



Filed by:

G. Scott Shepherd, Site Development Specialist II - SBA Communications  
134 Flanders Rd., Suite 125, Westborough, MA 01581  
508.251.0720 x 3807 - gshepherd@sbsite.com

January 10, 2022

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

**RE: Notice of Exempt Modification**  
**419 Ekonk Hill Rd., Sterling, CT**  
**Latitude: 41.662222**  
**Longitude: -71.846944**  
**Sprint, now a part of T-Mobile USA #: CTHA854A\_Sprint Keep**

Dear Ms. Bachman:

Sprint, now a part of T-Mobile USA, hereinafter referred to as "Sprint/T-Mobile" currently maintains six (6) antennas at the 170-foot level of the existing 200-foot Guyed Tower at 419 Ekonk Hill Rd., Sterling, CT. The 200-foot tower is owned by SBA Structures, LLC. The property is also owned by SBA Structures, LLC. Sprint/T-Mobile now intends to remove three (3) existing antennas and replace with three (3) new 2500 MHz antennas. The total amount of antennas will remain at six (6)

- **The new antennas support 5G services and would be installed at the 170-foot level of the tower.**

Planned Modifications:

TOWER

Remove:

- N/A

Remove and Replace:

- (3) Alcatel Lucent PCS-B25 (1900) (remove) – (3) Ericsson 4460 B25 + B66 RRUs (replace)
- (3) Alcatel Lucent TD-RRH8x20 (2500) (remove) – (3) Ericsson Radio 4480 B71+B85 (replace)
- (3) Commscope NNVV-65B-R4 antennas (remove) - (3) Ericsson AIR6449 B41 Antennas (replace)

Install New:

- N/A

Existing Equipment to Remain:

- (3) Sector Frames SitePro VFA12-HD
- (3) RFS APXVAALL24\_43-U-NA20 600/700/1900MHz antennas
- (3) 1.99" Hybrid

Entitlements:

- (6) ALU 800 MHz RRUs
- (3) RFS APXVTM14-ALU-20 antennas

GROUND

Remove and Replace:

- Replace existing GPS antenna with new GPS antenna

Install New:

- (1) Purcell RAC24 Cabinet mounted to existing canopy post
- (1) Ericsson B160 Battery cabinet
- (1) Slackbox
- Breakers within existing PPC
- (1) Ericsson 6160 Equipment cabinet
- (5) 2" RGS conduit

Remain:

- (1) 20' x 8' concrete pad
- Ice Canopy
- PPC Cabinet
- Telco Cabinet
- Cable bridge

Remove:

- Sprint steel frame mounted to existing concrete pad
- Battery backup cabinet
- Sprint cabinet
- Sprint Fiber distribution box mounted existing H-Frame

The Telecommunications tower located at 421 Ekonk Hill Rd., Sterling CT was originally constructed January 1, 1998. Despite our efforts we were unsuccessful in obtaining the original zoning approval. Please note that the Town of Sterling was also unsuccessful with locating these zoning documents. We were however, able to obtain a fairly recent Notice of Exempt modifications approval from the CSC EM-Sprint-136-180621 dated July 9, 2018 for modifications to equipment on the tower. 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 Town of Sterling's First Selectman, Lincoln A. Cooper and Planning & Zoning Chairperson Frank Bood. (Separate notice is not being sent to tower owner, or property owner, as both belong 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,

G. 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  
508.868.6000 + C  
gshepherd@sbsite.com

Attachments

cc: Lincoln A. Cooper, First Selectman / with attachments  
*Town of Sterling, 1183 Plainfield Pike, P.O. Box 157, Oneco, CT 06373-0157*  
Frank Bood, Chairperson, Planning & Zoning / with attachments  
*Town of Sterling, 1183 Plainfield Pike, P.O. Box 157, Oneco, CT 06373-0157*



**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 EM-Sprint-136-180621 (7/9/18)
Exhibit 6	Construction Drawings	Chappell Engineering 9/13/21
Exhibit 7	Structural Analysis	TES 12/15/21
Exhibit	Mount Analysis	TES 12/6/21
Exhibit 8	EME Report	Centerline 1/3/22

# EXHIBIT 1

Copy of check

## EXHIBIT 2

# FedEx labels

ORIGIN ID:BFBA (508) 614-0389  
RICK WOODS  
SBA COMMUNICATIONS CORPORATION  
134 FLANDERS RD  
SUITE 125  
WESTBOROUGH, MA 01581  
UNITED STATES US

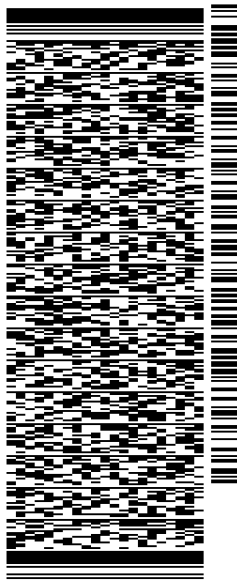
SHIP DATE: 10JAN22  
ACTWGT: 2.00 LB  
CAD: 105843304/NET4400

BILL SENDER

TO MELANIE A. BACHMAN EXEC. DIR  
CONNECTICUT SITING COUNCIL  
TEN FRANKLIN SQUARE

NEW BRITAIN CT 06051

(508) 251-0720 X 3807 REF: 105692009-6089  
INV. PO. DEPT:



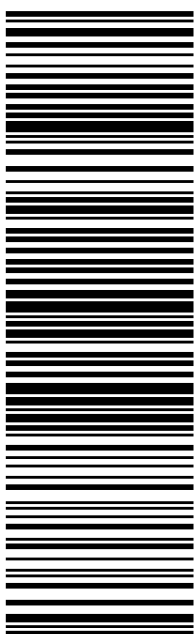
J212321121601uv

56D.J201EF/FE4A

TRK# 7757 0972 0336  
0201  
TUE - 11 JAN 10:30A  
PRIORITY OVERNIGHT

EB BDLA

06051  
CT:US BDL



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1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
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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.



TRACK ANOTHER SHIPMENT

775709720336



ADD NICKNAME

ON TIME

Scheduled delivery:  
Tuesday, 1/11/2022 before 10:30 am



PICKED UP  
WESTBOROUGH, MA

GET STATUS UPDATES

**FROM**  
SBA COMMUNICATIONS CORPORATION  
Rick Woods  
134 Flanders Rd  
Suite 125  
WESTBOROUGH, MA US 01581  
508-614-0389

**TO**  
Melanie A. Bachman Exec. Dir  
Connecticut Siting Council  
Ten Franklin Square  
NEW BRITAIN, CT US 06051  
508-251-0720

MANAGE DELIVERY

Travel History

Shipment Facts

### Travel History

TIME ZONE  
Local Scan Time



Monday, January 10,  
2022

4:16 PM

WESTBOROUGH, MA

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2:19 PM

Shipment information sent to FedEx

### Shipment Facts

**TRACKING NUMBER**  
775709720336

**SERVICE**  
FedEx Priority Overnight

**WEIGHT**  
2 lbs / 0.91 kgs

**TOTAL PIECES**  
1

**TOTAL SHIPMENT WEIGHT**  
2 lbs / 0.91 kgs

**TERMS**  
Standard



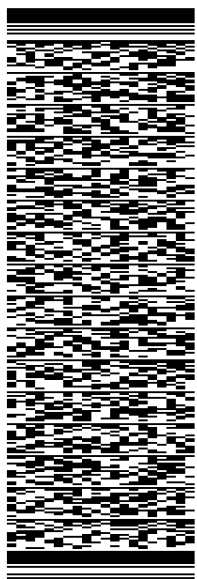
ORIGIN ID:BFBA (508) 614-0389  
RICK WOODS  
SBA COMMUNICATIONS CORPORATION  
134 FLANDERS RD  
SUITE 125  
WESTBOROUGH, MA 01581  
UNITED STATES US

SHIP DATE: 10JAN22  
ACTWGT: 1.00 LB  
CAD: 105843304/NET4400  
BILL SENDER

TO LINCOLN A. COOPER  
TOWN OF STERLING  
FIRST SELECTMAN  
1183 PLAINFIELD PIKE  
ONECO CT 06373

(508) 251-0720 X 3807 REF: 105692009-6089  
INV/ DEPT:  
PO:

56D.J201EF/FE4A

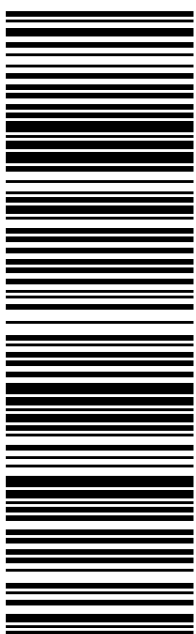


J212321121601uv

TRK# 7757 0977 3101 TUE - 11 JAN 4:30P  
0201 PRIORITY OVERNIGHT

**EB GONA**

06373  
CT-US BDL



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TRACK ANOTHER SHIPMENT

775709773101



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ON TIME

Scheduled delivery:  
Tuesday, 1/11/2022 before 4:30 pm



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**FROM**  
SBA COMMUNICATIONS CORPORATION  
Rick Woods  
134 Flanders Rd  
Suite 125  
WESTBOROUGH, MA US 01581  
508-614-0389

**TO**  
Lincoln A. Cooper  
Town of Sterling  
First Selectman  
1183 Plainfield Pike  
ONECO, CT US 06373  
508-251-0720

[MANAGE DELIVERY](#)

Travel History

Shipment Facts

### Travel History

**TIME ZONE**  
Local Scan Time



Monday, January 10,  
2022

4:16 PM

WESTBOROUGH, MA

Picked up  
Tendered at FedEx Office

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Shipment information sent to FedEx

### Shipment Facts

**TRACKING NUMBER**  
775709773101

**SERVICE**  
FedEx Priority Overnight

**WEIGHT**  
0.5 lbs / 0.23 kgs

**TOTAL PIECES**  
1

**TOTAL SHIPMENT WEIGHT**  
0.5 lbs / 0.23 kgs

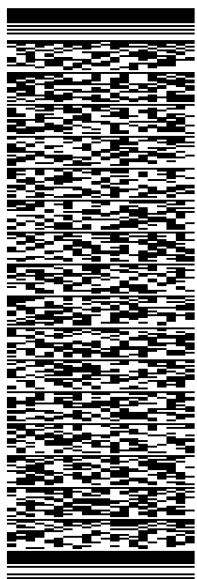
**TERMS**  
Standard

ORIGIN ID:BFBA (508) 614-0389  
RICK WOODS  
SBA COMMUNICATIONS CORPORATION  
134 FLANDERS RD  
SUITE 125  
WESTBOROUGH, MA 01581  
UNITED STATES US

SHIP DATE: 10JAN22  
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BILL SENDER

TO FRANK BOOD  
TOWN OF STERLING  
P & Z CHAIRPERSON  
1183 PLAINFIELD PIKE  
ONECO CT 06373  
(508) 251-0720 X 3807  
REF: 105692009-6089  
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PO: DEPT:

56D.J201EF/FE4A

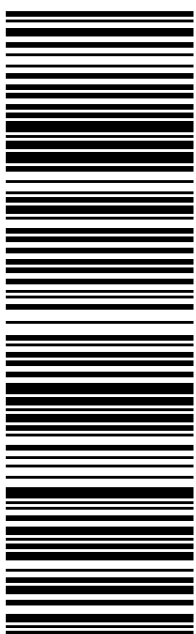


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TRK# 7757 0979 1442  
0201  
TUE - 11 JAN 4:30P  
PRIORITY OVERNIGHT

EB GONA

06373  
CT:US BDL



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TRACK ANOTHER SHIPMENT

775709791442


[ADD NICKNAME](#)

ON TIME

Scheduled delivery:  
Tuesday, 1/11/2022 before 4:30 pm



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**FROM**  
SBA COMMUNICATIONS CORPORATION  
Rick Woods  
134 Flanders Rd  
Suite 125  
WESTBOROUGH, MA US 01581  
508-614-0389

**TO**  
Frank Bood  
Town of Sterling  
P & Z Chairperson  
1183 Plainfield Pike  
ONECO, CT US 06373  
508-251-0720

[MANAGE DELIVERY](#)

Travel History

Shipment Facts

## Travel History

**TIME ZONE**  
Local Scan Time



Monday, January 10,  
2022

4:16 PM

WESTBOROUGH, MA

Picked up  
Tendered at FedEx Office

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Shipment information sent to FedEx

## Shipment Facts

**TRACKING NUMBER**  
775709791442

**SERVICE**  
FedEx Priority Overnight

**WEIGHT**  
0.5 lbs / 0.23 kgs

**TOTAL PIECES**  
1

**TOTAL SHIPMENT WEIGHT**  
0.5 lbs / 0.23 kgs

**TERMS**  
Shipper

EXHIBIT 3

Property Card

Situs : 421 EKONK HILL RD

Map ID: 10017200

Class: Land w/OBYS

Card: 1 of 1

Printed: March 9, 2016

**CURRENT OWNER**

SBA STRUCTURES INC  
ATTN TAX DEPT - CT20001-A  
8051 CONGRESS AVE  
BOCA RATON FL 33487 1307

**GENERAL INFORMATION**

Living Units 0  
Neighborhood 200  
Alternate Id 03633-034-009A  
Vol / Pg 73/1100  
District  
Zoning  
Class 500

**Property Notes**

TOWER IS DECLARED AS PP  
POWERSCOURT DRIVE  
"SBA SITE ID# 20001-A; FCC# 1060082;  
LEASING: 800-487-SITE EMERGENCY: 800-

**Land Information**

Type	Size	Influence Factors	Influence %	Value
Primary	AC 1.4000			35,200

Total Acres: 1.4  
Spot: Location:

**Assessment Information**

Land	Assessed	Appraised	Cost	Income
Building	0	0	0	0
Total	24,640	35,200	35,200	35,200

Value Flag COST APPROACH  
Gross Building:  
Manual Override Reason  
Base Date of Value 10-01-2012  
Effective Date of Value 10-01-2016

**Entrance Information**

Date	ID	Entry Code	Source
02/28/07	AS	Exterior	Other

**Permit Information**

Date Issued	Number	Price	Purpose	% Complet
01/30/13	13-09	750	CFX Disconnect Existing Bts (Base Tra	

**Sales/Ownership History**

Transfer Date	Price	Type	Deed Reference	Deed Type	Grantee

Situs : 421 EKONK HILL RD

Parcel Id: 10017200

Class: Land w/OBYS

Card: 1 of 1

Printed: March 9, 2016

Dwelling Information	
Year Built	Year Built
Year Remodeled	Year Remodeled
Attic	Amenities
Exterior Walls	In-l w Apt No
Masonry Trim	
Color	
Basement	
# Car Bsmnt Gar	
FBLA Type	
Rec Rm Type	
Heating & Cooling	
Heat Type	Stacks
Fuel Type	Openings
System Type	Pre-Fab
Room Detail	
Bedrooms	Full Baths
Family Rooms	Half Baths
Kitchens	Extra Fixtures
Total Rooms	Bath Type
Kitchen Type	Bath Remod
Kitchen Remod	
Adjustments	
Int vs Ext	Unfinished Area
Cathedral Ceiling	Unheated Area
Grade & Depreciation	
Grade	Market Adj
Condition	Functional
CDU	Economic
AV RAGE	% Good Ovr
Cost & Design	
% Complete	
Dwelling Computations	
Base Price	% Good
Plumbing	% Good Override
Basement	Functional
Heating	Economic
Attic	% Complete
Other Features	C&D Factor
	Adj Factor
Subtotal	Additions
Ground Floor Area	Dwellin Value
Total Living Area	

Building Notes	

Outbuilding Data								
Type	Size 1	Size 2	Area	Qty	Yr Blt	Grade	Condition	Value
Frame Shed	X			1	1998	C	A	
Frame Shed	X			1	1998	C	A	

Condominium / Mobile Home Information	
Complex Name	
Condo Model	
Unit Number	Unit Location
Unit Level	Unit View
Unit Parking	Model Make (MH)
Model (MH)	

Addition Details					
Line #	Low	1st	2nd	3rd	Value

EXHIBIT 4

Property Map





Imagery ©2021 Maxar Technologies, Map data ©2021 50 ft



Home  
Set location



Work  
Set location



Light traffic in this area  
Typical conditions >

Search this area

79°



Groceries



Restaurants



Takeout



Hotels



More

EXHIBIT 5

Zoning Docs



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: [siting.council@ct.gov](mailto:siting.council@ct.gov)

[www.ct.gov/csc](http://www.ct.gov/csc)

July 9, 2018

Kri Pelletier  
Property Specialist  
SBA Communications Corporation  
134 Flanders Rd., Suite 125  
Westborough, MA 01581

RE: **EM-SPRINT-136-180621** - Sprint Spectrum L.P. notice of intent to modify an existing telecommunications facility located at 421 Ekonk Hill Road (Route 49), Sterling, Connecticut.

Dear Ms. Pelletier:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

1. Prior to Sprint's antenna installation, the existing mount assembly shall be replaced in accordance with the Antenna Mount Structural Analysis prepared by Geostructural, LLC dated May 4, 2018 and stamped and signed by Gregory Durgin.;
2. Within 45 days following completion of the equipment installation, Sprint shall provide documentation certified by a Professional Engineer that its installation complied with the recommendations of the Antenna Mount Structural Analysis;
3. Any deviation from the proposed modification as specified in this notice and supporting materials with the Council shall render this acknowledgement invalid;
4. Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
5. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
6. Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by Sprint shall be removed within 60 days of the date the antenna ceased to function;
7. The validity of this action shall expire one year from the date of this letter; and
8. The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration.

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated June 19, 2018. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site by any dimension, increase noise levels at the tower site boundary by six decibels or more, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standards adopted by the Federal Communications Commission

pursuant to Section 704 of the Telecommunications Act of 1996 and by the state Department of Energy and Environmental Protection pursuant to Connecticut General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below state and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Sincerely,

A handwritten signature in blue ink that reads "Melanie Bachman/cw".

Melanie A. Bachman  
Executive Director

MAB/FOC/jmb

- c: The Honorable Russell M. Gray, First Selectman, Town of Sterling  
Demian A. Sorrentino, Zoning Enforcement Officer, Town of Sterling

# EXHIBIT 6

## Construction Drawings

**SPECIAL CONSTRUCTION NOTE:**  
 GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT T-MOBILE'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

# CTHA854A

421 EKONK HILL ROAD  
 MOOSUP, CT 06354  
 WINDHAM COUNTY

## SITE NO.: CTHA854A

## CARRIER SITE ID: CT33XC009

RF DESIGN GUIDELINE: 67E5A998E 6160

### SCOPE OF WORK

**REMOVE:**

- 6 ANTENNAS
- 12 RRUs
- 2 SPRINT CABINETS
- 1 FIBER DISTRIBUTION BOX
- ALL SPRINT CABLES

**INSTALL:**

- 6 ANTENNAS
- 6 RRUs
- 1 B160 BATTERY CABINET
- 1 6160 CABINET
- 1 SLACKBOX
- 1 PURCELL CABINET
- 3 HYBRID CABLES

### 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.

### 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
GPS/LMU:	UNRESTRICTED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

### GENERAL NOTES

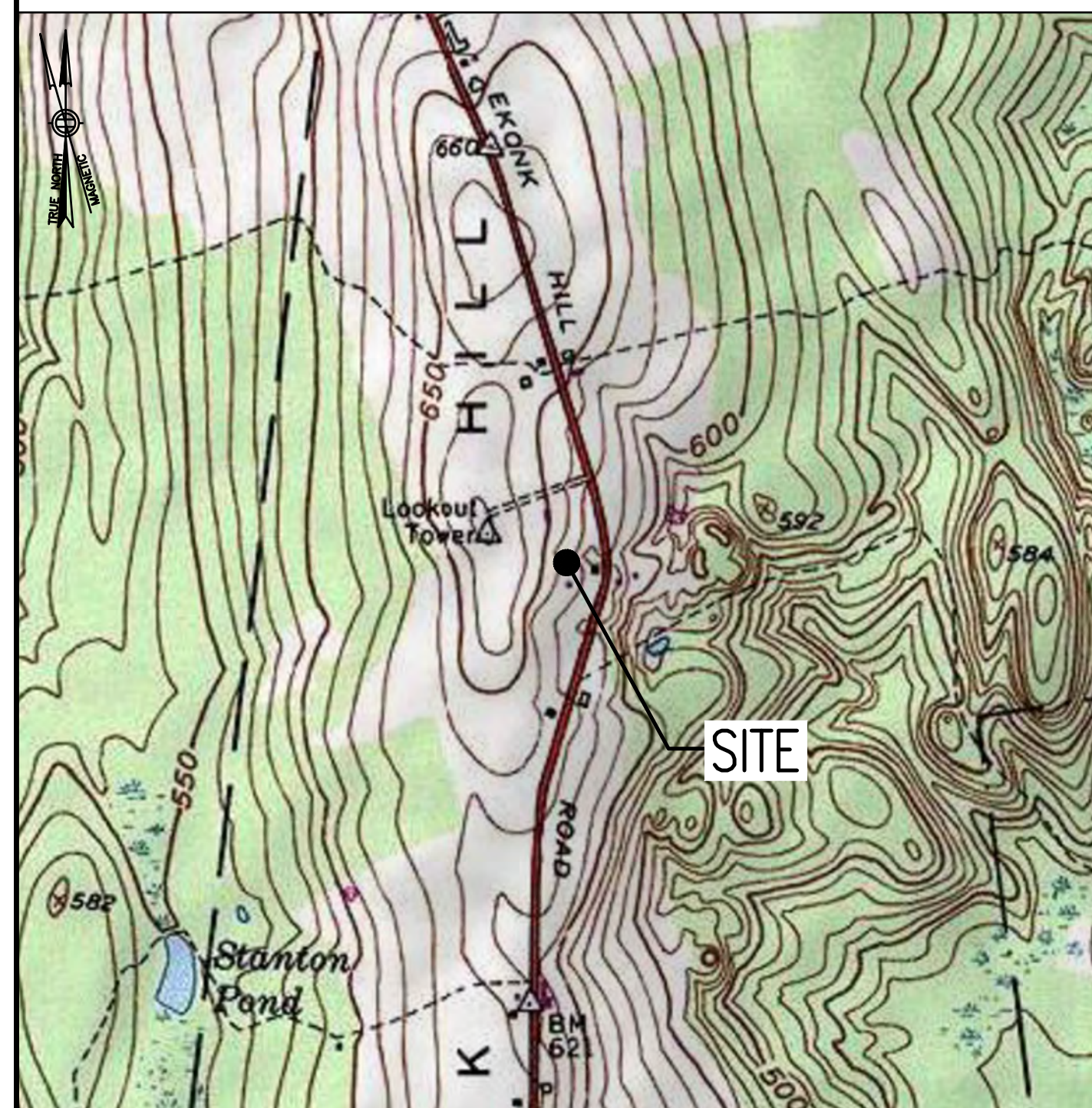
1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT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

TURN LEFT ONTO S WASHINGTON ST. TURN RIGHT ONTO MA-123 E. TURN LEFT TO MERGE ONTO I-495 NORTH TOWARD MANSFIELD/MARLBORO. MERGE ONTO I-495 NORTH. TAKE EXIT 13B TO MERGE ONTO I-95 SOUTH TOWARD PROVIDENCE RI. TAKE EXIT 6 FOR I-295 SOUTH. FOLLOW SIGNS INTO RHODE ISLAND. TAKE EXIT. 9C FOR US-67 WEST. SLIGHT LEFT ONTO DANIELSON PIKE. SLIGHT LEFT ONTO ROCKLAND ROAD. MERGE ONTO RI-102 SOUTH/RI-14 WEST. TURN RIGHT ONTO RI-14 WEST. FOLLOW SIGNS INTO CT. RI-14 WEST TURNS INTO CT-14 WEST. TURN LEFT ONTO CT-14A WEST. TURN LEFT ONTO CT-49 SOUTH. SITE WILL BE ON THE RIGHT.

### SHEET INDEX

SHT. NO.	DESCRIPTION	VER.
T-1	TITLE SHEET	2
GN-1	GENERAL NOTES	2
A-1	COMPOUND & EQUIPMENT PLAN	2
A-2	TOWER ELEVATIONS & ANTENNA PLAN	2
A-3	SITE DETAILS	2
A-4	ANTENNA & FEEDLINE CHARTS	2
E-1	ELECTRIC & GROUNDING DETAILS	2

### 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:	CTHA854A
SBA SITE NUMBER:	CT20001-A
SBA SITE NAME:	STRELING CT TOWER
SITE ADDRESS:	421 EKONK HILL ROAD MOOSUP, CT 06354
PROPERTY OWNER:	SBA STRUCTURES INC. 8501 CONGRESS AVENUE BOCA RATON, FL 33487
TOWER OWNER:	SBA PROPERTIES, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	WINDHAM
ZONING DISTRICT:	RESIDENTIAL
STRUCTURE TYPE:	GUYED TOWER
STRUCTURE HEIGHT:	200'
APPLICANT:	T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766
SBA RSM:	STEPHEN ROTH PHONE: 860-539-4920 EMAIL: SROth@sbsite.com
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: 41.662309° N 41°39'44.31" W LONGITUDE: -71.847112° W 71°50'49.60" W

### SPECIAL ZONING NOTE:

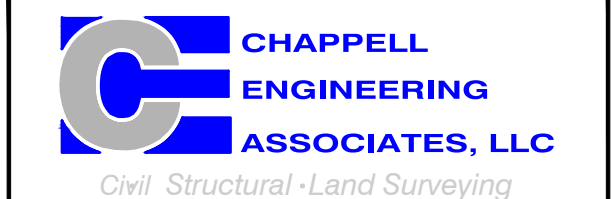
BASED ON INFORMATION PROVIDED BY T-MOBILE REGULATORY COMPLIANCE PROFESSIONALS AND LEGAL COUNSEL, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS CONSIDERED AN ELIGIBLE FACILITY UNDER THE MIDDLE CLASS TAX RELIEF AND JOB CREATION ACT OF 2012, 47 USC 1455(A), SECTION 6409(A), AND IS SUBJECT TO AN ELIGIBLE 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

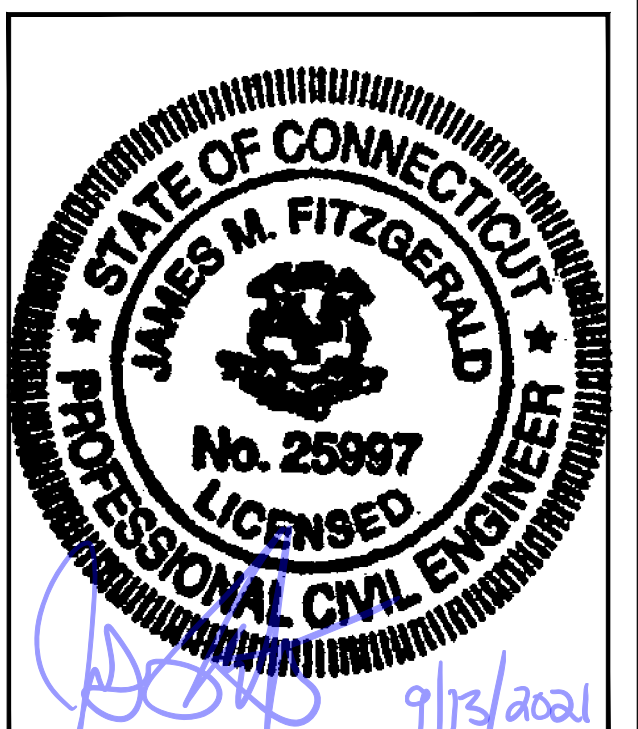
15 COMMERCE WAY, SUITE B  
 NORTON, MA 02766  
 (508) 286-2700



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



R.K. EXECUTIVE CENTRE  
 201 BOSTON POST ROAD WEST, SUITE 101  
 MARLBOROUGH, MA 01752  
 (508) 481-7400  
 www.chappellengineering.com



CHECKED BY: JMT

APPROVED BY: JMT

### SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	09/09/21	REVISED CONSTRUCTION	JRV
1	05/04/21	ISSUED FOR CONSTRUCTION	JRV
0	04/23/21	ISSUED FOR REVIEW	JRV

SITE NUMBER:  
**CTHA854A**

SITE ADDRESS:  
 421 EKONK HILL ROAD  
 MOOSUP, CT 06354

SHEET TITLE

TITLE SHEET

SHEET NUMBER

**T-1**

**GENERAL NOTES:**

- 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
- 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.
- 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.
- 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.
- DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.
- 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.
- 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.
- SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY.
- SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION AND RETURN DISTURBED AREAS TO ORIGINAL CONDITIONS.
- 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.
- 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.
- CONSTRUCTION SHALL COMPLY WITH ALL T-MOBILE STANDARDS AND SPECIFICATIONS.
- 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.
- 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.
- 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:**

- THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
- 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.
- ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
- IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
- 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.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- 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.
- 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.
- 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.
- THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE T-MOBILE SPECIFICATION FOR SITE SIGNAGE.

**CONCRETE AND REINFORCING STEEL NOTES:**

- 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.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (400PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 381 CODE REQUIREMENTS
- 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.
- 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 .....½ IN.
- A CHAMFER ¼" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
- 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.
- 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 SUPPLIER'S 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.
- 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.
- 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:**

- 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".
- 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.
- BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (¾") AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.
- NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE ¾" DIA. ASTM A 307 BOLTS (GALV) UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL.
- ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

**SOIL COMPACTION NOTES FOR SLAB ON GRADE:**

- EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL TO EXPOSE NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.
- COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.
- 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.
- 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.
- 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:**

- HAND OPERATED DOUBLE DRUM, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

**CONSTRUCTION NOTES:**

- FIELD VERIFICATION:  
SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, T-MOBILE ANTENNA PLATFORM LOCATION AND UTILITY TRENCHWORK.
- COORDINATION OF WORK:  
SUBCONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH CONTRACTOR.
- 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:**

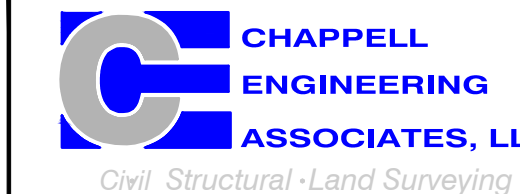
- WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC AND TELCORDIA.
- SUBCONTRACTOR SHALL MODIFY OR INSTALL CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLEING TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR FOR APPROVAL.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.
- CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
- 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.
- 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.
- 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).
- PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
- ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- 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.
- 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.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.
- 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.
- 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).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANS/IEEE AND NEC.
- NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
- 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.
- ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
- 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.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANS/IEEE AND NEC.
- CABINETS, BOXES AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
- 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.
- 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.
- 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.
- 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.
- THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- 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.
- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
- CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

**T-MOBILE  
NORTHEAST LLC**

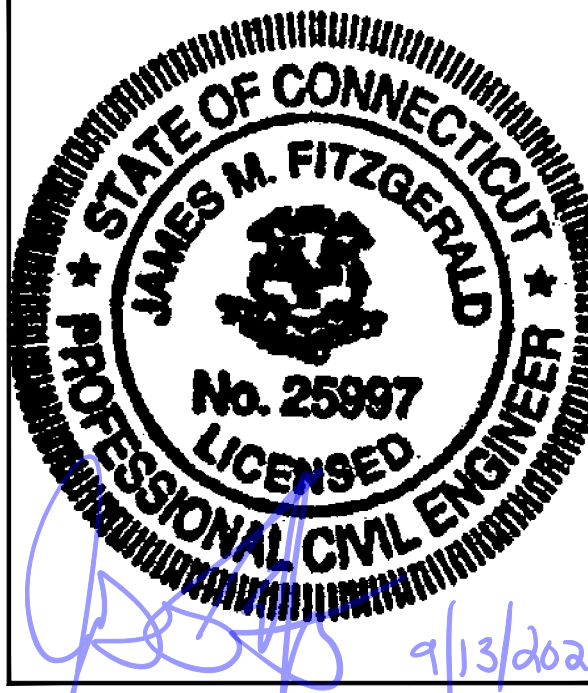
15 COMMERCE WAY, SUITE B  
NORTON, MA 02766  
(508) 286-2700



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134 FLANDERS ROAD, SUITE 125  
WESTBOROUGH, MA 01581  
(508) 251-0720



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SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
2	09/09/21	REVISED CONSTRUCTION	JRV
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SITE NUMBER:  
**CTHA854A**

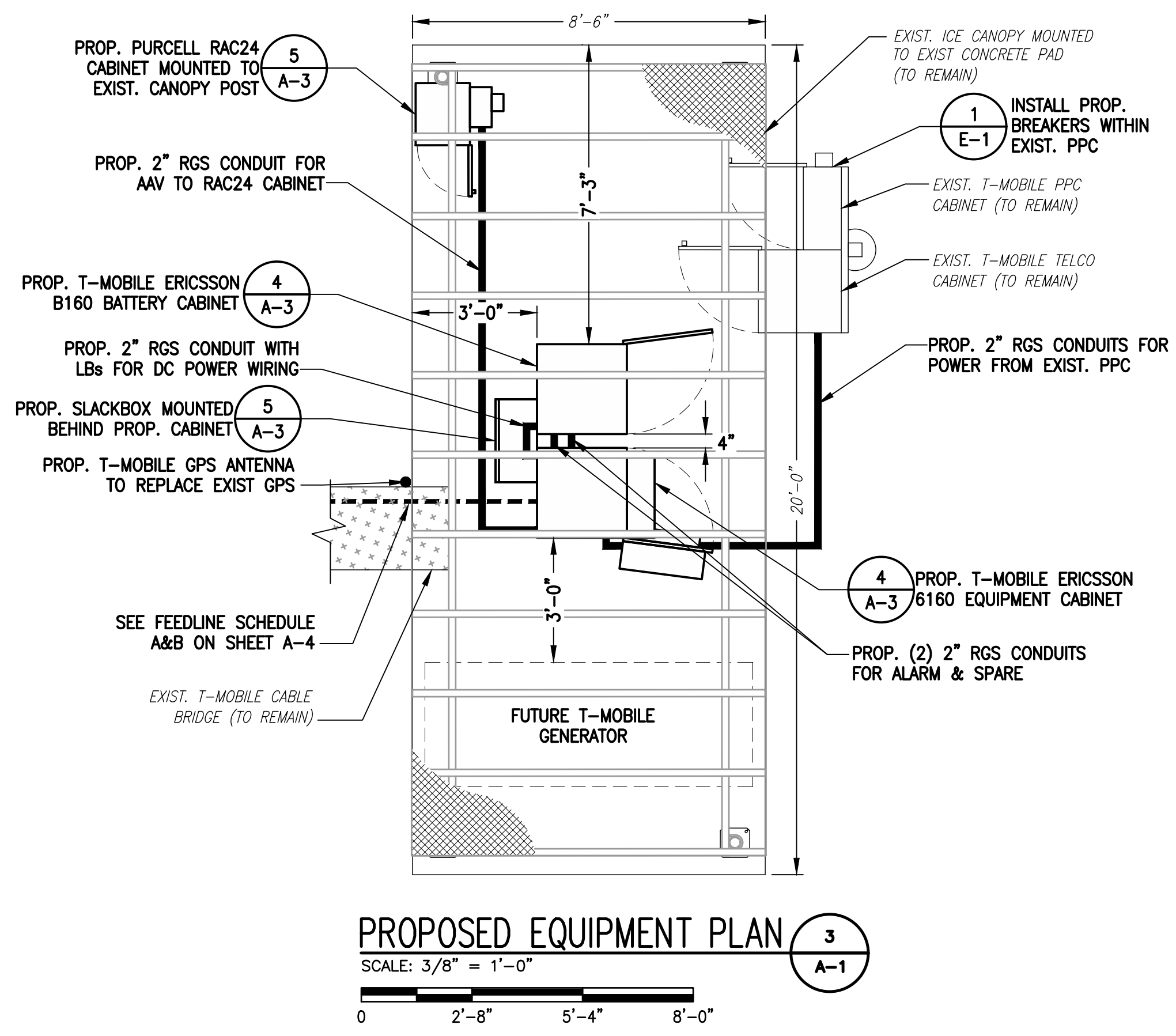
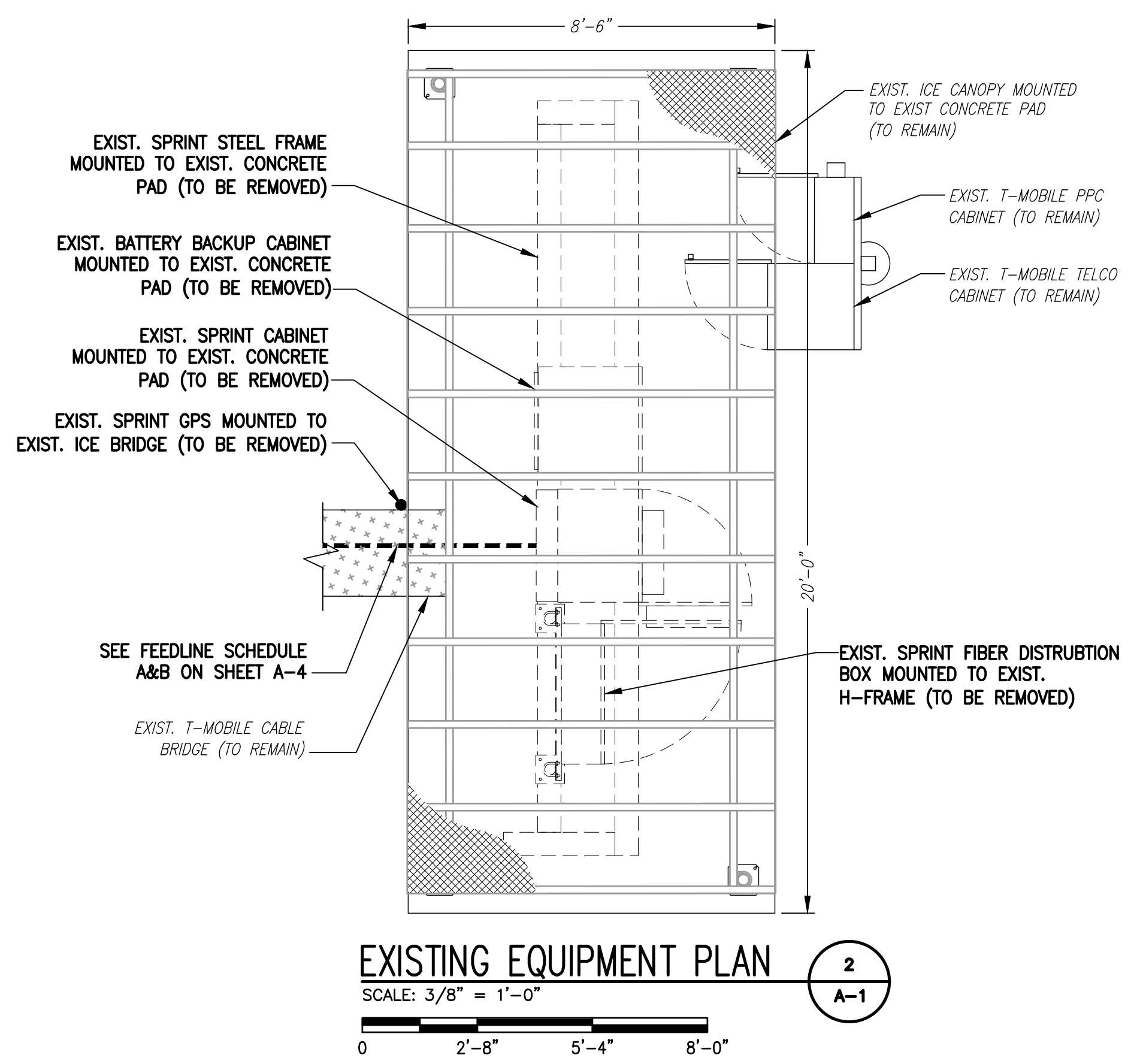
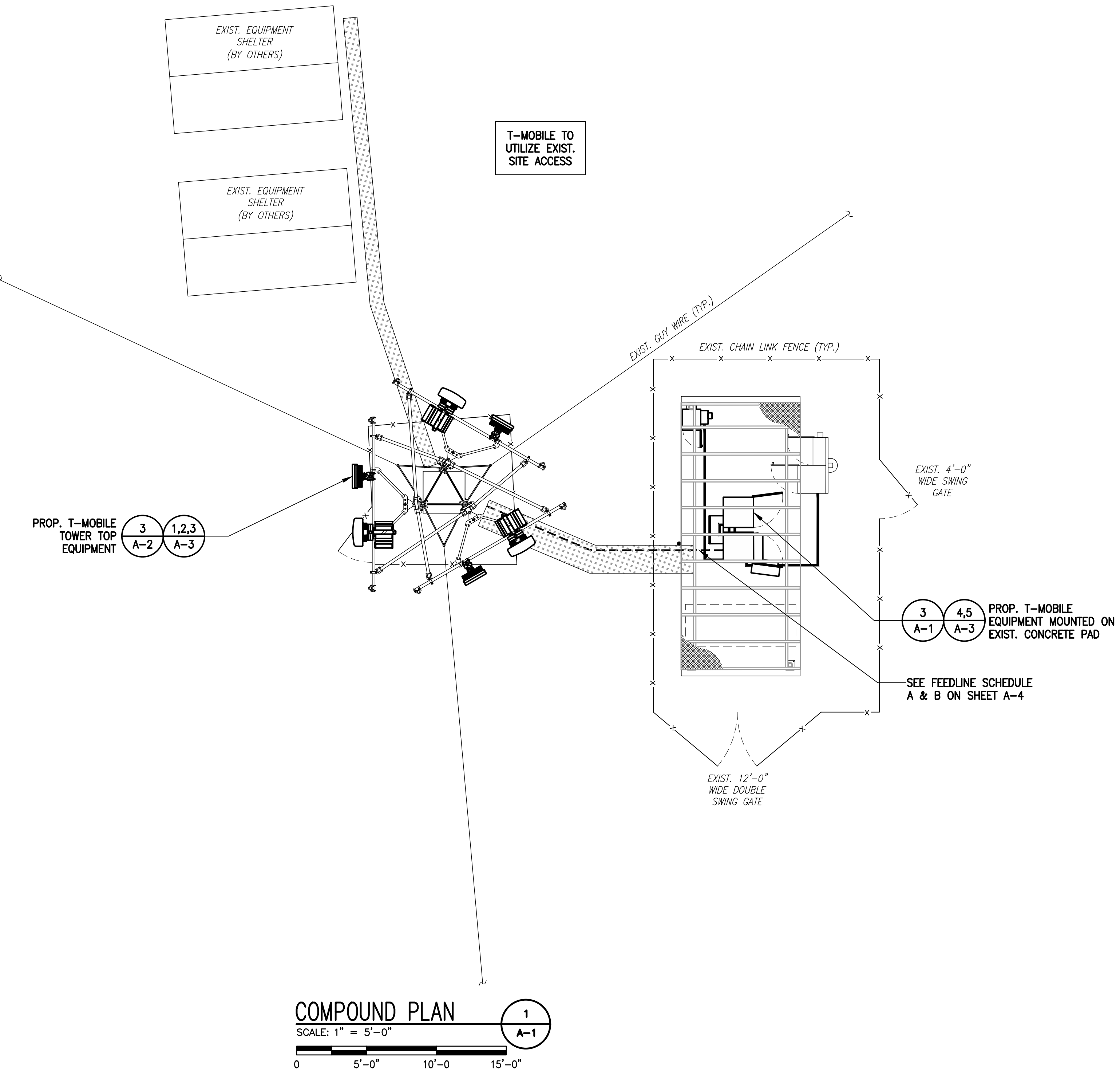
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421 EKONK HILL ROAD  
MOOSUP, CT 06354

SHEET TITLE  
  
GENERAL NOTES

SHEET NUMBER  
  
**GN-1**

**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.

**SPECIAL CONSTRUCTION NOTE:**  
 GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT T-MOBILE'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).

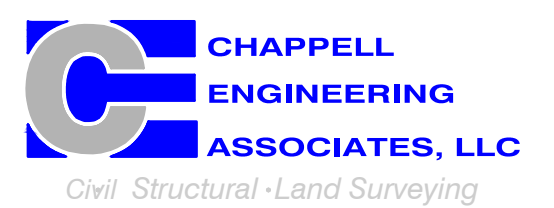


**T-MOBILE  
 NORTHEAST LLC**

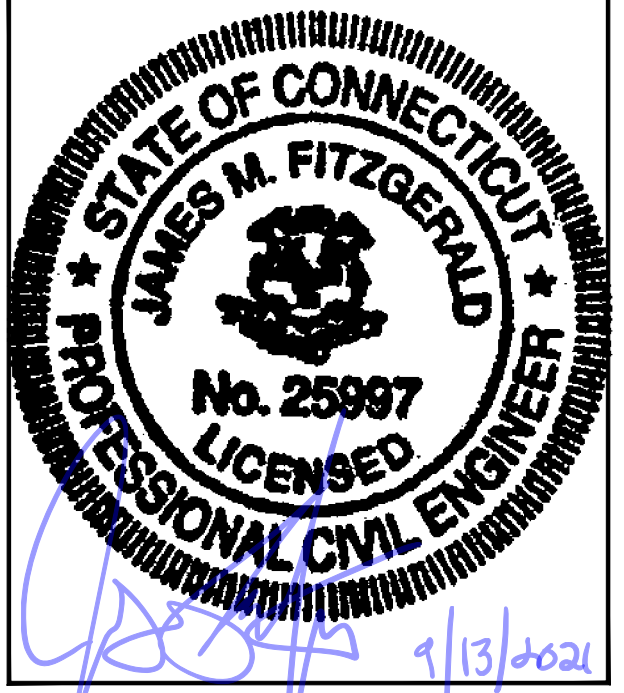
15 COMMERCE WAY, SUITE B  
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 134 FLANDERS ROAD, SUITE 125  
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SITE NUMBER:  
**CTHA854A**

SITE ADDRESS:  
 421 EKONK HILL ROAD  
 MOOSUP, CT 06354

SHEET TITLE  
**COMPOUND &  
 EQUIPMENT PLANS**

SHEET NUMBER  
**A-1**

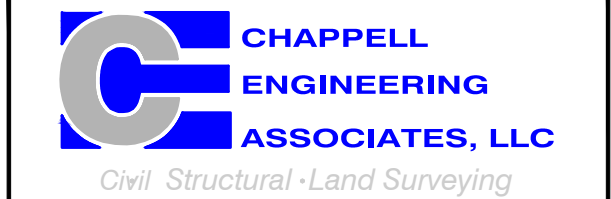


# T-MOBILE NORTHEAST LLC

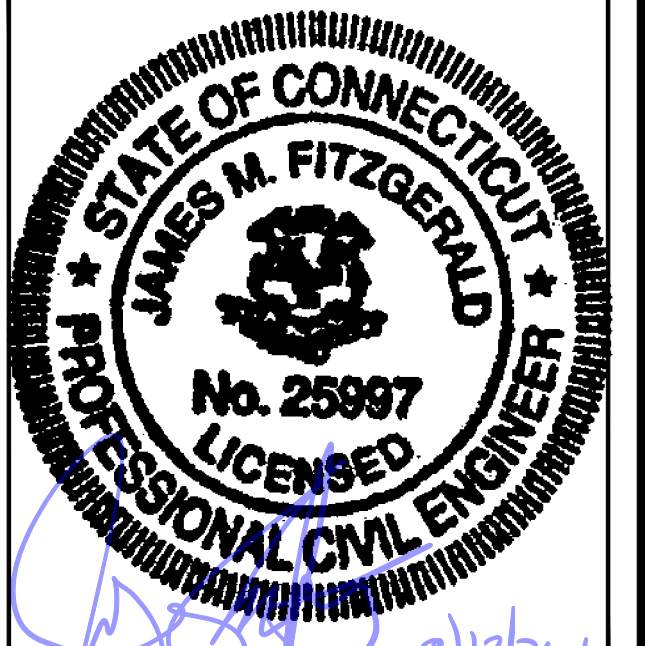
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**CTHA854A**

SITE ADDRESS:  
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SHEET TITLE

TOWER ELEVATIONS &  
ANTENNA PLANS

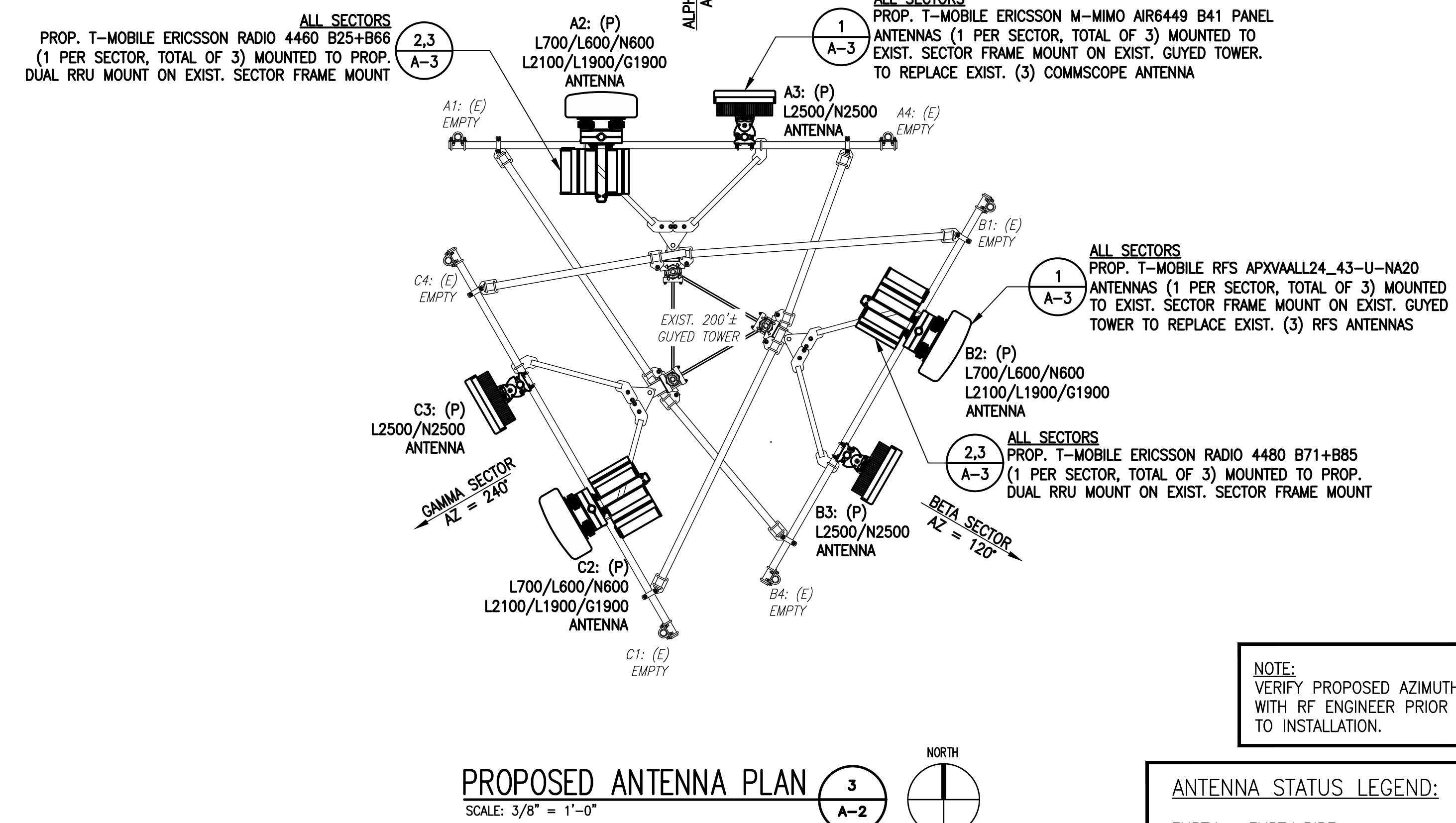
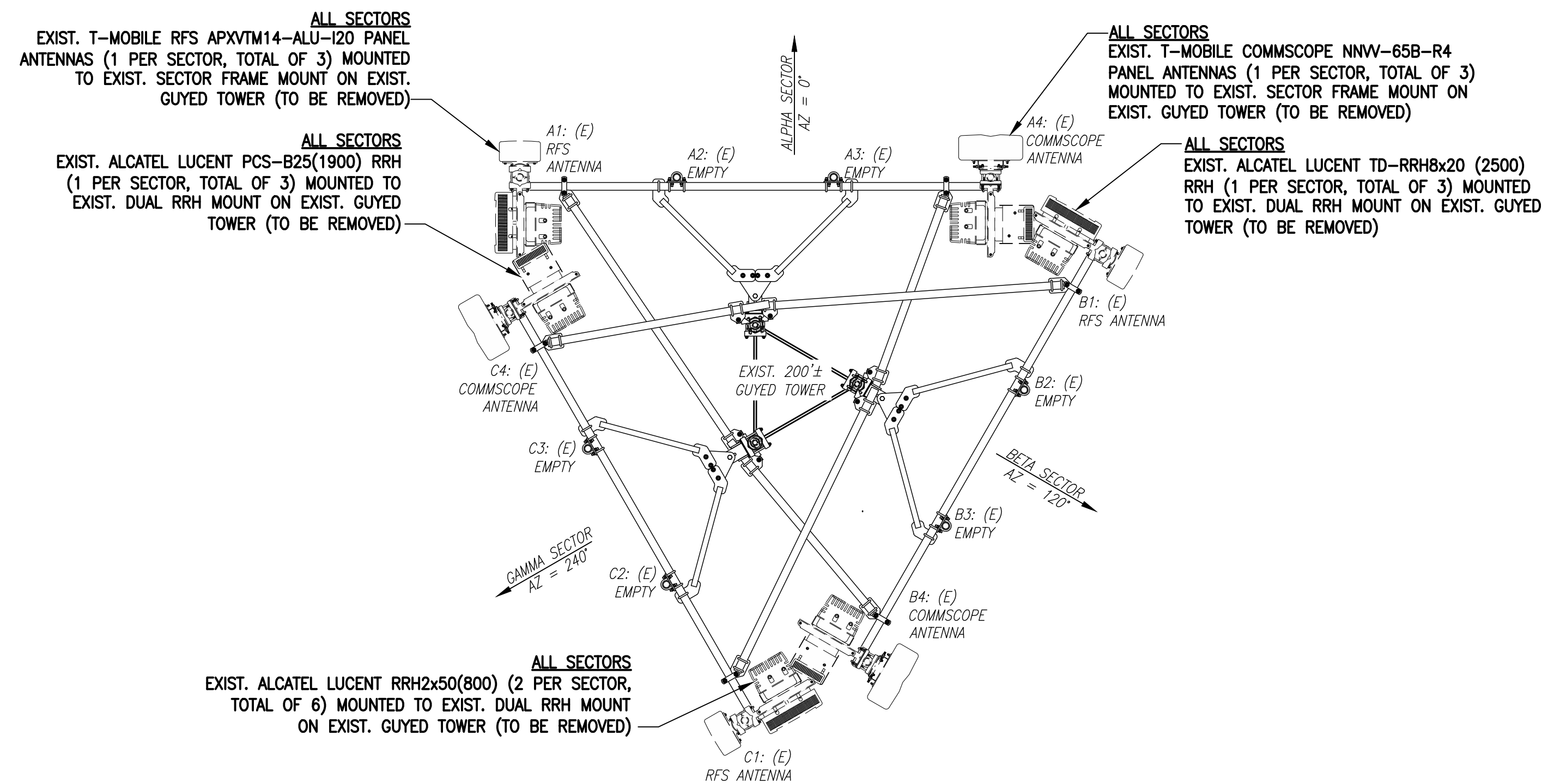
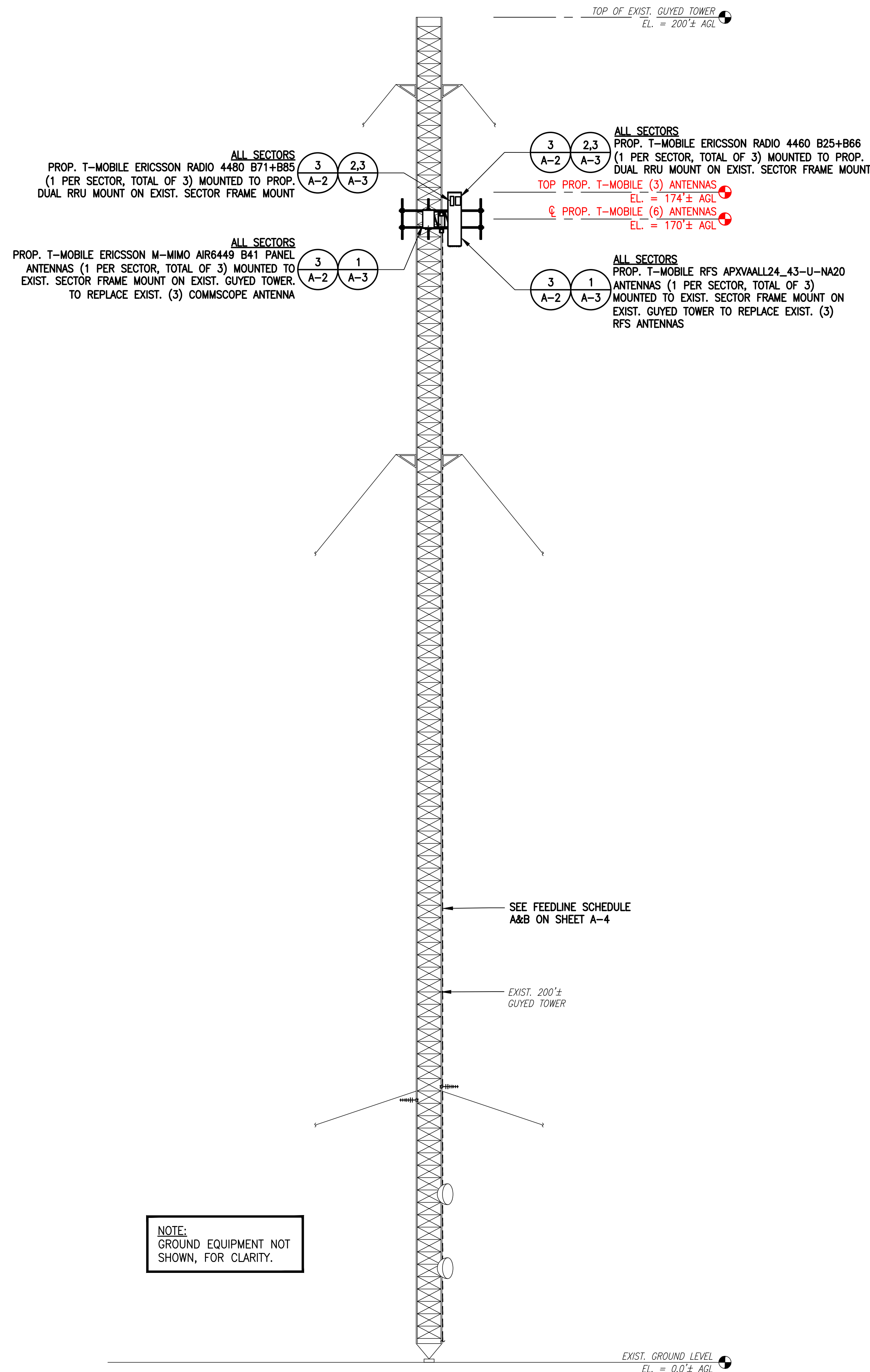
SHEET NUMBER

**A-2**

**SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):**  
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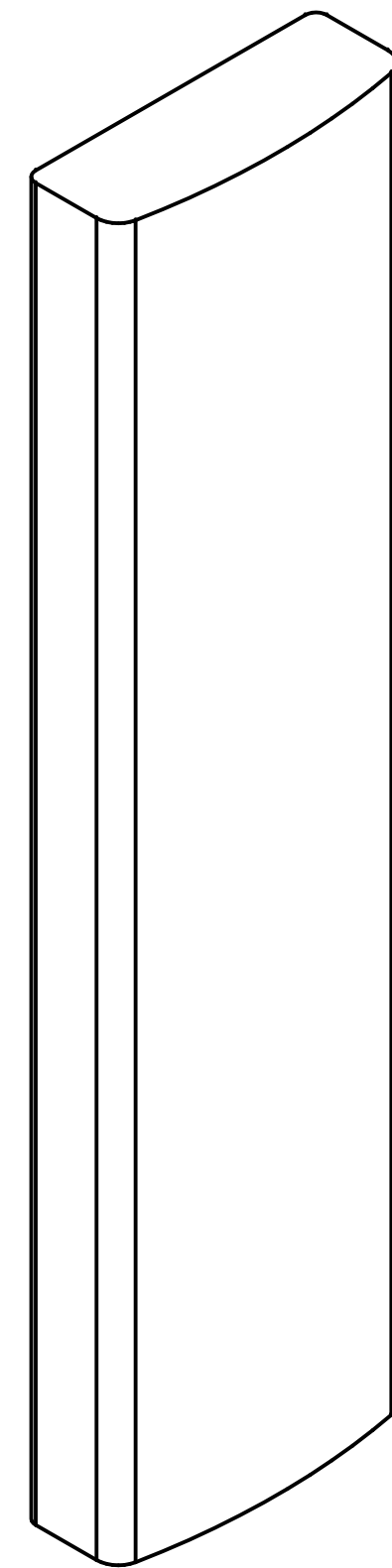
**RAD CENTER NOTE:**  
T-MOBILE RAD CENTER SHOWN IN RED TEXT BASED ON SBA-PROVIDED CO-LOCATION APPLICATION, EQUIPMENT DATABASE, AND STRUCTURAL ANALYSIS. THE SBA-PROVIDED ANTENNA RAD CENTER SHALL SUPERSEDE ANY CONFLICTING INFORMATION DERIVED FROM THE T-MOBILE RFDs.

**SPECIAL CONSTRUCTION NOTE:**  
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL ANTENNA MOUNT STRUCTURAL AUGMENTS (STRUCTURAL MODIFICATIONS) AT T-MOBILE'S RAD/VERTICAL EQUIPMENT SPACE PER RECOMMENDATIONS FROM SBA-PROVIDED ANTENNA MOUNT STRUCTURAL ANALYSIS AND ANY SUPPLEMENTAL CONSTRUCTION DRAWINGS (PROVIDED BY OTHERS).



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

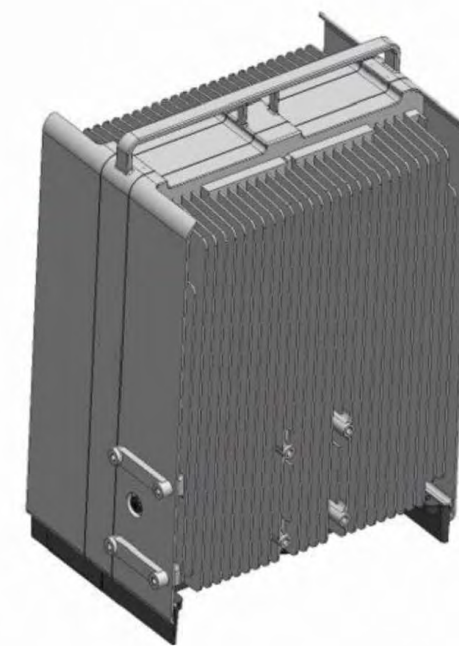
**ANTENNA STATUS LEGEND:**  
EMPTY - EMPTY PIPE  
(E) - EXISTING  
(P) - INSTALL  
(F) - FUTURE



**RFS APXVAALL24 43-U-NA20 ANTENNA**  
 DIMENSIONS: 95.9"H x 24.0"W x 8.7"D  
 WEIGHT: 128.0 lbs  
 QUANTITY: 1 PER SECTOR, TOTAL OF 3



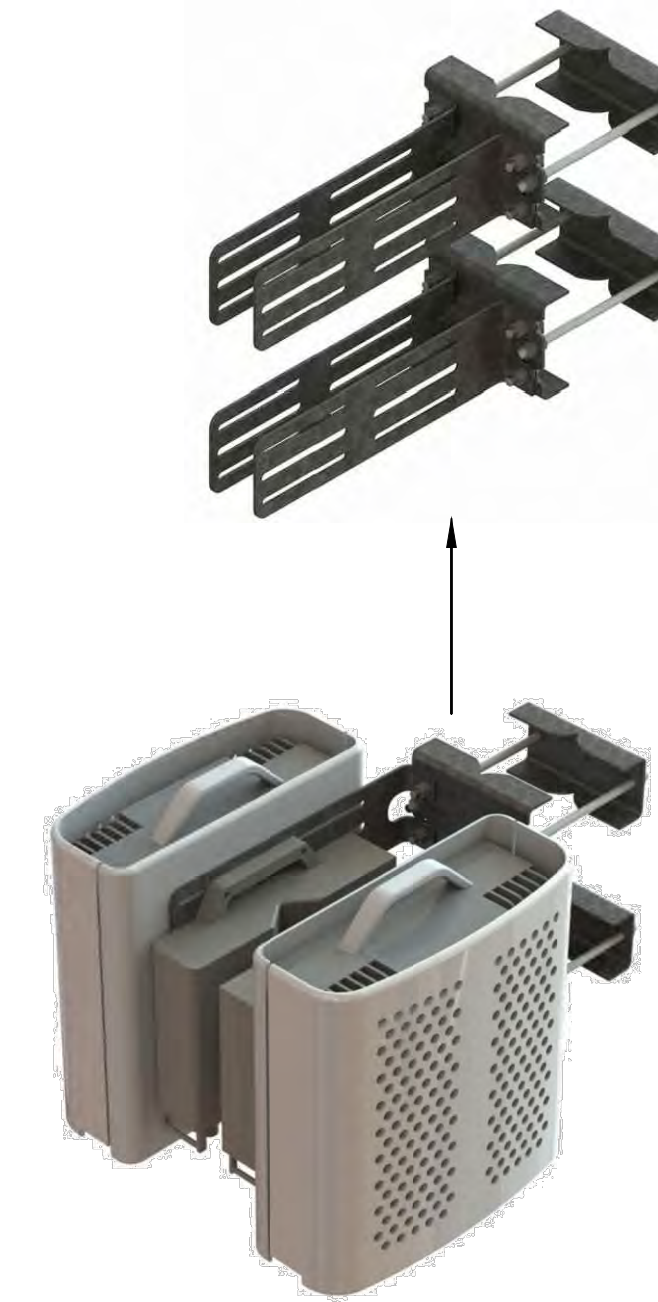
**ERICSSON M-MIMO AIR6449 B41 ANTENNA**  
 DIMENSIONS: 33.1"H x 20.5"W x 8.3"D  
 WEIGHT: 103.0 lbs  
 QUANTITY: 1 PER SECTOR, TOTAL OF 3



**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

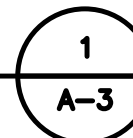


**ERICSSON RADIO 4480 B71+B85**  
 DIMENSIONS: 19.2"H x 15.1"W x 7.5"D  
 WEIGHT: 92.6 lbs  
 QUANTITY: 1 PER SECTOR, TOTAL OF 3

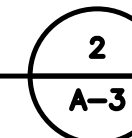


**COMMSCOPE RR-FA2 FAST ACCESS DUAL RRU MOUNT KIT**  
 DIMENSIONS: 16.4"H x 8.6"W x 18"L  
 WEIGHT: 36.0 lbs  
 QUANTITY: 1 PER SECTOR, TOTAL OF 3

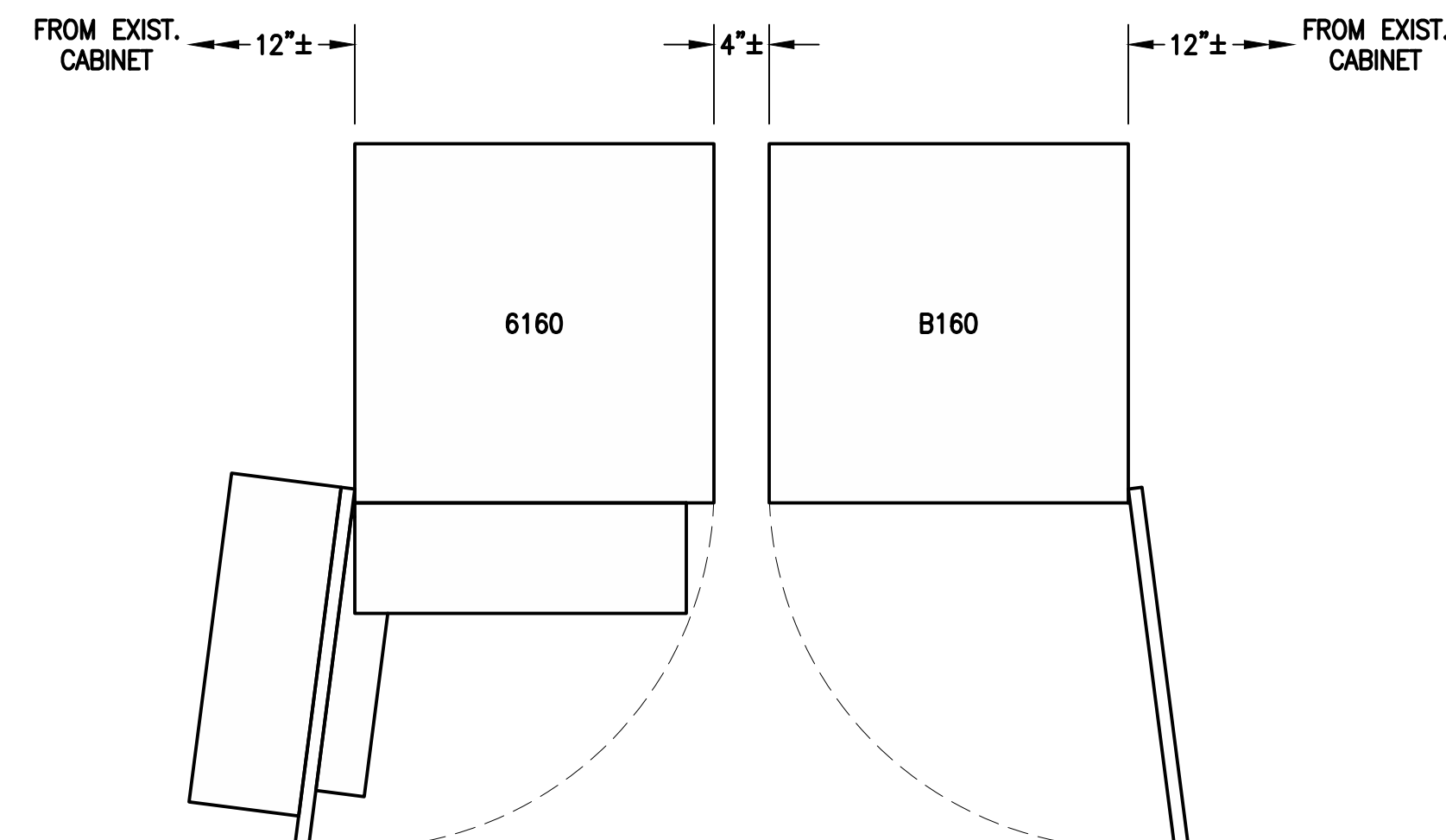
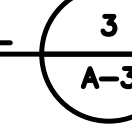
**ANTENNA DETAILS**  
 SCALE: N.T.S.



**RADIO DETAILS**  
 SCALE: N.T.S.



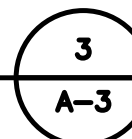
**RADIO MOUNT DETAIL**  
 SCALE: N.T.S.



**ERICSSON 6160 SITE SUPPORT CABINET**  
 DIMENSIONS: 63.25"H x 26.0"W x 34.0"D  
 QUANTITY: TOTAL OF 1

**ERICSSON B160 BATTERY CABINET**  
 DIMENSIONS: 63.25"H x 26.0"W x 26.0"D  
 QUANTITY: TOTAL OF 1

**EQUIPMENT DETAIL**  
 SCALE: N.T.S.

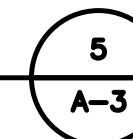


**SLACKBOX**  
 MODEL: 32FH91 OR EQUAL  
 QUANTITY: TOTAL OF 1



**PURCELL SITE SUPPORT CABINET RAC24**  
 DIMENSIONS: 24.0"H x 15.7"W x 20.0"D  
 TOTAL OF 1

**SSC DETAILS**  
 SCALE: N.T.S.

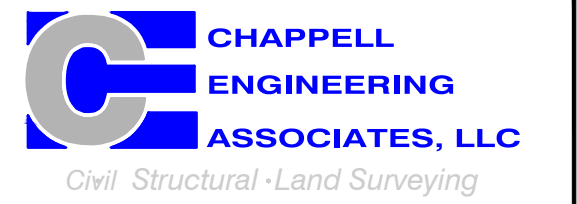


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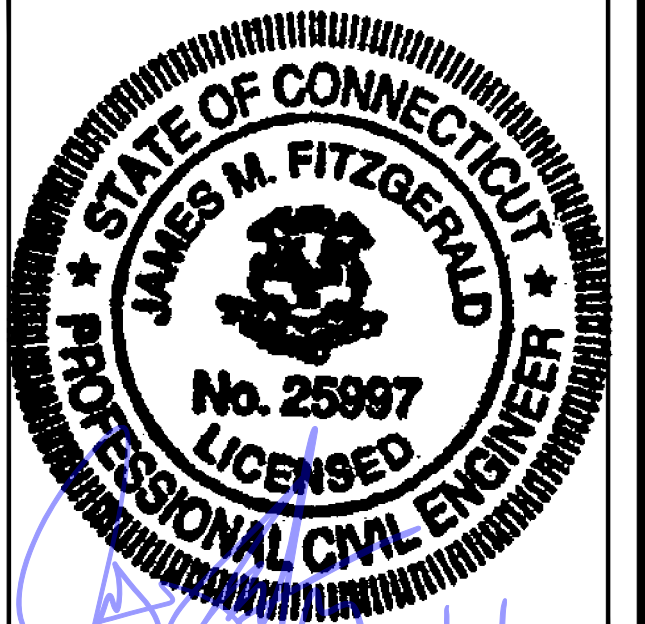
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SITE NUMBER:  
**CTHA854A**

SITE ADDRESS:  
 421 EKONK HILL ROAD  
 MOOSUP, CT 06354

SHEET TITLE

SITE DETAILS

SHEET NUMBER

**A-3**

FINAL ANTENNA CONFIGURATION											
SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	SIGNAL CABLES			
ALPHA	A1	EMPTY PIPE	-	-	-	-	-	(3) 2" (6x24) HCS FIBER CABLES			
	A2	RFS APXVAALL24_43-U-NA20	170'± AGL	0°	0°	2'	L700/L600/N600 L2100/L1900/G1900		RADIO 4480 B71+B85 RADIO 4460 B25+B66		
	A3	ERICSSON M-MIMO AIR6449 B41	170'± AGL	0°	0°	2'	L2500/N2500		-		
	A4	EMPTY PIPE	-	-	-	-	-		-		
BETA	B1	EMPTY PIPE	-	-	-	-	-		(3) 2" (6x24) HCS FIBER CABLES		
	B2	RFS APXVAALL24_43-U-NA20	170'± AGL	120°	0°	2'	L700/L600/N600 L2100/L1900/G1900			RADIO 4480 B71+B85 RADIO 4460 B25+B66	
	B3	ERICSSON M-MIMO AIR6449 B41	170'± AGL	120°	0°	2'	L2500/N2500			-	
	B4	EMPTY PIPE	-	-	-	-	-			-	
GAMMA	C1	EMPTY PIPE	-	-	-	-	-			(3) 2" (6x24) HCS FIBER CABLES	
	C2	RFS APXVAALL24_43-U-NA20	170'± AGL	240°	0°	2'	L700/L600/N600 L2100/L1900/G1900				RADIO 4480 B71+B85 RADIO 4460 B25+B66
	C3	ERICSSON M-MIMO AIR6449 B41	170'± AGL	240°	0°	2'	L2500/N2500				-
	C4	EMPTY PIPE	-	-	-	-	-				-

CABLE NOTE: ALL SPRINT CABLES & ASSOCIATED HARDWARE TO BE REMOVED. SEE FEEDLINE SCHEDULE A & B BELOW.

NOTE: RFDS REV1 - 03/30/21

FEEDLINE SCHEDULE		
SCHEDULE	FEEDLINES	LOCATION
A	EXISTING TO REMAIN: (1) ½" COAX CABLE FOR GPS ANTENNA  EXISTING TO BE REMOVED: SPRINT CABLES AND ASSOCIATED HARDWARE TO BE REMOVED	ROUTED PER STRUCTURAL ANALYSIS
B	PROPOSED: (3) 2" (6x24) HCS FIBER CABLES	

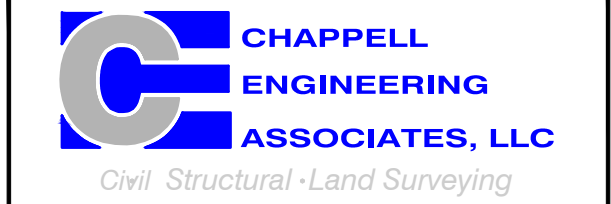
NOTE: EXISTING T-MOBILE EQUIPMENT FEEDLINE INVENTORY BASED ON OBSERVED FIELD CONDITIONS. RFDS AND FEEDLINE LEASING ENTITLEMENTS MAY DIFFER.

## T-MOBILE NORTHEAST LLC

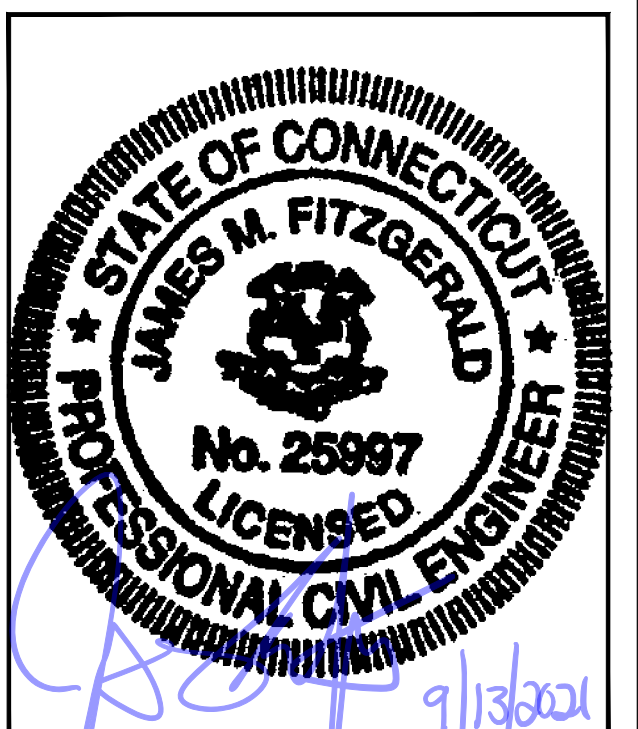
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SHEET TITLE  
**ANTENNA &  
FEEDLINE CHARTS**

SHEET NUMBER

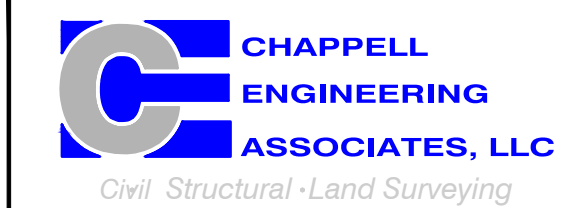
**A-4**

**T-MOBILE  
NORTHEAST LLC**

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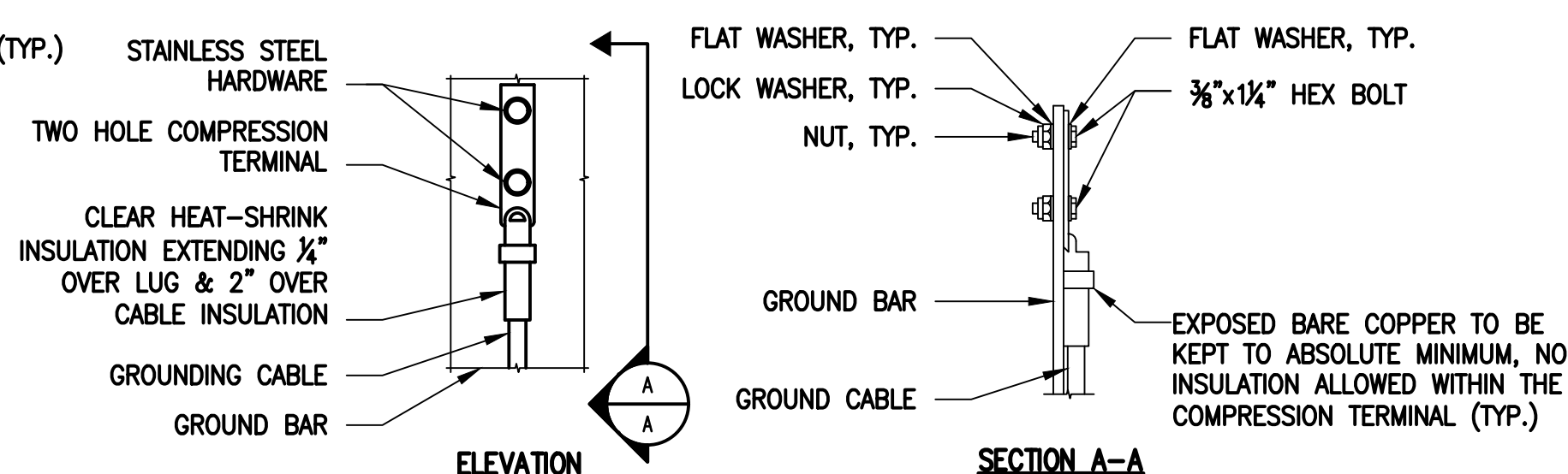
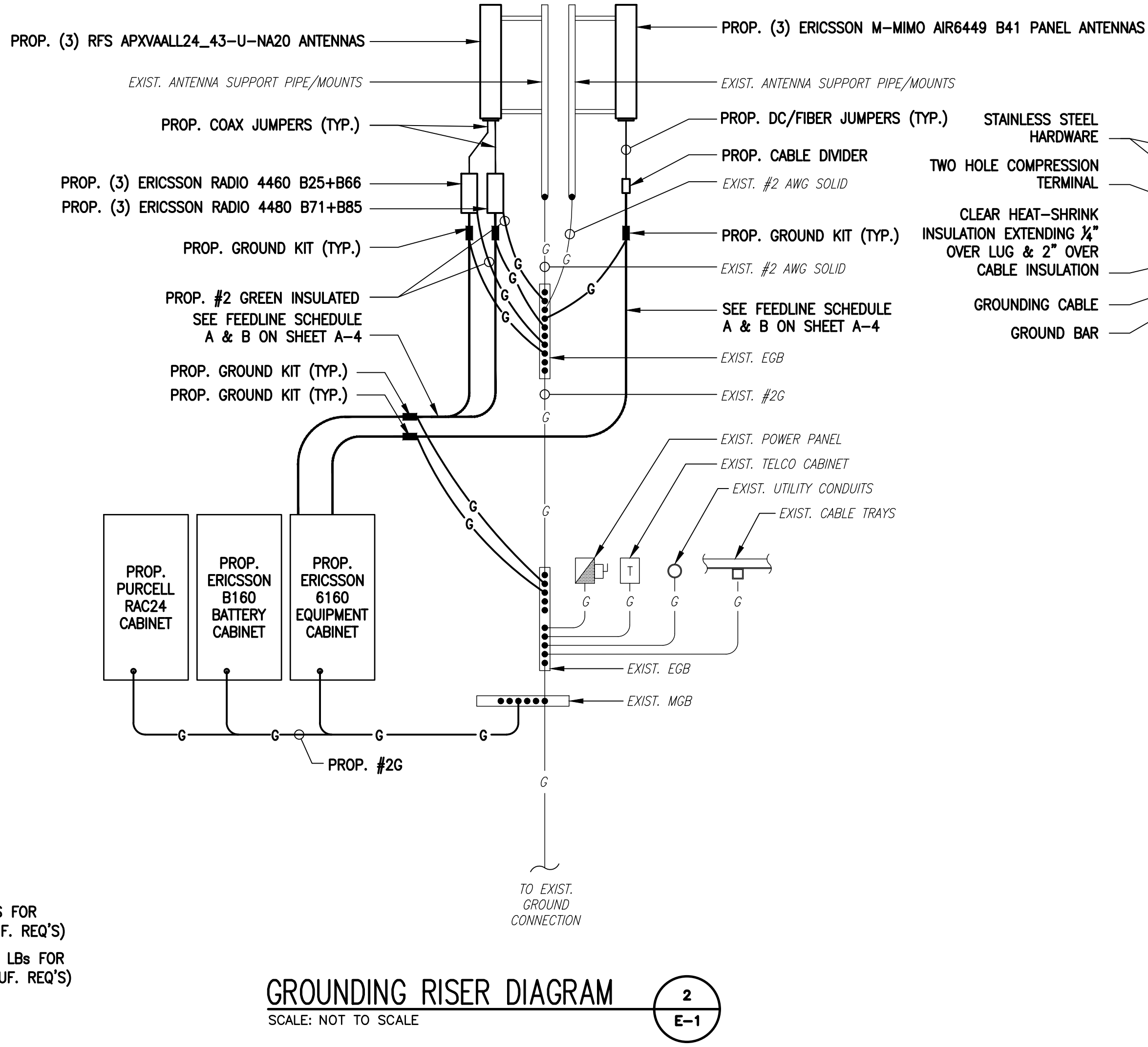
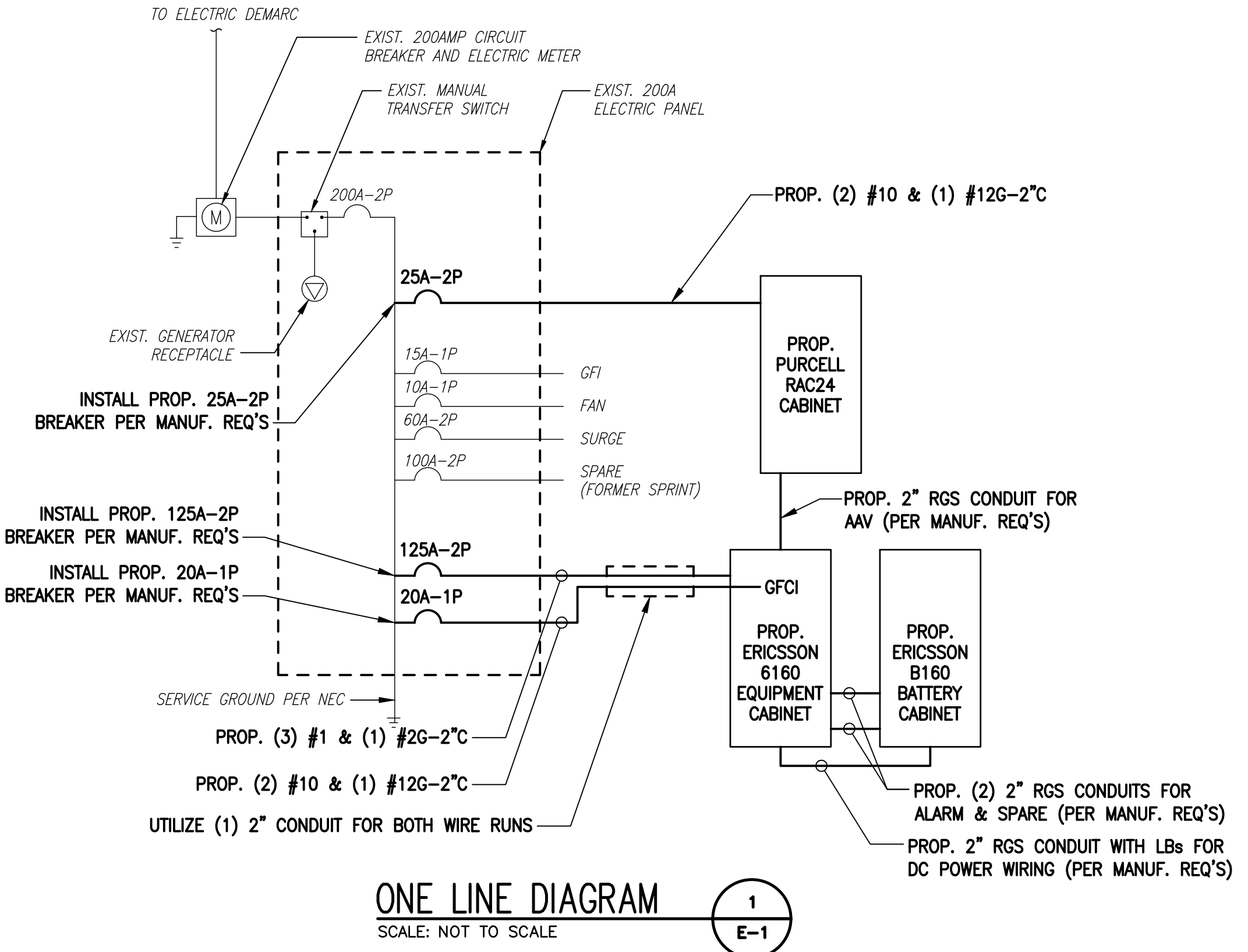
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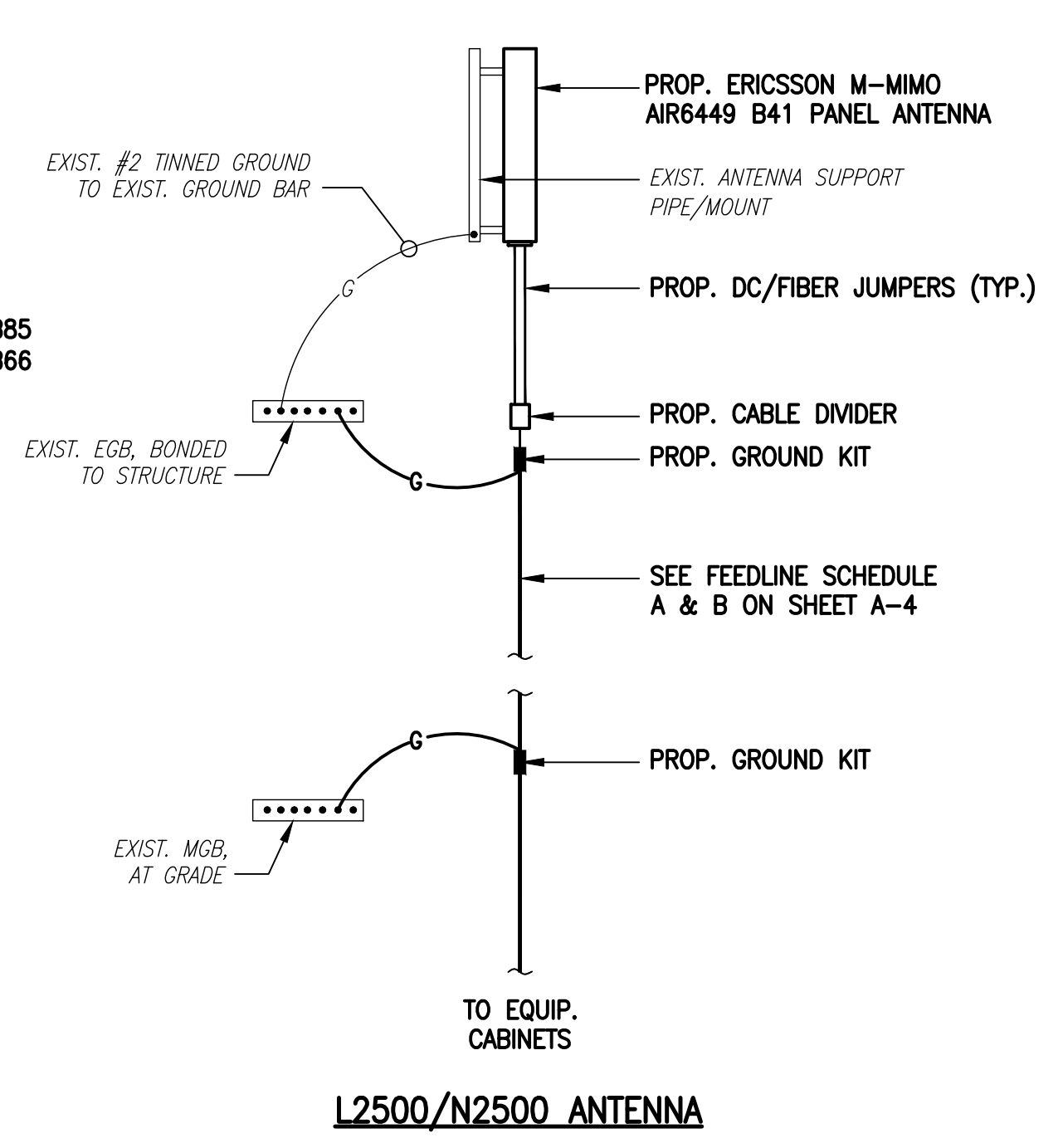
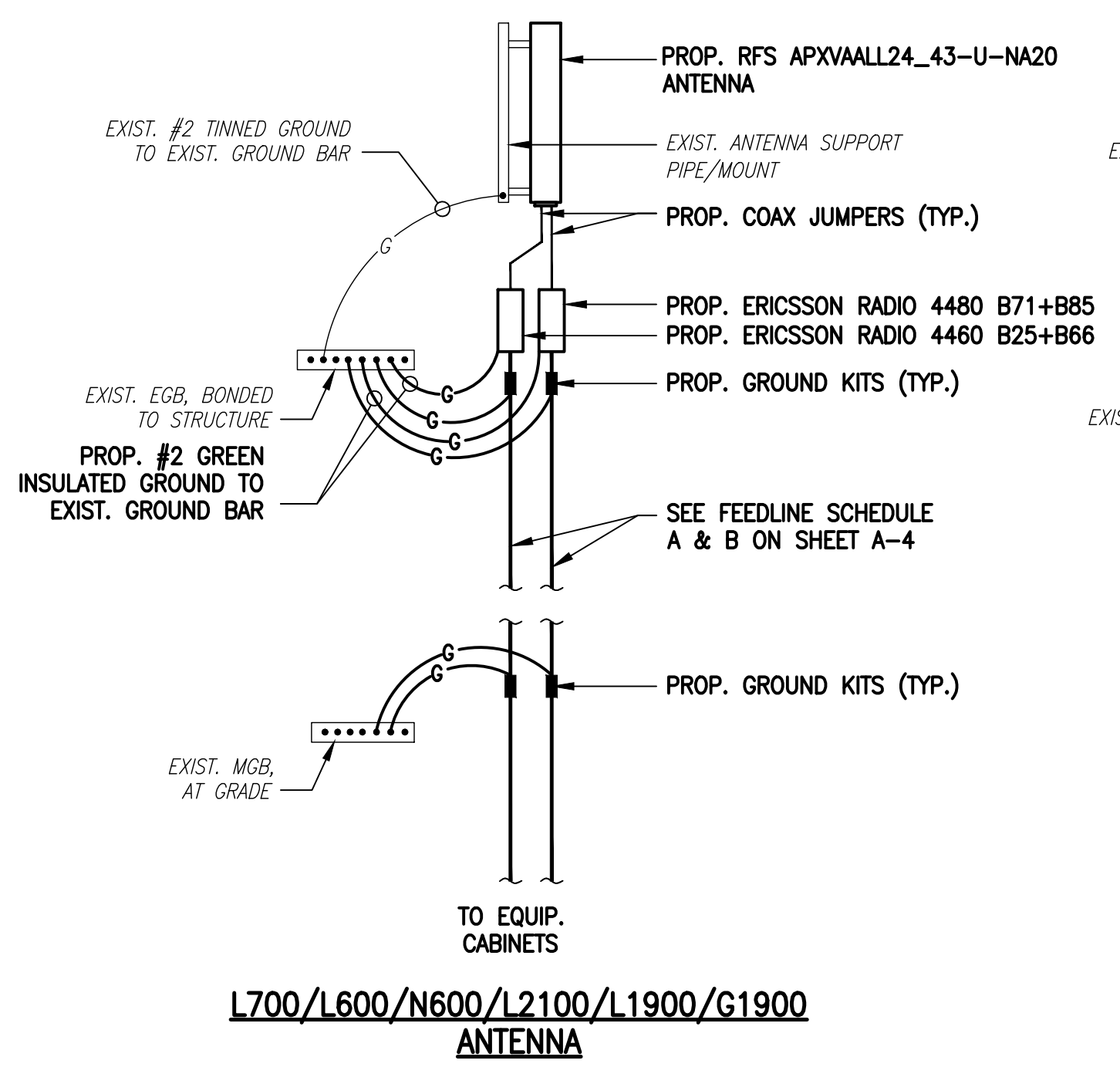
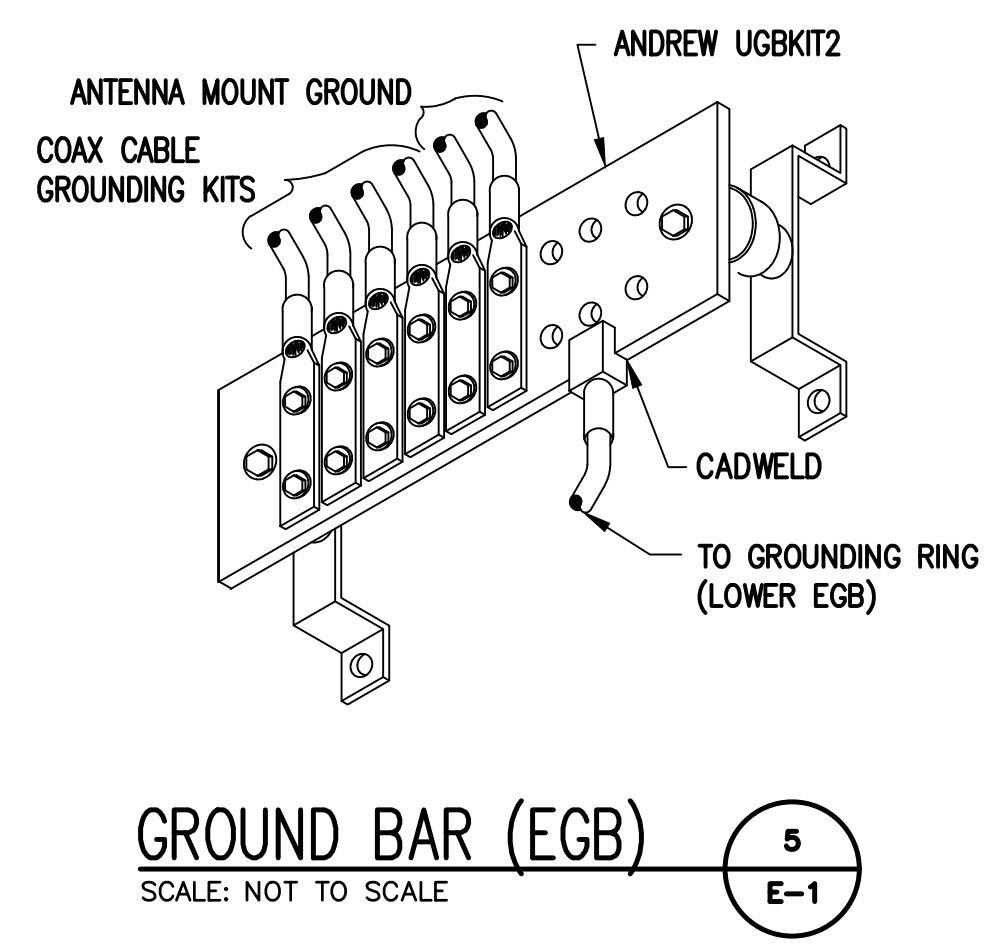
SITE ADDRESS:  
421 EKONK HILL ROAD  
MOOSUP, CT 06354

SHEET TITLE  
**ELECTRIC & GROUNDING  
DETAILS**

SHEET NUMBER  
**E-1**



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



**ELECTRICAL AND GROUNDING NOTES**

- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
- ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
- THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
- GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
- 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.
- BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
- ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THININSULATION.
- 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.
- 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.
- 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.
- ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
- PPC SUPPLIED BY PROJECT OWNER.
- 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".
- GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
- 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.
- 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.
- 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.
- CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
- APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
- 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.
- CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
- CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE-OUT.

# EXHIBIT 7

## Structural Analysis



**Tower Engineering Solutions**

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

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## **Structural Analysis Report**

**Existing 200 ft Pirod Guyed Tower**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT20001-A**

**Customer Site Name: STERLING CT TOWER**

**Carrier Name: T-Mobile Sprint (App#: 154220, V2)**

**Carrier Site ID / Name: CT33XC009 / Sterling**

**Site Location: 419 Ekonk Hill Road (Rt-49)**

**Sterling, Connecticut**

**WINDHAM County**

**Latitude: 41.662222**

**Longitude: -71.846944**

Exp.10/31/2022



### **Analysis Result:**

**Max Structural Usage: 70.7% [Pass]**

**Max Foundation Usage: 49.3% [Pass]**

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

12/15/2021

**Report Prepared By : Linfeng Chen**

## Introduction

The purpose of this report is to summarize the analysis results on the 200 ft Pirod Guyed Tower 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

<b>Tower Drawings</b>	Original design drawings prepared by PiROD. Inc. Dated 11-04-1988. Drawing No 112268-B. Job No A-106,708.
<b>Foundation Drawing</b>	Original foundation drawings prepared by PiROD. Inc. Dated 11-04-1988. Drawing No 112268-B. Job No A-106,708.
<b>Geotechnical Report</b>	Geotechnical report prepared by FDH Engineering, Inc. Dated 08-09-2012. Project No 1207123EG1.
<b>Modification Drawings</b>	N/A
<b>Mount Analysis</b>	TES, Job# 120130, Dated 11/06/21

## 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 **TESTowers**, 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.

<b>Wind Speed Used in the Analysis:</b>	Ultimate Design Wind Speed $V_{ult} = 135.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 105.0$ mph (3-Sec. Gust)
<b>Wind Speed with Ice:</b>	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
<b>Operational Wind Speed:</b>	60 mph + 0" Radial ice
<b>Standard/Codes:</b>	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
<b>Exposure Category:</b>	C
<b>Structure Class:</b>	II
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Seismic Parameters:</b>	$S_S = 0.169$ , $S_1 = 0.061$

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
1	195.0	1	120" Omni	(1) Side Arm	(1) 7/8"	Marc Dodge
2	178.0	1	Decibel DB809 Omni	(1) Side Arm	(1) 7/8"	American Messaging
-	170.0	3	RFS APXVAALL24_43-U-NA20 Panel	(3) Sector Frames SiteProVFA12-HD	(3) 1.99" Hybrid 6x24	T-Mobile Sprint
-		3	RFS APX16DWV-16DWVS-E-A20 Panel			
-		3	Ericsson AIR6449 B41 Panel			
-		3	Ericsson 4449 B71 + B85 RRU			
-		3	Ericsson 4424 B25 RRU			
-		3	Ericsson 4415 B66A RRU			
8	150.0	3	JMA Wireless MX08FRO665-21 - Panel	(1) Commscope MTC3975083	(1) 1.6" Hybrid	Dish Wireless
9		3	Fujitsu TA08025-B604 RRU			
10		3	Fujitsu TA08025-B605 RRU			
11		1	Raycap RDIDC-9181-PF-48 - OVP			
12	140.0	1	Decibel DB809 Omni	(1) Side Arm	(2) 1/4"	Arch Wireless
13	99.0	1	ASPC680 (96") Omni	(1) Side Arm	(1) 1/2"	Plainfield Municipal
14	41.0	1	Larsen YA2-540 (36") - Yagi	Direct	(1) 7/8"	
15	39.0	1	Larsen YA2-540 (36") - Yagi	Direct	(1) 3/8"	
16	25.0	1	36" - Dish	(1) Pipe Mount	(2) 1/4"	American Messaging
17	14.0	1	36" - Dish	(1) Pipe Mount	(1) 7/8"	Arch Wireless

## 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
3	170.0	3	RFS APXVAALL24_43-U-NA20 - Panel	(3) SitePro VFA12-HD Sector Frames	(3) 1.9" Hybrid	T-Mobile Sprint
4		3	Ericsson AIR6449 B41 - Panel			
5		3	Ericsson 4480 B71 + B85 RRU			
6		6	ALU 800 MHz RRUs			
7		3	Ericsson 4460 B25 + B66 RRU			

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:

Tower Component	Legs	Diagonals	Horizontals	Guy Wires
Max. Usage:	<b>54.9%</b>	<b>50.9%</b>	<b>28.7%</b>	<b>70.7%</b>
Pass/Fail	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

## Foundations

Reactions (kips)	Base Reactions		Inner Anchors	
	Axial	Shear	Uplift	Shear
Analysis Reactions	99.0	1.2	28.3	26.6

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):**

The maximum twist and sway of the microwave dishes under the operational wind speed as specified in the Analysis Criteria are listed in the table below:

Elevation (ft)	Antenna / Dish	Carrier	Twist (deg)	Sway (deg)
25.0	36" Dish	American Messaging	0.010	0.046
14.0	36" Dish	Arch Wireless	0.020	0.057

It is recommended that the carriers review the twist and sway values of the microwave dishes.

### **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.

## Structure: CT20001-A-SBA

**Site Name:** STERLING CT TOWER

**Code:** EIA/TIA-222-G

12/15/2021

**Type:** Guyed

**Base Shape:** Triangle

**Basic WS:** 105.00

**Height:** 200.00 (ft)

**Base Width:** 0.00

**Basic Ice WS:** 50.00

**Base Elev:** 0.00 (ft)

**Top Width:** 3.00

**Operational WS:** 60.00

Page: 1



### Section Properties

Sect	Leg Members	Diagonal Members	Horizontal Members
1-11	SOL 1 3/4" SOLID	SOL 3/4" SOLID	SOL 3/4" SOLID

### Discrete Appurtenances

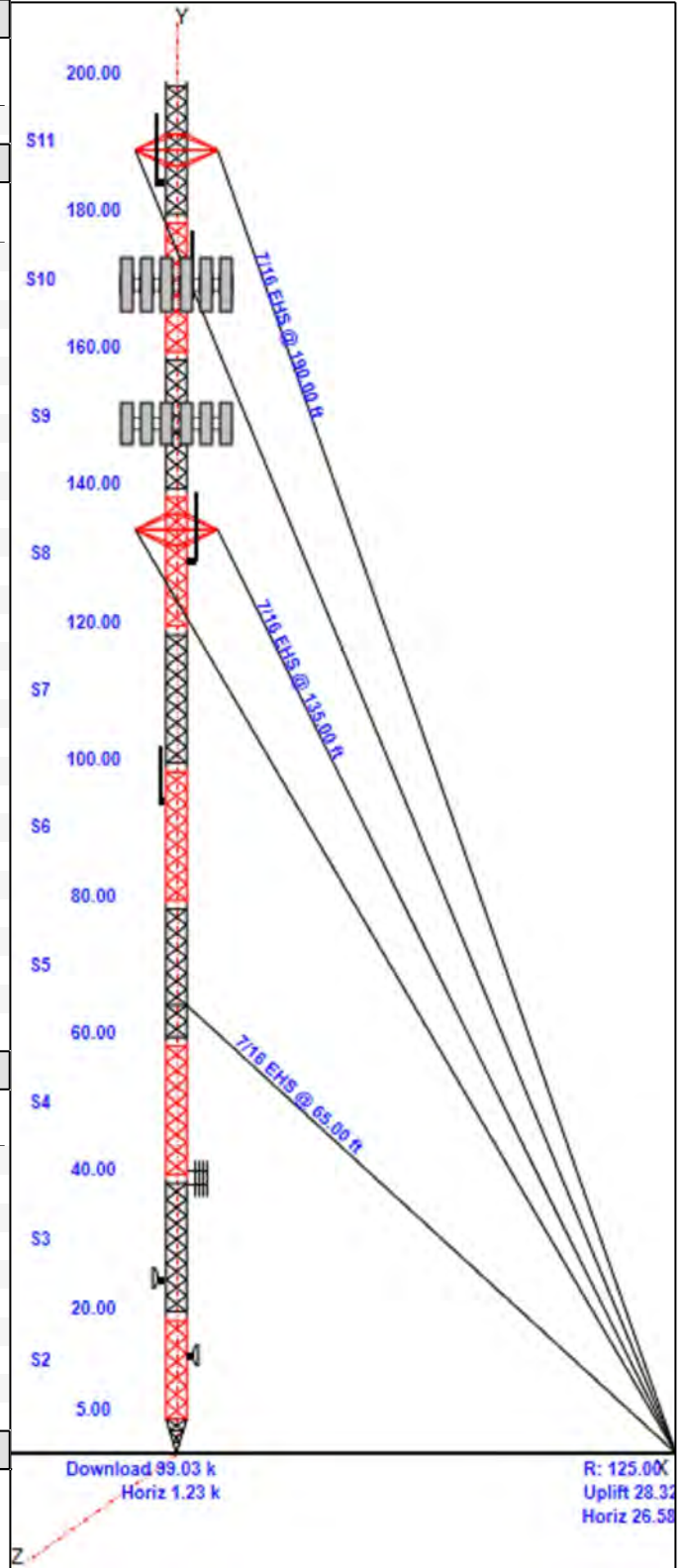
Attach Elev (ft)	Force Elev (ft)	Qty	Description
200.00	200.00	1	Beacon
190.00	190.00	1	Torque Arms
185.00	190.00	1	120" Omni
185.00	185.00	1	Side Arm
170.00	170.00	3	RFS APXVAALL24_43-U-NA20
170.00	170.00	3	Ericsson AIR6449 B41
170.00	170.00	3	Ericsson 4480 B71 + B85 RRU
170.00	170.00	6	ALU 800 MHz RRUs
170.00	170.00	1	(3) SitePro VFA12-HD Sector Frames
170.00	170.00	3	Ericsson 4460 B25 + B66 RRU
168.00	173.00	1	Decibel DB809
168.00	168.00	1	Side Arm
150.00	150.00	3	JMA Wireless MX08FRO665-21
150.00	150.00	3	Fujitsu TA08025-B604
150.00	150.00	3	Fujitsu TA08025-B605
150.00	150.00	1	Raycap RDIDC-9181-PF-48
150.00	150.00	1	Commscope MTC3975083
135.00	135.00	1	Torque Arms
130.00	135.00	1	Decibel DB809
130.00	130.00	1	Side Arm
95.00	99.00	1	ASPC680 (96")
95.00	95.00	1	Side Arm
41.00	41.00	1	Larsen YA2-540 (36")
39.00	39.00	1	Larsen YA2-540 (36")
25.00	25.00	1	36" Dish
25.00	25.00	1	Pipe Mount
14.00	14.00	1	36" Dish
14.00	14.00	1	Pipe Mount

### Linear Appurtenances

Elev From (ft)	Elev To (ft)	Qty	Description
3.00	185.00	1	7/8" Coax
3.00	170.00	3	1.9" Hybrid
3.00	168.00	1	7/8" Coax
3.00	150.00	1	1.6" Hybrid
3.00	130.00	2	1/4" Coax
3.00	95.00	1	1/2" Coax
3.00	41.00	1	7/8" Coax
3.00	39.00	1	3/8" Coax
3.00	25.00	2	1/4" Coax
3.00	14.00	1	7/8" Coax

### Max Guy Wire

70.67% @ 134.6665 ft - 7/16 EHS



# Structure: CT20001-A-SBA

**Site Name:** STERLING CT TOWER

**Code:** EIA/TIA-222-G

12/15/2021

**Type:** Guyed

**Base Shape:** Triangle

**Basic WS:** 105.00

**Height:** 200.00 (ft)

**Base Width:** 0.00

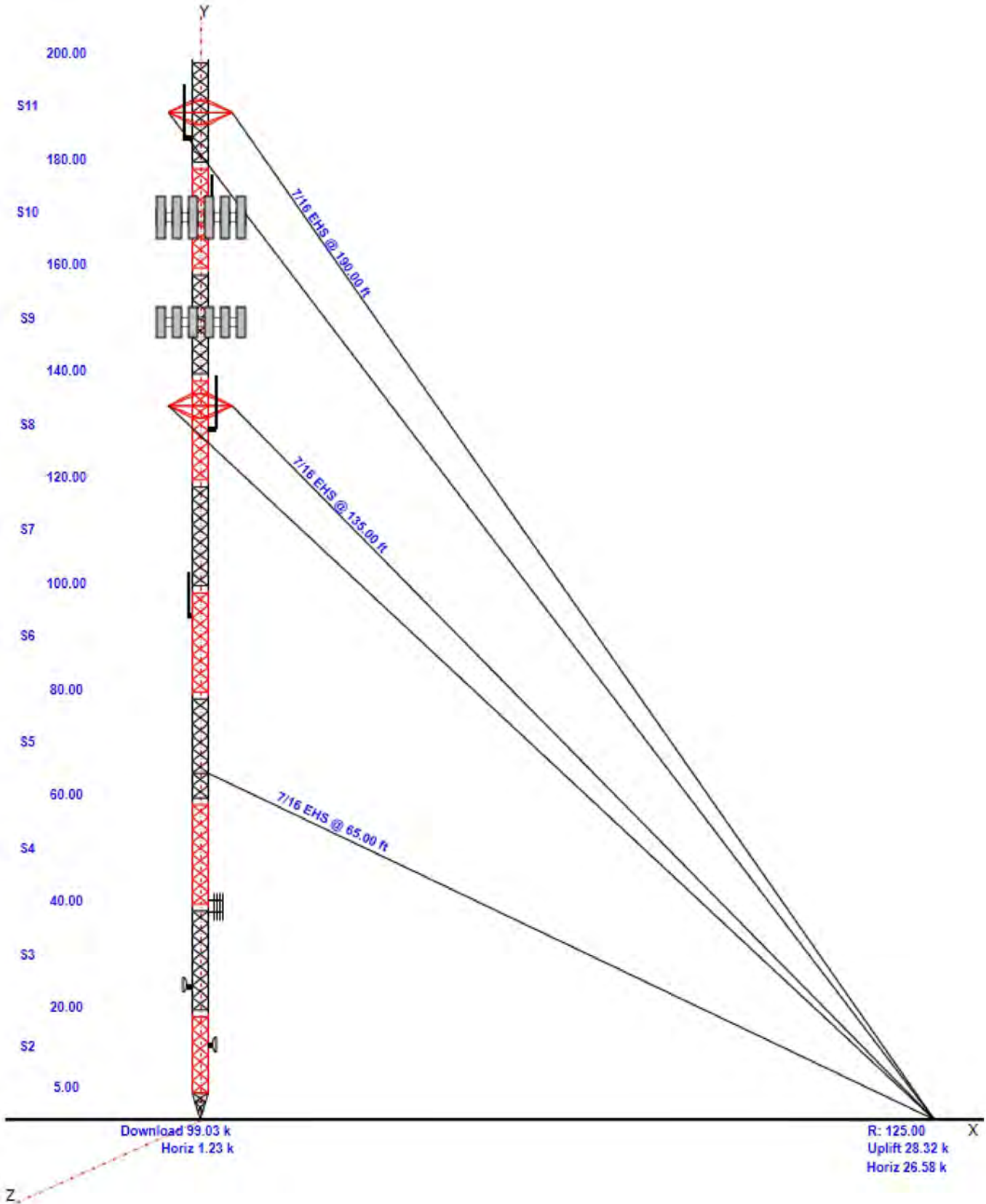
**Basic Ice WS:** 50.00

**Base Elev:** 0.00 (ft)

**Top Width:** 3.00

**Operational WS:** 60.00

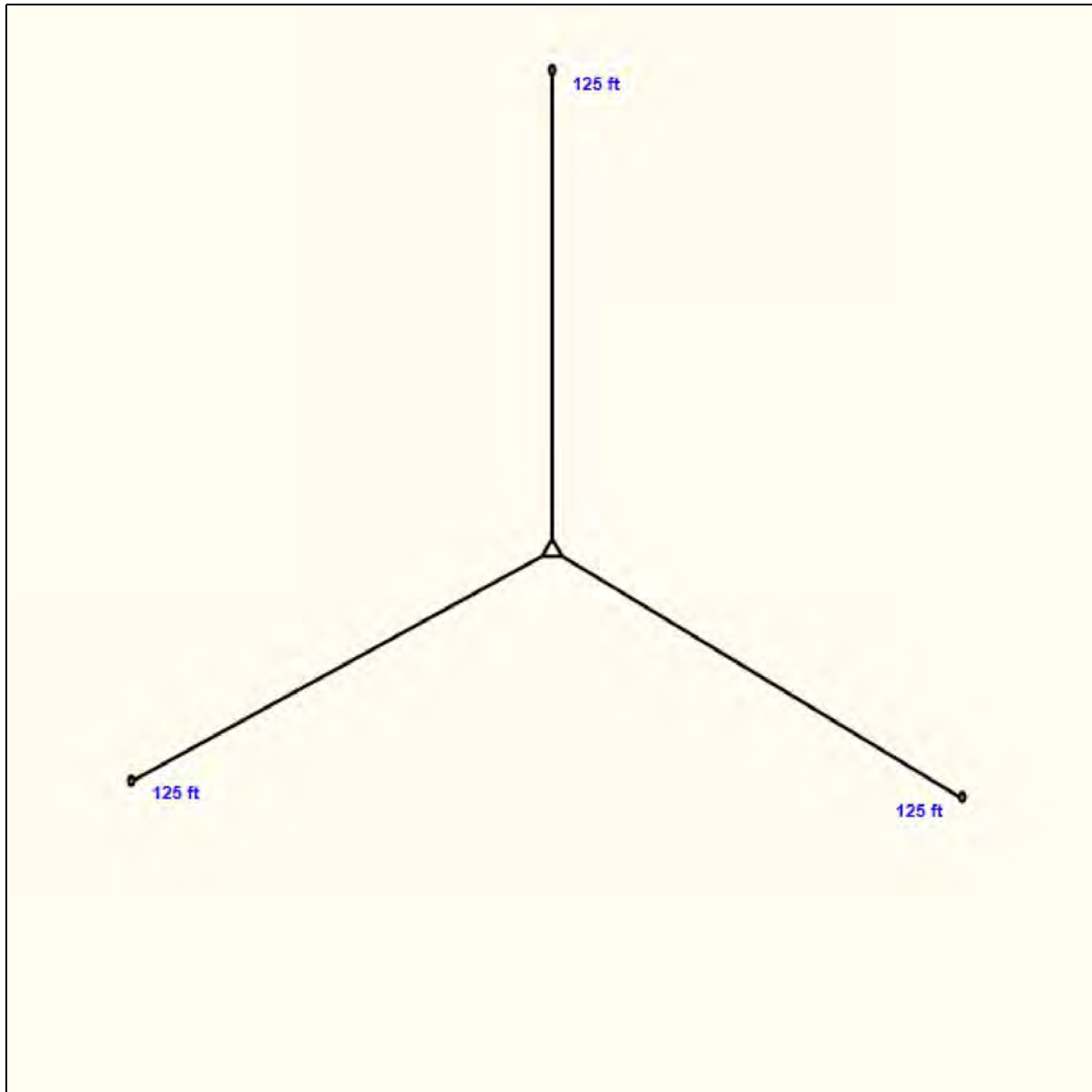
Page: 2



# Anchor Drops with Guy Radius - Structure: CT20001-A-SBA

<b>Site Name:</b> STERLING CT TOWER	<b>Code:</b> EIA/TIA-222-G	12/15/2021
<b>Type:</b> Guyed	<b>Base Shape:</b> Triangle	<b>Basic WS:</b> 105.00
<b>Height:</b> 200.00 (ft)	<b>Base Width:</b> 0.00	<b>Basic Ice WS:</b> 50.00
<b>Base Elev:</b> 0.00 (ft)	<b>Top Width:</b> 3.00	<b>Operational WS:</b> 60.00

Page: 3



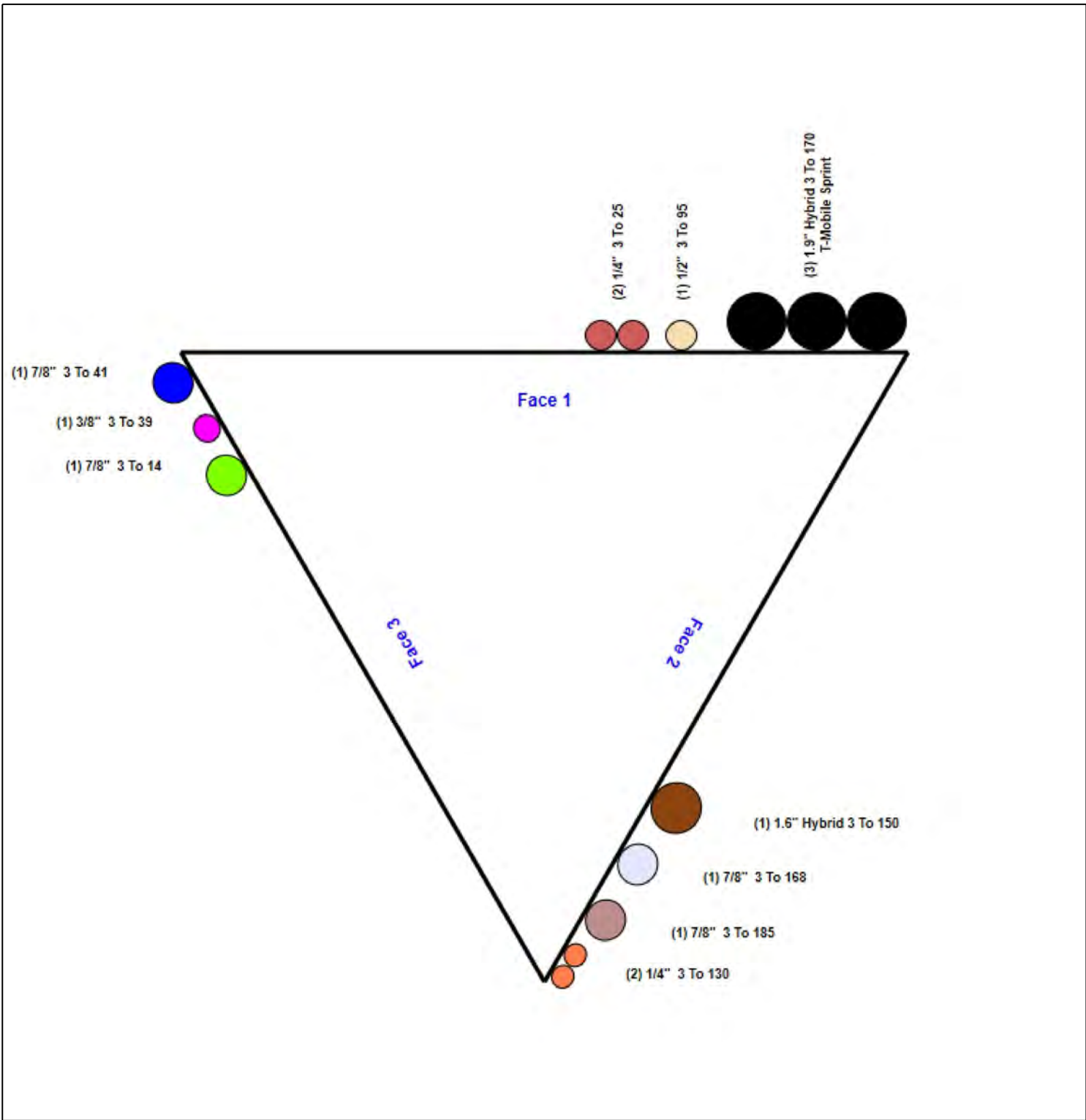
# Structure: CT20001-A-SBA - Coax Line Placement

Type: Guyed  
Site Name: STERLING CT TOWER  
Height: 200.00 (ft)

12/15/2021



Page: 4



## Loading Summary

<b>Structure:</b> CT20001-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/15/2021
<b>Site Name:</b> STERLING CT TOWER	<b>Exposure:</b> C	
<b>Height:</b> 200.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> C - Very Dense Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



Page: 5

### Discrete Appurtenances Properties

Attach Elev (ft)	Description	Qty	No Ice		Ice		Len (in)	Width (in)	Depth (in)	Ka	Orientation Factor	Vert Ecc (ft)
			Weight (lb)	CaAa (sf)	Weight (lb)	CaAa (sf)						
200.00	Beacon	1	15.00	2.400	32.87	2.400	0.000	0.000	0.000	1.00	1.00	0.000
190.00	Torque Arms	1	300.00	5.000	557.32	9.289	0.000	0.000	0.000	1.00	1.00	0.000
185.00	120" Omni	1	30.00	3.000	144.25	7.902	120.000	3.000	3.000	1.00	1.00	5.000
185.00	Side Arm	1	40.00	2.630	122.20	8.741	20.000	0.000	0.000	1.00	1.00	0.000
170.00	RFS APXVAALL24_43-U-NA20	3	128.00	20.240	561.77	22.165	95.900	24.000	8.500	0.80	0.72	0.000
170.00	Ericsson AIR6449 B41	3	103.00	5.650	241.85	6.612	33.100	20.500	8.300	0.80	0.71	0.000
170.00	Ericsson 4480 B71 + B85 RRU	3	93.00	2.850	165.84	3.533	21.800	15.700	7.500	0.80	0.67	0.000
170.00	ALU 800 MHz RRUs	6	61.80	2.910	153.67	4.142	19.700	13.000	15.200	0.80	0.67	0.000
170.00	(3) SitePro VFA12-HD Sector	1	2322.0	50.700	4619.92	115.21	0.000	0.000	0.000	0.75	1.00	0.000
170.00	Ericsson 4460 B25 + B66 RRU	3	109.00	2.850	181.81	3.533	21.800	15.700	7.500	0.80	0.67	0.000
168.00	Decibel DB809	1	30.00	3.000	122.42	6.652	120.000	3.000	3.000	1.00	1.00	5.000
168.00	Side Arm	1	40.00	2.630	121.29	8.674	10.000	0.000	0.000	1.00	1.00	0.000
150.00	JMA Wireless MX08FRO665-21	3	64.50	12.490	355.37	13.955	72.000	20.000	8.000	0.80	0.74	0.000
150.00	Fujitsu TA08025-B604	3	63.90	1.960	114.53	2.521	15.800	15.000	7.900	0.80	0.67	0.000
150.00	Fujitsu TA08025-B605	3	75.00	1.960	127.30	2.521	15.800	15.000	9.100	0.80	0.67	0.000
150.00	Raycap RDIDC-9181-PF-48	1	21.90	2.010	75.15	2.578	16.600	14.600	8.500	1.00	1.00	0.000
150.00	Commscope MTC3975083	1	1242.0	28.050	2455.83	63.296	0.000	0.000	0.000	0.75	1.00	0.000
135.00	Torque Arms	1	300.00	5.000	547.74	9.129	0.000	0.000	0.000	1.00	1.00	0.000
130.00	Decibel DB809	1	25.00	3.000	99.98	6.555	120.000	3.000	3.000	1.00	1.00	5.000
130.00	Side Arm	1	40.00	2.630	119.14	8.514	20.000	0.000	0.000	1.00	1.00	0.000
95.00	ASPC680 (96")	1	25.00	2.400	83.07	5.016	96.000	3.000	3.000	1.00	1.00	4.000
95.00	Side Arm	1	40.00	2.630	116.28	8.301	10.000	0.000	0.000	1.00	1.00	0.000
41.00	Larsen YA2-540 (36")	1	10.00	2.980	90.65	8.605	36.000	36.000	3.000	1.00	1.00	0.000
39.00	Larsen YA2-540 (36")	1	10.00	2.980	86.64	8.325	36.000	36.000	3.000	1.00	1.00	0.000
25.00	36" Dish	1	100.00	11.760	248.58	13.857	0.000	0.000	0.000	1.00	1.00	0.000
25.00	Pipe Mount	1	50.00	1.600	135.43	4.691	10.000	0.000	0.000	1.00	1.00	0.000
14.00	36" Dish	1	100.00	11.760	236.12	13.681	0.000	0.000	0.000	1.00	1.00	0.000
14.00	Pipe Mount	1	50.00	1.600	128.27	4.432	10.000	0.000	0.000	1.00	1.00	0.000
<b>Totals:</b>		<b>47</b>	<b>7,070.90</b>		<b>16,310.60</b>					<b>Number of Appurtenances : 28</b>		



## Loading Summary

<b>Structure:</b> CT20001-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/15/2021
<b>Site Name:</b> STERLING CT TOWER	<b>Exposure:</b> C	
<b>Height:</b> 200.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> C - Very Dense Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



Page: 6

### Linear Appurtenances Properties

Elev. From (ft)	Elev. To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	Pct In Block	Spread On Faces	Bundling Arrangement	Cluster Dia (in)	Out of Zone	Spacing (in)	Orientation Factor	Ka Override
3.00	185.00	7/8" Coax	1	1.11	0.52	100.00	2	Individual NR		N	1.00	1.00	
3.00	170.00	1.9" Hybrid	3	1.99	1.10	100.00	1	Individual IR		N	0.50	1.00	
3.00	168.00	7/8" Coax	1	1.11	0.52	100.00	2	Individual NR		N	1.00	1.00	
3.00	150.00	1.6" Hybrid	1	1.60	1.00	100.00	2	Individual NR		N	1.00	1.00	
3.00	130.00	1/4" Coax	2	0.25	0.04	100.00	2	Individual IR		N	0.25	1.00	
3.00	95.00	1/2" Coax	1	0.65	0.16	100.00	1	Individual NR		N	1.00	1.00	
3.00	41.00	7/8" Coax	1	1.11	0.52	100.00	3	Individual NR		N	1.00	1.00	
3.00	39.00	3/8" Coax	1	0.44	0.08	100.00	3	Individual NR		N	1.00	1.00	
3.00	25.00	1/4" Coax	2	0.65	0.16	100.00	1	Individual IR		N	0.25	1.00	
3.00	14.00	7/8" Coax	1	1.11	0.52	100.00	3	Individual NR		N	1.00	1.00	

## Section Forces

<b>Structure:</b> CT20001-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/15/2021
<b>Site Name:</b> STERLING CT TOWER	<b>Exposure:</b> C	
<b>Height:</b> 200.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> C - Very Dense Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



<b>Load Case:</b> 1.2D + 1.6W Normal Wind	1.2D + 1.6W 105 mph Wind at Normal To Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.20	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

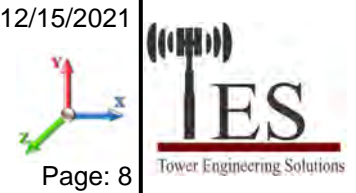
Sect Seq	Wind Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
												Linear Area (sqft)	Linear Area (sqft)						
1	2.5	20.39	0.000	2.51	0.00	0.31	2.28	1.00	1.00	0.00	1.55	2.48	0.00	262.4	0.0	97.98	49.59	147.57	
2	12.5	20.39	0.000	7.50	0.00	0.16	2.74	1.00	1.00	0.00	4.34	18.07	0.00	846.2	0.0	329.33	360.82	690.14	
3	30.0	23.56	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	21.32	0.00	1,101.2	0.0	500.84	491.99	992.82	
4	50.0	26.24	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	18.33	0.00	1,085.6	0.0	557.70	470.87	1,028.57	
5	70.0	28.17	0.000	10.06	0.00	0.16	2.74	1.00	1.00	0.00	5.82	18.23	0.00	1,107.1	0.0	609.34	502.88	1,112.23	
6	90.0	29.70	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	17.96	0.00	1,084.0	0.0	631.17	522.33	1,153.50	
7	110.0	30.98	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	17.15	0.00	1,081.1	0.0	658.40	520.22	1,178.63	
8	130.0	32.09	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	16.73	0.00	1,080.0	0.0	681.97	525.75	1,207.72	
9	150.0	33.07	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	14.98	0.00	1,067.0	0.0	702.83	485.17	1,188.00	
10	170.0	33.95	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	7.56	0.00	1,007.9	0.0	721.59	251.50	973.09	
11	190.0	34.76	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	0.46	0.00	953.9	0.0	738.69	15.74	754.43	
														<b>10,676.4</b>	<b>0.0</b>				<b>10,426.70</b>

<b>Load Case:</b> 1.2D + 1.6W 60° Wind	1.2D + 1.6W 105 mph Wind at 60° From Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.20	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
												Linear Area (sqft)	Linear Area (sqft)						
1	2.5	20.39	0.000	2.51	0.00	0.31	2.28	0.80	1.00	0.00	1.55	2.48	0.00	262.4	0.0	97.98	49.59	147.57	
2	12.5	20.39	0.000	7.50	0.00	0.16	2.74	0.80	1.00	0.00	4.34	18.07	0.00	846.2	0.0	329.33	360.82	690.14	
3	30.0	23.56	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	21.32	0.00	1,101.2	0.0	500.84	491.99	992.82	
4	50.0	26.24	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	18.33	0.00	1,085.6	0.0	557.70	470.87	1,028.57	
5	70.0	28.17	0.000	10.06	0.00	0.16	2.74	0.80	1.00	0.00	5.82	18.23	0.00	1,107.1	0.0	609.34	502.88	1,112.23	
6	90.0	29.70	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	17.96	0.00	1,084.0	0.0	631.17	522.33	1,153.50	
7	110.0	30.98	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	17.15	0.00	1,081.1	0.0	658.40	520.22	1,178.63	
8	130.0	32.09	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	16.73	0.00	1,080.0	0.0	681.97	525.75	1,207.72	
9	150.0	33.07	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	14.98	0.00	1,067.0	0.0	702.83	485.17	1,188.00	
10	170.0	33.95	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	7.56	0.00	1,007.9	0.0	721.59	251.50	973.09	
11	190.0	34.76	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	0.46	0.00	953.9	0.0	738.69	15.74	754.43	
														<b>10,676.4</b>	<b>0.0</b>				<b>10,426.70</b>

## Section Forces

<b>Structure:</b> CT20001-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/15/2021
<b>Site Name:</b> STERLING CT TOWER	<b>Exposure:</b> C	
<b>Height:</b> 200.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> C - Very Dense Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



Page: 8

<b>Load Case:</b> 1.2D + 1.6W 90° Wind	1.2D + 1.6W 105 mph Wind at 90° From Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.20	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
												Linear Area (sqft)	Linear Area (sqft)						
1	2.5	20.39	0.000	2.51	0.00	0.31	2.28	0.85	1.00	0.00	1.55	2.48	0.00	262.4	0.0	97.98	49.59	147.57	
2	12.5	20.39	0.000	7.50	0.00	0.16	2.74	0.85	1.00	0.00	4.34	18.07	0.00	846.2	0.0	329.33	360.82	690.14	
3	30.0	23.56	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	21.32	0.00	1,101.2	0.0	500.84	491.99	992.82	
4	50.0	26.24	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	18.33	0.00	1,085.6	0.0	557.70	470.87	1,028.57	
5	70.0	28.17	0.000	10.06	0.00	0.16	2.74	0.85	1.00	0.00	5.82	18.23	0.00	1,107.1	0.0	609.34	502.88	1,112.23	
6	90.0	29.70	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	17.96	0.00	1,084.0	0.0	631.17	522.33	1,153.50	
7	110.0	30.98	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	17.15	0.00	1,081.1	0.0	658.40	520.22	1,178.63	
8	130.0	32.09	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	16.73	0.00	1,080.0	0.0	681.97	525.75	1,207.72	
9	150.0	33.07	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	14.98	0.00	1,067.0	0.0	702.83	485.17	1,188.00	
10	170.0	33.95	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	7.56	0.00	1,007.9	0.0	721.59	251.50	973.09	
11	190.0	34.76	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	0.46	0.00	953.9	0.0	738.69	15.74	754.43	
														<b>10,676.4</b>	<b>0.0</b>				<b>10,426.70</b>

<b>Load Case:</b> 0.9D + 1.6W Normal Wind	0.9D + 1.6W 105 mph Wind at Normal To Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 0.90	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
												Linear Area (sqft)	Linear Area (sqft)						
1	2.5	20.39	0.000	2.51	0.00	0.31	2.28	1.00	1.00	0.00	1.55	2.48	0.00	196.8	0.0	97.98	49.59	147.57	
2	12.5	20.39	0.000	7.50	0.00	0.16	2.74	1.00	1.00	0.00	4.34	18.07	0.00	634.7	0.0	329.33	360.82	690.14	
3	30.0	23.56	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	21.32	0.00	825.9	0.0	500.84	491.99	992.82	
4	50.0	26.24	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	18.33	0.00	814.2	0.0	557.70	470.87	1,028.57	
5	70.0	28.17	0.000	10.06	0.00	0.16	2.74	1.00	1.00	0.00	5.82	18.23	0.00	830.3	0.0	609.34	502.88	1,112.23	
6	90.0	29.70	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	17.96	0.00	813.0	0.0	631.17	522.33	1,153.50	
7	110.0	30.98	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	17.15	0.00	810.8	0.0	658.40	520.22	1,178.63	
8	130.0	32.09	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	16.73	0.00	810.0	0.0	681.97	525.75	1,207.72	
9	150.0	33.07	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	14.98	0.00	800.2	0.0	702.83	485.17	1,188.00	
10	170.0	33.95	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	7.56	0.00	755.9	0.0	721.59	251.50	973.09	
11	190.0	34.76	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	0.46	0.00	715.4	0.0	738.69	15.74	754.43	
														<b>8,007.3</b>	<b>0.0</b>				<b>10,426.70</b>

## Section Forces

<b>Structure:</b> CT20001-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/15/2021
<b>Site Name:</b> STERLING CT TOWER	<b>Exposure:</b> C	
<b>Height:</b> 200.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> C - Very Dense Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



Page: 9

<b>Load Case:</b> 0.9D + 1.6W 60° Wind	0.9D + 1.6W 105 mph Wind at 60° From Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 0.90	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
												Linear Area (sqft)	Linear Area (sqft)						
1	2.5	20.39	0.000	2.51	0.00	0.31	2.28	0.80	1.00	0.00	1.55	2.48	0.00	196.8	0.0	97.98	49.59	147.57	
2	12.5	20.39	0.000	7.50	0.00	0.16	2.74	0.80	1.00	0.00	4.34	18.07	0.00	634.7	0.0	329.33	360.82	690.14	
3	30.0	23.56	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	21.32	0.00	825.9	0.0	500.84	491.99	992.82	
4	50.0	26.24	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	18.33	0.00	814.2	0.0	557.70	470.87	1,028.57	
5	70.0	28.17	0.000	10.06	0.00	0.16	2.74	0.80	1.00	0.00	5.82	18.23	0.00	830.3	0.0	609.34	502.88	1,112.23	
6	90.0	29.70	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	17.96	0.00	813.0	0.0	631.17	522.33	1,153.50	
7	110.0	30.98	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	17.15	0.00	810.8	0.0	658.40	520.22	1,178.63	
8	130.0	32.09	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	16.73	0.00	810.0	0.0	681.97	525.75	1,207.72	
9	150.0	33.07	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	14.98	0.00	800.2	0.0	702.83	485.17	1,188.00	
10	170.0	33.95	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	7.56	0.00	755.9	0.0	721.59	251.50	973.09	
11	190.0	34.76	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	0.46	0.00	715.4	0.0	738.69	15.74	754.43	
														<b>8,007.3</b>	<b>0.0</b>				<b>10,426.70</b>

<b>Load Case:</b> 0.9D + 1.6W 90° Wind	0.9D + 1.6W 105 mph Wind at 90° From Face
<b>Wind Load Factor:</b> 1.60	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 0.90	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
												Linear Area (sqft)	Linear Area (sqft)						
1	2.5	20.39	0.000	2.51	0.00	0.31	2.28	0.85	1.00	0.00	1.55	2.48	0.00	196.8	0.0	97.98	49.59	147.57	
2	12.5	20.39	0.000	7.50	0.00	0.16	2.74	0.85	1.00	0.00	4.34	18.07	0.00	634.7	0.0	329.33	360.82	690.14	
3	30.0	23.56	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	21.32	0.00	825.9	0.0	500.84	491.99	992.82	
4	50.0	26.24	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	18.33	0.00	814.2	0.0	557.70	470.87	1,028.57	
5	70.0	28.17	0.000	10.06	0.00	0.16	2.74	0.85	1.00	0.00	5.82	18.23	0.00	830.3	0.0	609.34	502.88	1,112.23	
6	90.0	29.70	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	17.96	0.00	813.0	0.0	631.17	522.33	1,153.50	
7	110.0	30.98	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	17.15	0.00	810.8	0.0	658.40	520.22	1,178.63	
8	130.0	32.09	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	16.73	0.00	810.0	0.0	681.97	525.75	1,207.72	
9	150.0	33.07	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	14.98	0.00	800.2	0.0	702.83	485.17	1,188.00	
10	170.0	33.95	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	7.56	0.00	755.9	0.0	721.59	251.50	973.09	
11	190.0	34.76	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	0.46	0.00	715.4	0.0	738.69	15.74	754.43	
														<b>8,007.3</b>	<b>0.0</b>				<b>10,426.70</b>

## Section Forces

<b>Structure:</b> CT20001-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/15/2021
<b>Site Name:</b> STERLING CT TOWER	<b>Exposure:</b> C	
<b>Height:</b> 200.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> C - Very Dense Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II
		Page: 10



<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi Normal Wind	1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face
<b>Wind Load Factor:</b> 1.00	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.20	
<b>Ice Dead Load Factor:</b> 1.00	<b>Ice Importance Factor:</b> 1.00

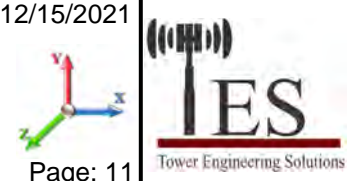
Sect Seq	Wind Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
												Linear Area (sqft)	Linear Area (sqft)						
1	2.5	4.62	0.000	7.76	5.24	0.84	1.85	1.00	1.00	1.16	7.19	3.89	2.70	543.5	281.1	52.44	5.36	57.80	
2	12.5	4.62	0.000	26.11	18.61	0.52	1.88	1.00	1.00	1.36	18.20	30.15	22.46	2,369.7	1523.5	134.49	132.54	267.03	
3	30.0	5.34	0.000	36.29	26.45	0.53	1.86	1.00	1.00	1.49	25.68	34.65	29.47	3,239.8	2138.6	216.81	178.22	395.04	
4	50.0	5.95	0.000	37.68	27.84	0.55	1.84	1.00	1.00	1.56	27.06	30.83	21.11	3,196.5	2110.9	251.90	156.69	408.58	
5	70.0	6.39	0.000	39.66	29.60	0.58	1.82	1.00	1.00	1.62	29.14	31.10	21.56	3,369.4	2262.3	287.46	160.03	447.49	
6	90.0	6.73	0.000	39.36	29.52	0.58	1.82	1.00	1.00	1.66	28.79	31.10	20.73	3,366.8	2282.8	300.15	168.70	468.86	
7	110.0	7.02	0.000	39.96	30.12	0.58	1.82	1.00	1.00	1.69	29.42	30.51	16.92	3,363.7	2282.6	318.89	159.78	478.67	
8	130.0	7.28	0.000	40.47	30.63	0.59	1.81	1.00	1.00	1.72	29.95	27.21	17.20	3,362.9	2282.9	335.48	151.18	486.66	
9	150.0	7.50	0.000	40.91	31.07	0.60	1.81	1.00	1.00	1.75	30.43	22.47	14.54	3,268.6	2201.6	350.45	128.08	478.52	
10	170.0	7.70	0.000	41.30	31.46	0.60	1.80	1.00	1.00	1.77	30.85	11.34	8.25	2,916.1	1908.2	364.14	68.36	432.51	
11	190.0	7.88	0.000	41.66	31.81	0.60	1.80	1.00	1.00	1.79	31.23	0.46	1.49	2,559.0	1605.0	376.82	6.20	383.02	
														<b>31,556.0</b>	<b>20879.6</b>				<b>4,304.18</b>

<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi 60° Wind	1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face
<b>Wind Load Factor:</b> 1.00	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.20	
<b>Ice Dead Load Factor:</b> 1.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
												Linear Area (sqft)	Linear Area (sqft)						
1	2.5	4.62	0.000	7.76	5.24	0.84	1.85	0.80	1.00	1.16	7.19	3.89	2.70	543.5	281.1	52.44	5.36	57.80	
2	12.5	4.62	0.000	26.11	18.61	0.52	1.88	0.80	1.00	1.36	18.20	30.15	22.46	2,369.7	1523.5	134.49	132.54	267.03	
3	30.0	5.34	0.000	36.29	26.45	0.53	1.86	0.80	1.00	1.49	25.68	34.65	29.47	3,239.8	2138.6	216.81	178.22	395.04	
4	50.0	5.95	0.000	37.68	27.84	0.55	1.84	0.80	1.00	1.56	27.06	30.83	21.11	3,196.5	2110.9	251.90	156.69	408.58	
5	70.0	6.39	0.000	39.66	29.60	0.58	1.82	0.80	1.00	1.62	29.14	31.10	21.56	3,369.4	2262.3	287.46	160.03	447.49	
6	90.0	6.73	0.000	39.36	29.52	0.58	1.82	0.80	1.00	1.66	28.79	31.10	20.73	3,366.8	2282.8	300.15	168.70	468.86	
7	110.0	7.02	0.000	39.96	30.12	0.58	1.82	0.80	1.00	1.69	29.42	30.51	16.92	3,363.7	2282.6	318.89	159.78	478.67	
8	130.0	7.28	0.000	40.47	30.63	0.59	1.81	0.80	1.00	1.72	29.95	27.21	17.20	3,362.9	2282.9	335.48	151.18	486.66	
9	150.0	7.50	0.000	40.91	31.07	0.60	1.81	0.80	1.00	1.75	30.43	22.47	14.54	3,268.6	2201.6	350.45	128.08	478.52	
10	170.0	7.70	0.000	41.30	31.46	0.60	1.80	0.80	1.00	1.77	30.85	11.34	8.25	2,916.1	1908.2	364.14	68.36	432.51	
11	190.0	7.88	0.000	41.66	31.81	0.60	1.80	0.80	1.00	1.79	31.23	0.46	1.49	2,559.0	1605.0	376.82	6.20	383.02	
														<b>31,556.0</b>	<b>20879.6</b>				<b>4,304.18</b>

## Section Forces

<b>Structure:</b> CT20001-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/15/2021
<b>Site Name:</b> STERLING CT TOWER	<b>Exposure:</b> C	
<b>Height:</b> 200.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> C - Very Dense Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II
		Page: 11



<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi 90° Wind	1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face
<b>Wind Load Factor:</b> 1.00	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.20	
<b>Ice Dead Load Factor:</b> 1.00	<b>Ice Importance Factor:</b> 1.00

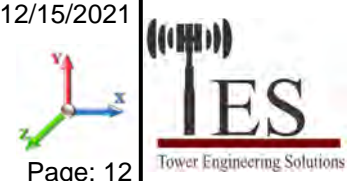
Sect Seq	Wind Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
												Linear Area (sqft)	Linear Area (sqft)					
1	2.5	4.62	0.000	7.76	5.24	0.84	1.85	0.85	1.00	1.16	7.19	3.89	2.70	543.5	281.1	52.44	5.36	57.80
2	12.5	4.62	0.000	26.11	18.61	0.52	1.88	0.85	1.00	1.36	18.20	30.15	22.46	2,369.7	1523.5	134.49	132.54	267.03
3	30.0	5.34	0.000	36.29	26.45	0.53	1.86	0.85	1.00	1.49	25.68	34.65	29.47	3,239.8	2138.6	216.81	178.22	395.04
4	50.0	5.95	0.000	37.68	27.84	0.55	1.84	0.85	1.00	1.56	27.06	30.83	21.11	3,196.5	2110.9	251.90	156.69	408.58
5	70.0	6.39	0.000	39.66	29.60	0.58	1.82	0.85	1.00	1.62	29.14	31.10	21.56	3,369.4	2262.3	287.46	160.03	447.49
6	90.0	6.73	0.000	39.36	29.52	0.58	1.82	0.85	1.00	1.66	28.79	31.10	20.73	3,366.8	2282.8	300.15	168.70	468.86
7	110.0	7.02	0.000	39.96	30.12	0.58	1.82	0.85	1.00	1.69	29.42	30.51	16.92	3,363.7	2282.6	318.89	159.78	478.67
8	130.0	7.28	0.000	40.47	30.63	0.59	1.81	0.85	1.00	1.72	29.95	27.21	17.20	3,362.9	2282.9	335.48	151.18	486.66
9	150.0	7.50	0.000	40.91	31.07	0.60	1.81	0.85	1.00	1.75	30.43	22.47	14.54	3,268.6	2201.6	350.45	128.08	478.52
10	170.0	7.70	0.000	41.30	31.46	0.60	1.80	0.85	1.00	1.77	30.85	11.34	8.25	2,916.1	1908.2	364.14	68.36	432.51
11	190.0	7.88	0.000	41.66	31.81	0.60	1.80	0.85	1.00	1.79	31.23	0.46	1.49	2,559.0	1605.0	376.82	6.20	383.02
														<b>31,556.0</b>	<b>20879.6</b>			<b>4,304.18</b>

<b>Load Case:</b> 1.0D + 1.0W Normal Wind	1.0D + 1.0W 60 mph Wind at Normal To Face
<b>Wind Load Factor:</b> 1.00	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.00	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
												Linear Area (sqft)	Linear Area (sqft)					
1	2.5	6.66	0.000	2.51	0.00	0.31	2.28	1.00	1.00	0.00	1.55	2.48	0.00	218.7	0.0	20.00	10.12	30.12
2	12.5	6.66	0.000	7.50	0.00	0.16	2.74	1.00	1.00	0.00	4.34	18.07	0.00	705.2	0.0	67.21	73.64	140.85
3	30.0	7.69	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	21.32	0.00	917.7	0.0	102.21	100.41	202.62
4	50.0	8.57	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	18.33	0.00	904.7	0.0	113.82	96.10	209.91
5	70.0	9.20	0.000	10.06	0.00	0.16	2.74	1.00	1.00	0.00	5.82	18.23	0.00	922.6	0.0	124.36	102.63	226.99
6	90.0	9.70	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	17.96	0.00	903.3	0.0	128.81	106.60	235.41
7	110.0	10.12	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	17.15	0.00	900.9	0.0	134.37	106.17	240.54
8	130.0	10.48	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	16.73	0.00	900.0	0.0	139.18	107.30	246.47
9	150.0	10.80	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	14.98	0.00	889.1	0.0	143.43	99.01	242.45
10	170.0	11.09	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	7.56	0.00	839.9	0.0	147.26	51.33	198.59
11	190.0	11.35	0.000	9.84	0.00	0.16	2.75	1.00	1.00	0.00	5.69	0.46	0.00	794.9	0.0	150.75	3.21	153.97
														<b>8,897.0</b>	<b>0.0</b>			<b>2,127.90</b>

## Section Forces

<b>Structure:</b> CT20001-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/15/2021
<b>Site Name:</b> STERLING CT TOWER	<b>Exposure:</b> C	
<b>Height:</b> 200.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> C - Very Dense Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II
		Page: 12



<b>Load Case:</b> 1.0D + 1.0W 60° Wind	1.0D + 1.0W 60 mph Wind at 60° From Face
<b>Wind Load Factor:</b> 1.00	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.00	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
												Linear Area (sqft)	Linear Area (sqft)						
1	2.5	6.66	0.000	2.51	0.00	0.31	2.28	0.80	1.00	0.00	1.55	2.48	0.00	218.7	0.0	20.00	10.12	30.12	
2	12.5	6.66	0.000	7.50	0.00	0.16	2.74	0.80	1.00	0.00	4.34	18.07	0.00	705.2	0.0	67.21	73.64	140.85	
3	30.0	7.69	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	21.32	0.00	917.7	0.0	102.21	100.41	202.62	
4	50.0	8.57	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	18.33	0.00	904.7	0.0	113.82	96.10	209.91	
5	70.0	9.20	0.000	10.06	0.00	0.16	2.74	0.80	1.00	0.00	5.82	18.23	0.00	922.6	0.0	124.36	102.63	226.99	
6	90.0	9.70	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	17.96	0.00	903.3	0.0	128.81	106.60	235.41	
7	110.0	10.12	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	17.15	0.00	900.9	0.0	134.37	106.17	240.54	
8	130.0	10.48	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	16.73	0.00	900.0	0.0	139.18	107.30	246.47	
9	150.0	10.80	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	14.98	0.00	889.1	0.0	143.43	99.01	242.45	
10	170.0	11.09	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	7.56	0.00	839.9	0.0	147.26	51.33	198.59	
11	190.0	11.35	0.000	9.84	0.00	0.16	2.75	0.80	1.00	0.00	5.69	0.46	0.00	794.9	0.0	150.75	3.21	153.97	
														<b>8,897.0</b>	<b>0.0</b>				<b>2,127.90</b>

<b>Load Case:</b> 1.0D + 1.0W 90° Wind	1.0D + 1.0W 60 mph Wind at 90° From Face
<b>Wind Load Factor:</b> 1.00	<b>Wind Importance Factor:</b> 1.00
<b>Dead Load Factor:</b> 1.00	
<b>Ice Dead Load Factor:</b> 0.00	<b>Ice Importance Factor:</b> 1.00

Sect Seq	Wind Height (ft)	Wind qz (psf)	Total Flat Area (sqft)	Total Round Area (sqft)	Ice Round Area (sqft)	Sol Ratio	Cf	Df	Dr	Ice Thick (in)	Eff Area (sqft)	Ice		Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)	
												Linear Area (sqft)	Linear Area (sqft)						
1	2.5	6.66	0.000	2.51	0.00	0.31	2.28	0.85	1.00	0.00	1.55	2.48	0.00	218.7	0.0	20.00	10.12	30.12	
2	12.5	6.66	0.000	7.50	0.00	0.16	2.74	0.85	1.00	0.00	4.34	18.07	0.00	705.2	0.0	67.21	73.64	140.85	
3	30.0	7.69	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	21.32	0.00	917.7	0.0	102.21	100.41	202.62	
4	50.0	8.57	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	18.33	0.00	904.7	0.0	113.82	96.10	209.91	
5	70.0	9.20	0.000	10.06	0.00	0.16	2.74	0.85	1.00	0.00	5.82	18.23	0.00	922.6	0.0	124.36	102.63	226.99	
6	90.0	9.70	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	17.96	0.00	903.3	0.0	128.81	106.60	235.41	
7	110.0	10.12	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	17.15	0.00	900.9	0.0	134.37	106.17	240.54	
8	130.0	10.48	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	16.73	0.00	900.0	0.0	139.18	107.30	246.47	
9	150.0	10.80	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	14.98	0.00	889.1	0.0	143.43	99.01	242.45	
10	170.0	11.09	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	7.56	0.00	839.9	0.0	147.26	51.33	198.59	
11	190.0	11.35	0.000	9.84	0.00	0.16	2.75	0.85	1.00	0.00	5.69	0.46	0.00	794.9	0.0	150.75	3.21	153.97	
														<b>8,897.0</b>	<b>0.0</b>				<b>2,127.90</b>

## Force/Stress Compression Summary

<b>Structure:</b> CT20001-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/15/2021
<b>Site Name:</b> STERLING CT TOWER	<b>Exposure:</b> C	
<b>Height:</b> 200.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> C - Very Dense Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



### LEG MEMBERS

Sect	Top Elev	Member	Force (kips)		Load Case	Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls	
			X	Y			Z	KL/R						
1	5	SOL - 1 3/4" SOLID	-36.22	1.2D + 1.0Di + 1.0Wi	60° Wind	1.76	100	100	100	48.38	50.00	91.21	39.7	Member X
2	20	SOL - 1 3/4" SOLID	-35.93	1.2D + 1.0Di + 1.0Wi	60° Wind	2.39	100	100	100	65.52	50.00	79.08	45.4	Member X
3	40	SOL - 1 3/4" SOLID	-36.10	1.2D + 1.0Di + 1.0Wi	60° Wind	2.33	100	100	100	64.00	50.00	80.23	45.0	Member X
4	60	SOL - 1 3/4" SOLID	-33.44	1.2D + 1.0Di + 1.0Wi	60° Wind	2.33	100	100	100	64.00	50.00	80.23	41.7	Member X
5	80	SOL - 1 3/4" SOLID	-37.21	1.2D + 1.6W	Normal Wind	2.33	100	100	100	64.00	50.00	80.23	46.4	Member X
6	100	SOL - 1 3/4" SOLID	-29.40	1.2D + 1.0Di + 1.0Wi	90° Wind	2.33	100	100	100	64.00	50.00	80.23	36.7	Member X
7	120	SOL - 1 3/4" SOLID	-29.15	1.2D + 1.0Di + 1.0Wi	90° Wind	2.33	100	100	100	64.00	50.00	80.23	36.3	Member X
8	140	SOL - 1 3/4" SOLID	-26.66	1.2D + 1.0Di + 1.0Wi	Normal	2.33	100	100	100	64.00	50.00	80.23	33.2	Member X
9	160	SOL - 1 3/4" SOLID	-33.75	1.2D + 1.6W	60° Wind	2.33	100	100	100	64.00	50.00	80.23	42.1	Member X
10	180	SOL - 1 3/4" SOLID	-44.04	1.2D + 1.6W	60° Wind	2.33	100	100	100	64.00	50.00	80.23	54.9	Member X
11	200	SOL - 1 3/4" SOLID	-28.73	1.2D + 1.6W	60° Wind	2.33	100	100	100	64.00	50.00	80.23	35.8	Member X

### HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)		Load Case	Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls	
			X	Y			Z	KL/R										
1	5									0.00	0	0						
2	20	SOL - 3/4" SOLID	-0.08	0.9D + 1.6W	60° Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			1	Member X
3	40	SOL - 3/4" SOLID	-0.17	0.9D + 1.6W	Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			3	Member X
4	60	SOL - 3/4" SOLID	-0.59	1.2D + 1.6W	Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			11	Member X
5	80	SOL - 3/4" SOLID	-0.53	1.2D + 1.6W	60° Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			10	Member X
6	100	SOL - 3/4" SOLID	-0.41	0.9D + 1.6W	Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			7	Member X
7	120	SOL - 3/4" SOLID	-0.06	0.9D + 1.6W	Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			1	Member X
8	140	SOL - 3/4" SOLID	-0.89	0.9D + 1.6W	60° Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			16	Member X
9	160	SOL - 3/4" SOLID	-1.59	1.2D + 1.6W	Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			29	Member X
10	180	SOL - 3/4" SOLID	-0.67	1.2D + 1.6W	Normal Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			12	Member X
11	200	SOL - 3/4" SOLID	-0.91	1.2D + 1.6W	60° Wind	3.00	100	100	100	134.40	50.00	5.53	0	0			16	Member X

### DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)		Load Case	Len (ft)	Bracing %			Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls	
			X	Y			Z	KL/R										
1	5	SOL - 3/4" SOLID	-2.70	1.2D + 1.0Di + 1.0Wi	90° Wind	2.26	50	50	50	65.11	50.00	14.58	0	0			19	Member X
2	20	SOL - 3/4" SOLID	-0.65	1.2D + 1.6W	60° Wind	3.83	50	50	50	110.45	50.00	8.15	0	0			8	Member X
3	40	SOL - 3/4" SOLID	-0.94	1.2D + 1.6W	Normal Wind	3.80	50	50	50	109.46	50.00	8.28	0	0			11	Member X
4	60	SOL - 3/4" SOLID	-1.53	1.2D + 1.6W	Normal Wind	3.80	50	50	50	109.46	50.00	8.28	0	0			18	Member X
5	80	SOL - 3/4" SOLID	-1.60	1.2D + 1.6W	90° Wind	3.80	50	50	50	109.46	50.00	8.28	0	0			19	Member X
6	100	SOL - 3/4" SOLID	-1.19	1.2D + 1.6W	90° Wind	3.80	50	50	50	109.46	50.00	8.28	0	0			14	Member X
7	120	SOL - 3/4" SOLID	-0.63	1.2D + 1.6W	60° Wind	3.80	50	50	50	109.46	50.00	8.28	0	0			8	Member X
8	140	SOL - 3/4" SOLID	-4.21	1.2D + 1.6W	90° Wind	3.80	50	50	50	109.46	50.00	8.28	0	0			51	Member X
9	160	SOL - 3/4" SOLID	-3.59	1.2D + 1.6W	90° Wind	3.80	50	50	50	109.46	50.00	8.28	0	0			43	Member X
10	180	SOL - 3/4" SOLID	-2.15	1.2D + 1.6W	90° Wind	3.80	50	50	50	109.46	50.00	8.28	0	0			26	Member X
11	200	SOL - 3/4" SOLID	-2.86	1.2D + 1.6W	90° Wind	3.80	50	50	50	109.46	50.00	8.28	0	0			35	Member X



## Force/Stress Tension Summary

<b>Structure:</b> CT20001-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/15/2021
<b>Site Name:</b> STERLING CT TOWER	<b>Exposure:</b> C	
<b>Height:</b> 200.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> C - Very Dense Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



### LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	5				0	0.00		
2	20				0	0.00		
3	40				0	0.00		
4	60				0	0.00		
5	80				0	0.00		
6	100				0	0.00		
7	120				0	0.00		
8	140	SOL - 1 3/4" SOLID	3.62	0.9D + 1.6W 60° Wind	50	108.24	3.3	Member
9	160	SOL - 1 3/4" SOLID	18.72	0.9D + 1.6W Normal Wind	50	108.24	17.3	Member
10	180	SOL - 1 3/4" SOLID	27.30	0.9D + 1.6W Normal Wind	50	108.24	25.2	Member
11	200	SOL - 1 3/4" SOLID	15.71	0.9D + 1.6W Normal Wind	50	108.24	14.5	Member

### HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	5	SOL - 3/4" SOLID	3.46	1.2D + 1.0Di + 1.0Wi 9C	50	19.88	0	0				17.4	Member
2	20	SOL - 3/4" SOLID	3.46	1.2D + 1.0Di + 1.0Wi 9C	50	19.88	0	0				17.4	Member
3	40	SOL - 3/4" SOLID	0.42	1.2D + 1.6W 60° Wind	50	19.88	0	0				2.1	Member
4	60	SOL - 3/4" SOLID	0.78	1.2D + 1.6W 60° Wind	50	19.88	0	0				3.9	Member
5	80	SOL - 3/4" SOLID	0.89	1.2D + 1.6W Normal Wi	50	19.88	0	0				4.5	Member
6	100	SOL - 3/4" SOLID	0.56	1.2D + 1.6W 60° Wind	50	19.88	0	0				2.8	Member
7	120	SOL - 3/4" SOLID	0.35	1.2D + 1.6W 60° Wind	50	19.88	0	0				1.7	Member
8	140	SOL - 3/4" SOLID	1.63	1.2D + 1.6W Normal Wi	50	19.88	0	0				8.2	Member
9	160	SOL - 3/4" SOLID	1.79	1.2D + 1.6W 60° Wind	50	19.88	0	0				9.0	Member
10	180	SOL - 3/4" SOLID	0.77	1.2D + 1.6W 60° Wind	50	19.88	0	0				3.9	Member
11	200	SOL - 3/4" SOLID	1.26	1.2D + 1.6W Normal Wi	50	19.88	0	0				6.3	Member

### DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	5	SOL - 3/4" SOLID	0.00		50	0.00	0	0					
2	20	SOL - 3/4" SOLID	0.63	1.2D + 1.6W 90° Wind	50	19.88	0	0				3.2	Member
3	40	SOL - 3/4" SOLID	0.54	0.9D + 1.6W Normal Wi	50	19.88	0	0				2.7	Member
4	60	SOL - 3/4" SOLID	1.15	1.2D + 1.6W 60° Wind	50	19.88	0	0				5.8	Member
5	80	SOL - 3/4" SOLID	1.25	1.2D + 1.6W Normal Wi	50	19.88	0	0				6.3	Member
6	100	SOL - 3/4" SOLID	0.92	0.9D + 1.6W 90° Wind	50	19.88	0	0				4.6	Member
7	120	SOL - 3/4" SOLID	0.47	0.9D + 1.6W 60° Wind	50	19.88	0	0				2.4	Member
8	140	SOL - 3/4" SOLID	3.41	0.9D + 1.6W 90° Wind	50	19.88	0	0				17.1	Member
9	160	SOL - 3/4" SOLID	3.50	1.2D + 1.6W 90° Wind	50	19.88	0	0				17.6	Member
10	180	SOL - 3/4" SOLID	1.87	1.2D + 1.6W 90° Wind	50	19.88	0	0				9.4	Member
11	200	SOL - 3/4" SOLID	2.28	1.2D + 1.6W 90° Wind	50	19.88	0	0				11.5	Member

## Support Forces Summary

<b>Structure:</b> CT20001-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/15/2021
<b>Site Name:</b> STERLING CT TOWER	<b>Exposure:</b> C	
<b>Height:</b> 200.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> C - Very Dense Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



Page: 15

Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
-----					
1.2D + 1.6W Normal Wind	1	0.00	71.17	-0.89	
	A1	0.00	-2.39	1.21	
	A1b	19.01	-24.17	-12.01	
	A1a	-19.01	-24.17	-12.01	
-----					
1.2D + 1.6W 60° Wind	1	-1.04	61.60	-0.60	
	A1	-0.75	-6.58	5.29	
	A1b	4.20	-6.60	-3.29	
	A1a	-22.95	-28.29	-13.25	
-----					
1.2D + 1.6W 90° Wind	1	-1.03	67.65	-0.15	
	A1	-1.00	-15.80	14.34	
	A1b	1.59	-3.24	-1.34	
	A1a	-23.27	-28.32	-12.85	
-----					
0.9D + 1.6W Normal Wind	1	0.00	66.34	-0.93	
	A1	0.00	-2.40	1.22	
	A1b	18.99	-24.14	-11.99	
	A1a	-18.99	-24.14	-11.99	
-----					
0.9D + 1.6W 60° Wind	1	-1.06	56.88	-0.61	
	A1	-0.75	-6.61	5.31	
	A1b	4.22	-6.63	-3.30	
	A1a	-22.95	-28.30	-13.25	
-----					
0.9D + 1.6W 90° Wind	1	-1.07	62.86	-0.14	
	A1	-1.00	-15.80	14.33	
	A1b	1.60	-3.26	-1.35	
	A1a	-23.25	-28.30	-12.84	
-----					
1.2D + 1.0Di + 1.0Wi Normal Wind	1	0.01	98.11	-0.45	
	A1	0.00	-7.11	7.58	
	A1b	13.98	-15.72	-9.06	
	A1a	-13.99	-15.73	-9.07	
-----					
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-0.30	99.03	-0.17	
	A1	-0.86	-10.40	10.69	
	A1b	8.83	-10.41	-6.09	
	A1a	-17.21	-19.03	-9.94	
-----					
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-0.40	98.62	0.06	
	A1	-1.05	-13.05	13.65	
	A1b	7.03	-8.04	-4.55	
	A1a	-16.73	-18.14	-9.16	
-----					
1.0D + 1.0W Normal Wind	1	0.00	37.64	-0.30	
	A1	0.00	-3.99	3.68	
	A1b	6.67	-8.26	-4.03	
	A1a	-6.67	-8.27	-4.03	
-----					
1.0D + 1.0W 60° Wind	1	-0.25	37.96	-0.14	
	A1	-0.15	-5.56	5.14	
	A1b	4.37	-5.57	-2.70	
	A1a	-7.99	-9.78	-4.61	
-----					

1.0D + 1.0W 90° Wind	1	-0.30	37.80	0.01
	A1	-0.19	-6.92	6.47
	A1b	3.50	-4.46	-2.11
	A1a	-7.68	-9.35	-4.35

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Max Reactions (kips)	Base	Anchor 1
Vertical	99.03	28.32
Horizontal	1.23	26.58

## Cable Forces Summary

<b>Structure:</b> CT20001-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/15/2021
<b>Site Name:</b> STERLING CT TOWER	<b>Exposure:</b> C	
<b>Height:</b> 200.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> C - Very Dense Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II



Page: 17

Load Case	Elevation (ft)	Cable	Node 1	Node 2	Allow Tension (kips)	Applied Tension (kips)	Use %
1.2D + 1.6W Normal Wind	65.33	7/16 EHS	A1	34	12.48	0.03	0
			A1b	34a	12.48	6.13	49
			A1a	34b	12.48	6.14	49
	134.67		A1	T2	12.48	0.47	4
			A1a	T2b	12.48	7.33	59
			A1b	T2a	12.48	7.34	59
			A1b	T2	12.48	7.37	59
			A1a	T2a	12.48	7.38	59
			A1	T2b	12.48	0.47	4
	190.00		A1	T3	12.48	1.00	8
			A1a	T3b	12.48	6.85	55
			A1b	T3a	12.48	6.15	49
			A1b	T3	12.48	6.83	55
			A1a	T3a	12.48	6.13	49
			A1	T3b	12.48	1.00	8
1.2D + 1.6W 60° Wind		65.33	A1	34	12.48	1.27	10
			A1b	34a	12.48	1.25	10
			A1a	34b	12.48	7.09	57
	134.67	A1	T2	12.48	1.62	13	
		A1a	T2b	12.48	8.80	71	
		A1b	T2a	12.48	1.55	12	
		A1b	T2	12.48	1.61	13	
		A1a	T2a	12.48	8.78	70	
		A1	T2b	12.48	1.55	12	
	190.00	A1	T3	12.48	2.36	19	
		A1a	T3b	12.48	7.52	60	
		A1b	T3a	12.48	2.15	17	
		A1b	T3	12.48	2.36	19	
		A1a	T3a	12.48	7.46	60	
		A1	T3b	12.48	2.10	17	
1.2D + 1.6W 90° Wind		65.33	A1	34	12.48	4.00	32
			A1b	34a	12.48	0.32	3
			A1a	34b	12.48	7.26	58
	134.67	A1	T2	12.48	4.58	37	
		A1a	T2b	12.48	8.82	71	
		A1b	T2a	12.48	0.66	5	
		A1b	T2	12.48	0.71	6	
		A1a	T2a	12.48	8.76	70	
		A1	T2b	12.48	4.48	36	
	190.00	A1	T3	12.48	4.82	39	
		A1a	T3b	12.48	7.24	58	
		A1b	T3a	12.48	1.21	10	
		A1b	T3	12.48	1.29	10	
		A1a	T3a	12.48	7.66	61	
		A1	T3b	12.48	4.13	33	
0.9D + 1.6W Normal Wind		65.33	A1	34	12.48	0.03	0
			A1b	34a	12.48	6.12	49
			A1a	34b	12.48	6.12	49
	134.67	A1	T2	12.48	0.47	4	
		A1a	T2b	12.48	7.32	59	
		A1b	T2a	12.48	7.33	59	
		A1b	T2	12.48	7.36	59	
		A1a	T2a	12.48	7.37	59	

0.9D + 1.6W Normal Wind	134.67	7/16 EHS	A1	T2b	12.48	0.47	4
	190.00		A1	T3	12.48	1.01	8
			A1a	T3b	12.48	6.84	55
			A1b	T3a	12.48	6.15	49
			A1b	T3	12.48	6.83	55
0.9D + 1.6W 60° Wind	65.33		A1a	T3a	12.48	6.13	49
	134.67		A1	T3b	12.48	1.01	8
			A1	34	12.48	1.28	10
			A1b	34a	12.48	1.25	10
			A1a	34b	12.48	7.08	57
0.9D + 1.6W 90° Wind	65.33		A1	T2	12.48	1.63	13
	134.67		A1a	T2b	12.48	8.80	71
			A1b	T2a	12.48	1.56	12
			A1b	T2	12.48	1.62	13
			A1a	T2a	12.48	8.78	70
1.2D + 1.0Di + 1.0Wi Normal Wind	65.33		A1	T2b	12.48	1.55	12
	134.67		A1	T3	12.48	2.37	19
			A1a	T3b	12.48	7.52	60
			A1b	T3a	12.48	2.15	17
			A1b	T3	12.48	2.37	19
1.2D + 1.0Di + 1.0Wi 60° Wind	65.33		A1a	T3a	12.48	7.46	60
	134.67		A1	T3b	12.48	2.11	17
			A1	34	12.48	3.99	32
			A1b	34a	12.48	0.32	3
			A1a	34b	12.48	7.25	58
1.2D + 1.0Di + 1.0Wi 90° Wind	65.33		A1	T2	12.48	4.58	37
	134.67		A1a	T2b	12.48	8.81	71
			A1b	T2a	12.48	0.66	5
			A1b	T2	12.48	0.72	6
			A1a	T2a	12.48	8.75	70
1.2D + 1.0Di + 1.0Wi Normal Wind	65.33		A1	T2b	12.48	4.48	36
	134.67		A1	T3	12.48	4.82	39
			A1a	T3b	12.48	7.24	58
			A1b	T3a	12.48	1.22	10
			A1b	T3	12.48	1.29	10
1.2D + 1.0Di + 1.0Wi 60° Wind	65.33		A1a	T3a	12.48	7.66	61
	134.67		A1	T3b	12.48	4.13	33
			A1	34	12.48	2.73	22
			A1b	34a	12.48	5.08	41
			A1a	34b	12.48	5.08	41
1.2D + 1.0Di + 1.0Wi 90° Wind	65.33		A1	T2	12.48	2.64	21
	134.67		A1a	T2b	12.48	5.34	43
			A1b	T2a	12.48	5.15	41
			A1b	T2	12.48	5.34	43
			A1a	T2a	12.48	5.15	41
1.2D + 1.0Di + 1.0Wi Normal Wind	65.33		A1	T2b	12.48	2.64	21
	134.67		A1	T3	12.48	2.93	23
			A1a	T3b	12.48	5.61	45
			A1b	T3a	12.48	5.35	43
			A1b	T3	12.48	5.61	45
1.2D + 1.0Di + 1.0Wi 60° Wind	65.33		A1a	T3a	12.48	5.34	43
	134.67		A1	T3b	12.48	2.92	23
			A1	34	12.48	3.40	27
			A1b	34a	12.48	3.39	27
			A1a	34b	12.48	5.77	46
1.2D + 1.0Di + 1.0Wi 90° Wind	65.33		A1	T2	12.48	3.61	29
	134.67		A1a	T2b	12.48	6.27	50
			A1b	T2a	12.48	3.44	28
			A1b	T2	12.48	3.60	29
			A1a	T2a	12.48	6.26	50
1.2D + 1.0Di + 1.0Wi Normal Wind	65.33		A1	T2b	12.48	3.44	28
	134.67		A1	T3	12.48	4.16	33
			A1a	T3b	12.48	6.44	52
			A1b	T3a	12.48	3.88	31
			A1b	T3	12.48	4.16	33
1.2D + 1.0Di + 1.0Wi 60° Wind	65.33		A1a	T3a	12.48	6.43	52
	134.67		A1	T3	12.48	4.16	33
			A1a	T3b	12.48	6.44	52
			A1b	T3a	12.48	3.88	31
			A1b	T3	12.48	4.16	33
1.2D + 1.0Di + 1.0Wi 90° Wind	65.33		A1a	T3a	12.48	6.43	52
	134.67		A1	T3	12.48	4.16	33
			A1a	T3b	12.48	6.44	52
			A1b	T3a	12.48	3.88	31
			A1b	T3	12.48	4.16	33

1.2D + 1.0Di + 1.0Wi 60° Wind	190.00	7/16 EHS	A1	T3b	12.48	3.85	31
1.2D + 1.0Di + 1.0Wi 90° Wind	65.33		A1	34	12.48	4.24	34
			A1b	34a	12.48	2.84	23
			A1a	34b	12.48	5.64	45
	134.67		A1	T2	12.48	4.49	36
			A1a	T2b	12.48	5.97	48
			A1b	T2a	12.48	2.81	23
			A1b	T2	12.48	2.87	23
			A1a	T2a	12.48	6.03	48
	190.00		A1	T2b	12.48	4.26	34
			A1	T3	12.48	4.92	39
			A1a	T3b	12.48	6.11	49
			A1b	T3a	12.48	3.19	26
			A1b	T3	12.48	3.38	27
			A1a	T3a	12.48	6.22	50
			A1	T3b	12.48	4.58	37
1.0D + 1.0W Normal Wind	65.33		A1	34	12.48	1.30	10
			A1b	34a	12.48	2.38	19
			A1a	34b	12.48	2.39	19
	134.67		A1	T2	12.48	0.98	8
			A1a	T2b	12.48	2.40	19
			A1b	T2a	12.48	2.39	19
			A1b	T2	12.48	2.40	19
			A1a	T2a	12.48	2.39	19
	190.00		A1	T2b	12.48	0.99	8
			A1	T3	12.48	1.28	10
			A1a	T3b	12.48	2.40	19
			A1b	T3a	12.48	2.28	18
			A1b	T3	12.48	2.40	19
			A1a	T3a	12.48	2.27	18
			A1	T3b	12.48	1.28	10
1.0D + 1.0W 60° Wind	65.33		A1	34	12.48	1.66	13
			A1b	34a	12.48	1.65	13
			A1a	34b	12.48	2.76	22
	134.67		A1	T2	12.48	1.51	12
			A1a	T2b	12.48	2.89	23
			A1b	T2a	12.48	1.49	12
			A1b	T2	12.48	1.51	12
			A1a	T2a	12.48	2.89	23
	190.00		A1	T2b	12.48	1.49	12
			A1	T3	12.48	1.75	14
			A1a	T3b	12.48	2.71	22
			A1b	T3a	12.48	1.61	13
			A1b	T3	12.48	1.74	14
			A1a	T3a	12.48	2.71	22
			A1	T3b	12.48	1.60	13
1.0D + 1.0W 90° Wind	65.33		A1	34	12.48	2.02	16
			A1b	34a	12.48	1.39	11
			A1a	34b	12.48	2.66	21
	134.67		A1	T2	12.48	1.96	16
			A1a	T2b	12.48	2.76	22
			A1b	T2a	12.48	1.13	9
			A1b	T2	12.48	1.14	9
			A1a	T2a	12.48	2.75	22
	190.00		A1	T2b	12.48	1.93	15
			A1	T3	12.48	2.09	17
			A1a	T3b	12.48	2.57	21
			A1b	T3a	12.48	1.36	11
			A1b	T3	12.48	1.44	12
			A1a	T3a	12.48	2.63	21
			A1	T3b	12.48	1.93	15

## Analysis Summary

<b>Structure:</b> CT20001-A-SBA	<b>Code:</b> EIA/TIA-222-G	12/15/2021
<b>Site Name:</b> STERLING CT TOWER	<b>Exposure:</b> C	
<b>Height:</b> 200.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> C - Very Dense Soil	
<b>Gh:</b> 0.85	<b>Topography:</b> 1	<b>Struct Class:</b> II
		Page: 20



### Max Reactions

Base:	99.03 (Vertical)	1.23 (Horizontal)
Anchor 1:	28.32 (Vertical)	26.58 (Horizontal)

### Max Usages

Max Leg: 54.9% (1.2D + 1.6W 60° Wind - Sect 10)  
 Max Diag: 50.9% (1.2D + 1.6W 90° Wind - Sect 8)  
 Max Horiz: 28.7% (1.2D + 1.6W Normal Wind - Sect 9)  
 Max Cable: 70.7% (1.2D + 1.6W 90° Wind) - Elev: 135 ft

### Max Deflection, Twist and Sway

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
0.9D + 1.6W 105 mph Wind at 60° From Face	14.56	0.0899	0.0692	0.3409
	25.33	0.1551	0.0684	0.2930
	39.33	0.2150	0.0776	0.1104
	40.67	0.2162	0.0783	0.0839
	94.67	0.4852	0.0851	0.3119
	130.00	0.6763	0.0263	0.2730
	134.67	0.7024	0.0189	0.3339
	150.00	0.8257	0.0348	0.3772
	167.67	0.9177	0.0606	0.1606
	170.00	0.9254	0.0615	0.1260
	185.33	0.9110	0.0572	0.2420
----- 0.9D + 1.6W 105 mph Wind at 90° From Face	14.56	0.1174	0.2383	0.4555
	25.33	0.2096	0.2244	0.4056
	39.33	0.2872	0.2238	0.2437
	40.67	0.2915	0.2230	0.2267
	94.67	0.6853	0.1266	0.3828
	130.00	0.9411	0.0564	0.2634
	134.67	0.9750	0.0523	0.4138
	150.00	1.1146	0.0554	0.4315
	167.67	1.2190	0.0532	0.0637
	170.00	1.2296	0.0585	0.1853
	185.33	1.2263	0.0557	0.2390
190.00	1.2196	0.0611	0.1022	
200.00	1.2085	0.0591	0.0399	
-----				

0.9D + 1.6W 105 mph Wind at Normal To Face	14.56	0.1370	-0.2036	0.4933
	25.33	0.2206	-0.1830	0.4482
	39.33	0.3186	-0.1565	0.2841
	40.67	0.3241	-0.1537	0.2695
	94.67	0.7648	-0.0642	0.6245
	130.00	1.0682	-0.0203	0.6025
	134.67	1.1058	-0.0227	0.4801
	150.00	1.2618	-0.0162	0.4908
	167.67	1.3871	-0.0036	0.4105
	170.00	1.3970	0.0083	0.2009
	185.33	1.4053	0.0148	0.1098
	190.00	1.4035	0.0182	0.0350
	200.00	1.4004	0.0166	0.0434
-----				
1.0D + 1.0W 60 mph Wind at 60° From Face	14.56	0.0152	0.0040	0.0570
	25.33	0.0257	0.0020	0.0458
	39.33	0.0346	0.0028	0.0152
	40.67	0.0346	0.0030	0.0016
	94.67	0.0707	0.0022	0.0414
	130.00	0.0953	0.0013	0.0366
	134.67	0.0985	0.0014	0.0450
	150.00	0.1170	0.0017	0.0533
	167.67	0.1286	0.0030	0.0288
	170.00	0.1293	0.0037	0.0079
	185.33	0.1213	0.0066	0.0639
	190.00	0.1178	0.0082	0.0434
	200.00	0.1109	0.0077	0.0274
-----				
1.0D + 1.0W 60 mph Wind at 90° From Face	14.56	0.0147	0.0194	0.0573
	25.33	0.0264	0.0099	0.0450
	39.33	0.0334	0.0075	0.0154
	40.67	0.0335	0.0077	0.0064
	94.67	0.0682	0.0044	0.0249
	130.00	0.0892	0.0070	0.0081
	134.67	0.0922	0.0078	0.0391
	150.00	0.1090	0.0053	0.0467
	167.67	0.1182	0.0068	0.0293
	170.00	0.1190	0.0075	0.0109
	185.33	0.1092	0.0147	0.0807
	190.00	0.1051	0.0170	0.0529
	200.00	0.0971	0.0161	0.0360
-----				
1.0D + 1.0W 60 mph Wind at Normal To Face	14.56	0.0160	-0.0199	0.0540
	25.33	0.0247	-0.0102	0.0436
	39.33	0.0328	-0.0050	0.0157
	40.67	0.0330	-0.0049	0.0120
	94.67	0.0641	-0.0018	0.0562
	130.00	0.0823	-0.0021	0.0570
	134.67	0.0847	-0.0034	0.0332
	150.00	0.0996	-0.0018	0.0395
	167.67	0.1075	0.0003	0.0292
	170.00	0.1073	0.0012	0.0211
	185.33	0.0955	0.0026	0.0285
	190.00	0.0909	0.0032	0.0576
	200.00	0.0815	0.0029	0.0421
-----				
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	14.56	0.0428	0.0161	0.1661
	25.33	0.0737	0.0114	0.1423
	39.33	0.1042	0.0127	0.0859
	40.67	0.1054	0.0130	0.0498
	94.67	0.2085	0.0096	0.0964
	130.00	0.2524	0.0041	0.0509
	134.67	0.2567	0.0039	0.0561
	150.00	0.2812	0.0068	0.0675
	167.67	0.2945	0.0108	0.0533
	170.00	0.2946	0.0128	0.0183
	185.33	0.2782	0.0176	0.1265
	190.00	0.2706	0.0208	0.0955
	200.00	0.2552	0.0199	0.0751



1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	14.56	0.0459	0.0879	0.1829
	25.33	0.0827	0.0793	0.1543
	39.33	0.1110	0.0793	0.0965
	40.67	0.1126	0.0795	0.0676
	94.67	0.2068	0.0615	0.0602
	130.00	0.2195	0.0521	0.0964
	134.67	0.2214	0.0517	0.0765
	150.00	0.2310	0.0643	0.0870
	167.67	0.2260	0.0831	0.1714
	170.00	0.2264	0.0853	0.1471
	185.33	0.2047	0.0987	0.2596
	190.00	0.1980	0.1023	0.2212
	200.00	0.1893	0.1015	0.1995
-----				
1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	14.56	0.0505	-0.0074	0.1874
	25.33	0.0842	-0.0053	0.1616
	39.33	0.1188	-0.0022	0.1038
	40.67	0.1208	-0.0019	0.0866
	94.67	0.1928	0.0001	0.0543
	130.00	0.1684	-0.0021	0.0485
	134.67	0.1604	-0.0040	0.1001
	150.00	0.1398	-0.0019	0.1146
	167.67	0.0945	0.0022	0.1511
	170.00	0.0862	0.0049	0.2281
	185.33	0.0137	0.0078	0.2444
	190.00	0.0106	0.0091	0.3034
	200.00	0.0622	0.0084	0.2833
-----				
1.2D + 1.6W 105 mph Wind at 60° From Face	14.56	0.0903	0.0694	0.3423
	25.33	0.1557	0.0686	0.2940
	39.33	0.2158	0.0779	0.1095
	40.67	0.2169	0.0786	0.0815
	94.67	0.4868	0.0856	0.3134
	130.00	0.6788	0.0266	0.2745
	134.67	0.7051	0.0190	0.3356
	150.00	0.8290	0.0350	0.3789
	167.67	0.9213	0.0610	0.1612
	170.00	0.9291	0.0619	0.1269
	185.33	0.9148	0.0576	0.2420
	190.00	0.9043	0.0663	0.1317
	200.00	0.8849	0.0641	0.0504
-----				
1.2D + 1.6W 105 mph Wind at 90° From Face	14.56	0.1182	0.2392	0.4586
	25.33	0.2109	0.2252	0.4081
	39.33	0.2890	0.2247	0.2443
	40.67	0.2933	0.2239	0.2265
	94.67	0.6896	0.1268	0.3861
	130.00	0.9474	0.0563	0.2663
	134.67	0.9815	0.0522	0.4170
	150.00	1.1221	0.0554	0.4344
	167.67	1.2273	0.0531	0.0656
	170.00	1.2379	0.0585	0.1873
	185.33	1.2350	0.0557	0.2380
	190.00	1.2284	0.0611	0.1013
	200.00	1.2176	0.0591	0.0404
-----				
1.2D + 1.6W 105 mph Wind at Normal To Face	14.56	0.1378	-0.2050	0.4960
	25.33	0.2219	-0.1842	0.4507
	39.33	0.3204	-0.1576	0.2846
	40.67	0.3259	-0.1547	0.2694
	94.67	0.7696	-0.0646	0.6287
	130.00	1.0753	-0.0203	0.6063
	134.67	1.1133	-0.0228	0.4839
	150.00	1.2704	-0.0163	0.4943
	167.67	1.3967	-0.0036	0.4132
	170.00	1.4068	0.0084	0.2037
	185.33	1.4157	0.0149	0.1119
	190.00	1.4141	0.0183	0.0328
	200.00	1.4114	0.0166	0.0456



Tower Engineering Solutions

# Guyed Tower Base Design

Date  
12/15/2021

<b>Customer Name:</b>	SBA Communications Corp	<b>EIA/TIA Standard:</b>	EIA-222-G
<b>Site Name:</b>		<b>Structure Height (Ft.):</b>	200
<b>Site Nmber:</b>	CT20001-A-SBA	<b>Engineer Name:</b>	H. You
<b>Engr. Number:</b>	120464	<b>Engineer Login ID:</b>	

**Foundation Info Obtained from:**

Drawings/Calculations

**Structure Type:**

Guyed Tower

**Analysis or Design?**

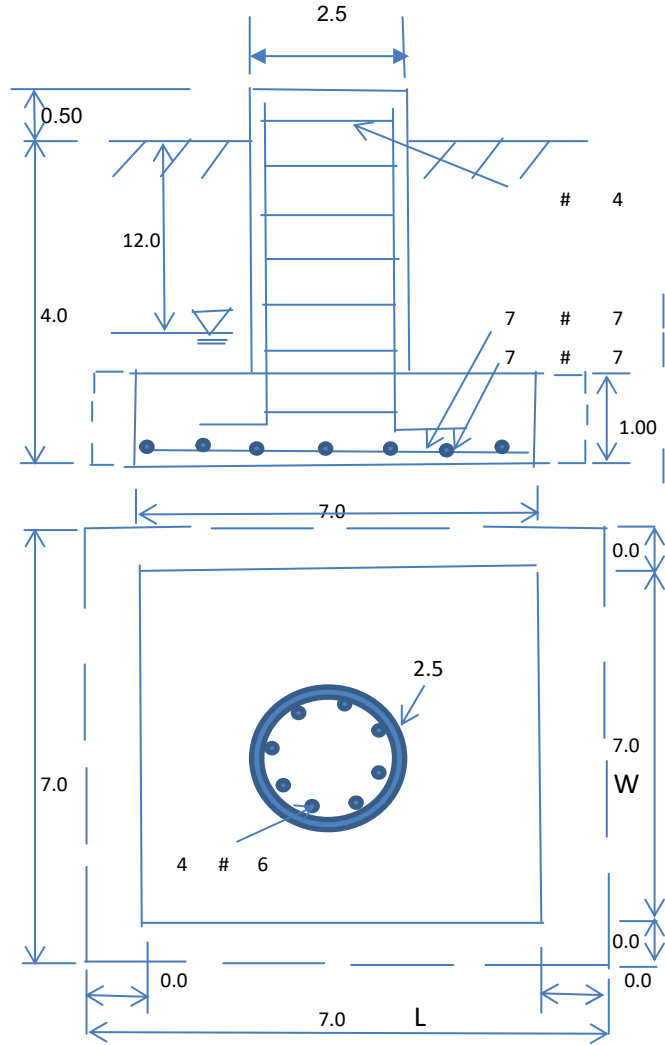
Analysis

**Base Reactions (Factored):**

Axial Load (Kips):	99.0	Shear Force (Kips):	1.2
Uplift Force (Kips):	0.0	Moment (Kips-ft):	
Allowable overstress %:	5.0%		

**Foundation Geometries:**

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	2.5	Depth of Base BG (ft.):	4.0
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft.):	1.00
Length of Pad (ft.):	7	Width of Pad (ft.):	7
Final Length of pad (ft)	7.0	Final width of pad (ft):	7.0



**Material Properties and Reabr Info:**

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	6	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	4	Tie Spacing (in):	16.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	7	
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):	7	Qty. of Rebar in Pad (W):	7	

**Soil Design Parameters:**

Soil Unit Weight (pcf):	125.0	Soil Buoyant Weight:	62.6	Pcf
Water Table B.G.S. (ft):	12.0	Unit Weight of Water:	62.4	pcf
Ultimate Bearing Pressure (psf):	30000	Ultimate Skin Friction:	0	Psf
		Angle from Top of Pad:	30	
		Angle from Bottm of Pad:	25	
		Angle from Bottm of Pad:	25	

**Foundation Analysis and Design:**

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.6
Total Dry Soil Volume (cu. Ft.):	132.27	Total Dry Soil Weight (Kips):	16.53
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	16.53	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	66.18	Total Dry Concrete Weight (Kips):	9.93
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	9.93	Total Vertical Load on Base (Kips):	125.49

**Check Soil Capacities:**

Calculated Maxium Net Soil Pressure under the base (psf):	2113.0	<	Allowable Factored Soil Bearing (psf):	18000	0.12	OK!
Calculated Foundation Allowable Axail Capacity (Kips):	882.0	>	Design Factored Axial Load (Kips):	101	0.11	OK!

Load/  
Capacity  
Ratio

**Check the capacities of Reinforcing Concrete:**

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.00


Load/  
Capacity  
Ratio

(1) Concrete Pier:

Vertical Steel Rebar Area (sq. in./each):	0.44	Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	92.1	> Design Factored Moment (Mu, Kips-Ft)	4.3	0.05	OK!
Calculated Shear Capacity (Kips):	103.1	> Design Factored Shear (Kips):	1.2	0.01	OK!
Calculated Tension Capacity (Tn, Kips):	95.0	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	1246.6	> Design Factored Axial Load (Pu Kips):	99.0	0.08	OK!
Moment & Axial Strength Combination(Pu/Pn+Mu/Mn):	0.13	OK!			
Pier Reinforcement Ratio:	0.002				

(2).Concrete Pad:

One-Way Design Shear Capacity (L-Dir. Kips);	68.2	> One-Way Factored Shear (L-Dir Kips):	22.2	0.32	OK!
One-Way Design Shear Capacity (W-Dir. Kips):	68.2	> One-Way Factored Shear (W-Dir Kips)	22.2	0.32	OK!
Two-Way Design Shear Capacity (Kips):	196.8	> Two-Way Factored Shear (Kips):	82.7	0.42	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct. ):	0.0058	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0058	OK!
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	153.5	> Moment at Bottom ( L-Direct. K-Ft):	36.5	0.24	OK!
Lower Steel Pad Moment Capacity (W-Dir. Kips-ft):	153.5	> Moment at Bottom ( W-Dir. Kips-Ft):	36.5	0.24	OK!

	<b>Guy Anchor Analysis and Design</b>		<i>Date</i>	
			12/15/2021	
	<b>Customer Name:</b>	SBA Communications Corp	<b>EIA/TIA Standard:</b>	EIA-222-G
	<b>Site Name:</b>	0	<b>Structure Height (Ft.):</b>	200
	<b>Site Number:</b>	CT20001-A-SBA	<b>Engineer Name:</b>	H. You
<b>Engr. Number:</b>	120464	<b>Engineer Login ID:</b>		

**Foundation Info Obtained from:** Drawings/Calculations      **Number of Anchors:** 1 Set      Failure model: New

**Soil Design Parameters:**

Soil Unit Weight (pcf):	125.0	Soil Buoyant Weight:	65.0	Pcf	Cohesion of Soils (psf):	0
		Unit Weight of Water:	62.4	pcf	Internal Angle of Friction (°)	40
Ultimate lateral pressure (psf):	3600	Ultimate Skin Friction:		Psf	Coefficient of Shear Friction:	0.30
Conical Failure Angle from Top:	30	Failure Angle from Bottom:	30			

**Material Properties:**

Concrete Strength (psi):	3000	Unit Weight of Concrete:	150.0	psf	Horizontal Rebar Yield (psi):	60000
Shear Strength Reduction Factor:	0.75				Flexure Strength Reduction Factor:	0.9

**A. Inner Anchors:**

Radius (ft.): 125

**1. Design Reactions (Factored):**

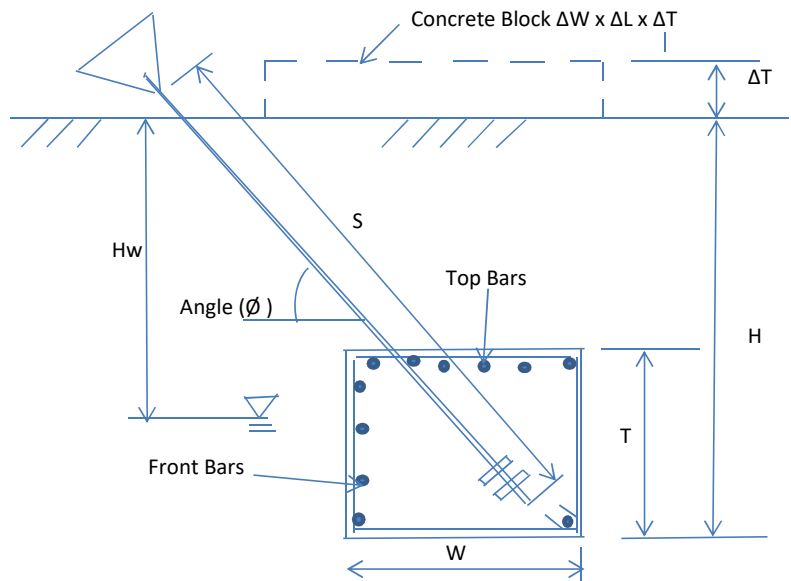
Uplift (Kips): 28.3      Shear (Kips): 26.6      Angle of force resultant (∅): 46.8

**2. Foundation Geometries:**

Block Base Depth B.G.S. (ft):	8.0	Block with/without toe?	No	Water Table below grade (ft):	99.00
Length of Anchor Block (L, ft.):	9.0	Width of Anchor Block:	4.0 ft.	Thickness of Anchor Block (ft.):	2.5
Concrete Block @ top of Anchor?	No				

**(1). Inner Anchors:**

Radius (ft.):	125
H (ft.):	8.0
Hw (ft.):	99.0
L (ft.):	9.0
W (ft.):	4.0
T (ft.):	2.5
Angle (∅):	46.8
S (ft.):	11.66
Top bars:	4 # 5
Front bars:	3 # 5
Concrete Volume (Cu. Yd.)/Each:	3.33



**3. Foundation Analysis and Design:**

Total Dry Soil Volume (cu. Ft.):	483.12	Total Dry Soil Weight (Kips):	107.13
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	60.39	Weight of the Concrete Block at Top (Kips):	0.00
Total Dry Concrete Volume (cu. Ft.):	90.00	Total Dry Concrete Weight (Kip):	13.50
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	13.50	Weight Reduction Factor:	0.9
Uplift Strength Reduction Factor on Soil:	0.75	Shear Strength Reduction Factor:	0.75

**4. Check Soil and Foundation Capacities:**

Nominal Factored Uplift Resistance:	57.44	Kips > Design Uplift Force (Kips):	28.3	OK!
Ultimate Shear Friction Resistance at base:	6.22	Kips Ultimate Resistance Pressure:	3600.0	Psf
Factored Shear Resistance:	65.41	Kips > Design Shear Force (Kips):	26.6	OK!

**5. Design Concrete Block:**

Rebar Size (#):	5	Wind Load Factor on Concrete Design:	1.00	
Qty. of the Rebar at top of the block:	4	Qty. of the Rebar in the front of the block:	3	
Area of Single Rebar (sq. in.):	0.31	Factor for concrete compression zone:	0.85	
One Way Shear due to Shear Force (Kips):	13.3	One Way Shear Capacity for shear (kips):	108.4	OK!
One Way Shear due to Uplift (Kips):	14.2	One Way Shear Capacity for uplift (kips):	102.5	OK!
Moment due to Shear Load ( Kips-ft):	29.9	Flexural Capacity for Shear Load (Kips-ft):	184.1	OK!
Moment due to uplift Load ( Kips-ft):	31.9	Flexural Capacity for uplift Load (Kips-ft):	145.0	OK!
Ratio of Design Moment/Moment capacity:	0.22	Minimum ratio of rebar (top & front) :	0.10	OK!
Max. Ratio of Shear Force/Shear capacity:	0.14	OK!		

0.0

0.0



EXHIBIT 8

Mount Analysis



**Tower Engineering Solutions**

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

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## **Antenna Mount Analysis Report**

**Existing 200-Ft Guyed Tower**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT20001-A-SBA / STERLING CT TOWER**

**Customer Site Name: STERLING CT TOWER**

**Carrier Name: T-Mobile Sprint (App#: 154220, V2)**

**Carrier Site ID / Name: CTHA854A / CT33XC009**

**Site Location: 419 Ekonk Hill Road (Rt-49)**

**Sterling, Connecticut**

**WINDHAM County**

**Latitude: 41.662222**

**Longitude: -71.846944**

Exp. 01/31/2022



**Analysis Result:**

**Max Structural Usage: 43.9% [Pass]**

**Report Prepared By : Mariana Franco**

12/06/2021

## **Introduction**

The purpose of this report is to summarize the analysis results on the (3) SitePro VFA12-HD Sector frames at 170.00' 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	Mapping by TEP Dated: 05/03/21
Antenna Loading	SBA Application #: 154220, v2
Modification Drawings	n/a

## **Analysis Criteria**

Basic Wind Speed Used in the Analysis:  $V_{ULT} = 135.0$  mph (3-Sec. Gust) / Equivalent to  
 $V_{ASD} = 105$  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

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**

(3) SitePro VFA12-HD Sector frames at 170.00' elevation

## **Final Antenna Configuration**

- 3 RFS APXVAALL24\_43-U-NA20
- 3 Ericsson AIR6449 B41
- 3 Ericsson 4480 B71 + B85
- 3 Ericsson 4460 B25 + B66
- 6 ALU 800 MHz

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 43.9%, which occurs in the v-arm diagonal. 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.



**Structure: CT20001-A-SBA - STERLING CT TOWER**

**Sector: A**

12/6/2021

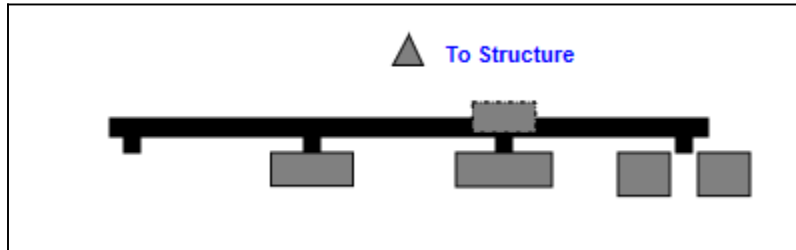
**Structure Type:** Guyed

**Mount Elev:** 170.00

Page: 1

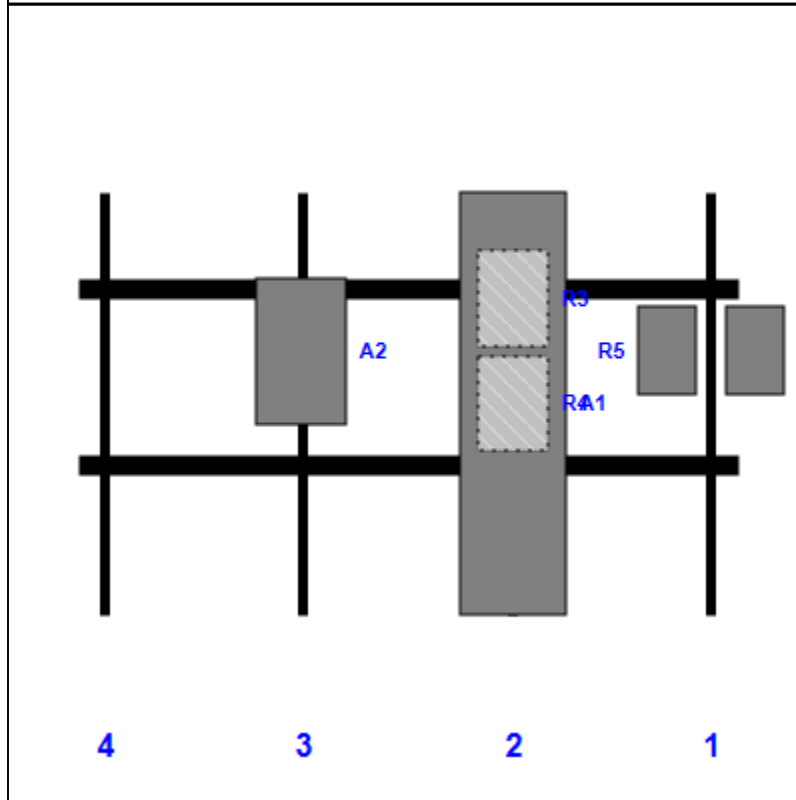


**Plan View**



**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
R5	800 MHz	19.70	13.00	144.00	1	a	Front	36.00	-10.00		
R5	800 MHz	19.70	13.00	144.00	1	b	Front	36.00	10.00		
A1	APXVAALL24_43-U-NA20	95.90	24.00	99.00	2	a	Front	48.00			
R3	4480 B71 + B85	21.80	15.70	99.00	2	a	Behind	24.00			
R4	4460 B25 + B66	21.80	15.70	99.00	2	a	Behind	48.00			
A2	AIR6449 B41	33.10	20.50	51.00	3	a	Front	36.00			

**Structure: CT20001-A-SBA - STERLING CT TOWER**

**Sector: B**

12/6/2021

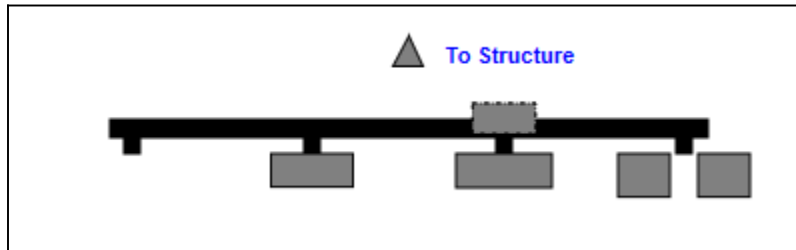
**Structure Type:** Guyed

**Mount Elev:** 170.00

Page: 2

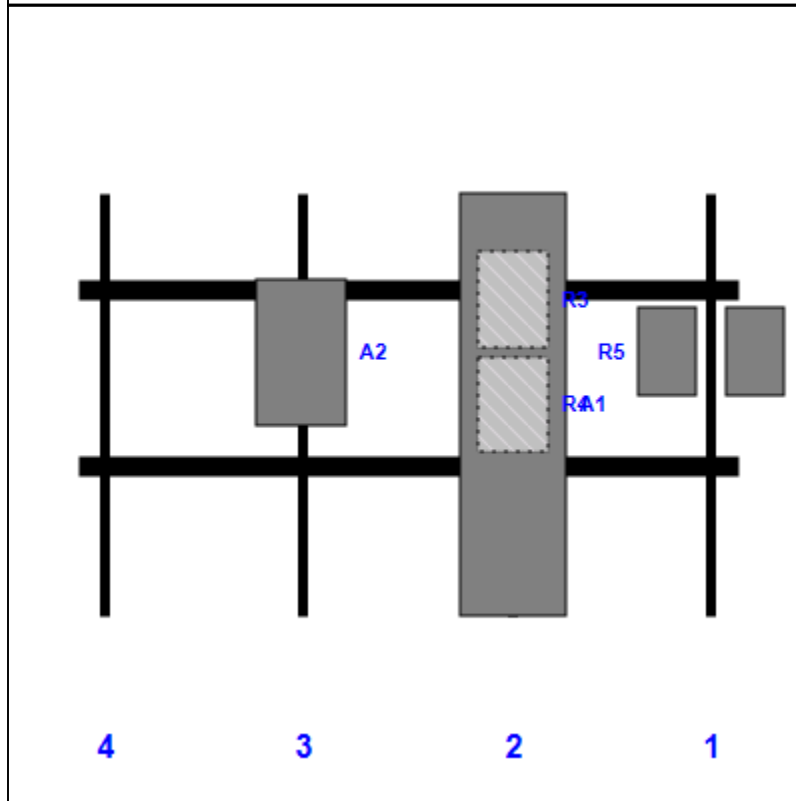


**Plan View**



**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
R5	800 MHz	19.70	13.00	144.00	1	a	Front	36.00	-10.00		
R5	800 MHz	19.70	13.00	144.00	1	b	Front	36.00	10.00		
A1	APXVAALL24_43-U-NA20	95.90	24.00	99.00	2	a	Front	48.00			
R3	4480 B71 + B85	21.80	15.70	99.00	2	a	Behind	24.00			
R4	4460 B25 + B66	21.80	15.70	99.00	2	a	Behind	48.00			
A2	AIR6449 B41	33.10	20.50	51.00	3	a	Front	36.00			

**Structure: CT20001-A-SBA - STERLING CT TOWER**

Sector: **C**

12/6/2021

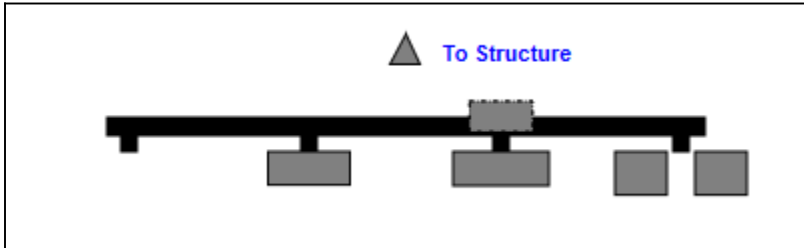
Structure Type: Guyed

Mount Elev: 170.00

Page: 3

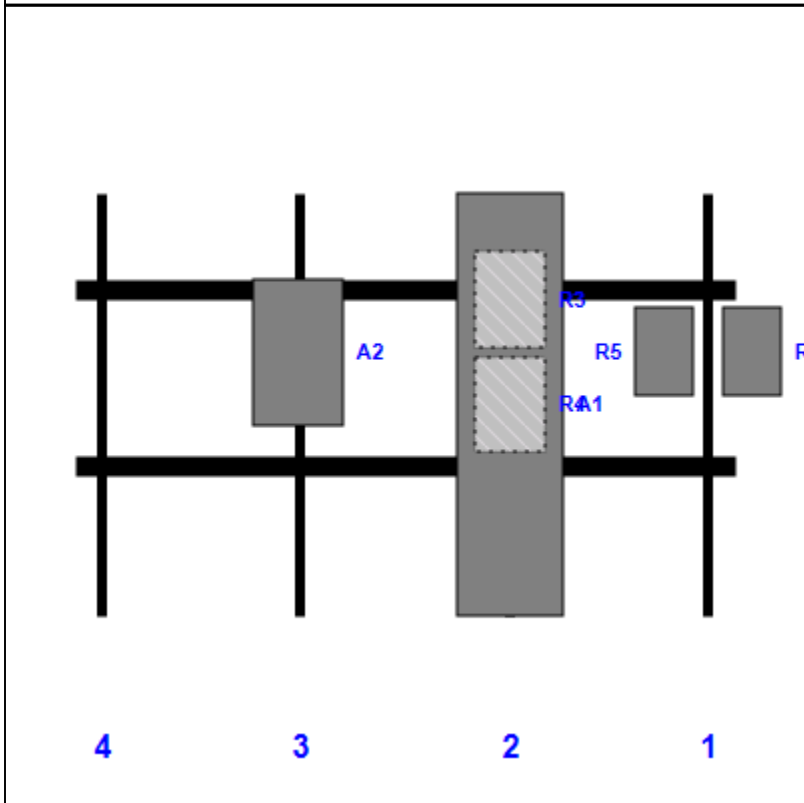


**Plan View**



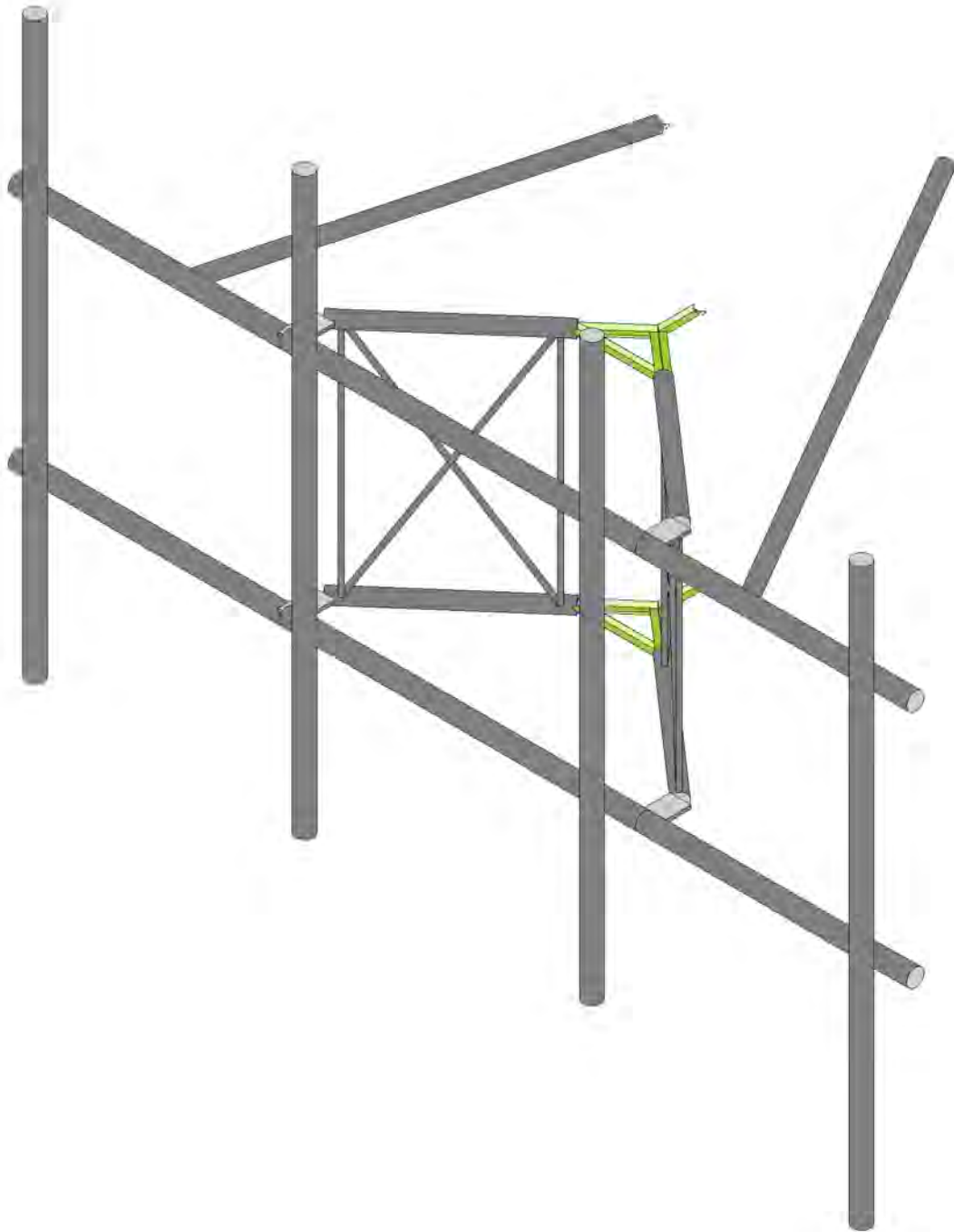
**Front View**

Looking Toward Structure



Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
R5	800 MHz	19.70	13.00	144.00	1	a	Front	36.00	-10.00		
R5	800 MHz	19.70	13.00	144.00	1	b	Front	36.00	10.00		
A1	APXVAALL24_43-U-NA20	95.90	24.00	99.00	2	a	Front	48.00			
R3	4480 B71 + B85	21.80	15.70	99.00	2	a	Behind	24.00			
R4	4460 B25 + B66	21.80	15.70	99.00	2	a	Behind	48.00			
A2	AIR6449 B41	33.10	20.50	51.00	3	a	Front	36.00			





Tower Engineering Solutio...

CT20001-A-SBA\_MT\_LOT\_Loads Only\_Sector A\_G

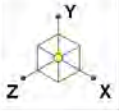
SK - 1

Dec 6, 2021 at 10:09 AM

TES Project No. 120130

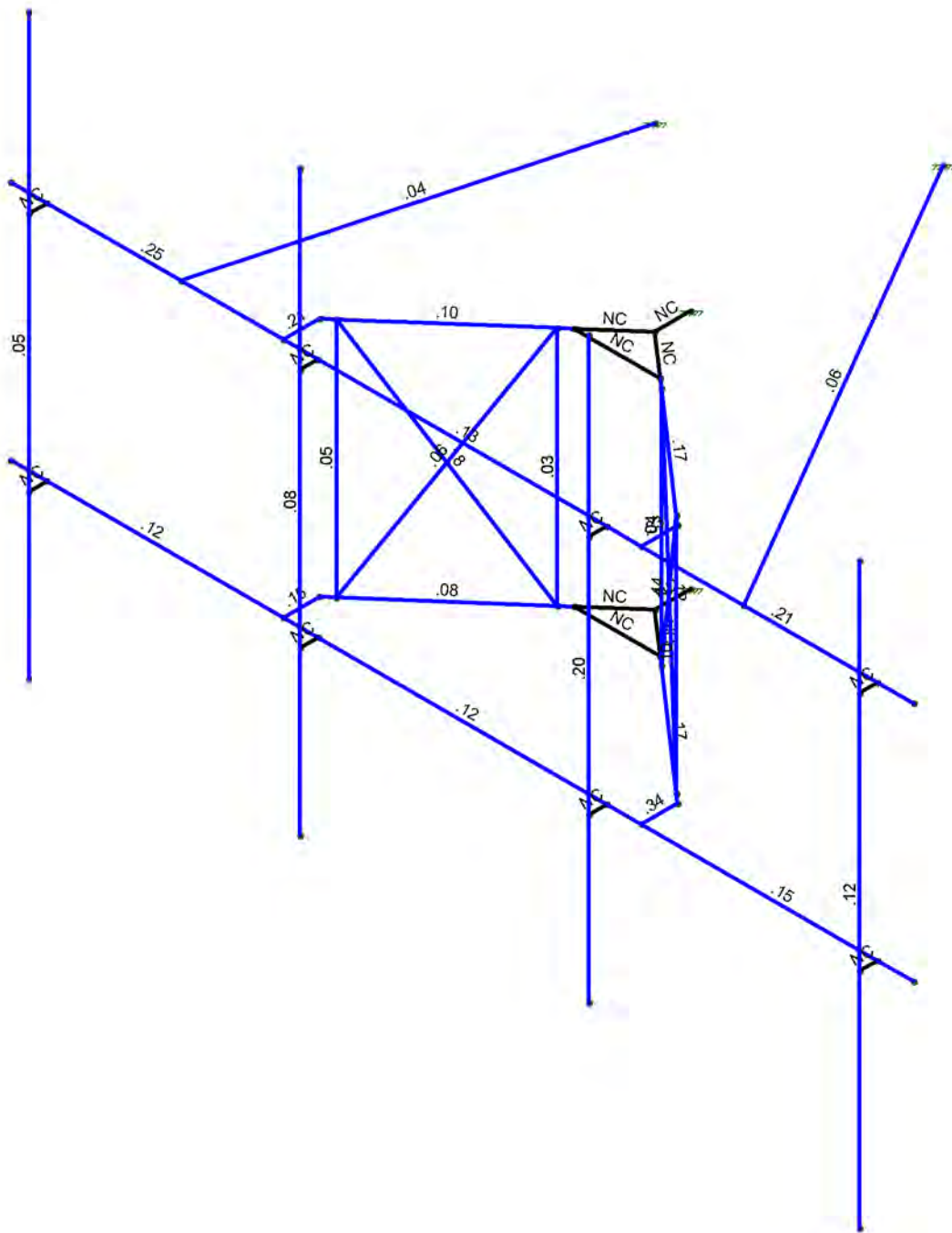
CT20001-A-SBA\_120130\_G\_RISA\_...





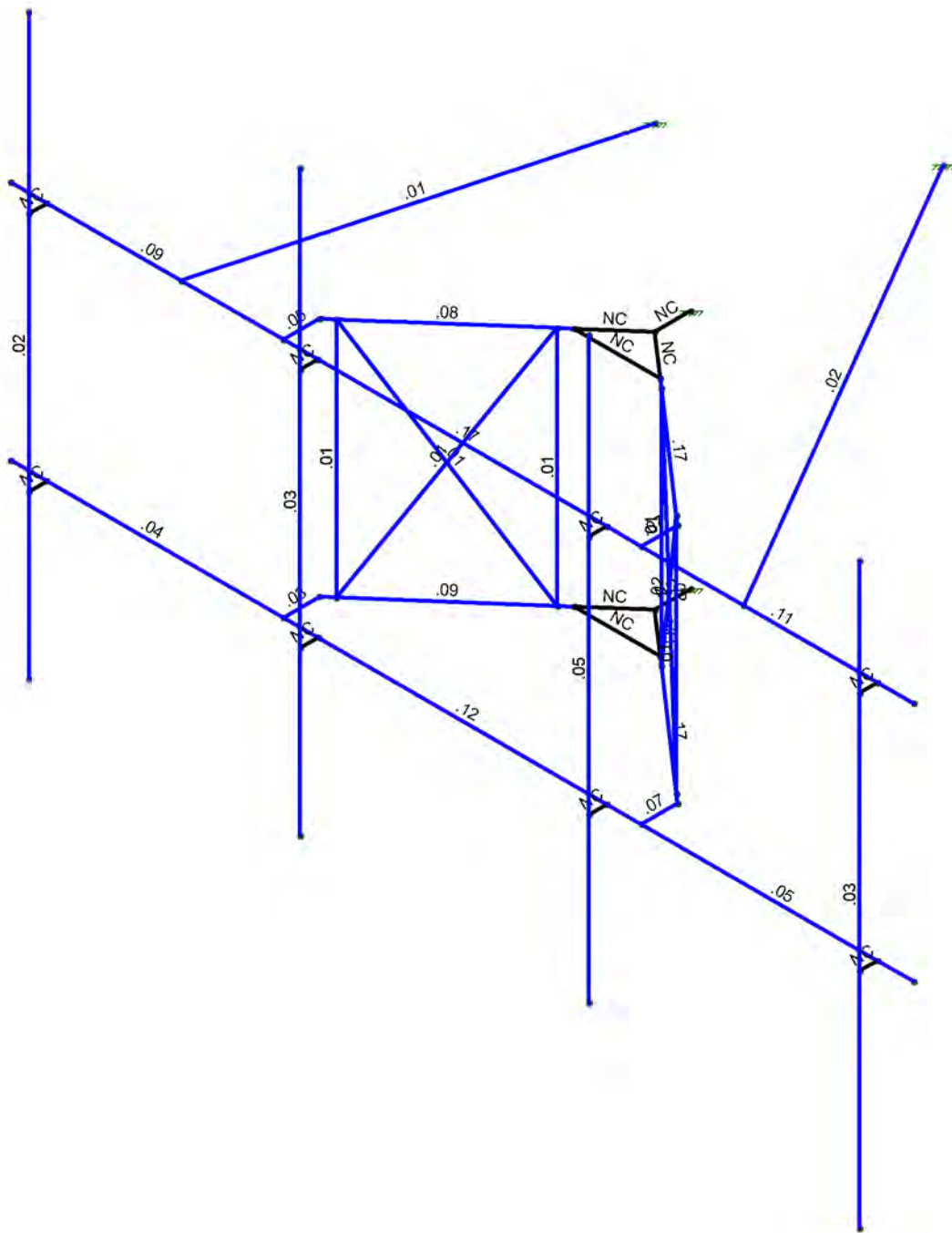
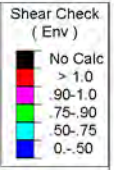
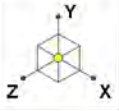
Code Check (Env)

Black	No Calc
Red	> 1.0
Magenta	90-1.0
Green	75-90
Cyan	50-75
Blue	0-50



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

Tower Engineering Solutio...	CT20001-A-SBA_MT_LOT_Loads Only_Sector A_G	SK - 2
TES Project No. 120130		Dec 6, 2021 at 10:09 AM
		CT20001-A-SBA_120130_G_RISA_...



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

Tower Engineering Solutio...	CT20001-A-SBA_MT_LOT_Loads Only_Sector A_G	SK - 3
TES Project No. 120130		Dec 6, 2021 at 10:10 AM
		CT20001-A-SBA_120130_G_RISA_...





































# EXHIBIT 9







## EME Report

# Radio Frequency Emissions Analysis Report

T-Mobile Wireless Monopole Facility

January 3, 2022

**Analysis Format:** Theoretical Calculations

	Sign Count	
		1
		0
		1
		0
	1	

## Statement of Compliance

T-Mobile will be compliant with FCC Regulations once the mitigation measures recommended in this report are implemented.

Centerline PN: N/A  
 CTHA854A  
 Ekonk Hill Rd  
 421 Ekonk Hill Rd, Moosup, CT 06354

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## Contents

Overview.....	3
FCC Guidelines .....	4
Calculation Methodology & Data .....	5
Results .....	7
APPENDIX A: Emissions Thresholds for Walking Surfaces and Signage.....	8
Compliance Actions.....	15
APPENDIX B: RF Signage Description Table .....	16
APPENDIX C: FCC Emissions Threshold Limits.....	18
APPENDIX D: Certifications .....	20

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## Overview

Centerline Communications, LLC (“Centerline”) has been contracted to provide a Radio Frequency (RF) Analysis for the following T-Mobile wireless monopole facility to determine whether the facility is in compliance with federal standards and regulations regarding RF emissions. This analysis includes theoretical emissions calculations for all existing equipment for T-Mobile .

The facility is located on a 200' Monopole in Moosup, Connecticut. Access to the facility is restricted to authorized personnel and facility management.

### Analysis Site Data

<b>Site ID:</b>	CTHA854A
<b>Site Name:</b>	Ekonk Hill Rd
<b>Site Address:</b>	421 Ekonk Hill Rd, Moosup, CT 06354
<b>Site Latitude:</b>	41.662309
<b>Site Longitude:</b>	-71.84711
<b>Facility Type:</b>	Monopole

### Compliance Summary

<b>Status:</b>	T-Mobile will be compliant with FCC Regulations Upon Installation of Barriers and Sigange
<b>Site Modeled Composite MPE% (General Public Limit):</b>	0.07 %
<b>T-Mobile Max Modeled MPE% (General Public Limit):</b>	0.07 %
<b>Lock or Control Measures if Present:</b>	No Fixed Access

In addition to the T-Mobile antennas and radio equipment there are antennas and radio equipment for Unknown which have been included in this analysis as part of the overall site compliance determination.

\*To be conservative, all sites are considered uncontrolled for modeling purposes unless confirmed otherwise by a site visit.

## FCC Guidelines

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

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

General Population/Uncontrolled exposure limits apply to situations in which the general public 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 public 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 ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limit for the 600, 700, and 800 MHz Bands is approximately  $400 \mu\text{W}/\text{cm}^2$ ,  $467 \mu\text{W}/\text{cm}^2$ , and  $567 \mu\text{W}/\text{cm}^2$  respectively, and the general population exposure limit for the 1900 MHz PCS, 2100 MHz AWS, 2500 MHz, 3500 MHz CBRS, 5000 MHz LAA, 28GHz, and 39GHz bands is  $1000 \mu\text{W}/\text{cm}^2$ . Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density. Reference the Site Antenna Data Table for list of frequencies in operation at this site.

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, have been properly trained in RF safety 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, have been trained in RF safety and can exercise control over his or her exposure by leaving the area or by some other appropriate means. The Occupational/Controlled exposure limits all utilized frequency bands is five (5) times the FCC's General Public / Uncontrolled exposure limit.

Additional details can be found in FCC OET 65.

## Calculation Methodology & Data

Centerline has performed theoretical calculations on all transmission equipment located on this facility. All calculations have been performed using the RoofMaster® software from Waterford Consultants LLC. This software performs calculations using a cylindrical model for very conservative power density predictions within the near-field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations the power decreases inversely with the square of the distance. This modeling technique is accurate with low antenna centerlines, such as rooftops, where persons can get close to the antennas and pass through fields in close proximity.

The below calculation in Figure 1 shows the theoretical distribution of power over an imaginary cylinder with equal power distribution in all directions.

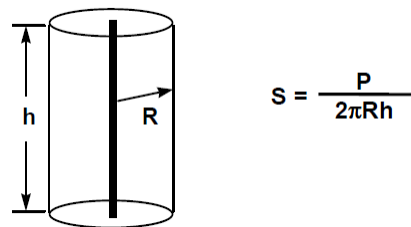


Figure 1: Distribution of power over an imaginary cylinder in all directions

This model can be modified for directional antennas to show directionality of power distribution. This formula will tend to be conservative as it assumes that all power is focused between the 3 dB power roll off points as shown in Figure 2.

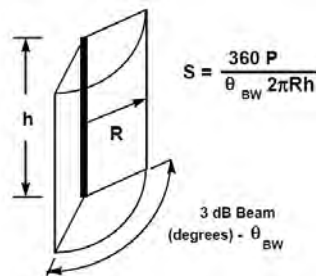


Figure 2: Distribution of power over an imaginary cylinder in all directions inside the half power roll off points (HBW)



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The proposed antenna configuration for T-Mobile and any other known wireless carriers at this facility are shown below in **Table 1 – Site Antenna Data Table**.

All calculations for this facility were performed assuming that all radios were running at full power and were uncombined in their RF paths with the configuration shown in table 1. FCC OET Bulletin 65 – Edition 97-01 recommends that modeling of this nature should be done as described prior to yield a worst-case scenario. Due to the dynamic nature of many deployed systems the “real world” values will most likely be less than those shown in this report due to worst-case values being shown in all instances.

For all “Other” systems on this facility, exact equipment was used if available. In instances where “Other” system equipment was not available, standard radio configurations for these systems were utilized based upon prior experience with these systems on facilities in this area.

### Site Antenna Data Table

Sector	Operator	Frequency Band	TX Power			ERP	Antenna Make	Antenna Model	Gain (dBd)	Az (°)	Antenna Centerline Height (ft)	Z Value (ft)**
			Per Channel	Tx #								
A1	T-Mobile	L700	40	2	1853.92	RFS	APXVAALL24 43-U-NA20	13.65	0	170.0	165.90	
A1	T-Mobile	L600	60	4	4733.81	RFS	APXVAALL24 43-U-NA20	12.95	0	170.0	165.90	
A1	T-Mobile	N600	40	2	1577.94	RFS	APXVAALL24 43-U-NA20	12.95	0	170.0	165.90	
A1	T-Mobile	L2100	140	2	12363.97	RFS	APXVAALL24 43-U-NA20	16.45	0	170.0	165.90	
A1	T-Mobile	L1900	140	2	9821.05	RFS	APXVAALL24 43-U-NA20	15.45	0	170.0	165.90	
A1	T-Mobile	G1900	15	1	526.13	RFS	APXVAALL24 43-U-NA20	15.45	0	170.0	165.90	
A2	T-Mobile	L2500	30	1	982.02	ERICSSON	AIR 6449 LTE BrM	15.15	0	170.0	168.52	
A2	T-Mobile	N2500	30	1	982.02	ERICSSON	AIR 6449 NR BrM	15.15	0	170.0	168.52	
A2	T-Mobile	L2500	90	1	15461.18	ERICSSON	SON AIR 6449 LTE TB 2500	22.35	0	170.0	168.52	
A2	T-Mobile	N2500	90	1	15461.18	ERICSSON	SON AIR 6449 NR TB 2500	22.35	0	170.0	168.52	
B3	T-Mobile	L700	40	2	1853.92	RFS	APXVAALL24 43-U-NA20	13.65	120	170.0	165.90	
B3	T-Mobile	L600	60	4	4733.81	RFS	APXVAALL24 43-U-NA20	12.95	120	170.0	165.90	
B3	T-Mobile	N600	40	2	1577.94	RFS	APXVAALL24 43-U-NA20	12.95	120	170.0	165.90	
B3	T-Mobile	L2100	140	2	12363.97	RFS	APXVAALL24 43-U-NA20	16.45	120	170.0	165.90	
B3	T-Mobile	L1900	140	2	9821.05	RFS	APXVAALL24 43-U-NA20	15.45	120	170.0	165.90	
B3	T-Mobile	G1900	15	1	526.13	RFS	APXVAALL24 43-U-NA20	15.45	120	170.0	165.90	
B4	T-Mobile	L2500	30	1	982.02	ERICSSON	AIR 6449 LTE BrM	15.15	120	170.0	168.52	
B4	T-Mobile	N2500	30	1	982.02	ERICSSON	AIR 6449 NR BrM	15.15	120	170.0	168.52	
B4	T-Mobile	L2500	90	1	15461.18	ERICSSON	SON AIR 6449 LTE TB 2500	22.35	120	170.0	168.52	
B4	T-Mobile	N2500	90	1	15461.18	ERICSSON	SON AIR 6449 NR TB 2500	22.35	120	170.0	168.52	
C5	T-Mobile	L700	40	2	1853.92	RFS	APXVAALL24 43-U-NA20	13.65	240	170.0	165.90	
C5	T-Mobile	L600	60	4	4733.81	RFS	APXVAALL24 43-U-NA20	12.95	240	170.0	165.90	
C5	T-Mobile	N600	40	2	1577.94	RFS	APXVAALL24 43-U-NA20	12.95	240	170.0	165.90	
C5	T-Mobile	L2100	140	2	12363.97	RFS	APXVAALL24 43-U-NA20	16.45	240	170.0	165.90	
C5	T-Mobile	L1900	140	2	9821.05	RFS	APXVAALL24 43-U-NA20	15.45	240	170.0	165.90	
C5	T-Mobile	G1900	15	1	526.13	RFS	APXVAALL24 43-U-NA20	15.45	240	170.0	165.90	
C6	T-Mobile	L2500	30	1	982.02	ERICSSON	AIR 6449 LTE BrM	15.15	240	170.0	168.52	
C6	T-Mobile	N2500	30	1	982.02	ERICSSON	AIR 6449 NR BrM	15.15	240	170.0	168.52	
C6	T-Mobile	L2500	90	1	15461.18	ERICSSON	SON AIR 6449 LTE TB 2500	22.35	240	170.0	168.52	
C6	T-Mobile	N2500	90	1	15461.18	ERICSSON	SON AIR 6449 NR TB 2500	22.35	240	170.0	168.52	
7	Marc Dodge	850	12.65	1	99.56	GENERIC	OMNI 12FT	8.96	0	195.0	188.90	
8	American Messaging	850	12.65	1	99.56	GENERIC	OMNI 12FT	8.96	0	178.0	172.30	
9	Arch Wireless	850	12.65	1	99.56	GENERIC	OMNI 12FT	8.96	0	140.0	133.80	
10	Plainfield Municipal	450	12.65	2	99.80	GENERIC	OMNI 9.5FT	5.96	0	99.0	93.95	
11	Plainfield Municipal	450	6.15	1	99.74	GENERIC	YAGI 3.5FT	12.1	0	41.0	39.35	
12	Plainfield Municipal	450	6.15	1	99.74	GENERIC	YAGI 3.5FT	12.1	0	39.0	37.25	
13	American Messaging	18000	0.1	1	881.05	GENERIC	MICROWAVE 3FT	39.45	0	25.0	23.40	
14	Arch Wireless	18000	0.1	1	881.05	GENERIC	MICROWAVE 3FT	39.45	0	14.0	12.50	

Table 1: Total Site Antenna data table \*(Z Value is distance from bottom of antenna to walking surface)

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## Results

All calculations performed based upon the data listed for this facility have produced results that are within allowable limits for General Population for exposure to RF emissions as specified by federal standards.

T-Mobile's RF Exposure: Responsibilities, Procedures & Guidelines document states that microwave dishes are compliant if they are mounted 20 feet or greater above any accessible walking or working surface.

Maximum Predicted MPE Level on Site:	% of MPE Limit:	Location:
Accessible <b>General Population</b> MPE Limits:	<b>0.07%</b>	<b>Sector A</b>
Accessible <b>Occupational</b> MPE Limits:	<b>0.01%</b>	

Ground Level Assessment:	% of MPE Limit:
Ground Level <b>General Population</b> MPE Limits:	<b>0.07%</b>
Ground Level <b>Occupational</b> MPE Limits:	<b>0.01%</b>

Sector A: Transmitting over Ground	% of MPE Limit:	*Distance from Antenna:
Accessible <b>General Population</b> MPE Limits:	<b>0.07%</b>	<b>N/A</b>
Accessible <b>Occupational</b> MPE Limits:	<b>0.01%</b>	<b>N/A</b>

Sector B: Transmitting over Ground	% of MPE Limit:	*Distance from Antenna:
Accessible <b>General Population</b> MPE Limits:	<b>0.01%</b>	<b>N/A</b>
Accessible <b>Occupational</b> MPE Limits:	<b>0.00%</b>	<b>N/A</b>

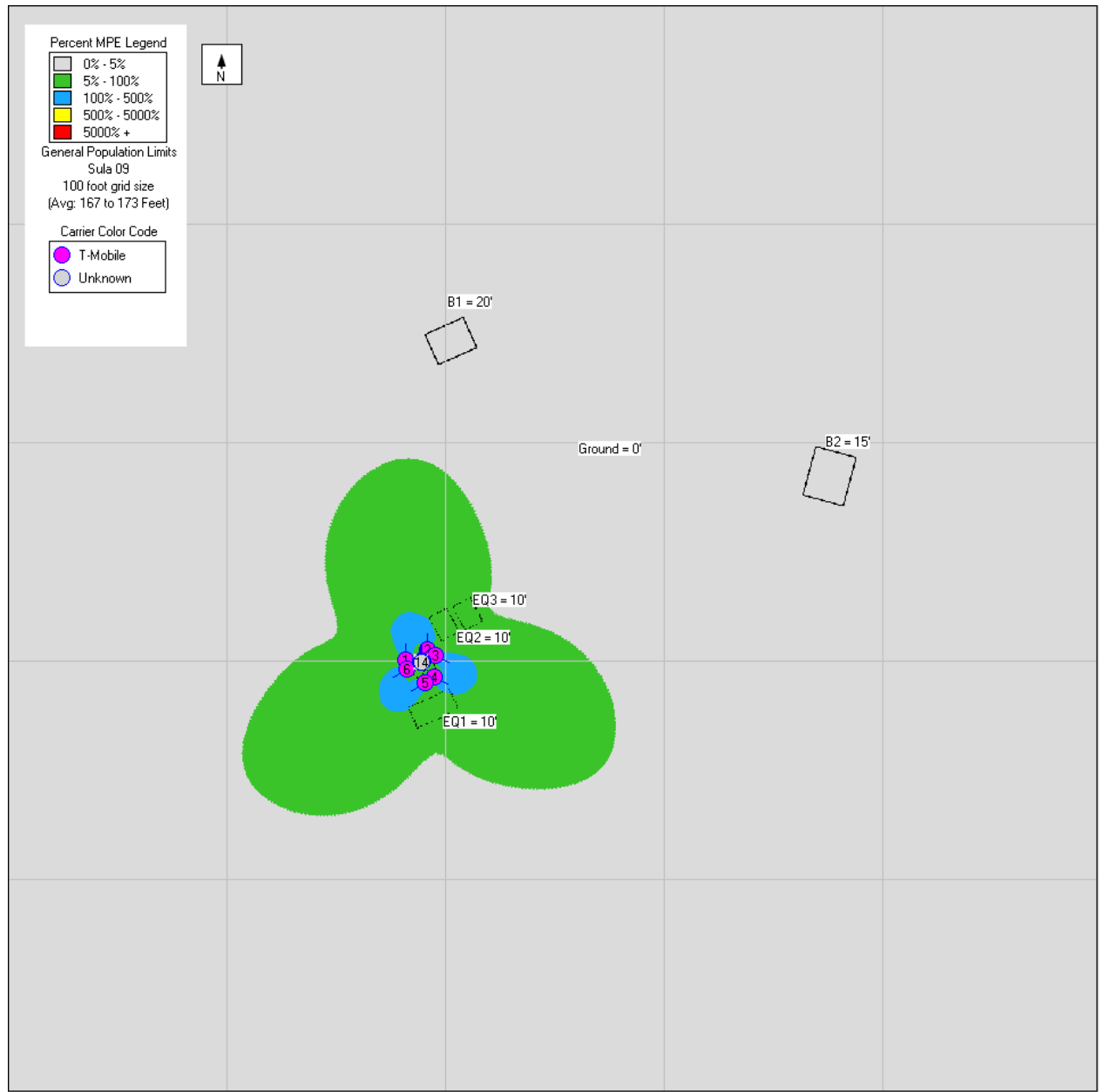
Sector C: Transmitting over Ground	% of MPE Limit:	*Distance from Antenna:
Accessible <b>General Population</b> MPE Limits:	<b>0.01%</b>	<b>N/A</b>
Accessible <b>Occupational</b> MPE Limits:	<b>0.00%</b>	<b>N/A</b>

*\*Distance from Antenna is the distance in feet that the MPE limits are exceeded from the front face of the antenna, outward across an accessible area.*

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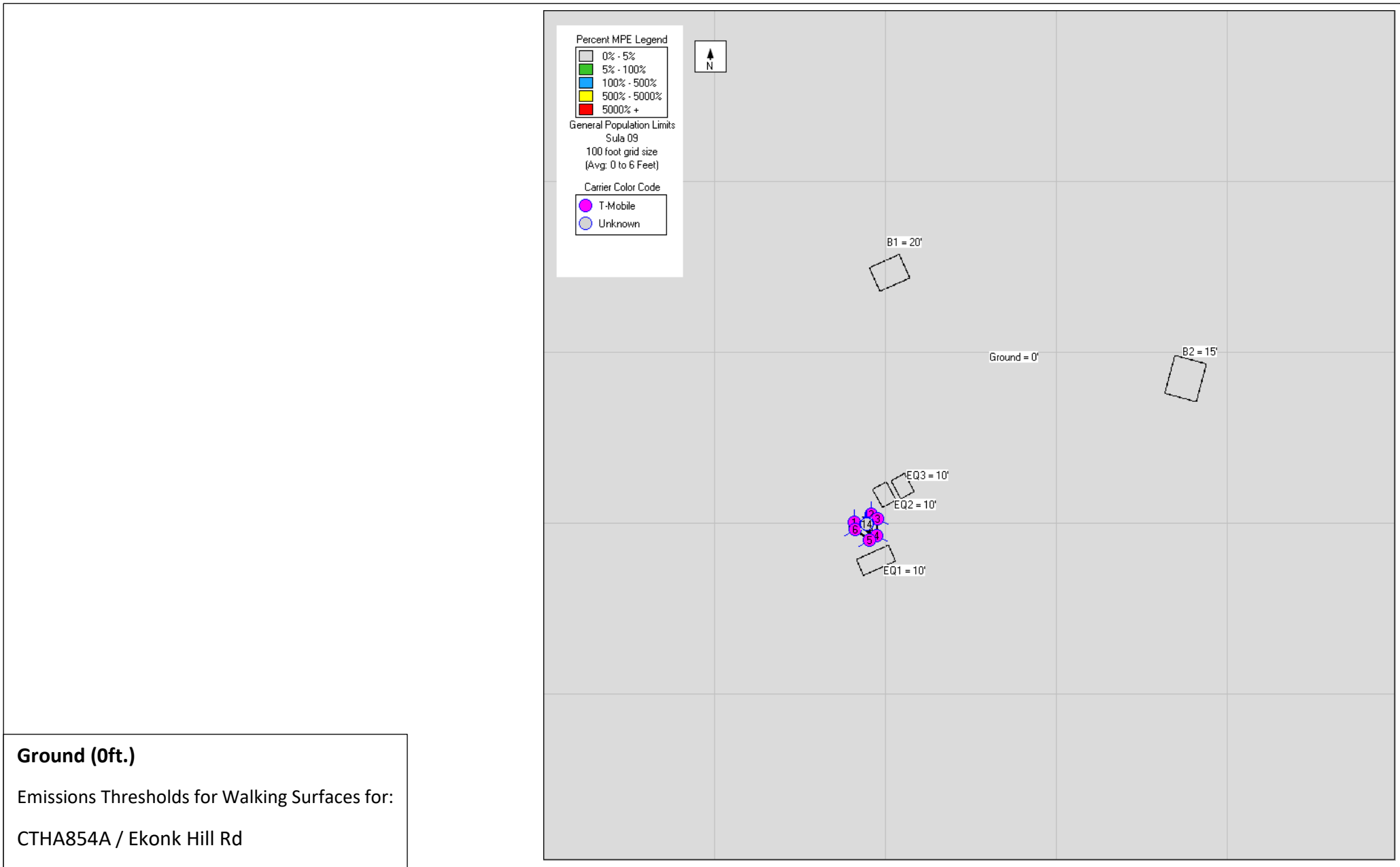
## **APPENDIX A: Emissions Thresholds for Walking Surfaces and Signage**



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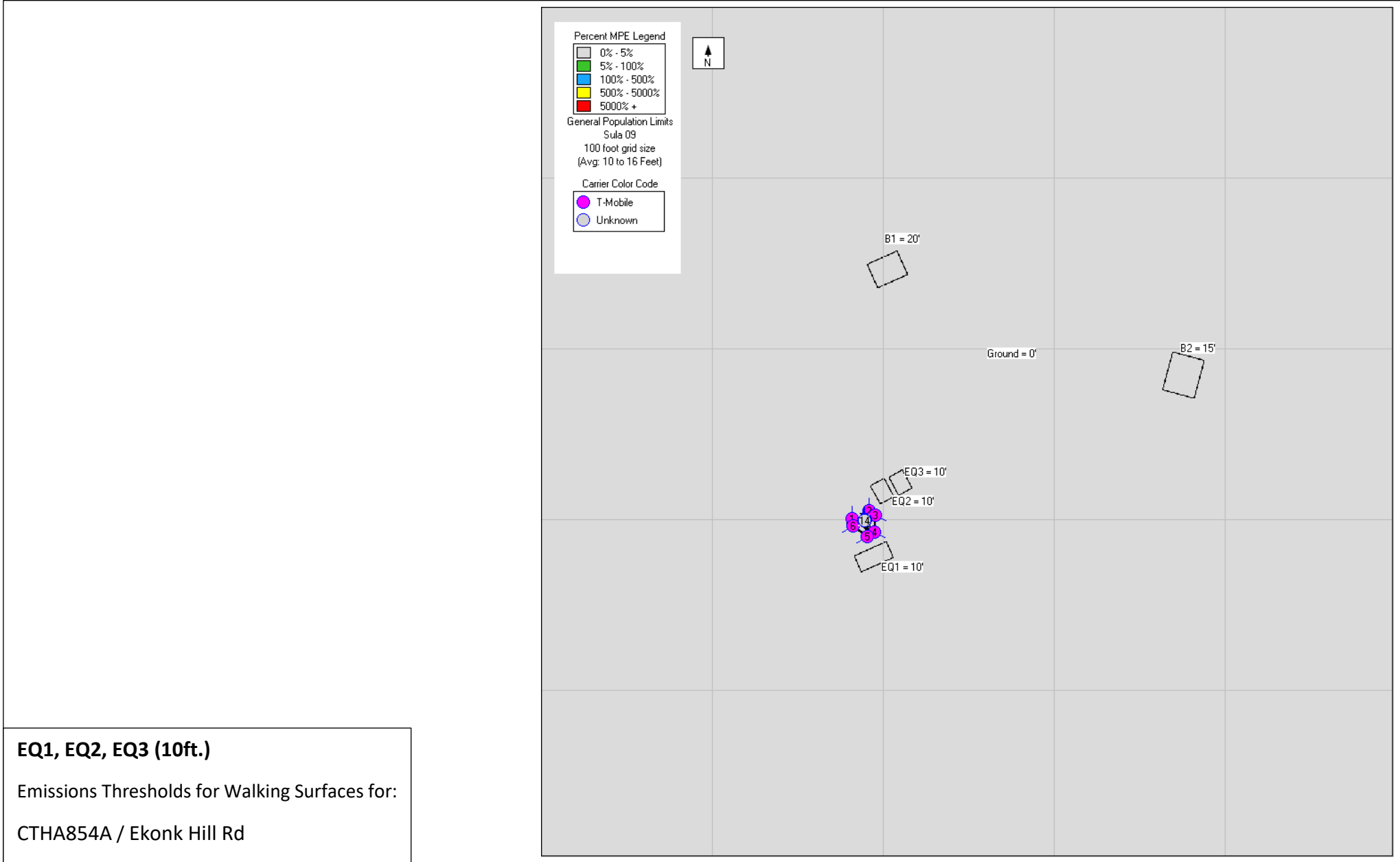


**Ground (0ft.)**  
Emissions Thresholds for Walking Surfaces for:  
CTHA854A / Ekonk Hill Rd

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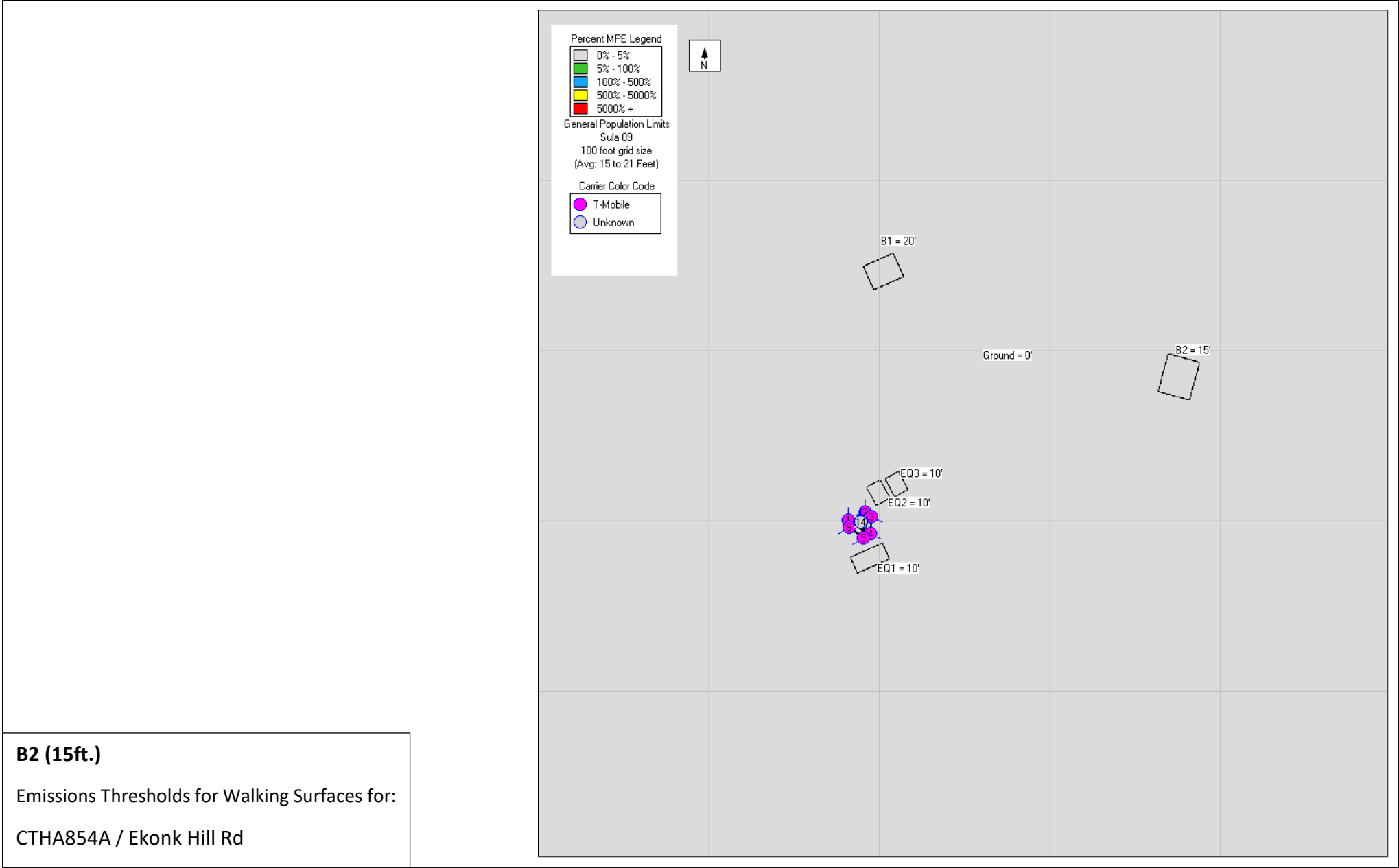
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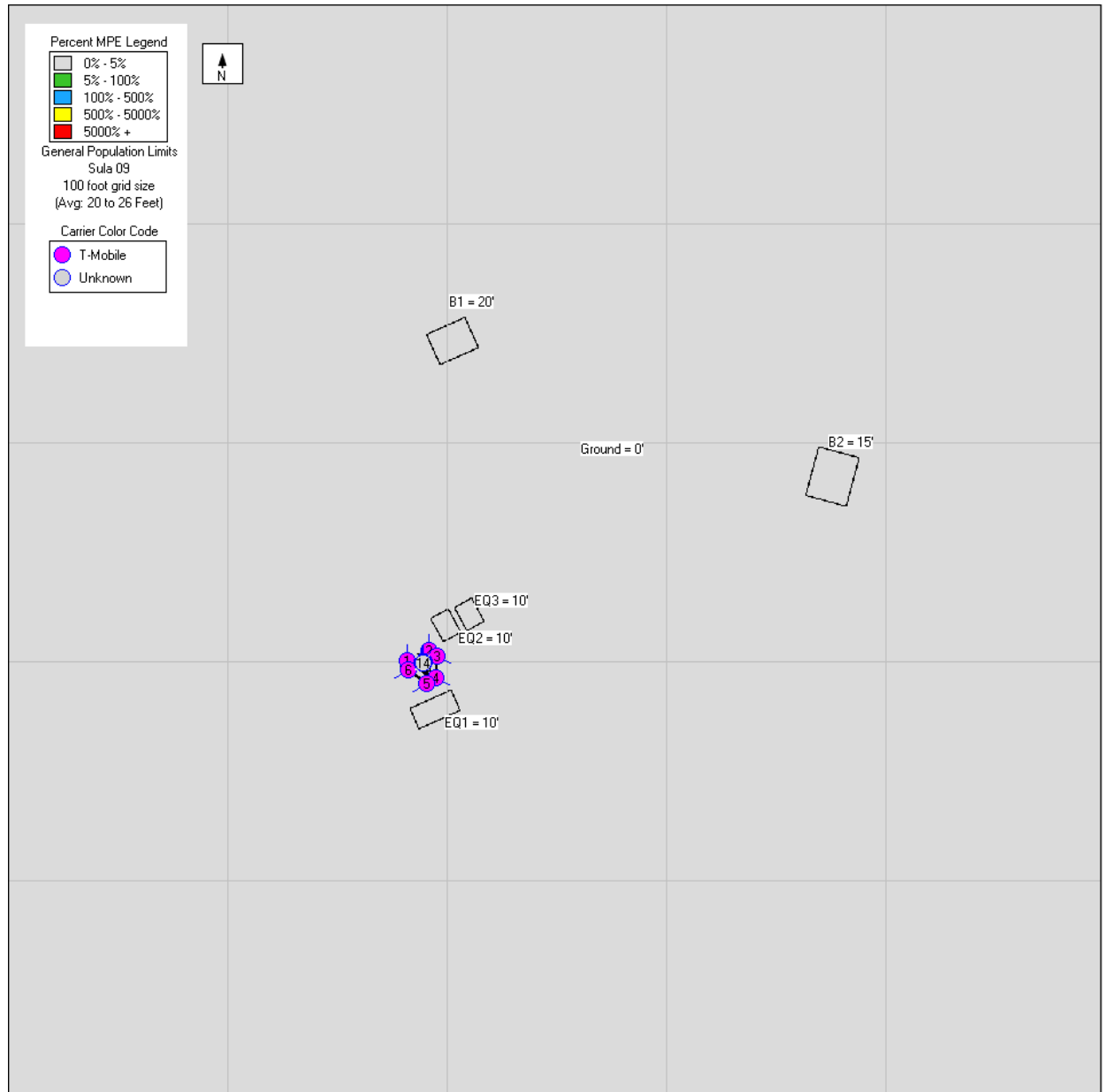
**B2 (15ft.)**

Emissions Thresholds for Walking Surfaces for:  
CTHA854A / Ekonk Hill Rd

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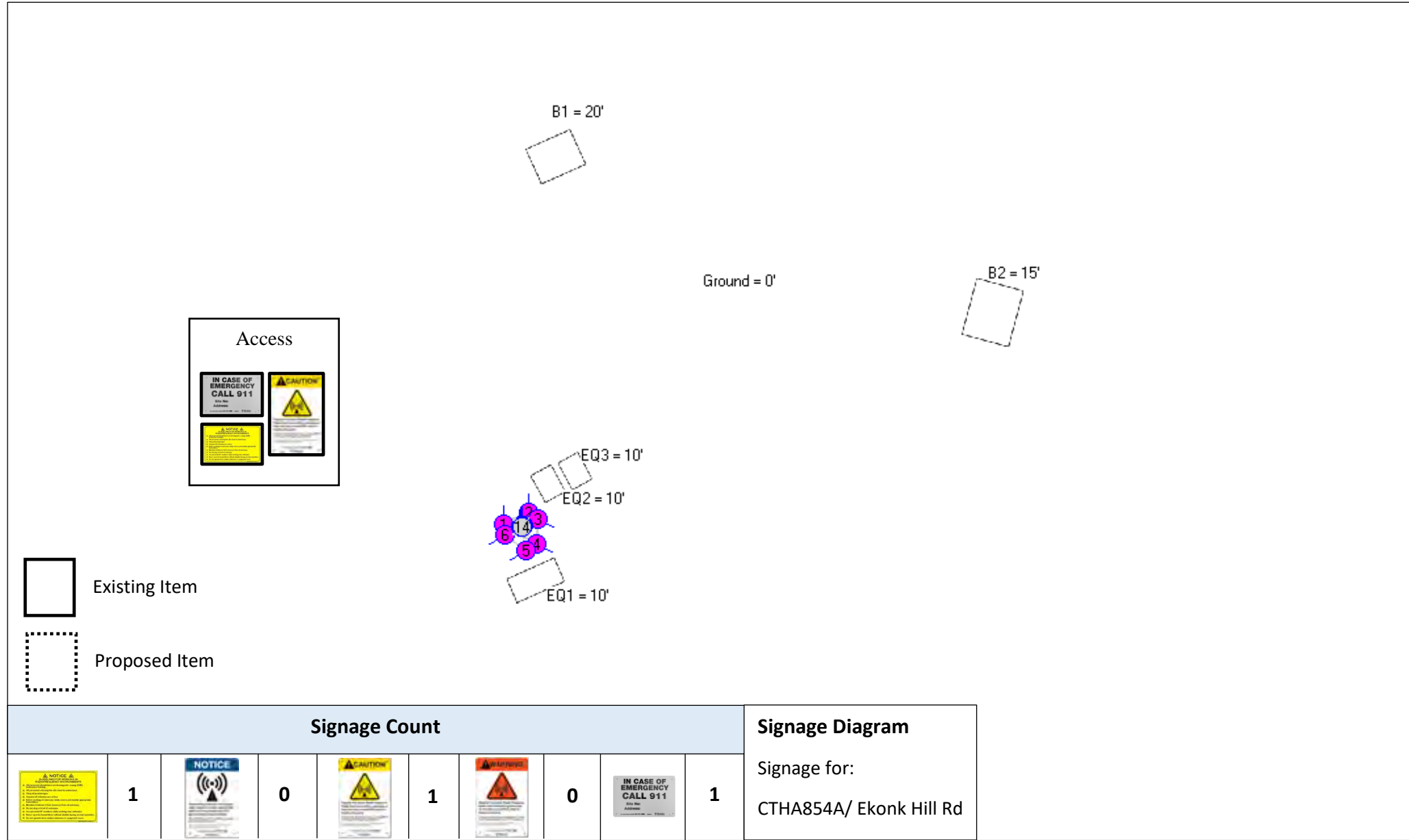
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**B1 (20ft.)**

Emissions Thresholds for Walking Surfaces for:  
CTHA854A / Ekonk Hill Rd





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## Compliance Actions

<b>Access</b>	<ul style="list-style-type: none"><li>• No Action Needed.</li></ul>
<b>Alpha Sector</b>	<ul style="list-style-type: none"><li>• No Action Needed.</li></ul>
<b>Beta Sector</b>	<ul style="list-style-type: none"><li>• No Action Needed.</li></ul>
<b>Gamma Sector</b>	<ul style="list-style-type: none"><li>• No Action Needed.</li></ul>
<b>Notes:</b>	<ul style="list-style-type: none"><li>• If there is a fixed climbing point located on this site, a Guideline and Caution sign should be installed at that location.</li></ul>

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## **APPENDIX B: RF Signage Description Table**

Sign	Description
	<p style="text-align: center;"><b>RF Guideline Sign</b></p> <p style="text-align: center;">Gives guidelines on how to proceed in areas that may exceed either the FCC's General Population or Occupational emissions limits.</p>
	<p style="text-align: center;"><b>Emergency Sign</b></p> <p style="text-align: center;">Used to inform individuals to call 911 in case of emergency.</p>
	<p style="text-align: center;"><b>Blue Notice Sign</b></p> <p style="text-align: center;">Used to inform individuals that they are entering an area that may exceed the FCC's General Population limits. Must be placed anywhere the public can get within 30 feet vertically or horizontally of an antenna.</p>
	<p style="text-align: center;"><b>Yellow Caution Sign</b></p> <p style="text-align: center;">Used to inform individuals that they are entering an area that may exceed the either the FCC's General Population or Occupational Emissions limits. It must be placed so it is visible from all approachable sides. It must also be just outside of the area predicted to exceed the MPE limits so it can be read without standing within the affected area.</p>
	<p style="text-align: center;"><b>Orange Warning Sign (Previously Red)</b></p> <p style="text-align: center;">Used to inform individuals that they are entering an area that may exceed 5x the FCC's Occupational emissions limit. It must be placed so it is visible from all approachable sides. It must also be just outside of the area predicted to exceed the MPE limits so it can be read without standing within the affected area.</p>

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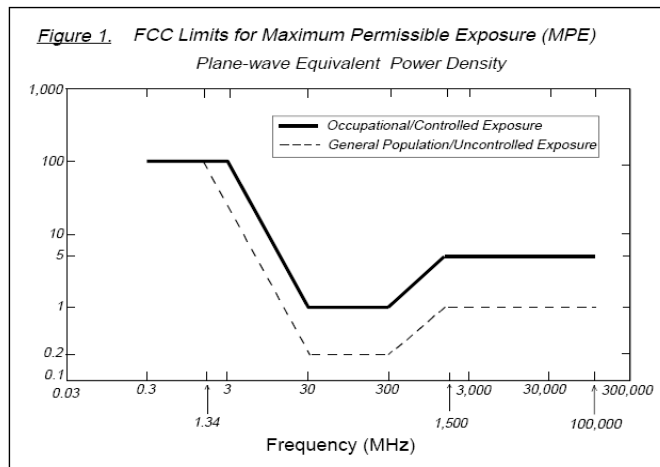


## **APPENDIX C: FCC Emissions Threshold Limits**

Table 1: Limits for Maximum Permissible Exposure (MPE)				
(A) Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time [E] <sup>2</sup> , [H] <sup>2</sup> , or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f <sup>2</sup> )*	6
30-300	61.4	0.163	1.0	6
300-1,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Public/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time [E] <sup>2</sup> , [H] <sup>2</sup> , or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	30
30-300	27.5	0.073	0.2	30
300-1,500	--	--	f/1,500	30
1,500-100,000	--	--	1.0	30

f = Frequency in (MHz)

\* Plane-wave equivalent power density



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## **APPENDIX D: Certifications**

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I, Devon Wangeline, preparer of this report certify that I am fully trained and aware of the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation. I have been trained in the procedures and requirements outlined in T-Mobile's FCC Regulatory Compliance Manual.

Devon Wangeline

1/3/2022

I, Brandon Green, reviewer and approver of this report certify that I am fully trained and aware of the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation. I have been trained in the procedures and requirements outlined in T-Mobile's FCC Regulatory Compliance Manual.

Brandon Green

1/3/2022