	**Description**	**Exposed Width**	**Exposed**
3.00	127.00	(1) 1 5/8" Fiber	0.00	Inside
3.00	127.00	(8) 1 5/8" Coax	0.00	Inside
3.00	127.00	(3) 1.9" Fiber	0.00	Inside
3.00	117.00	(2) 1 5/8" Fiber	0.00	Inside
3.00	107.00	(1) 1.6" Hybrid	0.00	Inside

Shaft Section Properties

Structure:	CT11561-A-SBA	**Code:**	EIA/TIA-222-G	1/19/2022	
Site Name:	Groton 2, CT	**Exposure:**	B		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3750	48.000	56.684	16243.5	21.16	128.00	76.5	666.5	0.0
5.00		0.3750	47.053	55.556	15293.6	20.71	125.47	77.0	640.2	954.8
10.00		0.3750	46.106	54.429	14381.4	20.27	122.95	77.6	614.4	935.6
15.00		0.3750	45.159	53.302	13506.2	19.82	120.42	78.1	589.1	916.5
20.00		0.3750	44.212	52.175	12667.3	19.38	117.90	78.6	564.3	897.3
25.00		0.3750	43.264	51.047	11863.9	18.93	115.37	79.1	540.1	878.1
30.00		0.3750	42.317	49.920	11095.1	18.49	112.85	79.7	516.4	858.9
35.00		0.3750	41.370	48.793	10360.3	18.04	110.32	80.2	493.3	839.7
40.00		0.3750	40.423	47.666	9658.7	17.60	107.79	80.7	470.6	820.6
45.00	Bot - Section 2	0.3750	39.476	46.538	8989.5	17.15	105.27	81.2	448.5	801.4
50.00	Top - Section 1	0.3125	39.154	38.524	7343.1	20.68	125.29	0.0	0.0	1445.6
55.00		0.3125	38.207	37.585	6818.9	20.15	122.26	77.7	351.5	647.5
60.00		0.3125	37.260	36.646	6320.3	19.61	119.23	78.3	334.1	631.5
65.00		0.3125	36.312	35.706	5846.6	19.08	116.20	79.0	317.1	615.5
70.00		0.3125	35.365	34.767	5397.2	18.54	113.17	79.6	300.6	599.5
75.00		0.3125	34.418	33.827	4971.4	18.01	110.14	80.2	284.5	583.5
80.00		0.3125	33.471	32.888	4568.6	17.48	107.11	80.8	268.8	567.5
85.00		0.3125	32.524	31.949	4188.2	16.94	104.08	81.5	253.6	551.6
90.00	Top - Section 2	0.3125	31.577	31.009	3829.5	16.41	101.05	82.1	238.9	535.6
90.00	Bot - Section 3	0.1875	31.577	18.680	2325.4	27.34	168.41	68.1	145.0	
95.00		0.1875	30.630	18.116	2121.2	27.39	163.36	69.2	136.4	313.0
100.00		0.1875	29.683	17.553	1929.3	26.50	158.31	70.2	128.0	303.4
105.00		0.1875	28.736	16.989	1749.3	25.61	153.26	71.3	119.9	293.8
107.00		0.1875	28.357	16.764	1680.6	25.26	151.24	71.7	116.7	114.9
110.00		0.1875	27.788	16.425	1581.0	24.72	148.21	72.3	112.1	169.4
115.00		0.1875	26.841	15.862	1423.7	23.83	143.15	73.4	104.5	274.7
117.00		0.1875	26.462	15.636	1363.9	23.47	141.13	73.8	101.5	107.2
120.00		0.1875	25.894	15.298	1277.3	22.94	138.10	74.4	97.2	157.9
125.00		0.1875	24.947	14.735	1141.2	22.05	133.05	75.5	90.1	255.5
127.00		0.1875	24.568	14.509	1089.7	21.69	131.03	75.9	87.4	99.5
130.00		0.1875	24.000	14.171	1015.2	21.16	128.00	76.5	83.3	146.4
										16316.4

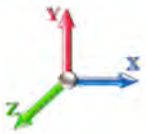
Wind Loading - Shaft

Structure:	CT11561-A-SBA	**Code:**	EIA/TIA-222-G	1/19/2022	
Site Name:	Groton 2, CT	**Exposure:**	B		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 22

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	18.769	20.65	356.82	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	18.769	20.65	349.78	0.650	0.000	5.00	20.108	13.07	431.8	0.0	1145.8
10.00		1.00	0.70	18.769	20.65	342.74	0.650	0.000	5.00	19.707	12.81	423.2	0.0	1122.8
15.00		1.00	0.70	18.769	20.65	335.70	0.650	0.000	5.00	19.307	12.55	414.5	0.0	1099.8
20.00		1.00	0.70	18.769	20.65	328.66	0.650	0.000	5.00	18.906	12.29	405.9	0.0	1076.7
25.00		1.00	0.70	18.769	20.65	321.62	0.650	0.000	5.00	18.505	12.03	397.3	0.0	1053.7
30.00		1.00	0.70	18.785	20.66	314.71	0.650	0.000	5.00	18.105	11.77	389.1	0.0	1030.7
35.00		1.00	0.73	19.631	21.59	314.51	0.650	0.000	5.00	17.704	11.51	397.6	0.0	1007.7
40.00		1.00	0.76	20.394	22.43	313.23	0.650	0.000	5.00	17.303	11.25	403.7	0.0	984.7
45.00	Bot - Section 2	1.00	0.79	21.092	23.20	311.08	0.650	0.000	5.00	16.902	10.99	407.8	0.0	961.7
50.00	Top - Section 1	1.00	0.81	21.737	23.91	308.22	0.650	0.000	5.00	16.766	10.90	416.9	0.0	1734.8
55.00		1.00	0.83	22.337	24.57	309.84	0.650	0.000	5.00	16.365	10.64	418.2	0.0	776.9
60.00		1.00	0.85	22.899	25.19	305.94	0.650	0.000	5.00	15.965	10.38	418.2	0.0	757.8
65.00		1.00	0.87	23.429	25.77	301.59	0.650	0.000	5.00	15.564	10.12	417.2	0.0	738.6
70.00		1.00	0.89	23.930	26.32	296.85	0.650	0.000	5.00	15.163	9.86	415.1	0.0	719.4
75.00		1.00	0.91	24.406	26.85	291.76	0.650	0.000	5.00	14.763	9.60	412.2	0.0	700.2
80.00		1.00	0.93	24.861	27.35	286.36	0.650	0.000	5.00	14.362	9.34	408.5	0.0	681.1
85.00		1.00	0.94	25.295	27.82	280.68	0.650	0.000	5.00	13.961	9.07	404.0	0.0	661.9
90.00	Top - Section 2	1.00	0.96	25.711	28.28	274.74	0.650	0.000	5.00	13.560	8.81	398.9	0.0	642.7
95.00		1.00	0.97	26.112	28.72	268.56	0.650	0.000	5.00	13.160	8.55	393.1	0.0	375.6
100.00		1.00	0.99	26.497	29.15	262.17	0.650	0.000	5.00	12.759	8.29	386.8	0.0	364.1
105.00		1.00	1.00	26.869	29.56	255.58	0.650	0.000	5.00	12.358	8.03	379.9	0.0	352.6
107.00	Appurtenance(s)	1.00	1.01	27.014	29.72	252.89	0.650	0.000	2.00	4.831	3.14	149.3	0.0	137.8
110.00		1.00	1.02	27.229	29.95	248.81	0.650	0.000	3.00	7.126	4.63	222.0	0.0	203.3
115.00		1.00	1.03	27.577	30.33	241.86	0.650	0.000	5.00	11.557	7.51	364.6	0.0	329.6
117.00	Appurtenance(s)	1.00	1.03	27.713	30.48	239.03	0.650	0.000	2.00	4.511	2.93	143.0	0.0	128.6
120.00		1.00	1.04	27.914	30.71	234.75	0.650	0.000	3.00	6.646	4.32	212.2	0.0	189.5
125.00		1.00	1.05	28.242	31.07	227.48	0.650	0.000	5.00	10.755	6.99	347.5	0.0	306.6
127.00	Appurtenance(s)	1.00	1.06	28.370	31.21	224.54	0.650	0.000	2.00	4.190	2.72	136.0	0.0	119.4
130.00		1.00	1.07	28.560	31.42	220.08	0.650	0.000	3.00	6.165	4.01	201.4	0.0	175.7
								Totals:	**130.00**			**10,315.7**		**19,579.7**

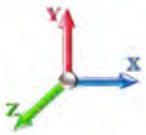
Discrete Appurtenance Forces

Structure:	CT11561-A-SBA	**Code:**	EIA/TIA-222-G	1/19/2022	
Site Name:	Groton 2, CT	**Exposure:**	B		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	127.00	Platform w/ Hand Rails	1	28.370	31.207	1.00	1.00	40.00	2400.00	0.000	0.000	1997.25	0.00	0.00
2	127.00	Ericsson 4449 B71 + B85	3	28.370	31.207	0.50	0.75	2.94	270.00	0.000	0.000	146.78	0.00	0.00
3	127.00	Ericsson KRY 112 144/1	3	28.370	31.207	0.45	0.75	0.47	39.60	0.000	0.000	23.59	0.00	0.00
4	127.00	RFS	3	28.370	31.207	0.54	0.75	32.79	442.08	0.000	0.000	1637.18	0.00	0.00
5	127.00	Commscope VV-65A-R1	3	28.370	31.207	0.55	0.75	9.86	85.72	0.000	0.000	492.16	0.00	0.00
6	127.00	Ericsson AIR6449 B41	3	28.370	31.207	0.53	0.75	9.03	370.80	0.000	0.000	450.67	0.00	0.00
7	127.00	Ericsson 4460 B25 + B66	3	28.370	31.207	0.50	0.75	4.30	374.40	0.000	0.000	214.52	0.00	0.00
8	117.00	CBC1923Q-43	2	27.713	30.484	1.00	1.00	0.64	18.96	0.000	0.000	31.22	0.00	0.00
9	117.00	Support Rail Kit	1	27.881	30.669	1.00	1.00	6.75	314.06	0.000	2.500	331.22	0.00	828.06
10	117.00	Low Profile Platform	1	27.713	30.484	1.00	1.00	25.00	1800.00	0.000	0.000	1219.37	0.00	0.00
11	117.00	Raycap	2	27.713	30.484	1.00	1.00	8.12	76.80	0.000	0.000	396.05	0.00	0.00
12	117.00	Samsung B2/B66A	2	27.713	30.484	1.00	1.00	3.76	202.56	0.000	0.000	183.39	0.00	0.00
13	117.00	Samsung MT6407-77A	2	27.713	30.484	1.00	1.00	9.38	209.04	0.000	0.000	457.51	0.00	0.00
14	117.00	Commscope	2	27.713	30.484	1.00	1.00	3.16	14.88	0.000	0.000	154.13	0.00	0.00
15	107.00	RDIDC-9181-PF-48	1	27.014	29.716	1.00	1.00	2.01	26.22	0.000	0.000	95.57	0.00	0.00
16	107.00	TA08025-B604	3	27.014	29.716	0.50	0.75	2.95	230.04	0.000	0.000	140.48	0.00	0.00
17	107.00	TA08025-B605	3	27.014	29.716	0.50	0.75	2.95	270.00	0.000	0.000	140.48	0.00	0.00
18	107.00	MC-PK8-DSH	1	27.014	29.716	1.00	1.00	37.59	2072.40	0.000	0.000	1787.23	0.00	0.00
19	107.00	MX08FRO665-21	3	27.014	29.716	0.55	0.75	20.80	232.20	0.000	0.000	988.75	0.00	0.00
							Totals:		**9,449.76**			**10,887.56**		

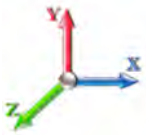
Total Applied Force Summary

Structure:	CT11561-A-SBA		**Code:**	EIA/TIA-222-G	1/19/2022
Site Name:	Groton 2, CT		**Exposure:**	B	
Height:	130.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 10

Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		431.76	1177.94	0.00	0.00
10.00		423.15	1203.17	0.00	0.00
15.00		414.55	1180.15	0.00	0.00
20.00		405.94	1157.14	0.00	0.00
25.00		397.34	1134.12	0.00	0.00
30.00		389.06	1111.11	0.00	0.00
35.00		397.58	1088.09	0.00	0.00
40.00		403.70	1065.08	0.00	0.00
45.00		407.84	1042.06	0.00	0.00
50.00		416.92	1815.18	0.00	0.00
55.00		418.19	857.35	0.00	0.00
60.00		418.22	838.17	0.00	0.00
65.00		417.15	818.99	0.00	0.00
70.00		415.11	799.81	0.00	0.00
75.00		412.18	780.63	0.00	0.00
80.00		408.46	761.45	0.00	0.00
85.00		404.00	742.27	0.00	0.00
90.00		398.86	723.10	0.00	0.00
95.00		393.10	456.03	0.00	0.00
100.00		386.76	444.52	0.00	0.00
105.00		379.87	433.01	0.00	0.00
107.00	(11) attachments	3301.81	3000.84	0.00	0.00
110.00		221.99	247.92	0.00	0.00
115.00		364.59	404.00	0.00	0.00
117.00	(12) attachments	2915.89	2794.68	0.00	828.06
120.00		212.22	226.63	0.00	0.00
125.00		347.49	368.50	0.00	0.00
127.00	(19) attachments	5098.14	4126.78	0.00	0.00
130.00		201.42	175.66	0.00	0.00
	Totals:	**21,203.29**	**30,974.41**	**0.00**	**828.06**

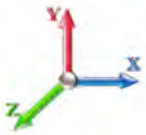
Calculated Forces

Structure:	CT11561-A-SBA	**Code:**	EIA/TIA-222-G	1/19/2022	
Site Name:	Groton 2, CT	**Exposure:**	B		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Load Case: 1.2D + 1.6W 105 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 22

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-30.94	-21.25	0.00	-2034.6	0.00	2034.60	3903.36	1951.68	7638.46	3824.91	0.00	0.000	0.000	0.540
5.00	-29.70	-20.91	0.00	-1928.3	0.00	1928.35	3851.93	1925.96	7386.73	3698.85	0.09	-0.174	0.000	0.529
10.00	-28.44	-20.57	0.00	-1823.8	0.00	1823.82	3799.43	1899.71	7137.04	3573.82	0.37	-0.348	0.000	0.518
15.00	-27.20	-20.23	0.00	-1720.9	0.00	1720.99	3745.86	1872.93	6889.51	3449.88	0.83	-0.523	0.000	0.506
20.00	-25.98	-19.89	0.00	-1619.8	0.00	1619.87	3691.24	1845.62	6644.27	3327.07	1.47	-0.699	0.000	0.494
25.00	-24.80	-19.55	0.00	-1520.4	0.00	1520.43	3635.55	1817.78	6401.45	3205.48	2.30	-0.876	0.000	0.481
30.00	-23.63	-19.22	0.00	-1422.6	0.00	1422.68	3578.80	1789.40	6161.16	3085.16	3.31	-1.052	0.000	0.468
35.00	-22.49	-18.87	0.00	-1326.6	0.00	1326.60	3520.99	1760.49	5923.54	2966.17	4.51	-1.228	0.000	0.454
40.00	-21.38	-18.50	0.00	-1232.2	0.00	1232.28	3462.11	1731.06	5688.70	2848.58	5.89	-1.404	0.000	0.439
45.00	-20.30	-18.13	0.00	-1139.7	0.00	1139.76	3402.17	1701.09	5456.79	2732.45	7.45	-1.579	0.000	0.423
50.00	-18.44	-17.72	0.00	-1049.1	0.00	1049.11	2672.34	1336.17	4264.27	2135.31	9.20	-1.752	0.000	0.498
55.00	-17.54	-17.33	0.00	-960.53	0.00	960.53	2628.44	1314.22	4091.13	2048.60	11.12	-1.923	0.000	0.476
60.00	-16.66	-16.93	0.00	-873.90	0.00	873.90	2583.48	1291.74	3919.82	1962.82	13.24	-2.114	0.000	0.452
65.00	-15.81	-16.54	0.00	-789.24	0.00	789.24	2537.45	1268.73	3750.46	1878.02	15.56	-2.301	0.000	0.427
70.00	-14.98	-16.14	0.00	-706.55	0.00	706.55	2490.36	1245.18	3583.19	1794.26	18.06	-2.483	0.000	0.400
75.00	-14.17	-15.73	0.00	-625.88	0.00	625.88	2442.21	1221.10	3418.12	1711.60	20.76	-2.659	0.000	0.372
80.00	-13.38	-15.32	0.00	-547.23	0.00	547.23	2392.99	1196.50	3255.39	1630.11	23.63	-2.827	0.000	0.341
85.00	-12.62	-14.92	0.00	-470.61	0.00	470.61	2342.71	1171.36	3095.11	1549.86	26.68	-2.985	0.000	0.309
90.00	-11.89	-14.51	0.00	-396.02	0.00	396.02	2291.37	1145.69	2937.41	1470.89	29.89	-3.133	0.000	0.275
90.00	-11.89	-14.51	0.00	-396.02	0.00	396.02	1145.45	572.73	1480.17	741.18	29.89	-3.133	0.000	0.545
95.00	-11.41	-14.12	0.00	-323.47	0.00	323.47	1127.97	563.98	1413.34	707.72	33.24	-3.266	0.000	0.468
100.00	-10.95	-13.75	0.00	-252.85	0.00	252.85	1109.42	554.71	1346.59	674.30	36.77	-3.459	0.000	0.385
105.00	-10.52	-13.36	0.00	-184.12	0.00	184.12	1089.82	544.91	1280.05	640.97	40.48	-3.620	0.000	0.297
107.00	-7.72	-9.88	0.00	-157.40	0.00	157.40	1081.68	540.84	1253.52	627.69	42.01	-3.676	0.000	0.258
110.00	-7.47	-9.66	0.00	-127.75	0.00	127.75	1069.15	534.57	1213.84	607.82	44.34	-3.748	0.000	0.217
115.00	-7.08	-9.27	0.00	-79.47	0.00	79.47	1047.42	523.71	1148.08	574.89	48.32	-3.842	0.000	0.145
117.00	-4.49	-6.18	0.00	-60.10	0.00	60.10	1038.42	519.21	1121.94	561.80	49.93	-3.870	0.000	0.111
120.00	-4.27	-5.95	0.00	-41.57	0.00	41.57	1024.62	512.31	1082.91	542.26	52.37	-3.902	0.000	0.081
125.00	-3.93	-5.58	0.00	-11.80	0.00	11.80	1000.76	500.38	1018.44	509.98	56.48	-3.931	0.000	0.027
127.00	-0.16	-0.21	0.00	-0.64	0.00	0.64	990.92	495.46	992.88	497.18	58.12	-3.934	0.000	0.001
130.00	0.00	-0.20	0.00	0.00	0.00	0.00	975.84	487.92	954.81	478.11	60.59	-3.935	0.000	0.000

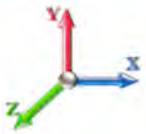
Wind Loading - Shaft

Structure:	CT11561-A-SBA	**Code:**	EIA/TIA-222-G	1/19/2022	
Site Name:	Groton 2, CT	**Exposure:**	B		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 22

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	18.769	20.65	356.82	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	18.769	20.65	349.78	0.650	0.000	5.00	20.108	13.07	431.8	0.0	859.3
10.00		1.00	0.70	18.769	20.65	342.74	0.650	0.000	5.00	19.707	12.81	423.2	0.0	842.1
15.00		1.00	0.70	18.769	20.65	335.70	0.650	0.000	5.00	19.307	12.55	414.5	0.0	824.8
20.00		1.00	0.70	18.769	20.65	328.66	0.650	0.000	5.00	18.906	12.29	405.9	0.0	807.6
25.00		1.00	0.70	18.769	20.65	321.62	0.650	0.000	5.00	18.505	12.03	397.3	0.0	790.3
30.00		1.00	0.70	18.785	20.66	314.71	0.650	0.000	5.00	18.105	11.77	389.1	0.0	773.0
35.00		1.00	0.73	19.631	21.59	314.51	0.650	0.000	5.00	17.704	11.51	397.6	0.0	755.8
40.00		1.00	0.76	20.394	22.43	313.23	0.650	0.000	5.00	17.303	11.25	403.7	0.0	738.5
45.00	Bot - Section 2	1.00	0.79	21.092	23.20	311.08	0.650	0.000	5.00	16.902	10.99	407.8	0.0	721.2
50.00	Top - Section 1	1.00	0.81	21.737	23.91	308.22	0.650	0.000	5.00	16.766	10.90	416.9	0.0	1301.1
55.00		1.00	0.83	22.337	24.57	309.84	0.650	0.000	5.00	16.365	10.64	418.2	0.0	582.7
60.00		1.00	0.85	22.899	25.19	305.94	0.650	0.000	5.00	15.965	10.38	418.2	0.0	568.3
65.00		1.00	0.87	23.429	25.77	301.59	0.650	0.000	5.00	15.564	10.12	417.2	0.0	553.9
70.00		1.00	0.89	23.930	26.32	296.85	0.650	0.000	5.00	15.163	9.86	415.1	0.0	539.6
75.00		1.00	0.91	24.406	26.85	291.76	0.650	0.000	5.00	14.763	9.60	412.2	0.0	525.2
80.00		1.00	0.93	24.861	27.35	286.36	0.650	0.000	5.00	14.362	9.34	408.5	0.0	510.8
85.00		1.00	0.94	25.295	27.82	280.68	0.650	0.000	5.00	13.961	9.07	404.0	0.0	496.4
90.00	Top - Section 2	1.00	0.96	25.711	28.28	274.74	0.650	0.000	5.00	13.560	8.81	398.9	0.0	482.0
95.00		1.00	0.97	26.112	28.72	268.56	0.650	0.000	5.00	13.160	8.55	393.1	0.0	281.7
100.00		1.00	0.99	26.497	29.15	262.17	0.650	0.000	5.00	12.759	8.29	386.8	0.0	273.1
105.00		1.00	1.00	26.869	29.56	255.58	0.650	0.000	5.00	12.358	8.03	379.9	0.0	264.5
107.00	Appurtenance(s)	1.00	1.01	27.014	29.72	252.89	0.650	0.000	2.00	4.831	3.14	149.3	0.0	103.4
110.00		1.00	1.02	27.229	29.95	248.81	0.650	0.000	3.00	7.126	4.63	222.0	0.0	152.5
115.00		1.00	1.03	27.577	30.33	241.86	0.650	0.000	5.00	11.557	7.51	364.6	0.0	247.2
117.00	Appurtenance(s)	1.00	1.03	27.713	30.48	239.03	0.650	0.000	2.00	4.511	2.93	143.0	0.0	96.5
120.00		1.00	1.04	27.914	30.71	234.75	0.650	0.000	3.00	6.646	4.32	212.2	0.0	142.1
125.00		1.00	1.05	28.242	31.07	227.48	0.650	0.000	5.00	10.755	6.99	347.5	0.0	229.9
127.00	Appurtenance(s)	1.00	1.06	28.370	31.21	224.54	0.650	0.000	2.00	4.190	2.72	136.0	0.0	89.6
130.00		1.00	1.07	28.560	31.42	220.08	0.650	0.000	3.00	6.165	4.01	201.4	0.0	131.7
								Totals:	**130.00**			**10,315.7**		**14,684.8**

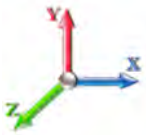
Discrete Appurtenance Forces

Structure:	CT11561-A-SBA	**Code:**	EIA/TIA-222-G	1/19/2022	
Site Name:	Groton 2, CT	**Exposure:**	B		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	127.00	Platform w/ Hand Rails	1	28.370	31.207	1.00	1.00	40.00	1800.00	0.000	0.000	1997.25	0.00	0.00
2	127.00	Ericsson 4449 B71 + B85	3	28.370	31.207	0.50	0.75	2.94	202.50	0.000	0.000	146.78	0.00	0.00
3	127.00	Ericsson KRY 112 144/1	3	28.370	31.207	0.45	0.75	0.47	29.70	0.000	0.000	23.59	0.00	0.00
4	127.00	RFS	3	28.370	31.207	0.54	0.75	32.79	331.56	0.000	0.000	1637.18	0.00	0.00
5	127.00	Commscope VV-65A-R1	3	28.370	31.207	0.55	0.75	9.86	64.29	0.000	0.000	492.16	0.00	0.00
6	127.00	Ericsson AIR6449 B41	3	28.370	31.207	0.53	0.75	9.03	278.10	0.000	0.000	450.67	0.00	0.00
7	127.00	Ericsson 4460 B25 + B66	3	28.370	31.207	0.50	0.75	4.30	280.80	0.000	0.000	214.52	0.00	0.00
8	117.00	CBC1923Q-43	2	27.713	30.484	1.00	1.00	0.64	14.22	0.000	0.000	31.22	0.00	0.00
9	117.00	Support Rail Kit	1	27.881	30.669	1.00	1.00	6.75	235.55	0.000	2.500	331.22	0.00	828.06
10	117.00	Low Profile Platform	1	27.713	30.484	1.00	1.00	25.00	1350.00	0.000	0.000	1219.37	0.00	0.00
11	117.00	Raycap	2	27.713	30.484	1.00	1.00	8.12	57.60	0.000	0.000	396.05	0.00	0.00
12	117.00	Samsung B2/B66A	2	27.713	30.484	1.00	1.00	3.76	151.92	0.000	0.000	183.39	0.00	0.00
13	117.00	Samsung MT6407-77A	2	27.713	30.484	1.00	1.00	9.38	156.78	0.000	0.000	457.51	0.00	0.00
14	117.00	Commscope	2	27.713	30.484	1.00	1.00	3.16	11.16	0.000	0.000	154.13	0.00	0.00
15	107.00	RDIDC-9181-PF-48	1	27.014	29.716	1.00	1.00	2.01	19.67	0.000	0.000	95.57	0.00	0.00
16	107.00	TA08025-B604	3	27.014	29.716	0.50	0.75	2.95	172.53	0.000	0.000	140.48	0.00	0.00
17	107.00	TA08025-B605	3	27.014	29.716	0.50	0.75	2.95	202.50	0.000	0.000	140.48	0.00	0.00
18	107.00	MC-PK8-DSH	1	27.014	29.716	1.00	1.00	37.59	1554.30	0.000	0.000	1787.23	0.00	0.00
19	107.00	MX08FRO665-21	3	27.014	29.716	0.55	0.75	20.80	174.15	0.000	0.000	988.75	0.00	0.00
							Totals:		**7,087.32**			**10,887.56**		

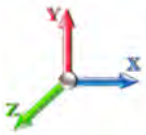
Total Applied Force Summary

Structure:	CT11561-A-SBA		**Code:**	EIA/TIA-222-G	1/19/2022
Site Name:	Groton 2, CT		**Exposure:**	B	
Height:	130.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 14

Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		431.76	883.46	0.00	0.00
10.00		423.15	902.38	0.00	0.00
15.00		414.55	885.11	0.00	0.00
20.00		405.94	867.85	0.00	0.00
25.00		397.34	850.59	0.00	0.00
30.00		389.06	833.33	0.00	0.00
35.00		397.58	816.07	0.00	0.00
40.00		403.70	798.81	0.00	0.00
45.00		407.84	781.55	0.00	0.00
50.00		416.92	1361.38	0.00	0.00
55.00		418.19	643.01	0.00	0.00
60.00		418.22	628.63	0.00	0.00
65.00		417.15	614.24	0.00	0.00
70.00		415.11	599.86	0.00	0.00
75.00		412.18	585.47	0.00	0.00
80.00		408.46	571.09	0.00	0.00
85.00		404.00	556.71	0.00	0.00
90.00		398.86	542.32	0.00	0.00
95.00		393.10	342.02	0.00	0.00
100.00		386.76	333.39	0.00	0.00
105.00		379.87	324.76	0.00	0.00
107.00	(11) attachments	3301.81	2250.63	0.00	0.00
110.00		221.99	185.94	0.00	0.00
115.00		364.59	303.00	0.00	0.00
117.00	(12) attachments	2915.89	2096.01	0.00	828.06
120.00		212.22	169.97	0.00	0.00
125.00		347.49	276.38	0.00	0.00
127.00	(19) attachments	5098.14	3095.08	0.00	0.00
130.00		201.42	131.75	0.00	0.00
	Totals:	**21,203.29**	**23,230.81**	**0.00**	**828.06**

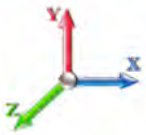
Calculated Forces

Structure:	CT11561-A-SBA	**Code:**	EIA/TIA-222-G	1/19/2022	
Site Name:	Groton 2, CT	**Exposure:**	B		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Load Case: 0.9D + 1.6W 105 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 22

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-23.20	-21.24	0.00	-2017.5	0.00	2017.51	3903.36	1951.68	7638.46	3824.91	0.00	0.000	0.000	0.534
5.00	-22.25	-20.87	0.00	-1911.3	0.00	1911.32	3851.93	1925.96	7386.73	3698.85	0.09	-0.172	0.000	0.523
10.00	-21.29	-20.51	0.00	-1806.9	0.00	1806.96	3799.43	1899.71	7137.04	3573.82	0.37	-0.345	0.000	0.511
15.00	-20.35	-20.15	0.00	-1704.4	0.00	1704.42	3745.86	1872.93	6889.51	3449.88	0.82	-0.519	0.000	0.500
20.00	-19.42	-19.79	0.00	-1603.6	0.00	1603.67	3691.24	1845.62	6644.27	3327.07	1.46	-0.693	0.000	0.487
25.00	-18.52	-19.44	0.00	-1504.7	0.00	1504.70	3635.55	1817.78	6401.45	3205.48	2.28	-0.867	0.000	0.475
30.00	-17.63	-19.09	0.00	-1407.4	0.00	1407.49	3578.80	1789.40	6161.16	3085.16	3.28	-1.042	0.000	0.461
35.00	-16.77	-18.73	0.00	-1312.0	0.00	1312.03	3520.99	1760.49	5923.54	2966.17	4.46	-1.216	0.000	0.447
40.00	-15.92	-18.36	0.00	-1218.3	0.00	1218.38	3462.11	1731.06	5688.70	2848.58	5.83	-1.390	0.000	0.432
45.00	-15.10	-17.97	0.00	-1126.5	0.00	1126.59	3402.17	1701.09	5456.79	2732.45	7.38	-1.563	0.000	0.417
50.00	-13.70	-17.56	0.00	-1036.7	0.00	1036.72	2672.34	1336.17	4264.27	2135.31	9.11	-1.734	0.000	0.491
55.00	-13.02	-17.16	0.00	-948.93	0.00	948.93	2628.44	1314.22	4091.13	2048.60	11.01	-1.903	0.000	0.468
60.00	-12.35	-16.76	0.00	-863.12	0.00	863.12	2583.48	1291.74	3919.82	1962.82	13.11	-2.092	0.000	0.445
65.00	-11.70	-16.36	0.00	-779.32	0.00	779.32	2537.45	1268.73	3750.46	1878.02	15.40	-2.277	0.000	0.420
70.00	-11.07	-15.95	0.00	-697.52	0.00	697.52	2490.36	1245.18	3583.19	1794.26	17.88	-2.456	0.000	0.393
75.00	-10.45	-15.55	0.00	-617.76	0.00	617.76	2442.21	1221.10	3418.12	1711.60	20.55	-2.630	0.000	0.365
80.00	-9.86	-15.14	0.00	-540.02	0.00	540.02	2392.99	1196.50	3255.39	1630.11	23.39	-2.795	0.000	0.336
85.00	-9.29	-14.73	0.00	-464.33	0.00	464.33	2342.71	1171.36	3095.11	1549.86	26.40	-2.952	0.000	0.304
90.00	-8.73	-14.33	0.00	-390.66	0.00	390.66	2291.37	1145.69	2937.41	1470.89	29.57	-3.097	0.000	0.270
90.00	-8.73	-14.33	0.00	-390.66	0.00	390.66	1145.45	572.73	1480.17	741.18	29.57	-3.097	0.000	0.535
95.00	-8.37	-13.94	0.00	-319.03	0.00	319.03	1127.97	563.98	1413.34	707.72	32.89	-3.229	0.000	0.459
100.00	-8.02	-13.56	0.00	-249.33	0.00	249.33	1109.42	554.71	1346.59	674.30	36.37	-3.419	0.000	0.378
105.00	-7.69	-13.17	0.00	-181.54	0.00	181.54	1089.82	544.91	1280.05	640.97	40.04	-3.578	0.000	0.291
107.00	-5.65	-9.74	0.00	-155.19	0.00	155.19	1081.68	540.84	1253.52	627.69	41.55	-3.633	0.000	0.253
110.00	-5.46	-9.52	0.00	-125.96	0.00	125.96	1069.15	534.57	1213.84	607.82	43.86	-3.704	0.000	0.213
115.00	-5.17	-9.14	0.00	-78.38	0.00	78.38	1047.42	523.71	1148.08	574.89	47.79	-3.796	0.000	0.142
117.00	-3.27	-6.09	0.00	-59.27	0.00	59.27	1038.42	519.21	1121.94	561.80	49.39	-3.824	0.000	0.109
120.00	-3.11	-5.87	0.00	-40.99	0.00	40.99	1024.62	512.31	1082.91	542.26	51.80	-3.855	0.000	0.079
125.00	-2.86	-5.51	0.00	-11.64	0.00	11.64	1000.76	500.38	1018.44	509.98	55.85	-3.885	0.000	0.026
127.00	-0.12	-0.21	0.00	-0.63	0.00	0.63	990.92	495.46	992.88	497.18	57.48	-3.888	0.000	0.001
130.00	0.00	-0.20	0.00	0.00	0.00	0.00	975.84	487.92	954.81	478.11	59.92	-3.888	0.000	0.000

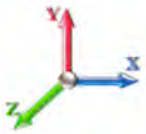
Wind Loading - Shaft

Structure:	CT11561-A-SBA	**Code:**	EIA/TIA-222-G	1/19/2022	
Site Name:	Groton 2, CT	**Exposure:**	B		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 21

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	4.256	4.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	4.256	4.68	0.00	1.200	1.242	5.00	21.143	25.37	118.8	375.8	1521.5
10.00		1.00	0.70	4.256	4.68	0.00	1.200	1.331	5.00	20.817	24.98	116.9	395.6	1518.3
15.00		1.00	0.70	4.256	4.68	0.00	1.200	1.386	5.00	20.462	24.55	115.0	404.2	1503.9
20.00		1.00	0.70	4.256	4.68	0.00	1.200	1.427	5.00	20.095	24.11	112.9	407.9	1484.6
25.00		1.00	0.70	4.256	4.68	0.00	1.200	1.459	5.00	19.721	23.67	110.8	408.7	1462.4
30.00		1.00	0.70	4.260	4.69	0.00	1.200	1.486	5.00	19.343	23.21	108.8	407.6	1438.3
35.00		1.00	0.73	4.451	4.90	0.00	1.200	1.509	5.00	18.961	22.75	111.4	405.2	1412.9
40.00		1.00	0.76	4.625	5.09	0.00	1.200	1.529	5.00	18.577	22.29	113.4	401.8	1386.5
45.00	Bot - Section 2	1.00	0.79	4.783	5.26	0.00	1.200	1.547	5.00	18.192	21.83	114.8	397.5	1359.2
50.00	Top - Section 1	1.00	0.81	4.929	5.42	0.00	1.200	1.564	5.00	18.069	21.68	117.6	398.7	2133.5
55.00		1.00	0.83	5.065	5.57	0.00	1.200	1.579	5.00	17.681	21.22	118.2	393.3	1170.3
60.00		1.00	0.85	5.193	5.71	0.00	1.200	1.592	5.00	17.292	20.75	118.5	387.5	1145.2
65.00		1.00	0.87	5.313	5.84	0.00	1.200	1.605	5.00	16.902	20.28	118.5	381.2	1119.8
70.00		1.00	0.89	5.426	5.97	0.00	1.200	1.617	5.00	16.511	19.81	118.3	374.5	1093.9
75.00		1.00	0.91	5.534	6.09	0.00	1.200	1.628	5.00	16.119	19.34	117.8	367.6	1067.8
80.00		1.00	0.93	5.637	6.20	0.00	1.200	1.639	5.00	15.728	18.87	117.0	360.3	1041.4
85.00		1.00	0.94	5.736	6.31	0.00	1.200	1.649	5.00	15.335	18.40	116.1	352.8	1014.7
90.00	Top - Section 2	1.00	0.96	5.830	6.41	0.00	1.200	1.658	5.00	14.942	17.93	115.0	345.1	987.8
95.00		1.00	0.97	5.921	6.51	0.00	1.200	1.667	5.00	14.549	17.46	113.7	337.2	712.8
100.00		1.00	0.99	6.008	6.61	0.00	1.200	1.676	5.00	14.155	16.99	112.3	329.1	693.2
105.00		1.00	1.00	6.093	6.70	0.00	1.200	1.684	5.00	13.762	16.51	110.7	320.8	673.4
107.00	Appurtenance(s)	1.00	1.01	6.126	6.74	0.00	1.200	1.687	2.00	5.394	6.47	43.6	127.0	264.8
110.00		1.00	1.02	6.174	6.79	0.00	1.200	1.692	3.00	7.972	9.57	65.0	187.4	390.7
115.00		1.00	1.03	6.253	6.88	0.00	1.200	1.699	5.00	12.973	15.57	107.1	303.7	633.3
117.00	Appurtenance(s)	1.00	1.03	6.284	6.91	0.00	1.200	1.702	2.00	5.078	6.09	42.1	120.1	248.7
120.00		1.00	1.04	6.330	6.96	0.00	1.200	1.707	3.00	7.499	9.00	62.7	177.0	366.4
125.00		1.00	1.05	6.404	7.04	0.00	1.200	1.714	5.00	12.183	14.62	103.0	286.0	592.6
127.00	Appurtenance(s)	1.00	1.06	6.433	7.08	0.00	1.200	1.716	2.00	4.762	5.71	40.4	113.0	232.4
130.00		1.00	1.07	6.476	7.12	0.00	1.200	1.720	3.00	7.025	8.43	60.1	166.2	341.9
								Totals:	**130.00**			**2,940.3**		**29,012.3**

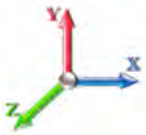
Discrete Appurtenance Forces

Structure:	CT11561-A-SBA	**Code:**	EIA/TIA-222-G	1/19/2022	
Site Name:	Groton 2, CT	**Exposure:**	B		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 21

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	127.00	Platform w/ Hand Rails	1	6.433	7.076	1.00	1.00	60.60	3859.69	0.000	0.000	428.81	0.00	0.00
2	127.00	Ericsson 4449 B71 + B85	3	6.433	7.076	0.50	0.75	3.81	509.52	0.000	0.000	26.98	0.00	0.00
3	127.00	Ericsson KRY 112 144/1	3	6.433	7.076	0.45	0.75	1.01	62.11	0.000	0.000	7.15	0.00	0.00
4	127.00	RFS	3	6.433	7.076	0.54	0.75	35.81	1701.41	0.000	0.000	253.44	0.00	0.00
5	127.00	Commscope VV-65A-R1	3	6.433	7.076	0.55	0.75	11.62	495.55	0.000	0.000	82.26	0.00	0.00
6	127.00	Ericsson AIR6449 B41	3	6.433	7.076	0.53	0.75	10.52	680.27	0.000	0.000	74.44	0.00	0.00
7	127.00	Ericsson 4460 B25 + B66	3	6.433	7.076	0.50	0.75	5.30	510.83	0.000	0.000	37.48	0.00	0.00
8	117.00	CBC1923Q-43	2	6.284	6.913	1.00	1.00	1.18	51.51	0.000	0.000	8.13	0.00	0.00
9	117.00	Support Rail Kit	1	6.322	6.954	1.00	1.00	13.19	878.76	0.000	2.500	91.69	0.00	229.23
10	117.00	Low Profile Platform	1	6.284	6.913	1.00	1.00	44.58	2776.79	0.000	0.000	308.14	0.00	0.00
11	117.00	Raycap	2	6.284	6.913	1.00	1.00	9.59	531.99	0.000	0.000	66.26	0.00	0.00
12	117.00	Samsung B2/B66A	2	6.284	6.913	1.00	1.00	4.86	351.03	0.000	0.000	33.57	0.00	0.00
13	117.00	Samsung MT6407-77A	2	6.284	6.913	1.00	1.00	11.26	394.71	0.000	0.000	77.82	0.00	0.00
14	117.00	Commscope	2	6.284	6.913	1.00	1.00	5.27	73.45	0.000	0.000	36.42	0.00	0.00
15	107.00	RDIDC-9181-PF-48	1	6.126	6.738	1.00	1.00	2.56	99.43	0.000	0.000	17.25	0.00	0.00
16	107.00	TA08025-B604	3	6.126	6.738	0.50	0.75	3.77	340.58	0.000	0.000	25.42	0.00	0.00
17	107.00	TA08025-B605	3	6.126	6.738	0.50	0.75	3.77	383.90	0.000	0.000	25.42	0.00	0.00
18	107.00	MC-PK8-DSH	1	6.126	6.738	1.00	1.00	83.25	3331.17	0.000	0.000	561.00	0.00	0.00
19	107.00	MX08FRO665-21	3	6.126	6.738	0.55	0.75	23.15	874.23	0.000	0.000	156.02	0.00	0.00
							Totals:		**17,906.93**			**2,317.68**		

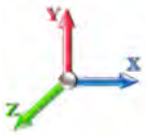
Total Applied Force Summary

Structure:	CT11561-A-SBA		**Code:**	EIA/TIA-222-G	1/19/2022
Site Name:	Groton 2, CT		**Exposure:**	B	
Height:	130.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 18

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 21

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		118.78	1553.70	0.00	0.00
10.00		116.95	1598.72	0.00	0.00
15.00		114.95	1584.32	0.00	0.00
20.00		112.89	1564.99	0.00	0.00
25.00		110.79	1542.81	0.00	0.00
30.00		108.76	1518.74	0.00	0.00
35.00		111.41	1493.32	0.00	0.00
40.00		113.40	1466.86	0.00	0.00
45.00		114.85	1439.60	0.00	0.00
50.00		117.56	2213.93	0.00	0.00
55.00		118.21	1250.69	0.00	0.00
60.00		118.52	1225.64	0.00	0.00
65.00		118.53	1200.17	0.00	0.00
70.00		118.26	1174.35	0.00	0.00
75.00		117.76	1148.21	0.00	0.00
80.00		117.03	1121.79	0.00	0.00
85.00		116.11	1095.12	0.00	0.00
90.00		115.00	1068.21	0.00	0.00
95.00		113.71	793.22	0.00	0.00
100.00		112.27	773.58	0.00	0.00
105.00		110.68	753.78	0.00	0.00
107.00	(11) attachments	828.71	5326.26	0.00	0.00
110.00		64.98	435.30	0.00	0.00
115.00		107.08	707.68	0.00	0.00
117.00	(12) attachments	664.15	5336.69	0.00	229.23
120.00		62.66	403.58	0.00	0.00
125.00		102.99	654.54	0.00	0.00
127.00	(19) attachments	950.99	8076.53	0.00	0.00
130.00		60.05	341.87	0.00	0.00
	Totals:	**5,258.03**	**48,864.19**	**0.00**	**229.23**

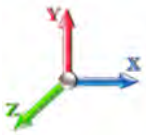
Calculated Forces

Structure:	CT11561-A-SBA	**Code:**	EIA/TIA-222-G	1/19/2022	
Site Name:	Groton 2, CT	**Exposure:**	B		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 21

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-48.86	-5.28	0.00	-496.30	0.00	496.30	3903.36	1951.68	7638.46	3824.91	0.00	0.000	0.000	0.142
5.00	-47.30	-5.19	0.00	-469.92	0.00	469.92	3851.93	1925.96	7386.73	3698.85	0.02	-0.042	0.000	0.139
10.00	-45.70	-5.11	0.00	-443.96	0.00	443.96	3799.43	1899.71	7137.04	3573.82	0.09	-0.085	0.000	0.136
15.00	-44.11	-5.02	0.00	-418.43	0.00	418.43	3745.86	1872.93	6889.51	3449.88	0.20	-0.127	0.000	0.133
20.00	-42.55	-4.94	0.00	-393.33	0.00	393.33	3691.24	1845.62	6644.27	3327.07	0.36	-0.170	0.000	0.130
25.00	-41.00	-4.85	0.00	-368.64	0.00	368.64	3635.55	1817.78	6401.45	3205.48	0.56	-0.213	0.000	0.126
30.00	-39.48	-4.77	0.00	-344.39	0.00	344.39	3578.80	1789.40	6161.16	3085.16	0.81	-0.256	0.000	0.123
35.00	-37.98	-4.68	0.00	-320.56	0.00	320.56	3520.99	1760.49	5923.54	2966.17	1.10	-0.298	0.000	0.119
40.00	-36.51	-4.58	0.00	-297.19	0.00	297.19	3462.11	1731.06	5688.70	2848.58	1.43	-0.341	0.000	0.115
45.00	-35.07	-4.48	0.00	-274.29	0.00	274.29	3402.17	1701.09	5456.79	2732.45	1.81	-0.383	0.000	0.111
50.00	-32.85	-4.37	0.00	-251.88	0.00	251.88	2672.34	1336.17	4264.27	2135.31	2.23	-0.424	0.000	0.130
55.00	-31.60	-4.27	0.00	-230.02	0.00	230.02	2628.44	1314.22	4091.13	2048.60	2.70	-0.466	0.000	0.124
60.00	-30.37	-4.16	0.00	-208.68	0.00	208.68	2583.48	1291.74	3919.82	1962.82	3.21	-0.511	0.000	0.118
65.00	-29.17	-4.06	0.00	-187.86	0.00	187.86	2537.45	1268.73	3750.46	1878.02	3.77	-0.556	0.000	0.112
70.00	-28.00	-3.95	0.00	-167.58	0.00	167.58	2490.36	1245.18	3583.19	1794.26	4.38	-0.599	0.000	0.105
75.00	-26.85	-3.84	0.00	-147.84	0.00	147.84	2442.21	1221.10	3418.12	1711.60	5.03	-0.641	0.000	0.097
80.00	-25.72	-3.72	0.00	-128.66	0.00	128.66	2392.99	1196.50	3255.39	1630.11	5.72	-0.680	0.000	0.090
85.00	-24.63	-3.61	0.00	-110.05	0.00	110.05	2342.71	1171.36	3095.11	1549.86	6.45	-0.717	0.000	0.082
90.00	-23.56	-3.49	0.00	-92.00	0.00	92.00	2291.37	1145.69	2937.41	1470.89	7.22	-0.752	0.000	0.073
90.00	-23.56	-3.49	0.00	-92.00	0.00	92.00	1145.45	572.73	1480.17	741.18	7.22	-0.752	0.000	0.145
95.00	-22.76	-3.38	0.00	-74.54	0.00	74.54	1127.97	563.98	1413.34	707.72	8.03	-0.783	0.000	0.126
100.00	-21.99	-3.28	0.00	-57.61	0.00	57.61	1109.42	554.71	1346.59	674.30	8.87	-0.827	0.000	0.105
105.00	-21.24	-3.16	0.00	-41.23	0.00	41.23	1089.82	544.91	1280.05	640.97	9.76	-0.863	0.000	0.084
107.00	-15.92	-2.26	0.00	-34.90	0.00	34.90	1081.68	540.84	1253.52	627.69	10.13	-0.876	0.000	0.070
110.00	-15.49	-2.19	0.00	-28.12	0.00	28.12	1069.15	534.57	1213.84	607.82	10.68	-0.892	0.000	0.061
115.00	-14.78	-2.08	0.00	-17.17	0.00	17.17	1047.42	523.71	1148.08	574.89	11.63	-0.912	0.000	0.044
117.00	-9.46	-1.33	0.00	-12.78	0.00	12.78	1038.42	519.21	1121.94	561.80	12.01	-0.918	0.000	0.032
120.00	-9.05	-1.26	0.00	-8.80	0.00	8.80	1024.62	512.31	1082.91	542.26	12.59	-0.925	0.000	0.025
125.00	-8.40	-1.15	0.00	-2.49	0.00	2.49	1000.76	500.38	1018.44	509.98	13.56	-0.931	0.000	0.013
127.00	-0.34	-0.07	0.00	-0.20	0.00	0.20	990.92	495.46	992.88	497.18	13.95	-0.932	0.000	0.001
130.00	0.00	-0.06	0.00	0.00	0.00	0.00	975.84	487.92	954.81	478.11	14.54	-0.932	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT11561-A-SBA	**Code:**	EIA/TIA-222-G	1/19/2022	
Site Name:	Groton 2, CT	**Exposure:**	B		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Load Case:	1.2D + 1.0E							**Iterations**	20
Gust Response Factor	1.10				**Sds**	0.17		**Ss**	0.16
Dead Load Factor	1.20	**Seismic Load Factor**	1.00		**Sd1**	0.09		**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.41		**SA**	0.04	**Seismic Importance Factor**		1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		954.82	0.00	0.04	0.02	15.11	
10.00		935.64	0.01	0.06	0.03	21.29	
15.00		916.46	0.03	0.07	0.04	23.81	
20.00		897.28	0.04	0.07	0.04	24.76	
25.00		878.10	0.07	0.07	0.04	25.13	
30.00		858.92	0.10	0.07	0.04	25.33	
35.00		839.74	0.14	0.07	0.03	25.43	
40.00		820.57	0.18	0.07	0.03	25.27	
45.00	Bot - Section 2	801.39	0.23	0.06	0.02	24.45	
50.00	Top - Section 1	1445.6	0.28	0.05	0.01	41.58	
55.00		647.46	0.34	0.04	0.01	16.03	
60.00		631.48	0.40	0.02	0.01	11.28	
65.00		615.49	0.47	-0.01	0.01	4.99	
70.00		599.51	0.55	-0.03	0.01	-2.04	
75.00		583.53	0.63	-0.06	0.02	-8.45	
80.00		567.55	0.72	-0.09	0.03	-12.86	
85.00		551.56	0.81	-0.11	0.06	-14.39	
90.00	Top - Section 2	535.58	0.91	-0.12	0.09	-12.75	
95.00		313.02	1.01	-0.11	0.14	-4.85	
100.00		303.43	1.12	-0.06	0.20	-0.33	
105.00		293.84	1.23	0.04	0.28	5.71	
107.00	Appurtenance(s)	2473.9	1.28	0.09	0.32	72.59	
110.00		169.40	1.35	0.20	0.39	7.81	
115.00		274.67	1.48	0.45	0.52	21.69	
117.00	Appurtenance(s)	2304.1	1.53	0.58	0.58	216.32	
120.00		157.89	1.61	0.81	0.68	18.66	
125.00		255.49	1.75	1.31	0.89	41.87	
127.00	Appurtenance(s)	3418.3	1.80	1.56	0.98	629.01	
130.00		146.39	1.89	1.98	1.14	31.65	
	Totals:	**24,191.2**				**1,274.1**	**Total Wind:** **21,203.3**

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT11561-A-SBA	**Code:**	EIA/TIA-222-G	1/19/2022	
Site Name:	Groton 2, CT	**Exposure:**	B		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

Load Case:	1.2D + 1.0E							**Iterations**	20
Gust Response Factor	1.10			**Sds**	0.17			**Ss**	0.16
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.09			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.41	**SA**	0.04	**Seismic Importance Factor**			1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-30.97	-1.33	0.00	-142.92	0.00	142.92	3903.36	1951.68	7638.46	3824.91		0.00	0.00	0.045
5.00	-29.80	-1.32	0.00	-136.26	0.00	136.26	3851.93	1925.96	7386.73	3698.85		0.01	-0.01	0.045
10.00	-28.59	-1.31	0.00	-129.64	0.00	129.64	3799.43	1899.71	7137.04	3573.82		0.03	-0.02	0.044
15.00	-27.41	-1.29	0.00	-123.10	0.00	123.10	3745.86	1872.93	6889.51	3449.88		0.06	-0.04	0.043
20.00	-26.25	-1.27	0.00	-116.65	0.00	116.65	3691.24	1845.62	6644.27	3327.07		0.10	-0.05	0.042
25.00	-25.12	-1.25	0.00	-110.31	0.00	110.31	3635.55	1817.78	6401.45	3205.48		0.16	-0.06	0.041
30.00	-24.01	-1.23	0.00	-104.06	0.00	104.06	3578.80	1789.40	6161.16	3085.16		0.24	-0.08	0.040
35.00	-22.92	-1.21	0.00	-97.92	0.00	97.92	3520.99	1760.49	5923.54	2966.17		0.32	-0.09	0.040
40.00	-21.86	-1.18	0.00	-91.89	0.00	91.89	3462.11	1731.06	5688.70	2848.58		0.42	-0.10	0.039
45.00	-20.81	-1.16	0.00	-85.97	0.00	85.97	3402.17	1701.09	5456.79	2732.45		0.53	-0.11	0.038
50.00	-19.00	-1.12	0.00	-80.16	0.00	80.16	2672.34	1336.17	4264.27	2135.31		0.66	-0.13	0.045
55.00	-18.14	-1.11	0.00	-74.55	0.00	74.55	2628.44	1314.22	4091.13	2048.60		0.80	-0.14	0.043
60.00	-17.30	-1.10	0.00	-69.01	0.00	69.01	2583.48	1291.74	3919.82	1962.82		0.96	-0.16	0.042
65.00	-16.48	-1.10	0.00	-63.52	0.00	63.52	2537.45	1268.73	3750.46	1878.02		1.13	-0.17	0.040
70.00	-15.68	-1.10	0.00	-58.04	0.00	58.04	2490.36	1245.18	3583.19	1794.26		1.31	-0.19	0.039
75.00	-14.90	-1.10	0.00	-52.55	0.00	52.55	2442.21	1221.10	3418.12	1711.60		1.52	-0.20	0.037
80.00	-14.14	-1.10	0.00	-47.06	0.00	47.06	2392.99	1196.50	3255.39	1630.11		1.73	-0.21	0.035
85.00	-13.40	-1.10	0.00	-41.56	0.00	41.56	2342.71	1171.36	3095.11	1549.86		1.97	-0.23	0.033
90.00	-12.67	-1.10	0.00	-36.07	0.00	36.07	2291.37	1145.69	2937.41	1470.89		2.21	-0.24	0.030
90.00	-12.67	-1.10	0.00	-36.07	0.00	36.07	1145.45	572.73	1480.17	741.18		2.21	-0.24	0.060
95.00	-12.22	-1.10	0.00	-30.57	0.00	30.57	1127.97	563.98	1413.34	707.72		2.47	-0.25	0.054
100.00	-11.77	-1.10	0.00	-25.06	0.00	25.06	1109.42	554.71	1346.59	674.30		2.75	-0.27	0.048
105.00	-11.34	-1.10	0.00	-19.55	0.00	19.55	1089.82	544.91	1280.05	640.97		3.04	-0.29	0.041
107.00	-8.34	-1.01	0.00	-17.36	0.00	17.36	1081.68	540.84	1253.52	627.69		3.16	-0.29	0.035
110.00	-8.09	-1.00	0.00	-14.33	0.00	14.33	1069.15	534.57	1213.84	607.82		3.35	-0.30	0.031
115.00	-7.69	-0.98	0.00	-9.31	0.00	9.31	1047.42	523.71	1148.08	574.89		3.67	-0.31	0.024
117.00	-4.89	-0.75	0.00	-7.36	0.00	7.36	1038.42	519.21	1121.94	561.80		3.81	-0.32	0.018
120.00	-4.67	-0.73	0.00	-5.11	0.00	5.11	1024.62	512.31	1082.91	542.26		4.01	-0.32	0.014
125.00	-4.30	-0.68	0.00	-1.47	0.00	1.47	1000.76	500.38	1018.44	509.98		4.34	-0.32	0.007
127.00	-0.18	-0.03	0.00	-0.10	0.00	0.10	990.92	495.46	992.88	497.18		4.48	-0.32	0.000
130.00	0.00	-0.03	0.00	0.00	0.00	0.00	975.84	487.92	954.81	478.11		4.68	-0.32	0.000

Seismic Segment Forces (Factored)

Structure:	CT11561-A-SBA	**Code:**	EIA/TIA-222-G	1/19/2022	
Site Name:	Groton 2, CT	**Exposure:**	B		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Load Case:	0.9D + 1.0E							**Iterations**	20
Gust Response Factor	1.10				**Sds**	0.17		**Ss**	0.16
Dead Load Factor	0.90	**Seismic Load Factor**	1.00		**Sd1**	0.09		**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.41		**SA**	0.04	**Seismic Importance Factor**		1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		954.82	0.00	0.04	0.02	15.11	
10.00		935.64	0.01	0.06	0.03	21.29	
15.00		916.46	0.03	0.07	0.04	23.81	
20.00		897.28	0.04	0.07	0.04	24.76	
25.00		878.10	0.07	0.07	0.04	25.13	
30.00		858.92	0.10	0.07	0.04	25.33	
35.00		839.74	0.14	0.07	0.03	25.43	
40.00		820.57	0.18	0.07	0.03	25.27	
45.00	Bot - Section 2	801.39	0.23	0.06	0.02	24.45	
50.00	Top - Section 1	1445.6	0.28	0.05	0.01	41.58	
55.00		647.46	0.34	0.04	0.01	16.03	
60.00		631.48	0.40	0.02	0.01	11.28	
65.00		615.49	0.47	-0.01	0.01	4.99	
70.00		599.51	0.55	-0.03	0.01	-2.04	
75.00		583.53	0.63	-0.06	0.02	-8.45	
80.00		567.55	0.72	-0.09	0.03	-12.86	
85.00		551.56	0.81	-0.11	0.06	-14.39	
90.00	Top - Section 2	535.58	0.91	-0.12	0.09	-12.75	
95.00		313.02	1.01	-0.11	0.14	-4.85	
100.00		303.43	1.12	-0.06	0.20	-0.33	
105.00		293.84	1.23	0.04	0.28	5.71	
107.00	Appurtenance(s)	2473.9	1.28	0.09	0.32	72.59	
110.00		169.40	1.35	0.20	0.39	7.81	
115.00		274.67	1.48	0.45	0.52	21.69	
117.00	Appurtenance(s)	2304.1	1.53	0.58	0.58	216.32	
120.00		157.89	1.61	0.81	0.68	18.66	
125.00		255.49	1.75	1.31	0.89	41.87	
127.00	Appurtenance(s)	3418.3	1.80	1.56	0.98	629.01	
130.00		146.39	1.89	1.98	1.14	31.65	
	Totals:	**24,191.2**				**1,274.1**	**Total Wind:** **21,203.3**

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT11561-A-SBA	**Code:**	EIA/TIA-222-G	1/19/2022	
Site Name:	Groton 2, CT	**Exposure:**	B		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Load Case:	0.9D + 1.0E							**Iterations**	20
Gust Response Factor	1.10			**Sds**	0.17			**Ss**	0.16
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.09			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.41	**SA**	0.04	**Seismic Importance Factor**			1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-23.23	-1.33	0.00	-141.63	0.00	141.63	3903.36	1951.68	7638.46	3824.91		0.00	0.00	0.043
5.00	-22.35	-1.32	0.00	-134.97	0.00	134.97	3851.93	1925.96	7386.73	3698.85		0.01	-0.01	0.042
10.00	-21.44	-1.30	0.00	-128.37	0.00	128.37	3799.43	1899.71	7137.04	3573.82		0.03	-0.02	0.042
15.00	-20.56	-1.28	0.00	-121.85	0.00	121.85	3745.86	1872.93	6889.51	3449.88		0.06	-0.04	0.041
20.00	-19.69	-1.26	0.00	-115.43	0.00	115.43	3691.24	1845.62	6644.27	3327.07		0.10	-0.05	0.040
25.00	-18.84	-1.24	0.00	-109.11	0.00	109.11	3635.55	1817.78	6401.45	3205.48		0.16	-0.06	0.039
30.00	-18.01	-1.22	0.00	-102.90	0.00	102.90	3578.80	1789.40	6161.16	3085.16		0.23	-0.07	0.038
35.00	-17.19	-1.20	0.00	-96.81	0.00	96.81	3520.99	1760.49	5923.54	2966.17		0.32	-0.09	0.038
40.00	-16.39	-1.17	0.00	-90.83	0.00	90.83	3462.11	1731.06	5688.70	2848.58		0.42	-0.10	0.037
45.00	-15.61	-1.15	0.00	-84.96	0.00	84.96	3402.17	1701.09	5456.79	2732.45		0.53	-0.11	0.036
50.00	-14.25	-1.11	0.00	-79.20	0.00	79.20	2672.34	1336.17	4264.27	2135.31		0.65	-0.13	0.042
55.00	-13.60	-1.10	0.00	-73.66	0.00	73.66	2628.44	1314.22	4091.13	2048.60		0.79	-0.14	0.041
60.00	-12.98	-1.09	0.00	-68.18	0.00	68.18	2583.48	1291.74	3919.82	1962.82		0.95	-0.15	0.040
65.00	-12.36	-1.08	0.00	-62.75	0.00	62.75	2537.45	1268.73	3750.46	1878.02		1.12	-0.17	0.038
70.00	-11.76	-1.08	0.00	-57.33	0.00	57.33	2490.36	1245.18	3583.19	1794.26		1.30	-0.18	0.037
75.00	-11.18	-1.08	0.00	-51.91	0.00	51.91	2442.21	1221.10	3418.12	1711.60		1.50	-0.20	0.035
80.00	-10.60	-1.09	0.00	-46.49	0.00	46.49	2392.99	1196.50	3255.39	1630.11		1.71	-0.21	0.033
85.00	-10.05	-1.09	0.00	-41.06	0.00	41.06	2342.71	1171.36	3095.11	1549.86		1.94	-0.23	0.031
90.00	-9.50	-1.09	0.00	-35.64	0.00	35.64	2291.37	1145.69	2937.41	1470.89		2.19	-0.24	0.028
90.00	-9.50	-1.09	0.00	-35.64	0.00	35.64	1145.45	572.73	1480.17	741.18		2.19	-0.24	0.056
95.00	-9.16	-1.09	0.00	-30.21	0.00	30.21	1127.97	563.98	1413.34	707.72		2.44	-0.25	0.051
100.00	-8.83	-1.09	0.00	-24.78	0.00	24.78	1109.42	554.71	1346.59	674.30		2.72	-0.27	0.045
105.00	-8.50	-1.08	0.00	-19.34	0.00	19.34	1089.82	544.91	1280.05	640.97		3.01	-0.29	0.038
107.00	-6.25	-1.00	0.00	-17.18	0.00	17.18	1081.68	540.84	1253.52	627.69		3.13	-0.29	0.033
110.00	-6.07	-0.99	0.00	-14.18	0.00	14.18	1069.15	534.57	1213.84	607.82		3.31	-0.30	0.029
115.00	-5.76	-0.97	0.00	-9.22	0.00	9.22	1047.42	523.71	1148.08	574.89		3.63	-0.31	0.022
117.00	-3.67	-0.74	0.00	-7.29	0.00	7.29	1038.42	519.21	1121.94	561.80		3.76	-0.31	0.017
120.00	-3.50	-0.72	0.00	-5.06	0.00	5.06	1024.62	512.31	1082.91	542.26		3.96	-0.32	0.013
125.00	-3.22	-0.68	0.00	-1.45	0.00	1.45	1000.76	500.38	1018.44	509.98		4.30	-0.32	0.006
127.00	-0.13	-0.03	0.00	-0.10	0.00	0.10	990.92	495.46	992.88	497.18		4.43	-0.32	0.000
130.00	0.00	-0.03	0.00	0.00	0.00	0.00	975.84	487.92	954.81	478.11		4.63	-0.32	0.000

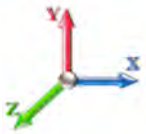
Wind Loading - Shaft

Structure:	CT11561-A-SBA	**Code:**	EIA/TIA-222-G	1/19/2022	
Site Name:	Groton 2, CT	**Exposure:**	B		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 21

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	6.129	6.74	203.90	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	6.129	6.74	199.87	0.650	0.000	5.00	20.108	13.07	88.1	0.0	954.8
10.00		1.00	0.70	6.129	6.74	195.85	0.650	0.000	5.00	19.707	12.81	86.4	0.0	935.6
15.00		1.00	0.70	6.129	6.74	191.83	0.650	0.000	5.00	19.307	12.55	84.6	0.0	916.5
20.00		1.00	0.70	6.129	6.74	187.80	0.650	0.000	5.00	18.906	12.29	82.8	0.0	897.3
25.00		1.00	0.70	6.129	6.74	183.78	0.650	0.000	5.00	18.505	12.03	81.1	0.0	878.1
30.00		1.00	0.70	6.134	6.75	179.83	0.650	0.000	5.00	18.105	11.77	79.4	0.0	858.9
35.00		1.00	0.73	6.410	7.05	179.72	0.650	0.000	5.00	17.704	11.51	81.1	0.0	839.7
40.00		1.00	0.76	6.659	7.33	178.99	0.650	0.000	5.00	17.303	11.25	82.4	0.0	820.6
45.00	Bot - Section 2	1.00	0.79	6.887	7.58	177.76	0.650	0.000	5.00	16.902	10.99	83.2	0.0	801.4
50.00	Top - Section 1	1.00	0.81	7.098	7.81	176.13	0.650	0.000	5.00	16.766	10.90	85.1	0.0	1445.6
55.00		1.00	0.83	7.294	8.02	177.05	0.650	0.000	5.00	16.365	10.64	85.3	0.0	647.5
60.00		1.00	0.85	7.477	8.22	174.82	0.650	0.000	5.00	15.965	10.38	85.4	0.0	631.5
65.00		1.00	0.87	7.650	8.42	172.34	0.650	0.000	5.00	15.564	10.12	85.1	0.0	615.5
70.00		1.00	0.89	7.814	8.60	169.63	0.650	0.000	5.00	15.163	9.86	84.7	0.0	599.5
75.00		1.00	0.91	7.969	8.77	166.72	0.650	0.000	5.00	14.763	9.60	84.1	0.0	583.5
80.00		1.00	0.93	8.118	8.93	163.63	0.650	0.000	5.00	14.362	9.34	83.4	0.0	567.5
85.00		1.00	0.94	8.260	9.09	160.39	0.650	0.000	5.00	13.961	9.07	82.4	0.0	551.6
90.00	Top - Section 2	1.00	0.96	8.396	9.24	156.99	0.650	0.000	5.00	13.560	8.81	81.4	0.0	535.6
95.00		1.00	0.97	8.526	9.38	153.47	0.650	0.000	5.00	13.160	8.55	80.2	0.0	313.0
100.00		1.00	0.99	8.652	9.52	149.81	0.650	0.000	5.00	12.759	8.29	78.9	0.0	303.4
105.00		1.00	1.00	8.774	9.65	146.05	0.650	0.000	5.00	12.358	8.03	77.5	0.0	293.8
107.00	Appurtenance(s)	1.00	1.01	8.821	9.70	144.51	0.650	0.000	2.00	4.831	3.14	30.5	0.0	114.9
110.00		1.00	1.02	8.891	9.78	142.18	0.650	0.000	3.00	7.126	4.63	45.3	0.0	169.4
115.00		1.00	1.03	9.005	9.91	138.20	0.650	0.000	5.00	11.557	7.51	74.4	0.0	274.7
117.00	Appurtenance(s)	1.00	1.03	9.049	9.95	136.59	0.650	0.000	2.00	4.511	2.93	29.2	0.0	107.2
120.00		1.00	1.04	9.115	10.03	134.14	0.650	0.000	3.00	6.646	4.32	43.3	0.0	157.9
125.00		1.00	1.05	9.222	10.14	129.99	0.650	0.000	5.00	10.755	6.99	70.9	0.0	255.5
127.00	Appurtenance(s)	1.00	1.06	9.264	10.19	128.31	0.650	0.000	2.00	4.190	2.72	27.8	0.0	99.5
130.00		1.00	1.07	9.326	10.26	125.76	0.650	0.000	3.00	6.165	4.01	41.1	0.0	146.4
								Totals:	**130.00**			**2,105.3**		**16,316.4**

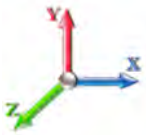
Discrete Appurtenance Forces

Structure:	CT11561-A-SBA	**Code:**	EIA/TIA-222-G	1/19/2022	
Site Name:	Groton 2, CT	**Exposure:**	B		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 21

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	127.00	Platform w/ Hand Rails	1	9.264	10.190	1.00	1.00	40.00	2000.00	0.000	0.000	407.60	0.00	0.00
2	127.00	Ericsson 4449 B71 + B85	3	9.264	10.190	0.50	0.75	2.94	225.00	0.000	0.000	29.95	0.00	0.00
3	127.00	Ericsson KRY 112 144/1	3	9.264	10.190	0.45	0.75	0.47	33.00	0.000	0.000	4.81	0.00	0.00
4	127.00	RFS	3	9.264	10.190	0.54	0.75	32.79	368.40	0.000	0.000	334.12	0.00	0.00
5	127.00	Commscope VV-65A-R1	3	9.264	10.190	0.55	0.75	9.86	71.43	0.000	0.000	100.44	0.00	0.00
6	127.00	Ericsson AIR6449 B41	3	9.264	10.190	0.53	0.75	9.03	309.00	0.000	0.000	91.97	0.00	0.00
7	127.00	Ericsson 4460 B25 + B66	3	9.264	10.190	0.50	0.75	4.30	312.00	0.000	0.000	43.78	0.00	0.00
8	117.00	CBC1923Q-43	2	9.049	9.954	1.00	1.00	0.64	15.80	0.000	0.000	6.37	0.00	0.00
9	117.00	Support Rail Kit	1	9.104	10.014	1.00	1.00	6.75	261.72	0.000	2.500	67.60	0.00	168.99
10	117.00	Low Profile Platform	1	9.049	9.954	1.00	1.00	25.00	1500.00	0.000	0.000	248.85	0.00	0.00
11	117.00	Raycap	2	9.049	9.954	1.00	1.00	8.12	64.00	0.000	0.000	80.83	0.00	0.00
12	117.00	Samsung B2/B66A	2	9.049	9.954	1.00	1.00	3.76	168.80	0.000	0.000	37.43	0.00	0.00
13	117.00	Samsung MT6407-77A	2	9.049	9.954	1.00	1.00	9.38	174.20	0.000	0.000	93.37	0.00	0.00
14	117.00	Commscope	2	9.049	9.954	1.00	1.00	3.16	12.40	0.000	0.000	31.45	0.00	0.00
15	107.00	RDIDC-9181-PF-48	1	8.821	9.703	1.00	1.00	2.01	21.85	0.000	0.000	19.50	0.00	0.00
16	107.00	TA08025-B604	3	8.821	9.703	0.50	0.75	2.95	191.70	0.000	0.000	28.67	0.00	0.00
17	107.00	TA08025-B605	3	8.821	9.703	0.50	0.75	2.95	225.00	0.000	0.000	28.67	0.00	0.00
18	107.00	MC-PK8-DSH	1	8.821	9.703	1.00	1.00	37.59	1727.00	0.000	0.000	364.74	0.00	0.00
19	107.00	MX08FRO665-21	3	8.821	9.703	0.55	0.75	20.80	193.50	0.000	0.000	201.79	0.00	0.00
							Totals:		**7,874.80**			**2,221.95**		

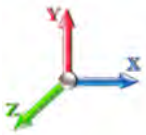
Total Applied Force Summary

Structure:	CT11561-A-SBA		**Code:**	EIA/TIA-222-G	1/19/2022
Site Name:	Groton 2, CT		**Exposure:**	B	
Height:	130.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 26

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 21

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		88.11	981.62	0.00	0.00
10.00		86.36	1002.64	0.00	0.00
15.00		84.60	983.46	0.00	0.00
20.00		82.85	964.28	0.00	0.00
25.00		81.09	945.10	0.00	0.00
30.00		79.40	925.92	0.00	0.00
35.00		81.14	906.74	0.00	0.00
40.00		82.39	887.57	0.00	0.00
45.00		83.23	868.39	0.00	0.00
50.00		85.09	1512.65	0.00	0.00
55.00		85.34	714.46	0.00	0.00
60.00		85.35	698.48	0.00	0.00
65.00		85.13	682.49	0.00	0.00
70.00		84.72	666.51	0.00	0.00
75.00		84.12	650.53	0.00	0.00
80.00		83.36	634.55	0.00	0.00
85.00		82.45	618.56	0.00	0.00
90.00		81.40	602.58	0.00	0.00
95.00		80.23	380.02	0.00	0.00
100.00		78.93	370.43	0.00	0.00
105.00		77.52	360.84	0.00	0.00
107.00	(11) attachments	673.84	2500.70	0.00	0.00
110.00		45.30	206.60	0.00	0.00
115.00		74.41	336.67	0.00	0.00
117.00	(12) attachments	595.08	2328.90	0.00	168.99
120.00		43.31	188.85	0.00	0.00
125.00		70.92	307.09	0.00	0.00
127.00	(19) attachments	1040.44	3438.98	0.00	0.00
130.00		41.11	146.39	0.00	0.00
	Totals:	**4,327.20**	**25,812.01**	**0.00**	**168.99**

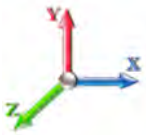
Calculated Forces

Structure:	CT11561-A-SBA	**Code:**	EIA/TIA-222-G	1/19/2022	
Site Name:	Groton 2, CT	**Exposure:**	B		
Height:	130.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 21

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-25.81	-4.33	0.00	-413.14	0.00	413.14	3903.36	1951.68	7638.46	3824.91	0.00	0.000	0.000	0.115
5.00	-24.83	-4.26	0.00	-391.47	0.00	391.47	3851.93	1925.96	7386.73	3698.85	0.02	-0.035	0.000	0.112
10.00	-23.82	-4.19	0.00	-370.16	0.00	370.16	3799.43	1899.71	7137.04	3573.82	0.07	-0.071	0.000	0.110
15.00	-22.84	-4.12	0.00	-349.22	0.00	349.22	3745.86	1872.93	6889.51	3449.88	0.17	-0.106	0.000	0.107
20.00	-21.87	-4.05	0.00	-328.63	0.00	328.63	3691.24	1845.62	6644.27	3327.07	0.30	-0.142	0.000	0.105
25.00	-20.92	-3.98	0.00	-308.40	0.00	308.40	3635.55	1817.78	6401.45	3205.48	0.47	-0.178	0.000	0.102
30.00	-19.99	-3.91	0.00	-288.53	0.00	288.53	3578.80	1789.40	6161.16	3085.16	0.67	-0.213	0.000	0.099
35.00	-19.08	-3.83	0.00	-269.00	0.00	269.00	3520.99	1760.49	5923.54	2966.17	0.91	-0.249	0.000	0.096
40.00	-18.20	-3.76	0.00	-249.84	0.00	249.84	3462.11	1731.06	5688.70	2848.58	1.19	-0.285	0.000	0.093
45.00	-17.32	-3.68	0.00	-231.06	0.00	231.06	3402.17	1701.09	5456.79	2732.45	1.51	-0.320	0.000	0.090
50.00	-15.81	-3.60	0.00	-212.66	0.00	212.66	2672.34	1336.17	4264.27	2135.31	1.87	-0.355	0.000	0.106
55.00	-15.09	-3.52	0.00	-194.68	0.00	194.68	2628.44	1314.22	4091.13	2048.60	2.26	-0.390	0.000	0.101
60.00	-14.39	-3.43	0.00	-177.10	0.00	177.10	2583.48	1291.74	3919.82	1962.82	2.69	-0.429	0.000	0.096
65.00	-13.71	-3.35	0.00	-159.93	0.00	159.93	2537.45	1268.73	3750.46	1878.02	3.16	-0.467	0.000	0.091
70.00	-13.04	-3.27	0.00	-143.17	0.00	143.17	2490.36	1245.18	3583.19	1794.26	3.67	-0.504	0.000	0.085
75.00	-12.39	-3.19	0.00	-126.81	0.00	126.81	2442.21	1221.10	3418.12	1711.60	4.21	-0.539	0.000	0.079
80.00	-11.76	-3.11	0.00	-110.87	0.00	110.87	2392.99	1196.50	3255.39	1630.11	4.80	-0.573	0.000	0.073
85.00	-11.14	-3.02	0.00	-95.34	0.00	95.34	2342.71	1171.36	3095.11	1549.86	5.41	-0.605	0.000	0.066
90.00	-10.53	-2.94	0.00	-80.23	0.00	80.23	2291.37	1145.69	2937.41	1470.89	6.06	-0.635	0.000	0.059
90.00	-10.53	-2.94	0.00	-80.23	0.00	80.23	1145.45	572.73	1480.17	741.18	6.06	-0.635	0.000	0.117
95.00	-10.15	-2.86	0.00	-65.53	0.00	65.53	1127.97	563.98	1413.34	707.72	6.74	-0.662	0.000	0.102
100.00	-9.78	-2.78	0.00	-51.22	0.00	51.22	1109.42	554.71	1346.59	674.30	7.46	-0.701	0.000	0.085
105.00	-9.42	-2.71	0.00	-37.30	0.00	37.30	1089.82	544.91	1280.05	640.97	8.21	-0.734	0.000	0.067
107.00	-6.93	-2.00	0.00	-31.88	0.00	31.88	1081.68	540.84	1253.52	627.69	8.52	-0.745	0.000	0.057
110.00	-6.72	-1.96	0.00	-25.88	0.00	25.88	1069.15	534.57	1213.84	607.82	9.00	-0.760	0.000	0.049
115.00	-6.39	-1.88	0.00	-16.10	0.00	16.10	1047.42	523.71	1148.08	574.89	9.80	-0.779	0.000	0.034
117.00	-4.06	-1.25	0.00	-12.18	0.00	12.18	1038.42	519.21	1121.94	561.80	10.13	-0.784	0.000	0.026
120.00	-3.88	-1.21	0.00	-8.42	0.00	8.42	1024.62	512.31	1082.91	542.26	10.63	-0.791	0.000	0.019
125.00	-3.57	-1.13	0.00	-2.39	0.00	2.39	1000.76	500.38	1018.44	509.98	11.46	-0.797	0.000	0.008
127.00	-0.15	-0.04	0.00	-0.13	0.00	0.13	990.92	495.46	992.88	497.18	11.79	-0.798	0.000	0.000
130.00	0.00	-0.04	0.00	0.00	0.00	0.00	975.84	487.92	954.81	478.11	12.29	-0.798	0.000	0.000

Final Analysis Summary

Structure:	CT11561-A-SBA		**Code:**	EIA/TIA-222-G	1/19/2022
Site Name:	Groton 2, CT		**Exposure:**	B	
Height:	130.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 28

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 105 mph Wind	21.3	0.00	30.94	0.00	0.00	2034.60
0.9D + 1.6W 105 mph Wind	21.2	0.00	23.20	0.00	0.00	2017.51
1.2D + 1.0Di + 1.0Wi 50 mph Wind	5.3	0.00	48.86	0.00	0.00	496.30
1.2D + 1.0E	1.3	0.00	30.97	0.00	0.00	142.92
0.9D + 1.0E	1.3	0.00	23.23	0.00	0.00	141.63
1.0D + 1.0W 60 mph Wind	4.3	0.00	25.81	0.00	0.00	413.14

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 105 mph Wind	-11.89	-14.51	0.00	-396.02	0.00	-396.02	2291.37	1145.6	2937.41	1470.89	90.00	0.545
0.9D + 1.6W 105 mph Wind	-8.73	-14.33	0.00	-390.66	0.00	-390.66	2291.37	1145.6	2937.41	1470.89	90.00	0.535
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-23.56	-3.49	0.00	-92.00	0.00	-92.00	2291.37	1145.6	2937.41	1470.89	90.00	0.145
1.2D + 1.0E	-12.67	-1.10	0.00	-36.07	0.00	-36.07	2291.37	1145.6	2937.41	1470.89	90.00	0.060
0.9D + 1.0E	-9.50	-1.09	0.00	-35.64	0.00	-35.64	2291.37	1145.6	2937.41	1470.89	90.00	0.056
1.0D + 1.0W 60 mph Wind	-10.53	-2.94	0.00	-80.23	0.00	-80.23	2291.37	1145.6	2937.41	1470.89	90.00	0.117

Base Plate Summary

Structure:	CT11561-A-SB		**Code:**	EIA/TIA-222-G	1/19/2022
Site Name:	Groton 2, CT		**Exposure:**	B	
Height:	130.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 29

Reactions	
Original Design	
Moment (kip-ft):	2188.80
Axial (kip):	27.80
Shear (kip):	22.70
Analysis (1.2D + 1.6W)	
Moment (kip-ft):	2034.60
Axial (kip):	30.94
Shear (kip):	21.25

Base Plate	
Yield (ksi):	50.00
Width (in):	60.00
Style:	Round
Polygon Sides:	0.00
Clip Length (in):	0.00
Effective Len (in):	18.95
Moment (kip-in):	464.35
Allow Stress (ksi):	67.50
Applied Stress (ksi):	23.63
Stress Ratio:	0.35

Anchor Bolts	
Bolt Circle:	54.00
Number Bolts:	12.00
Bolt Type:	2.25" A193 B7
Bolt Diameter (in):	2.25
Yield (ksi):	105.00
Ultimate (ksi):	125.00
Arrangement:	Radial
Cluster Dist (in):	0.00
Start Angle (deg):	30.00
Compression	
Force (kip):	154.78
Allowable (kip):	325.00
Ratio:	0.49
Tension	
Force (kip):	146.64
Allowable (kip):	325.00
Ratio:	0.46

Monopole Mat Foundation Design

			Date: 1/19/2022
Customer Name:	T-Mobile	**EIA/TIA Standard:**	EIA-222-G
Site Name:		**Structure Height (Ft.):**	130
Site Number:	CT11561-A-SBA	**Engineer Name:**	J. Tibbetts
Engr. Number:	122397	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

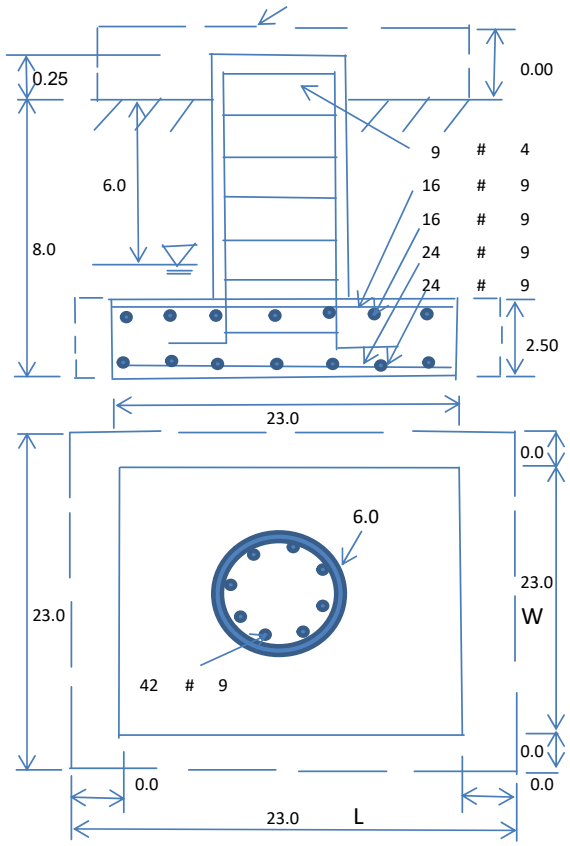
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	30.9	Shear Force (Kips):	21.3
Uplift Force (Kips):	0.0	Moment (Kips-ft):	2034.6
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	6.0	Depth of Base BG (ft.):	8.0
Pier Height A. G. (ft.):	0.25	Thickness of Pad (ft):	2.50
Length of Pad (ft.):	23	Width of Pad (ft.):	23
Final Length of pad (ft)	23.0	Final width of pad (ft):	23.0



Material Properties and Reabr Info:

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	42	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	24	Qty. of Rebar in Pad (W):	24	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	16	Qty. of Rebar in Pad (W):	16	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	110.0	Soil Buoyant Weight:	62.6	Pcf		
Water Table B.G.S. (ft):	6.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	30000	Ultimate Skin Friction:		Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	Yes		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:			1.00	

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75 — Compression Strength Reduction Factor: 0.75

Total Dry Soil Volume (cu. Ft.):	2753.99	Total Dry Soil Weight (Kips):	302.94
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	302.94	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	427.08	Total Dry Concrete Weight (Kips):	64.06
Total Buoyant Concrete Volume (cu. Ft.):	1058.00	Total Buoyant Concrete Weight (Kips):	92.68
Total Effective Concrete Weight (Kips):	156.74	Total Vertical Load on Base (Kips):	490.58

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	2017	<	Allowable Factored Soil Bearing (psf):	22500	0.09	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	5113.1	>	Design Factored Momont (kips-ft):	2008	0.39	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.55	OK!				

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90		Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compresion):	0.65		Wind Load Factor on Concrete Design:	1.00		
					Load/ Capacity Ratio	
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	1.00		Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	5645.0	>	Design Factored Moment (Mu, Kips-F	2157.1	0.38	OK!
Calculated Shear Capacity (Kips):	449.7	>	Design Factored Shear (Kips):	21.3	0.05	OK!
Calculated Tension Capacity (Tn, Kips):	2268.0	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	5343.1	>	Design Factored Axial Load (Pu Kips):	30.9	0.01	OK!
Moment & Axial Strength Combination:	0.38	OK!	Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.010		Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Direction, Kips):	599.5	>	One-Way Factored Shear (L-D. Kips):	183.4	0.31	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	599.5	>	One-Way Factored Shear (W-D., Kips)	183.4	0.31	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	576.6	>	One-Way Factored Shear (C-C, Kips):	171.6	0.30	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0033	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0033		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	2744.8	>	Moment at Bottom (L-Dir. K-Ft):	945.6	0.34	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	2744.8	>	Moment at Bottom (W-Dir. K-Ft):	945.6	0.34	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	3846.3	>	Moment at Bottom (C-C Dir. K-Ft):	1337.3	0.35	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0022	OK!	Upper Steel Reinf. Ratio (W-Dir.):	0.0022		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	1854.4	>	Moment at the top (L-Dir K-Ft):	315.3	0.17	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	1854.4	>	Moment at the top (W-Dir K-Ft):	315.3	0.17	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	2606.8	>	Moment at the top (C-C Dir. K-Ft):	295.2	0.11	OK!
(3).Check Punching Shear Capacity due to Moment in the Pier:						
Moment transferred by punching shear:	813.8	k-ft.	Max. factored shear stress v_{u_CD}:		3.5	Psi
Max. factored shear stress v_{u_AB}:	9.5	Psi	Factored shear Strength ϕv_n:		164.3	Psi
Max. factored shear stress v_u:	9.5	Psi	Check Usage of Punching Shear Capacity:		0.06	OK!

EXHIBIT 8

Mount Analysis

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Antenna Mount Analysis Report

Existing Monopole Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT11561-A-SBA / Groton 2, CT

Customer Site Name: Groton 2, CT

Carrier Name: T-Mobile (App#: 183891, V#1)

Carrier Site ID / Name: CTNL053A / Groton

Site Location: 237 Sandy Hollow Road

Groton, Connecticut

New London County

Latitude: 41.369510

Longitude: -71.982463

Exp. 01/31/2022

01/11/2022

Analysis Result:

Max Structural Usage: 96.0% Pass

Report Prepared By: Anita Lama

Introduction

The purpose of this report is to summarize the analysis results on the (1) Platform w/ Support Rails at 127.00' elevation to support the proposed antenna configuration. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Mount Drawings	Mount mapping by Full Metal Tower Services dated 4/30/19.
Antenna Loading	SBA Application #: 183891, v1
Modification Drawings	N/A

Analysis Criteria

Basic Wind Speed Used in the Analysis: V_{ULT} = 135 mph (3-Sec. Gust) / Equivalent to
V_{ASD} = 120 mph (3-Sec. Gust)
Basic Wind Speed with Ice: 50 mph (3-Sec. Gust) with 0.75" radial ice concurrent
Operational Wind Speed: 60 mph +0" Radial ice
Standard/Codes: ANSI/TIA/EIA 222-G/2015 IBC / 2018 Connecticut State Building Code
Exposure Category: C
Structure Class: II
Topographic Category: 1
Crest Height (Ft): 0

The site is a Risk Category II structure per IBC Table 1604.5. This site does not support emergency communication equipment for first responders such as fire departments, police, hospitals, ambulance services or any of the facilities listed for Risk Categories III and IV. The scope of work detailed in this structural analysis does not include items that are a part of emergency service as the 911 or essential facility service of an emergency response system.

Mount Information

(1) Platform w/ Support Rails at 127.00' elevation

Final Antenna Configuration

3 Ericsson AIR6449 B41
3 Commscope VV-65A-R1
3 RFS APXVAALL24_43-U-NA20
3 Ericsson KRY 112 144/1
3 Ericsson 4449 B71 + B85
3 Ericsson 4460 B25 + B66 3

In addition to the proposed equipment loading, a 500 lb serviceability load was also considered in this analysis in accordance with TIA requirements.

Analysis Results

Our calculations have determined that under design wind load the existing mounts will be structurally adequate to support the proposed antenna configuration. The maximum structural usage is 96.0%, which occurs in the support rail. The proposed equipment must be installed as stipulated in the Final Antenna Configuration section of this report. The analysis results are void if the proposed equipment is not installed in accordance with this report.

Attachments

1. Mount Photos
2. Antenna Placement Diagram
3. Mount Mapping Information
4. Analysis Calculations

Standard Conditions

1. The loading configuration as analyzed in this report is as provided from the customer. Any deviation from this design shall be communicated to TES to verify deviation will not adversely impact the analysis.

2. The analysis is based on the presumption that the antenna mount members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.

3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion. The mount analysis is not a condition assessment of the mount.

4. The mount analysis was performed in accordance with the loading provided, and if applicable the modification required to support the additional loading.

5. If the mount is modified, installation must adhere to the configuration communicated in the modification drawings.

6. The modification drawings are not intended to convey means or methods. These are the responsibility of the installing contractor.

7. Rigging plan review is available if the contractor requires for a construction class IV or other if required. Review fee would apply.

8. The mount modification package was created based upon information provided for the mount loading. The underlying tower is assumed to provide support and sufficient rigidity to support the mount loads as a tower analysis was not part of the mount analysis.

9. TES is not responsible for modifications to climbing facilities unless communicated to TES in writing.


04.30.2019 12:11


04.30.2019 12:29

Structure: CT11561-A-SBA - Groton 2, CT

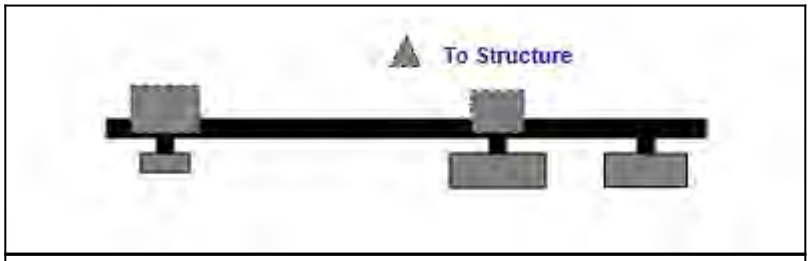
Sector: A

Structure Type: Monopole

Mount Elev: 127.00

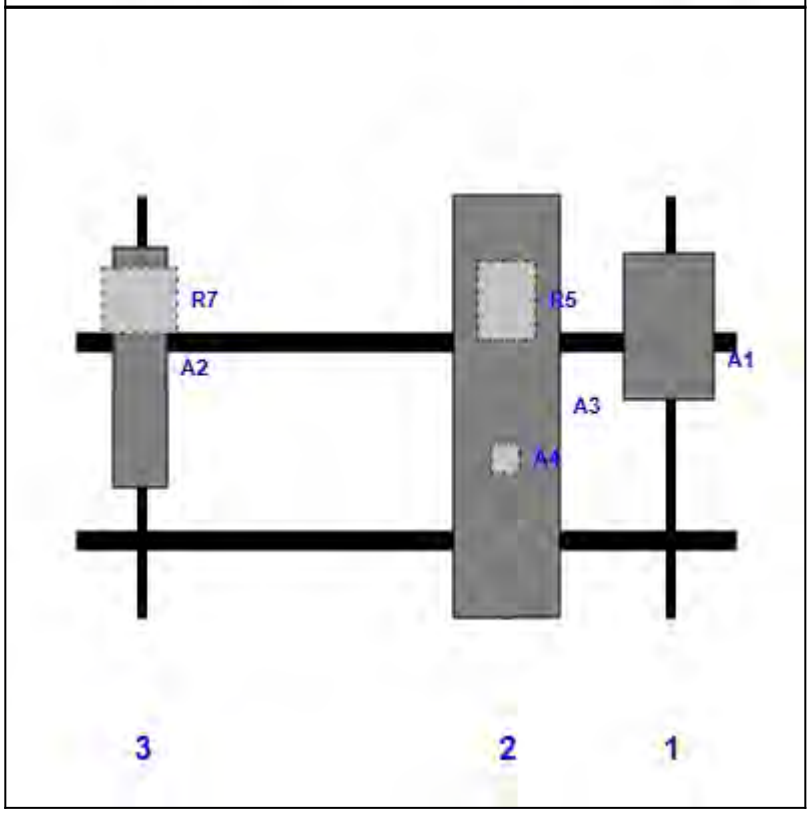
1/11/2022

Plan View



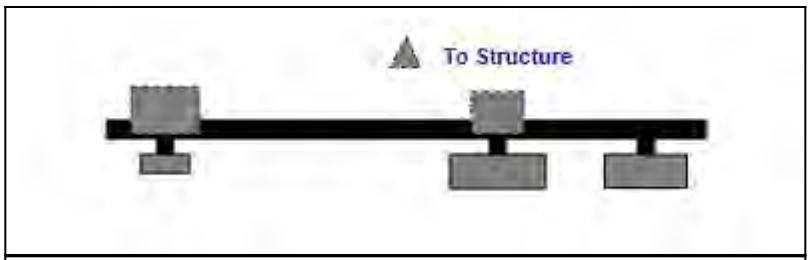
Front View

Looking Toward Structure



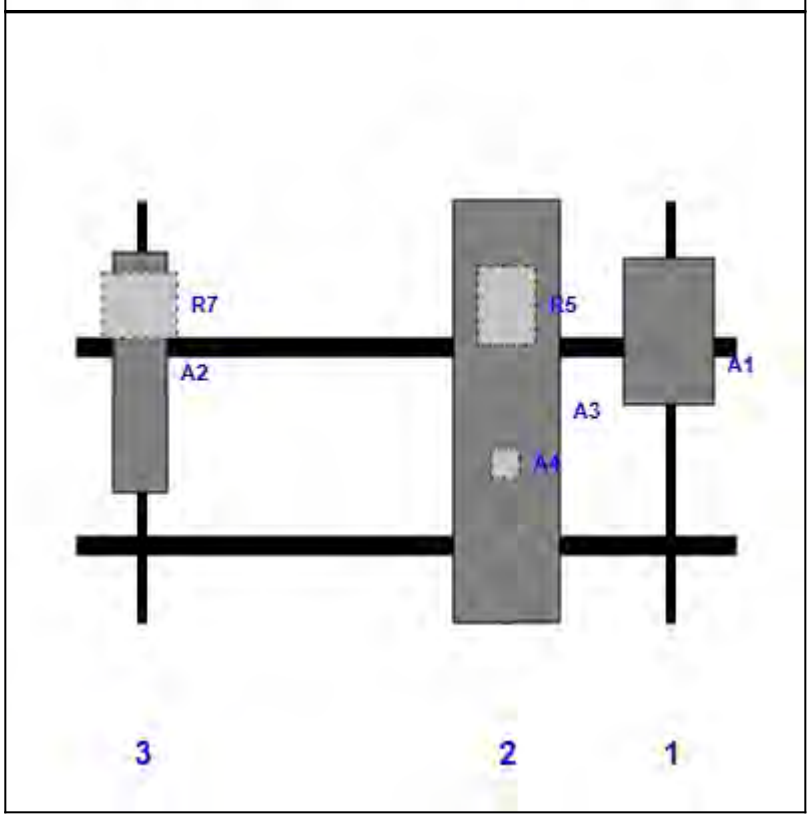
Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A1	AIR6449 B41	33.10	20.50	135.00	1	a	Front	30.00			
A3	APXVAALL24_43-U-NA20	95.90	24.00	98.00	2	a	Front	48.00			
A4	KRY 112 144/1	6.90	6.10	98.00	2	a	Behind	60.00			
R5	4449 B71 + B85	17.90	13.10	98.00	2	a	Behind	24.00			
A2	VV-65A-R1	54.72	12.08	15.00	3	a	Front	39.00			
R7	4460 B25 + B66 3	15.10	17.00	15.00	3	a	Behind	24.00			

Plan View



Front View

Looking Toward Structure



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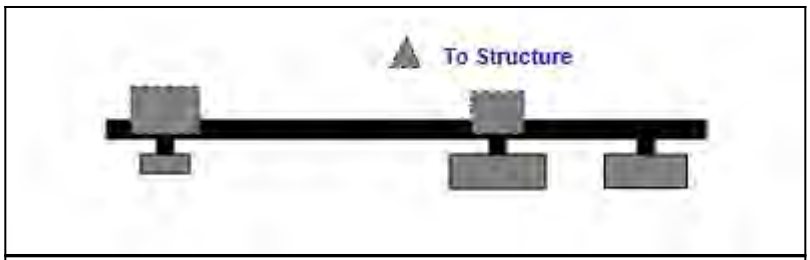
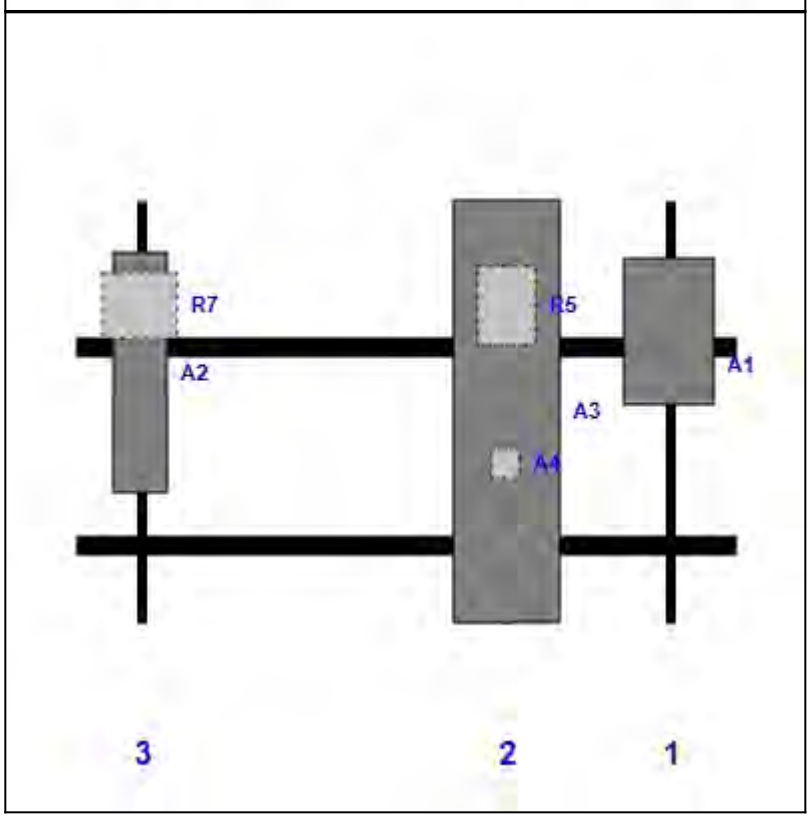
A3	APXVAALL24_43-U-NA20	95.90	24.00	98.00	2	a	Front	48.00			
A4	KRY 112 144/1	6.90	6.10	98.00	2	a	Behind	60.00			
R5	4449 B71 + B85	17.90	13.10	98.00	2	a	Behind	24.00			
A2	VV-65A-R1	54.72	12.08	15.00	3	a	Front	39.00			
R7	4460 B25 + B66 3	15.10	17.00	15.00	3	a	Behind	24.00			

Plan View



Front View

Looking Toward Structure



Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
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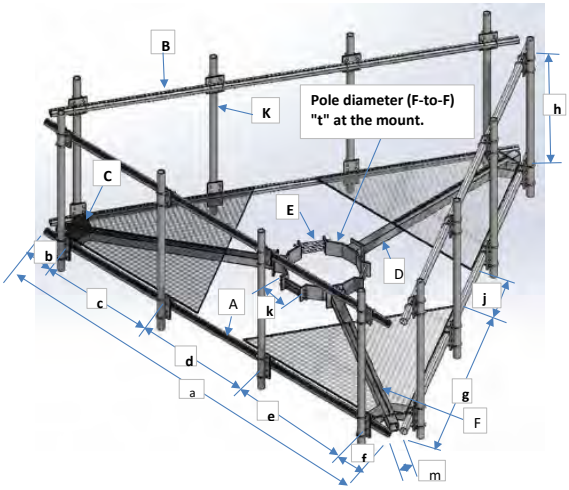
A3	APXVAALL24_43-U-NA20	95.90	24.00	98.00	2	a	Front	48.00			
A4	KRY 112 144/1	6.90	6.10	98.00	2	a	Behind	60.00			
R5	4449 B71 + B85	17.90	13.10	98.00	2	a	Behind	24.00			
A2	VV-65A-R1	54.72	12.08	15.00	3	a	Front	39.00			
R7	4460 B25 + B66 3	15.10	17.00	15.00	3	a	Behind	24.00			

Antenna Mount Type "MT-B" Mapping Form (PATENT PENDING)

FCC # 1261047

Tower Owner:	SBA Communications	**Mapping Date:**	4/30/19
Site Name:	Groton 2, CT	**Structure Type:**	Monopole
Site Number or ID:	CT11561-A-SBA	**Structure Height (Ft.):**	131
Mapping Contractor:	Full Metal Tower Services	**Mount Height (Ft.):**	128.4

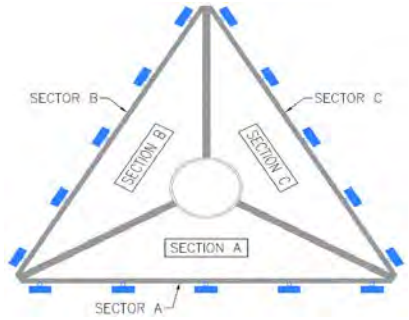


Geometries (Unit: inches)									
a	150	**e**	45	**j**	41	**o**	N/A	**s**	N/A
b	10	**f**	9	**k**	36	**p**	N/A	**t**	24
c	45	**g**	45	**m**	12	**q**	N/A	**u ***	33
d	41	**h**	-45	**n**	N/A	**r**	N/A	**v ***	96

Members/Bolts (Unit: inches) * - See Ant Layout for "u", "v" and member "K" (pipe)

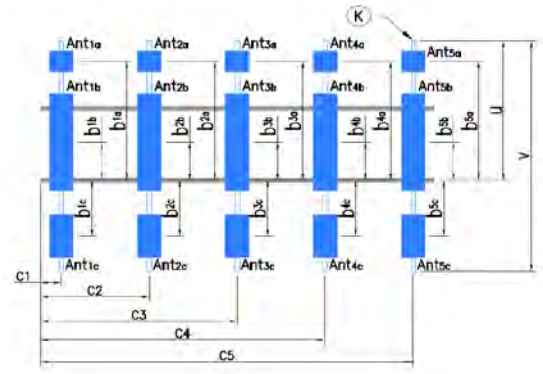
Items	Member	Lx (O.D.)	Ly (I.D.)	T	Items	Member	Lx (O.D.)	Ly (I.D.)	T
A	3.5 OD x 0.216 Pipe	3.5	3.068	0.216	F	Tubing 4x4x1/4	4	4	0.25
B	2.375 OD x 0.154 Pipe	2.375	2.067	0.154	G				
C	1/2" Thick. Plate	0	0	0.5	H				
D	Tubing 4x4x1/4	4	4	0.25	J				
E	3/4" Bolt	36			K* (pipe)	2.375 OD x 0.154 Pipe	2.375	2.067	0.154
Distance from top of main platform member to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.)									N/A
Distance from top of main platform member to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.)									7.5'

Please enter the infomation below if members can't be found from the drop down lists



Climbing ladder is , at 150° Degree Azimuth

Ants. Items	Enter antenna model. If not labled, enter "Unknown". If no antenna at specified location, enter "N/A". If antennas and the locations are the same on all three sectors, only enter one sector.	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Mounting Locations (Unit: inches) Vertical Distances"b_{1a}, b_{2a}, b_{3a}, b_{1b}...." (In.)	Horiz. offset (Use "-" if Ant. is inside)	Horiz. offset "C_1, C_2, C_3, C_4, C_5" (in.)	Photos of antennas Photo Numbers
Sector A									
Ant_{1a}									
Ant_{1b}	Antenna A	12	8	56	1/2" (2)	+4"	7	16	
Ant_{1c}	TMA A				1/2" (2)		N/A	16	
Ant_{2a}									
Ant_{2b}	Antenna B	12	7.5	96.5	1/2" (2)	-27"	7	52	
Ant_{2c}	RRH A	17	7	20	1/2" (2)	-23"	N/A	52	
Ant_{3a}									
Ant_{3b}	Antenna C	13	9	56	1/2" (1)	+4"	8	135	
Ant_{3c}									
Ant_{4a}									
Ant_{4b}									
Ant_{4c}									
Ant_{5a}									
Ant_{5b}									
Ant_{5c}									
Are Ant same as sector A?	Yes	**Antennas on Sector B are the same as Sector A**							

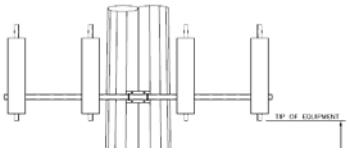


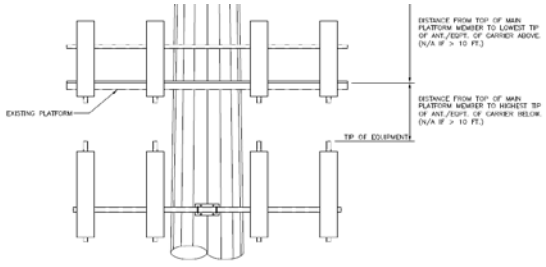
Antenna Layout

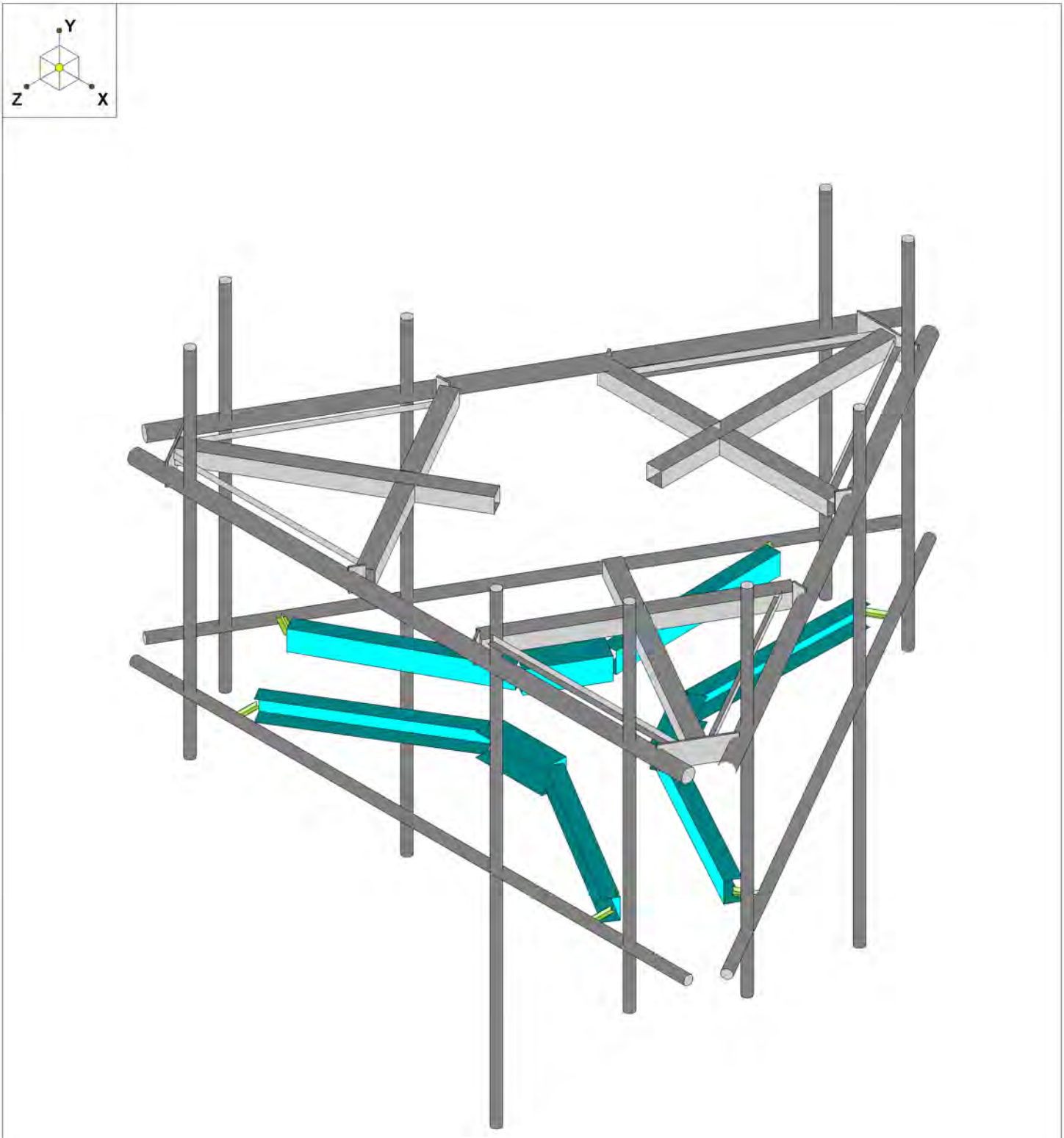
Azimuth (Degree) of Each Sector and Climbing Information

Sector A:	70°	Deg	
Sector B:	190°	Deg	
Sector C:	310°	Deg	
Climbing	150°	Deg	
Climbing Facility	Corrosion Type:		
	Access:		
	Condition:		

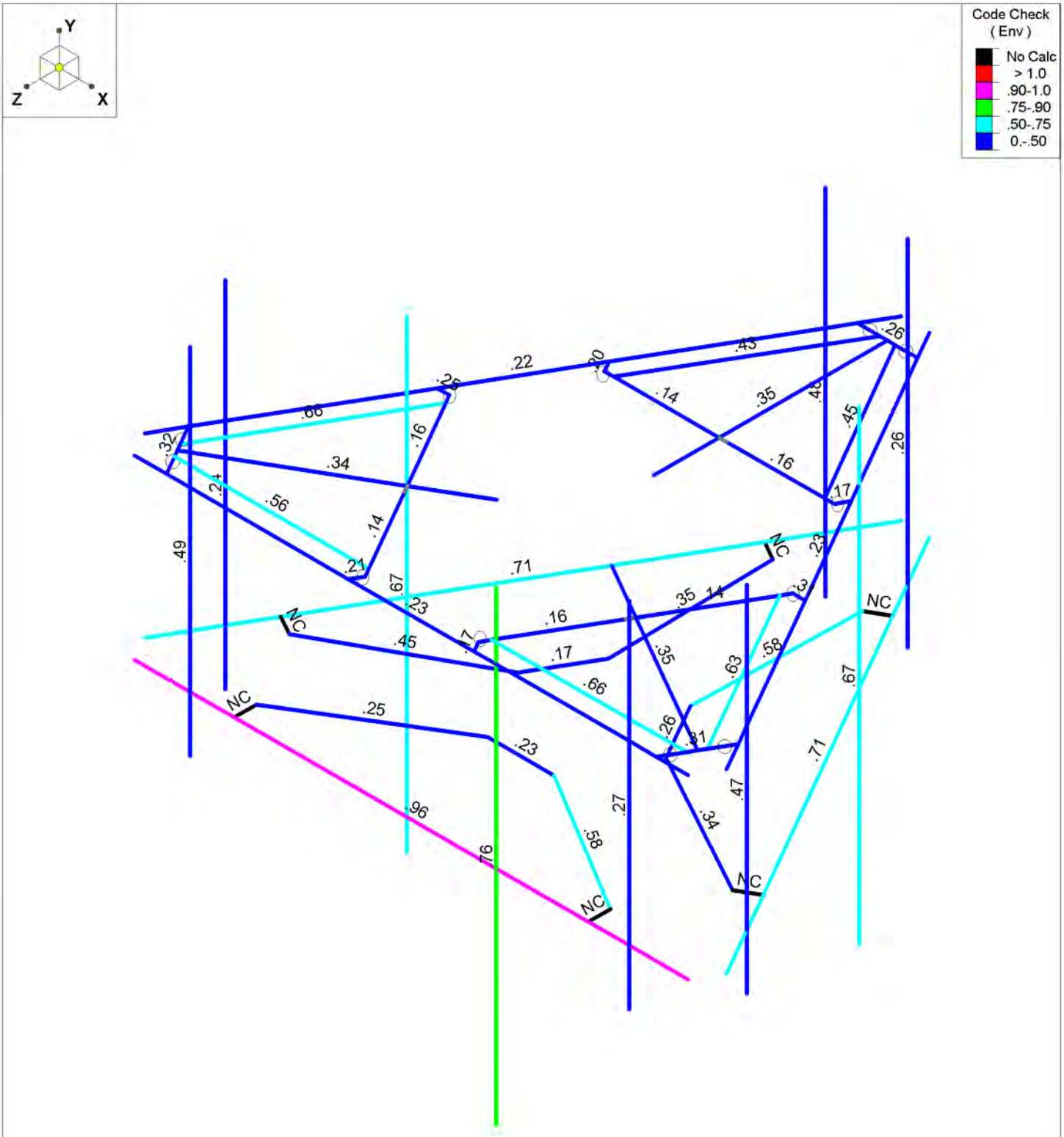
Are Ant same as sector A/B? Same As A **Antennas on Sector C are the same as Sector A**




DISTANCE FROM TOP OF MAIN PLATFORM MEMBER TO LOWEST TIP OF ANT./EQPT. OF CARRIER ABOVE (N/A IF > 10 FT.)
DISTANCE FROM TOP OF MAIN PLATFORM MEMBER TO HIGHEST TIP OF ANT./EQPT. OF CARRIER BELOW (N/A IF > 10 FT.)
EXISTING PLATFORM
TIP OF EQUIPMENT

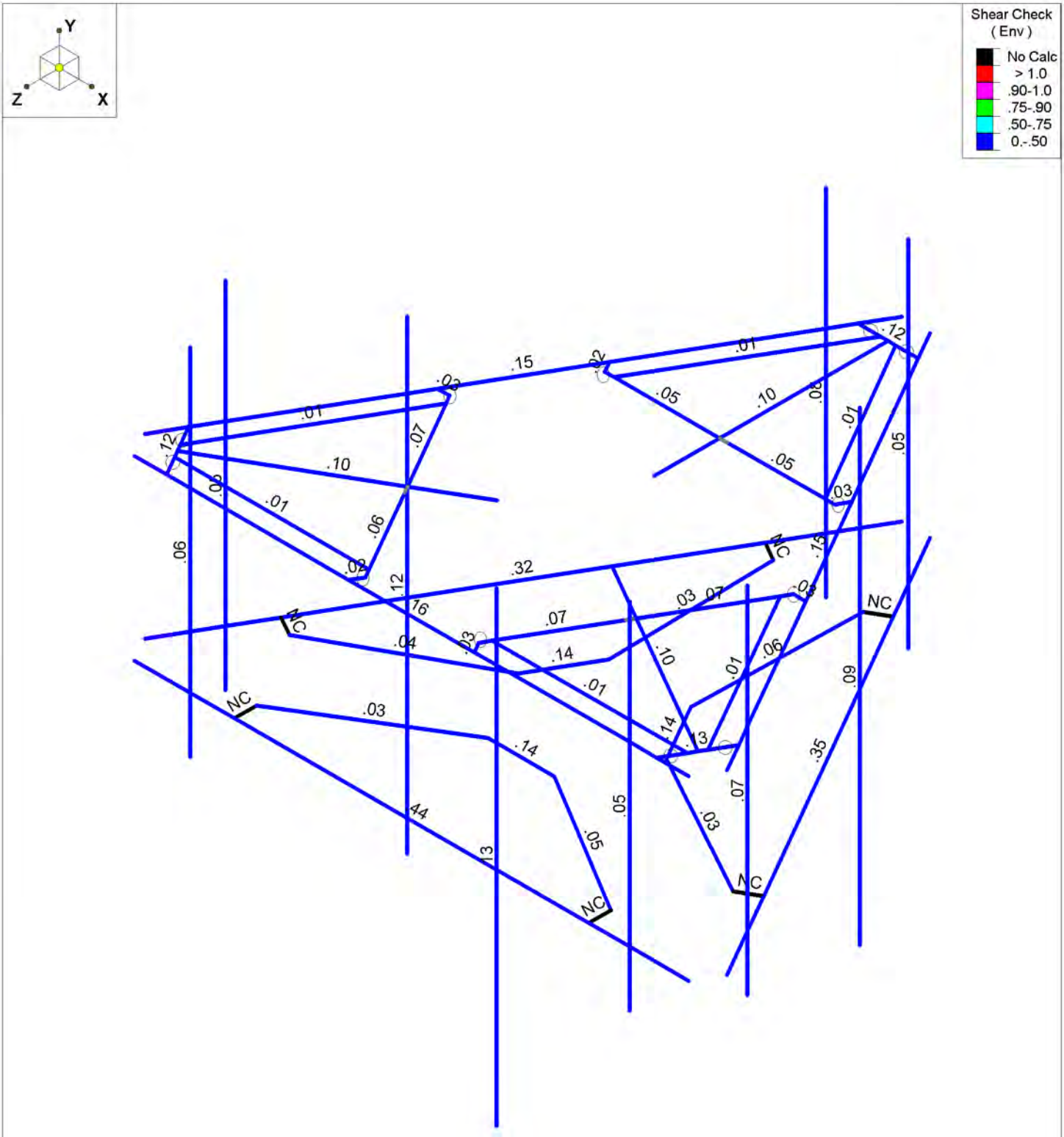


Tower Engineering Solutio...	CT11561-A-SBA_MT_LO_Loads Only_G	SK - 1
LK		Jan 11, 2022 at 3:31 PM
TES Project No. 121752		CT11561-A-SBA_121752_G_RISA_...



Member Code Checks Displayed (Enveloped)
Results for LC 1, 1.2D+1.6W (Front)

Tower Engineering Solutio...	CT11561-A-SBA_MT_LO_Loads Only_G	SK - 2
LK		Jan 11, 2022 at 3:31 PM
TES Project No. 121752		CT11561-A-SBA_121752_G_RISA_...



Member Shear Checks Displayed (Enveloped)
Results for LC 1, 1.2D+1.6W (Front)

Tower Engineering Solutio...	CT11561-A-SBA_MT_LO_Loads Only_G	SK - 3
LK		Jan 11, 2022 at 3:31 PM
TES Project No. 121752		CT11561-A-SBA_121752_G_RISA_...

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Antenna D	None					27			
2	Antenna Di	None					27			
3	Antenna W Front	None					27			
4	Antenna Wi Front	None					27			
5	Antenna W Side	None					27			
6	Antenna Wi Side	None					27			
7	Service Lm1	None					1			
8	Service Lm2	None					1			
9	Structure D	None		-1					3	
10	Structure Di	None						48	3	
11	Structure W Front	None						48		
12	Structure Wi Front	None						48		
13	Structure W Side	None						48		
14	Structure Wi Side	None						48		
15	BLC 9 Transient Area Loads	None								
16	BLC 10 Transient Area Loads	None						54		

Load Combinations

	Description	S...	PDelta	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.2D+1.6W (Front)	Yes	Y		1	1.2	9	1.2	3	1.6	11	1.6												
2	1.2D+1.6W (Back)	Yes	Y		1	1.2	9	1.2	3	-1.6	11	-1.6												
3	1.2D+1.6W (Left)	Yes	Y		1	1.2	9	1.2	5	1.6	13	1.6												
4	1.2D+1.6W (Right)	Yes	Y		1	1.2	9	1.2	5	-1.6	13	-1.6												
5	1.2D+1.0Di+1.0Wi (Front)	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	1	12	1								
6	1.2D+1.0Di+1.0Wi (Back)	Yes	Y		1	1.2	9	1.2	2	1	10	1	4	-1	12	-1								
7	1.2D+1.0Di+1.0Wi (Left)	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	1	14	1								
8	1.2D+1.0Di+1.0Wi (Right)	Yes	Y		1	1.2	9	1.2	2	1	10	1	6	-1	14	-1								
9	1.2D+1.5L1+.16W (Maint...	Yes	Y		1	1.2	9	1.2	7	1.5	3	.16	11	.16										
10	1.2D+1.5L2+.16W (Maint...	Yes	Y		1	1.2	9	1.2	8	1.5	3	.16	11	.16										
11	1.4D	Yes	Y		1	1.4	9	1.4																

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N2	-1.299038	0	.75	0	
3	N3	-2.580756	0	1.49	0	
4	N4	-3.880756	0	-0.761666	0	
5	N5	-5.871652	0	3.39	0	
6	N6	-1.280756	0	3.741666	0	
7	N7	-1.390131	0	3.552223	0	
8	N8	-3.771381	0	-0.572223	0	
9	N9	-5.531652	0	3.978897	0	
10	N10	-6.211652	0	2.801103	0	
11	N11	-5.956652	0	3.242776	0	
12	N12	-5.786652	0	3.537224	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
13	N13	5.531652	0	3.978897	0	
14	N14	-1.422991	0	3.978897	0	
15	N15	-4.157322	0	-0.757102	0	
16	N16	1.299038	0	0.75	0	
17	N17	2.580756	0	1.49	0	
18	N18	1.280756	0	3.741666	0	
19	N19	5.871652	0	3.39	0	
20	N20	3.880756	0	-0.761666	0	
21	N21	3.771381	0	-0.572223	0	
22	N22	1.390131	0	3.552223	0	
23	N23	6.211652	0	2.801103	0	
24	N24	5.786652	0	3.537224	0	
25	N25	5.956652	0	3.242776	0	
26	N26	4.157322	0	-0.757102	0	
27	N27	1.422991	0	3.978897	0	
28	N28	1.8e-13	0	-1.5	0	
29	N29	-5e-14	0	-2.98	0	
30	N30	2.6	0	-2.98	0	
31	N31	1.8e-13	0	-6.78	0	
32	N32	-2.6	0	-2.98	0	
33	N33	-2.38125	0	-2.98	0	
34	N34	2.38125	0	-2.98	0	
35	N35	-0.68	0	-6.78	0	
36	N36	0.68	0	-6.78	0	
37	N37	0.17	0	-6.78	0	
38	N38	-0.17	0	-6.78	0	
39	N39	-2.734331	0	-3.221795	0	
40	N40	2.734331	0	-3.221795	0	
41	N41	6.25	0	3.978897	0	
42	N42	-6.25	0	3.978897	0	
43	N43	0.320826	0	-7.402107	0	
44	N44	6.570826	0	3.42321	0	
45	N45	-6.570826	0	3.42321	0	
46	N46	-0.320826	0	-7.402107	0	
47	N47	1.25	0	3.978897	0	
48	N48	4.92	0	3.978897	0	
49	N49	0.985826	0	-6.250294	0	
50	N50	-5.905826	0	2.271396	0	
51	N51	1.92	0	3.978897	0	
52	N52	2.485826	0	-3.652217	0	
53	N53	-4.405826	0	-0.32668	0	
54	N54	-5.	0	3.978897	0	
55	N55	5.945826	0	2.340678	0	
56	N56	-0.945826	0	-6.319576	0	
57	N57	4.92	2.75	3.978897	0	
58	N58	0.985826	2.75	-6.250294	0	
59	N59	-5.905826	2.75	2.271396	0	
60	N60	-5.	2.75	3.978897	0	
61	N61	5.945826	2.75	2.340678	0	
62	N62	-0.945826	2.75	-6.319576	0	
63	N63	4.92	-5.25	3.978897	0	
64	N64	0.985826	-5.25	-6.250294	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
65	N65	-5.905826	-5.25	2.271396	0	
66	N66	-5.	-5.25	3.978897	0	
67	N67	5.945826	-5.25	2.340678	0	
68	N68	-0.945826	-5.25	-6.319576	0	
69	N69	1.92	1.5	3.978897	0	
70	N70	2.485826	1.5	-3.652217	0	
71	N71	-4.405826	1.5	-0.32668	0	
72	N72	1.92	-9	3.978897	0	
73	N73	2.485826	-9	-3.652217	0	
74	N74	-4.405826	-9	-0.32668	0	
75	N75	6.25	-4	3.978897	0	
76	N76	-6.25	-4	3.978897	0	
77	N77	-1.7e-13	-4	1.5	0	
78	N79	4.	-4	3.978897	0	
79	N80	-4.	-4	3.978897	0	
80	N80A	0.320826	-4	-7.402107	0	
81	N81	6.570826	-4	3.42321	0	
82	N85	-6.570826	-4	3.42321	0	
83	N86	-0.320826	-4	-7.402107	0	
84	N90	-5.	-4	3.978897	0	
85	N91	1.92	-4	3.978897	0	
86	N92	4.92	-4	3.978897	0	
87	N93	5.945826	-4	2.340678	0	
88	N94	2.485826	-4	-3.652217	0	
89	N95	0.985826	-4	-6.250294	0	
90	N96	-0.945826	-4	-6.319576	0	
91	N97	-4.405826	-4	-0.32668	0	
92	N98	-5.905826	-4	2.271396	0	
93	N93A	0.75	-4	1.5	0	
94	N94A	-0.75	-4	1.5	0	
95	N95A	4.	-4	3.478897	0	
96	N96A	-4.	-4	3.478897	0	
97	N97A	1.299038	-4	-0.75	0	
98	N98A	1.445826	-4	-5.45355	0	
99	N99	5.445826	-4	1.474653	0	
100	N100	0.924038	-4	-1.399519	0	
101	N101	1.674038	-4	-0.100481	0	
102	N102	1.012813	-4	-5.20355	0	
103	N103	5.012813	-4	1.724653	0	
104	N104	-1.299038	-4	-0.75	0	
105	N105	-5.445826	-4	1.474653	0	
106	N106	-1.445826	-4	-5.45355	0	
107	N107	-1.674038	-4	-0.100481	0	
108	N108	-0.924038	-4	-1.399519	0	
109	N109	-5.012813	-4	1.724653	0	
110	N110	-1.012813	-4	-5.20355	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Standoff	HSS4X4X4	Beam	SquareTube	A500 Gr.B ...	Typical	3.37	7.8	7.8	12.8
2	Internal Face Hori...	L1.5x1.5x3	Beam	Single Angle	A36 Gr.36	Typical	.527	.11	.11	.006
3	Plate Connection	PL1/2X6	Beam	RECT	A36 Gr.36	Typical	3	.063	9	.237
4	Internal Brace Bott...	HSS4X4X4	Beam	Tube	A500 Gr.B ...	Typical	3.37	7.8	7.8	12.8
5	End Connection B...	PL1/2X6	Beam	RECT	A36 Gr.36	Typical	3	.063	9	.237
6	Face Horizontal	PIPE_3.0	Beam	Pipe	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
7	Support Rail	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
8	End Connection T...	PL1/2X6	Beam	RECT	A36 Gr.36	Typical	3	.063	9	.237
9	Mount Pipe 2 std	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25

Cold Formed Steel Section Sets

	Label	Shape	Type	Design Li...	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	V-Brace	5.44CU3.7x1875	Beam	CU	A570 Gr....	Typical	2.262	3.221	11.043	.027
2	V-Brace Connect.	6CU6.5x250	Beam	CU	A570 Gr....	Typical	4.491	20.132	29.124	.094

Aluminum Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	AL1A	AACS14X13.9	Beam	AA Channel	3003-H14	Typical	11.8	44.7	401	1.19

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[k/ft^3]	Yield[ksi]	Fu[ksi]
1	A570 Gr.33	29500	11346	.3	.65	.49	33	52
2	A607 C1 Gr.55	29500	11346	.3	.65	.49	55	70

Aluminum Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (...	Density[...	Table B.4	kt	Ftu[ksi]	Fty[ksi]	Fcy[ksi]	Fsu[ksi]	Ct
1	3003-H14	10100	3787.5	.33	1.3	.173	Table B....	1	19	16	13	12	141
2	6061-T6	10100	3787.5	.33	1.3	.173	Table B....	1	38	35	35	24	141
3	6063-T5	10100	3787.5	.33	1.3	.173	Table B....	1	22	16	16	13	141
4	6063-T6	10100	3787.5	.33	1.3	.173	Table B....	1	30	25	25	19	141
5	5052-H34	10200	3787.5	.33	1.3	.173	Table B....	1	34	26	24	20	141
6	6061-T6 W	10100	3787.5	.33	1.3	.173	Table B....	1	24	15	15	15	141

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N2	N5			Standoff	Beam	SquareTube	A500 Gr.B...	Typical
2	M2	N4	N3			Internal Brace ...	Beam	Tube	A500 Gr.B...	Typical
3	M3	N7	N12			Internal Face ...	Beam	Single Angle	A36 Gr.36	Typical
4	M4	N3	N6			Internal Brace ...	Beam	Tube	A500 Gr.B...	Typical
5	M5	N8	N11			Internal Face ...	Beam	Single Angle	A36 Gr.36	Typical
6	M6	N6	N14			Plate Connecti...	Beam	RECT	A36 Gr.36	Typical
7	M7	N9	N10			End Connectio...	Beam	RECT	A36 Gr.36	Typical
8	M8	N42	N41			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical
9	M9	N4	N15			Plate Connecti...	Beam	RECT	A36 Gr.36	Typical
10	M10	N16	N19			Standoff	Beam	SquareTube	A500 Gr.B...	Typical
11	M11	N18	N17			Internal Brace ...	Beam	Tube	A500 Gr.B...	Typical
12	M12	N21	N25			Internal Face ...	Beam	Single Angle	A36 Gr.36	Typical
13	M13	N17	N20			Internal Brace ...	Beam	Tube	A500 Gr.B...	Typical
14	M14	N22	N24			Internal Face ...	Beam	Single Angle	A36 Gr.36	Typical
15	M15	N20	N26			Plate Connecti...	Beam	RECT	A36 Gr.36	Typical
16	M16	N23	N13			End Connectio...	Beam	RECT	A36 Gr.36	Typical
17	M17	N18	N27			Plate Connecti...	Beam	RECT	A36 Gr.36	Typical
18	M18	N28	N31			Standoff	Beam	SquareTube	A500 Gr.B...	Typical
19	M19	N30	N29			Internal Brace ...	Beam	Tube	A500 Gr.B...	Typical
20	M20	N33	N38			Internal Face ...	Beam	Single Angle	A36 Gr.36	Typical
21	M21	N29	N32			Internal Brace ...	Beam	Tube	A500 Gr.B...	Typical
22	M22	N34	N37			Internal Face ...	Beam	Single Angle	A36 Gr.36	Typical
23	M23	N32	N39			Plate Connecti...	Beam	RECT	A36 Gr.36	Typical
24	M24	N35	N36			End Connectio...	Beam	RECT	A36 Gr.36	Typical
25	M25	N30	N40			Plate Connecti...	Beam	RECT	A36 Gr.36	Typical
26	M26	N44	N43			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical
27	M27	N46	N45			Face Horizontal	Beam	Pipe	A53 Gr.B	Typical
28	MP3A	N60	N66			Mount Pipe 2 s...	Beam	Pipe	A53 Gr.B	Typical
29	MP2A	N69	N72			Mount Pipe 2 s...	Beam	Pipe	A53 Gr.B	Typical
30	MP1A	N57	N63			Mount Pipe 2 s...	Beam	Pipe	A53 Gr.B	Typical
31	MP3C	N61	N67			Mount Pipe 2 s...	Beam	Pipe	A53 Gr.B	Typical
32	MP2C	N70	N73			Mount Pipe 2 s...	Beam	Pipe	A53 Gr.B	Typical
33	MP1C	N58	N64			Mount Pipe 2 s...	Beam	Pipe	A53 Gr.B	Typical
34	MP3B	N62	N68			Mount Pipe 2 s...	Beam	Pipe	A53 Gr.B	Typical
35	MP2B	N71	N74			Mount Pipe 2 s...	Beam	Pipe	A53 Gr.B	Typical
36	MP1B	N59	N65			Mount Pipe 2 s...	Beam	Pipe	A53 Gr.B	Typical
37	M37	N76	N75			Support Rail	Beam	Pipe	A53 Gr.B	Typical
38	M38	N94A	N96A		180	V-Brace	Beam	CU	A570 Gr.33	Typical
39	M39	N93A	N95A			V-Brace	Beam	CU	A570 Gr.33	Typical
40	M40	N81	N80A			Support Rail	Beam	Pipe	A53 Gr.B	Typical
41	M43	N86	N85			Support Rail	Beam	Pipe	A53 Gr.B	Typical
42	M42	N80	N96A			RIGID	Beam	None	RIGID	DR1
43	M43A	N79	N95A			RIGID	Beam	None	RIGID	DR1
44	M44	N94A	N93A			V-Brace Conn...	Beam	CU	A570 Gr.33	Typical
45	M45	N101	N103		180	V-Brace	Beam	CU	A570 Gr.33	Typical
46	M46	N100	N102			V-Brace	Beam	CU	A570 Gr.33	Typical
47	M47	N99	N103			RIGID	Beam	None	RIGID	DR1
48	M48	N98A	N102			RIGID	Beam	None	RIGID	DR1
49	M49	N101	N100			V-Brace Conn...	Beam	CU	A570 Gr.33	Typical
50	M50	N108	N110		180	V-Brace	Beam	CU	A570 Gr.33	Typical
51	M51	N107	N109			V-Brace	Beam	CU	A570 Gr.33	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
52	M52	N106	N110			RIGID	Beam	None	RIGID	DR1
53	M53	N105	N109			RIGID	Beam	None	RIGID	DR1
54	M54	N108	N107			V-Brace Conn...	Beam	CU	A570 Gr.33	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes				None
2	M2				M1		Yes				None
3	M3						Yes				None
4	M4			M1			Yes				None
5	M5						Yes				None
6	M6		OOOXOO				Yes				None
7	M7	OOOOOX	OOOOOX				Yes				None
8	M8						Yes				None
9	M9		OOOXOO				Yes				None
10	M10						Yes				None
11	M11				M1		Yes				None
12	M12						Yes				None
13	M13			M1			Yes				None
14	M14						Yes				None
15	M15		OOOXOO				Yes				None
16	M16	OOOOOX	OOOOOX				Yes				None
17	M17		OOOXOO				Yes				None
18	M18						Yes				None
19	M19				M1		Yes				None
20	M20						Yes				None
21	M21			M1			Yes				None
22	M22						Yes				None
23	M23		OOOXOO				Yes				None
24	M24	OOOOOX	OOOOOX				Yes				None
25	M25		OOOXOO				Yes				None
26	M26						Yes				None
27	M27						Yes				None
28	MP3A						Yes				None
29	MP2A						Yes				None
30	MP1A						Yes				None
31	MP3C						Yes				None
32	MP2C						Yes				None
33	MP1C						Yes				None
34	MP3B						Yes				None
35	MP2B						Yes				None
36	MP1B						Yes				None
37	M37						Yes				None
38	M38						Yes				None
39	M39						Yes				None
40	M40						Yes				None
41	M43						Yes				None
42	M42						Yes				None
43	M43A						Yes				None
44	M44						Yes				None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
45	M45						Yes				None
46	M46						Yes				None
47	M47						Yes				None
48	M48						Yes				None
49	M49						Yes				None
50	M50						Yes				None
51	M51						Yes				None
52	M52						Yes				None
53	M53						Yes				None
54	M54						Yes				None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp to...	Lcomp bo...	L-tor...	Kyy	Kzz	Cb	Funct...
1	M1	Standoff	5.28			Lbyy						Lateral
2	M2	Internal Brace Bottom	2.6			Lbyy						Lateral
3	M3	Internal Face Horizontal	4.397			Lbyy						Lateral
4	M4	Internal Brace Bottom	2.6			Lbyy						Lateral
5	M5	Internal Face Horizontal	4.397			Lbyy						Lateral
6	M6	Plate Connection	.277			Lbyy						Lateral
7	M7	End Connection Bottom	1.36			Lbyy						Lateral
8	M8	Face Horizontal	12.5			Lbyy						Lateral
9	M9	Plate Connection	.277			Lbyy						Lateral
10	M10	Standoff	5.28			Lbyy						Lateral
11	M11	Internal Brace Bottom	2.6			Lbyy						Lateral
12	M12	Internal Face Horizontal	4.397			Lbyy						Lateral
13	M13	Internal Brace Bottom	2.6			Lbyy						Lateral
14	M14	Internal Face Horizontal	4.397			Lbyy						Lateral
15	M15	Plate Connection	.277			Lbyy						Lateral
16	M16	End Connection Bottom	1.36			Lbyy						Lateral
17	M17	Plate Connection	.277			Lbyy						Lateral
18	M18	Standoff	5.28			Lbyy						Lateral
19	M19	Internal Brace Bottom	2.6			Lbyy						Lateral
20	M20	Internal Face Horizontal	4.397			Lbyy						Lateral
21	M21	Internal Brace Bottom	2.6			Lbyy						Lateral
22	M22	Internal Face Horizontal	4.397			Lbyy						Lateral
23	M23	Plate Connection	.277			Lbyy						Lateral
24	M24	End Connection Bottom	1.36			Lbyy						Lateral
25	M25	Plate Connection	.277			Lbyy						Lateral
26	M26	Face Horizontal	12.5			Lbyy						Lateral
27	M27	Face Horizontal	12.5			Lbyy						Lateral
28	MP3A	Mount Pipe 2 std	8			Lbyy						Lateral
29	MP2A	Mount Pipe 2 std	10.5			Lbyy						Lateral
30	MP1A	Mount Pipe 2 std	8			Lbyy						Lateral
31	MP3C	Mount Pipe 2 std	8			Lbyy						Lateral
32	MP2C	Mount Pipe 2 std	10.5			Lbyy						Lateral
33	MP1C	Mount Pipe 2 std	8			Lbyy						Lateral
34	MP3B	Mount Pipe 2 std	8			Lbyy						Lateral
35	MP2B	Mount Pipe 2 std	10.5			Lbyy						Lateral
36	MP1B	Mount Pipe 2 std	8			Lbyy						Lateral
37	M37	Support Rail	12.5			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp to...	Lcomp bo...	L-tor...	Kyy	Kzz	Cb	Funct...
38	M40	Support Rail	12.5			Lbyy						Lateral
39	M43	Support Rail	12.5			Lbyy						Lateral

Cold Formed Steel Design Parameters

	Label	Shape	Lengt...	Lbyy[ft]	Lbzz[ft]	Lcomp t...	Lcomp ...	L-torque...	Kyy	Kzz	Cm-...	Cm-...	Cb	R	a[ft]	y sw...	z sw...
1	M38	V-Brace	3.805			Lbyy											
2	M39	V-Brace	3.805			Lbyy											
3	M44	V-Brace...	1.5			Lbyy											
4	M45	V-Brace	3.805			Lbyy											
5	M46	V-Brace	3.805			Lbyy											
6	M49	V-Brace...	1.5			Lbyy											
7	M50	V-Brace	3.805			Lbyy											
8	M51	V-Brace	3.805			Lbyy											
9	M54	V-Brace...	1.5			Lbyy											

Aluminum Design Parameters

Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
No Data to Print ...											

Joint Loads and Enforced Displacements

Joint Label	L,D,M	Direction	Magnitude[(lb,k-ft), (in,rad), (lb*s^2...
No Data to Print ...			

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N2	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N16	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N28	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N77	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N93A						
6	N94A						
7	N97A	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
8	N100						
9	N101						
10	N104	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
11	N107						
12	N108						

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N2	max	2996.512	4	2594.231	7	1708.673	1	-.737	4	1.185	1	-1.547	3
2		min	-2994.837	3	744.135	4	-1787.317	2	-2.222	5	-1.351	2	-4.667	5
3	N16	max	2359.224	4	2592.953	5	2509.303	1	-.934	1	1.52	2	4.261	8
4		min	-2427.488	3	732.591	2	-2470.308	2	-2.941	7	-1.689	1	1.468	1

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
5	N28	max	2214.577	4	2592.648	6	3146.755	1	5.153	6	2.404	3	.443	5
6		min	-2146.278	3	744.322	9	-3105.615	2	1.687	10	-2.572	4	-.007	2
7	N77	max	1018.058	4	455.956	6	2412.859	1	-.055	1	1.5	2	.119	2
8		min	-928.25	3	-56.904	1	-2227.967	2	-.175	8	-1.367	1	-.127	1
9	N97A	max	2055.635	4	452.428	7	1238.508	1	.167	3	2.957	3	.165	8
10		min	-1940.751	3	-26.301	4	-1409.754	2	-.11	4	-2.819	4	-.009	3
11	N104	max	1937.664	4	446.399	8	1300.02	1	.132	2	2.413	1	.011	2
12		min	-2144.065	3	13.663	3	-1315.158	2	-.061	1	-2.278	2	-.159	5
13	Totals:	max	12581.67	4	8971.863	6	12316.118	1						
14		min	-12581.67	3	3204.152	4	-12316.118	2						

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	M37	PIPE_2.0	.960	10.156	2	.438	10.156		2	6295.422	32130	1.872	1.872	2....	H3-6
2	MP2A	PIPE_2.0	.755	5.578	2	.129	5.469		1	8922.084	32130	1.872	1.872	2....	H1-1b
3	M40	PIPE_2.0	.709	10.156	3	.352	10.156		3	6295.422	32130	1.872	1.872	2....	H3-6
4	M43	PIPE_2.0	.705	10.156	4	.323	10.156		4	6295.422	32130	1.872	1.872	1....	H3-6
5	MP2B	PIPE_2.0	.666	5.578	4	.120	5.469		3	8922.084	32130	1.872	1.872	2....	H1-1b
6	MP2C	PIPE_2.0	.666	5.578	4	.087	5.469		4	8922.084	32130	1.872	1.872	2....	H1-1b
7	M5	L1.5x1.5x3	.665	0	4	.011	0	z	4	3671.975	17074.8	.292	.663	2....	H2-1
8	M14	L1.5x1.5x3	.658	0	2	.012	0	z	2	3671.975	17074.8	.292	.666	2....	H2-1
9	M12	L1.5x1.5x3	.633	0	3	.011	0	z	3	3671.975	17074.8	.292	.652	1....	H2-1
10	M3	L1.5x1.5x3	.561	0	2	.013	0	z	2	3671.975	17074.8	.292	.657	2....	H2-1
11	MP3A	PIPE_2.0	.493	2.75	2	.064	2.75		4	14916.0...	32130	1.872	1.872	2....	H1-1b
12	MP3B	PIPE_2.0	.485	2.75	4	.078	2.75		3	14916.0...	32130	1.872	1.872	2....	H1-1b
13	MP3C	PIPE_2.0	.474	2.75	3	.074	2.75		3	14916.0...	32130	1.872	1.872	2....	H1-1b
14	M22	L1.5x1.5x3	.455	0	3	.009	0	y	5	3671.975	17074.8	.292	.667	2....	H2-1
15	M20	L1.5x1.5x3	.435	0	1	.010	0	z	4	3671.975	17074.8	.292	.657	2....	H2-1
16	M18	HSS4X4X4	.354	0	8	.099	0	y	5	124153....	139518	16.181	16.181	2....	H1-1b
17	M10	HSS4X4X4	.347	0	5	.099	0	y	7	124153....	139518	16.181	16.181	2....	H1-1b
18	M1	HSS4X4X4	.343	0	6	.098	0	y	8	124153....	139518	16.181	16.181	2....	H1-1b
19	M7	PL1/2X6	.319	.68	4	.124	.68	y	7	49587.6...	97200	1.012	12.15	1....	H1-1b
20	M16	PL1/2X6	.311	.68	4	.130	.496	y	4	49587.6...	97200	1.012	12.15	1....	H1-1b
21	M15	PL1/2X6	.310	.277	4	.026	.277	z	4	94531.2...	97200	1.012	12.15	1....	H1-1b
22	MP1A	PIPE_2.0	.273	2.75	2	.049	2.75		3	14916.0...	32130	1.872	1.872	2....	H1-1b
23	MP1C	PIPE_2.0	.260	2.75	3	.051	2.75		1	14916.0...	32130	1.872	1.872	2....	H1-1b
24	M24	PL1/2X6	.255	.68	1	.122	.694	y	6	49587.6...	97200	1.012	12.15	1....	H1-1b
25	M9	PL1/2X6	.252	.277	3	.025	0	y	6	94531.2...	97200	1.012	12.15	1....	H1-1b
26	MP1B	PIPE_2.0	.238	2.75	4	.049	2.75		2	14916.0...	32130	1.872	1.872	2....	H1-1b
27	M26	PIPE_3.0	.226	4.948	8	.147	7.682		6	28250.5...	65205	5.749	5.749	1....	H1-1b
28	M8	PIPE_3.0	.226	4.948	5	.159	7.682		1	28250.5...	65205	5.749	5.749	1....	H1-1b
29	M27	PIPE_3.0	.224	4.948	7	.150	7.682		7	28250.5...	65205	5.749	5.749	1....	H1-1b
30	M6	PL1/2X6	.212	.277	1	.021	0	y	7	94531.2...	97200	1.012	12.15	1....	H1-1b
31	M23	PL1/2X6	.205	.277	2	.021	0	y	6	94531.2...	97200	1.012	12.15	1....	H1-1b
32	M17	PL1/2X6	.166	.277	1	.025	0	y	5	94531.2...	97200	1.012	12.15	1.1	H1-1b
33	M25	PL1/2X6	.166	.277	2	.025	0	y	8	94531.2...	97200	1.012	12.15	1....	H1-1b
34	M2	HSS4X4X4	.163	2.433	8	.069	.203	z	3	136103....	139518	16.181	16.181	1....	H1-1b
35	M11	HSS4X4X4	.162	2.433	6	.070	.203	z	1	136103....	139518	16.181	16.181	1....	H1-1b
36	M19	HSS4X4X4	.161	2.433	5	.045	0	z	4	136103....	139518	16.181	16.181	1....	H1-1b
37	M13	HSS4X4X4	.138	0	8	.067	2.231	z	4	136103....	139518	16.181	16.181	1....	H1-1b

Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
38	M21	HSS4X4X4	.137	0	6	.045	2.231	z	3	136103....	139518	16.181	16.181	1....	H1-1b
39	M4	HSS4X4X4	.135	0	5	.065	2.231	z	1	136103....	139518	16.181	16.181	1....	H1-1b

Envelope AISI S100-10: LRFD Cold Formed Steel Code Checks

	Member	Shape	Code...	Loc[ft]	LC	Shea...	Loc[ft]	Dir	LC	phi*Pn...	phi*Tn...	phi*M...	phi*M...	Cb	Cmyy	Cmzz	Eqn
1	M38	5.44CU3.7x1875	.247	0	4	.025	0	y	6	50553...	67173....	3.157	10.048	2.541	.85	.85	C5.1....
2	M39	5.44CU3.7x1875	.583	3.805	1	.054	0	z	2	50553...	67173....	3.157	9.057	1.643	.85	.85	C5.2....
3	M44	6CU6.5x250	.231	.75	2	.140	.75	y	6	97347....	13337...	10.571	18.263	1.309	.85	.85	C3.3....
4	M45	5.44CU3.7x1875	.341	0	2	.025	0	y	5	50553...	67173....	3.157	10.048	1.468	.85	.85	C5.1....
5	M46	5.44CU3.7x1875	.576	0	3	.056	0	z	3	50553...	67173....	3.157	9.057	1.773	.85	.85	C3.3....
6	M49	6CU6.5x250	.262	.75	3	.141	.75	y	7	97347....	13337...	10.571	18.263	1.33	.85	.85	C3.3....
7	M50	5.44CU3.7x1875	.348	0	3	.030	0	z	4	50553...	67173....	3.157	9.057	1.264	.85	.85	C5.2....
8	M51	5.44CU3.7x1875	.450	3.805	3	.037	0	z	1	50553...	67173....	3.157	9.057	1.554	.85	.85	C5.2....
9	M54	6CU6.5x250	.172	.766	1	.140	.75	y	5	97347....	13337...	10.571	18.263	1.308	.85	.85	C5.2....

Envelope AA ADM1-10: ASD - Building Aluminum Code Checks

Member	Shape	Code C...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	Pnc/O...	Pnt/Om...	Mny/O...	Mnz/O...	Vny/O...	Vnz/O...	Cb	Eqn
No Data to Print ...																

EXHIBIT 9

EME Report

EBI Consulting

environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CTNL053A

NL053/ MCF_Ambulance
237 Sandy Hollow Road
West Mystic, Connecticut 06355

February 6, 2022

EBI Project Number: 6222000661

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**15.88%**

February 6, 2022

T-Mobile
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CTNL053A - NL053/ MCF_Ambulance

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **237 Sandy Hollow Road** in **West Mystic, Connecticut** 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 ($\mu W/cm^2$). 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 persons in a nearby residential area.

Public 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 and 700 MHz frequency 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), 2100 MHz (AWS) and 11 GHz frequency 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 percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 237 Sandy Hollow Road in West Mystic, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower. For power density calculations, the broadcast footprint of the AIR6449 antenna has been considered. Due to the beamforming nature of this antenna, the actual beam locations vary depending on demand and are narrow in nature. Using the broadcast footprint accounts for the potential location of beams at any given time.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

6) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

8) 1 LTE Traffic channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.

9) 1 LTE Broadcast channel (LTE 1C and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.

10) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

11) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.

12) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

13) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

14) The antennas used in this modeling are the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector A, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector B, the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Commscope VV-65A-R1 for the 1900

MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

15) The antenna mounting height centerline of the proposed antennas is 127 feet above ground level (AGL).

16) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd	Gain:	22.65 dBd / 17.3 dBd / 22.65 dBd / 17.3 dBd
Height (AGL):	127 feet	Height (AGL):	127 feet	Height (AGL):	127 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	36,356.09	ERP (W):	36,356.09	ERP (W):	36,356.09
Antenna A1 MPE %:	**8.93%**	Antenna B1 MPE %:	**8.93%**	Antenna C1 MPE %:	**8.93%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd
Height (AGL):	127 feet	Height (AGL):	127 feet	Height (AGL):	127 feet
Channel Count:	5	Channel Count:	5	Channel Count:	5
Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts
ERP (W):	4,151.83	ERP (W):	4,151.83	ERP (W):	4,151.83
Antenna A2 MPE %:	**2.43%**	Antenna B2 MPE %:	**2.43%**	Antenna C2 MPE %:	**2.43%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Commscope VV-65A-R1	Make / Model:	Commscope VV-65A-R1	Make / Model:	Commscope VV-65A-R1
Frequency Bands:	1900 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.55 dBd / 15.55 dBd / 15.55 dBd / 16.05 dBd	Gain:	15.55 dBd / 15.55 dBd / 15.55 dBd / 16.05 dBd	Gain:	15.55 dBd / 15.55 dBd / 15.55 dBd / 16.05 dBd
Height (AGL):	127 feet	Height (AGL):	127 feet	Height (AGL):	127 feet
Channel Count:	10	Channel Count:	10	Channel Count:	10
Total TX Power (W):	420 Watts	Total TX Power (W):	420 Watts	Total TX Power (W):	420 Watts
ERP (W):	15,600.26	ERP (W):	15,600.26	ERP (W):	15,600.26
Antenna A3 MPE %:	**3.83%**	Antenna B3 MPE %:	**3.83%**	Antenna C3 MPE %:	**3.83%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	15.18%
Verizon	0.31%
Metro PCS	0.39%
Site Total MPE % :	15.88%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	15.18%
T-Mobile Sector B Total:	15.18%
T-Mobile Sector C Total:	15.18%
Site Total MPE % :	15.88%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 2500 MHz LTE 1C & 2C Traffic	1	11044.63	127.0	27.12	2500 MHz LTE 1C & 2C Traffic	1000	2.71%
T-Mobile 2500 MHz LTE 1C & 2C Broadcast	1	1074.06	127.0	2.64	2500 MHz LTE 1C & 2C Broadcast	1000	0.26%
T-Mobile 2500 MHz NR Traffic	1	22089.26	127.0	54.24	2500 MHz NR Traffic	1000	5.42%
T-Mobile 2500 MHz NR Broadcast	1	2148.13	127.0	5.27	2500 MHz NR Broadcast	1000	0.53%
T-Mobile 600 MHz LTE	2	591.73	127.0	2.91	600 MHz LTE	400	0.73%
T-Mobile 600 MHz NR	1	1577.94	127.0	3.87	600 MHz NR	400	0.97%
T-Mobile 700 MHz LTE	2	695.22	127.0	3.41	700 MHz LTE	467	0.73%
T-Mobile 1900 MHz GSM	4	1076.77	127.0	10.58	1900 MHz GSM	1000	1.06%
T-Mobile 1900 MHz UMTS	2	1076.77	127.0	5.29	1900 MHz UMTS	1000	0.53%
T-Mobile 1900 MHz LTE	2	2153.53	127.0	10.58	1900 MHz LTE	1000	1.06%
T-Mobile 2100 MHz LTE	2	2416.30	127.0	11.87	2100 MHz LTE	1000	1.19%
						Total:	**15.18%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

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 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:	15.18%
Sector B:	15.18%
Sector C:	15.18%
T-Mobile Maximum MPE % (Sector A):	15.18%
Site Total:	15.88%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **15.88%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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 values calculated were well within the allowable 100% threshold standard per the federal government.