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@sbasite.com

January 21, 2021

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

Notice of Exempt Modification
181 A Norman Road, Griswold, CT 06351
Latitude : 41.601097
Longitude : -71.954325
T-Mobile #: CT11152C_Anchor

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 148-foot level of the existing 160-foot Self Support Tower at 181 A Norman Road. The tower is owned by SBA Towers II LLC. The property is owned by Ernest and Stuart Norman. T-Mobile intends to Remove (6) six 700/1900 MHz antennas and replace with six (6) new 600/700/1900/2100 MHz antennas and install three (3) 2500 MHz antennas for a total of nine (9) antennas.

The new antennas would support 5G services and would be installed at the 148-foot level of the tower.

T-Mobile is also proposing tower modifications to the foundation footings on the 160-foot Self-Supporting Tower as shown on the enclosed structural modification drawings in Exhibit 7.

Please note: Per the Connecticut Siting Council Website: CSC COVID 19 Guidelines. *In order to prevent the spread of Coronavirus and protect the health and safety of our members and staff, as of March 18, 2020, the Connecticut Siting Council shall convert to full remote operations until March 30, 2020. Please be advised that during this time period, all hard copy filing requirements will be waived in lieu of an electronic filing. Please also be advised that the March 26, 2020 regular meeting shall be held via teleconference. The Council's website is not equipped with an on-line filing fee receipt service. Therefore, filing fees and/or direct cost charges associated with matters received electronically during the above-mentioned time period will be directly invoiced at a later date.*

Planned Modifications:

TOWER

Remove:

- N/A

Remove and Replace:

- (3) RFS APXv18-209015-C (L700 MHz antenna (Remove) – Ericsson AIR6449 B41 2500 MHz antennas (Replace)
- (3) Commscope LNX-6515DS l700 MHz antennas (Remove) – (3) RFS APXVAALL24-43-U-NA20 L600/700 MHz antenna (Replace)

Install New:

- (3) RFS APX16DWV-16DWVS-E-A20 2100 MHz antennas
- (3) Ericsson 4449 B71+B85 RRUs
- (3) Ericsson 4415 B66 RRUs
- (3) Ericsson 4424 B25 RRUs
- (6) 1-5/8" fiber

Existing Equipment to Remain:

- (3) RFS ATMAA1412D-120 TMAs
- (3) T-Frames (a/k/a Sector Frames)

Entitlements:

- (6) 1-1/4" coax
- (6) 1-5/8" coax

GROUND

Install New:

- Foundation reinforcement for Tower
- Ice Bridge
- Ericsson B160 Battery Cabinet
- Concrete pad extension (5'-6" x 5'-6")
- Ericsson 6160 Equipment cabinet on proposed concrete pad
- Equipment inside Ericsson B160 Equipment cabinet

Existing Equipment to Remain:

- (1) ½" coax for GPS antenna

Entitlements:

- N/A

This facility was originally approved by the Town of Griswold's Planning and Zoning Commission on June 8, 1998 under Case No: ZP 12-98. Approval was for a 160' tower that met all FCC and FAA regulations. There were no further post construction stipulations set. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to the Town of Griswold's First Selectman, Todd Babbitt, and

Town Planner, Mario Tristany, Jr., as well as to the property owners. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

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

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modification will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modification will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading with certain modifications.

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 x3804 + T
508.366.2610 + F
508.868.6000 + C
GShepherd@sbasite.com

Attachments

cc: Todd Babbitt, First Selectman /with attachments
Town of Griswold, 28 Main Street, Jewett City, CT 06351
Mario J. Tristany, Jr., Town Planner /with attachments
Town of Griswold, 28 Main Street, Jewett City, CT 06351
Stuart R. and Ernest R. Norman /with attachments
257 Norman Road Griswold CT 06351

EXHIBIT LIST

Exhibit 1	Check Copy	To be invoiced at a later date per Covid 19 guidelines.
Exhibit 2	Notification Receipts	x
Exhibit 3	Property Card	x
Exhibit 4	Property Map	x
Exhibit 5	Original Zoning Approval	Town of Griswold P&Z Commission 6/8/98
Exhibit 6	Construction Drawings	Chappell Engineering 1/19/21
Exhibit 7	Tower Modification Drawings	TES 12/8/20 (Job #99307)
Exhibit 8	Post-Mod Structural Analysis	TES 12/8/20
Exhibit 9	Mount Analysis	TES 10/27/20
Exhibit 10	EME Report	1/12/21

EXHIBIT 1

Normally, Exhibit 1 would contain a copy of the check for the filing fee.

EXHIBIT 2

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

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

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EXHIBIT 3

qPublic.net™ Town of Griswold, CT

Summary

ParcelId	10810
Account Number	04129801
Location Address	181 A NORMAN RD
Map-Block-Lot	38 /69 /6A
	Dev Lot. 7091
Use Class/Description	4310 TEL REL TW
Assessing Neighborhood	0050A
Census Tract	7091
Acreage	0.08
Utilities	Well,Septic

Owner

NORMAN ERNEST R & STUART R &
257 NORMAN RD
GRISWOLD, CT 06351

Current Appraised Value

		2017	2016	2015
+	Building Value	$0	$0	$0
+	XF Value	$0	$0	$0
+	OB Value	$126,900	$126,900	$121,500
+	Land Value	$150,000	$150,000	$150,000
+	Special Land Value			
+	Total Appraised Value	$276,900	$276,900	$271,500
+	Net Appraised Value	$276,900	$276,900	$271,500
+	Current Assessment	$193,830	$193,830	$190,050

Assessment History

		2017	2016	2015
+	Building Value	$0	$0	$0
+	OB/Misc	$88,830	$88,830	$85,050
+	Land	$105,000	$105,000	$105,000
+	Total Assessment	$193,830	$193,830	$190,050

Land

Use	Class	Zoning	Area	Value
4310 TEL REL TW	I		3600 SF	$150,000

Out Buildings\Extra Features

Description	Sub Description	Area	Year Built	Value
CELL TOWER		160HEIGHT	1999	$86,400
FENCE-6' CHAIN		240L.F.	1999	$2,700
CELL EQUIP SHELTER		72S.F.	1999	$5,400
CELL EQUIP SHELTER		432S.F.	1999	$32,400

Sales History

Sales Date	Type of Document	Grantee	Vacant/Improved	Book/Page	Amount
03-27-1992		NORMAN ERNEST R & STUART R &	Improved	144/ 500	$0

Permit Information

Permit ID	Issue Date	Type	Description	Amount	Inspection Date	% Complete	Date Complete	Comments
117-19	10-29-2018	MN	MAINTENANCE	$10,287		0		BOLT ON REINFORCING ANGLE FROM 1' TO 10' ON EXISTING CELL TOWER
57-19	09-06-2018	CM	COMMERCIAL	$25,000		0		TELECOM UPGRADE: REMOVE AND REPLACE (3) ANTENNAS AND INSTALL (6) REMOTE RADIO UNITS
224-17	04-12-2017	CM	COMMERCIAL	$20,000		0		SWAP 3 EXISTING CELL ANTENNAS WITH 3 NEWER TECHNOLOGY CELL ANTENNAS AND ASSOCIATED EQUPMT AT EXISTING CELL SITE
125-13	01-23-2013	AD	3ANT/6REMOTE RADIO	$25,000		0		
47-99	08-27-1999	CM	8X11 OB	$500		100	10-01-1999	8 X 11 QUINN VALLEY OB
8-99	07-12-1999	CM	24X36 OB	$45,000	9/1/1999 12:00:00 AM	100	09-10-1999	8-99 COMP CO
242-98	04-15-1999	CM	TOWER/FENCE	$170,100	7/12/1999 12:00:00 AM	100	07-12-1999	5-99 CO

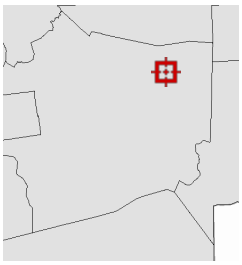
Sketch

No data available for the following modules: Building Data, Building Data, Commercial Building, Photos.

EXHIBIT 4

qPublic.net™ Town of Griswold, CT

Overview



Legend

- Parcels
- Roads
- City Labels

Parcel ID	10810	**Alternate ID**	04129801	**Owner Address**	NORMAN ERNEST R & STUART R &
Sec/Twp/Rng	38-69-6A	**Class**	I		FORSCHLER PRISCILLA M
Property Address	181 A NORMAN RD	**Acreage**	0.08264463		257 NORMAN RD
					GRISWOLD CT 06351

District 0050A
Brief Tax Description n/a
(Note: Not to be used on legal documents)

Date created: 6/20/2019

Developed by Schneider GEOSPATIAL

EXHIBIT 5

CT10012-A/GRISWOLD

Town of Griswold

TOWN HALL, 32 SCHOOL STREET
JEWETT CITY, CONNECTICUT 06351

SELECTMEN	376-7061
ASSESSOR	376-7071
TAX COLLECTOR	376-7068
SOCIAL SERVICES	376-7067
PUBLIC HEALTH NURSES	376-7077

TOWN CLERK	376-7063
BUILDING INSPECTOR	376-7065
PLANNING & ZONING	376-7073
BOOKKEEPING	376-7074
SANITARIAN	376-7065

PLANNING & ZONING COMMISSION

June 10, 1998

Wayne Kemp
1050 Buckley Highway
Union, CT 06076

Re: Wayne Kemp ZP 12-98
257 Norman Road, Griswold, CT

Dear Mr. Kemp:

The Griswold Planning & Zoning Commission, at it's Regular Meeting held on June 8 1998, reviewed the above-referenced Zoning Permit application to construct a 160-foot communication tower at 257 Norman Road on property owned by Ernest R. Norman, Stuart R. Norman and Priscilla Forschler.

Following a discussion on the matter, the commission voted to approve the application with the condition that all applicable FCC and FAA regulations governing the tower are followed. Please forward written documentation to Mario J. Tristany, Jr., Town Planner, that shows compliance with the afore-mentioned regulating agencies.

In addition, please be advised that it will be necessary for you to file one set of fixed line mylars, one set of regular mylars, and four sets of paper prints with original signatures and seals of your surveyor for endorsement by the undersigned. Please make sure that said mylars contain a signature line and date line.

Should you have any questions regarding the above, please contact Mario at (860)376-7084.

Very truly yours,

F. Clyde Seaman

F. Clyde Seaman
Chairman

cc: Peter Zvingilas, Z.E.O.
Cynthia Kata, Assessor
Ernest Norman
Stuart Norman

CERTIFIED: Z 307 862 685

(PZFY98II:\LETTERS\DL KEMP ZP 12-98 060898)

EXHIBIT 6

GRISWOLD/I-395 X85/BMW

181A NORMAN ROAD
GRISWOLD, CT 06351
NEW LONDON COUNTY

SITE NO.: CT11152C

SITE TYPE: 162'± SELF-SUPPORT TOWER

RF DESIGN GUIDELINE: 67D5A998C ODE+6160

APPROVALS

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

T-MOBILE TECHNICIAN SITE SAFETY NOTES

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

SITE NOTES

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

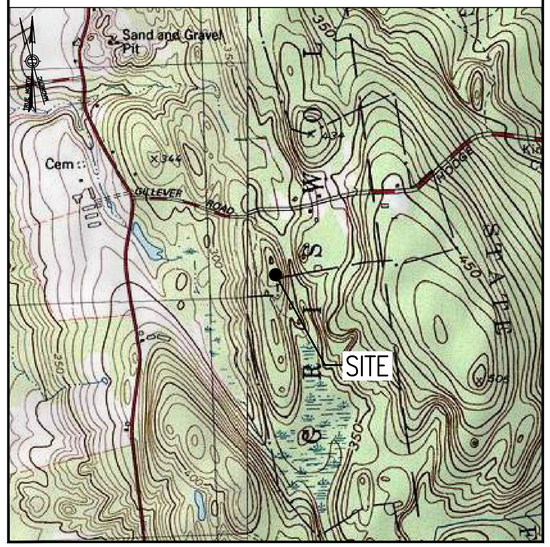
GENERAL NOTES

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

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

VICINITY MAP

SCALE: 1" = 1000'-0"



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.

SHEET INDEX

SHEET NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	2
GN-1	GENERAL NOTES	2
A-1	COMPOUND & EQUIPMENT PLANS	2
A-2	TOWER ELEVATION & ANTENNA PLANS	2
A-3	SITE DETAILS	2
A-4	ANTENNA & FEEDLINE CHARTS	2
E-1	ELECTRIC & GROUNDING DETAILS	2

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).

PROJECT SUMMARY

SITE NUMBER:	CT11152C
SBA SITE NUMBER:	CT10012-A
SBA SITE NAME:	GRISWOLD 2, CT
SITE ADDRESS:	181A NORMAN ROAD GRISWOLD, CT 06351
PROPERTY OWNER:	ERNEST R. & STUART R. NORMAN 257 NORMAN ROAD GRISWOLD, CT 06351
TOWER OWNER:	SBA TOWERS II, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	NEW LONDON
ZONING DISTRICT:	R-60 (LOW-DENSITY RESIDENTIAL)
STRUCTURE TYPE:	SELF-SUPPORT TOWER
STRUCTURE HEIGHT:	162'±
APPLICANT:	T-MOBILE NORTHEAST LLC 15 COMMERCE WAY, SUITE B NORTON, MA 02766
SBA RSM:	STEPHEN ROTH PHONE: 860-539-4920 EMAIL: SRoth@sbasite.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: N.41.601285° (41° 36' 04.63") LONGITUDE W.71.953866° (71° 57' 13.92")

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

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

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil ·Structural ·Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST, SUITE 101
MARLBOROUGH, MA 01752
(508) 481-7400
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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED
PROFESSIONAL CIVIL ENGINEER
1/19/21

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	01/19/21	CONSTRUCTION REVISED	CMC
1	12/08/20	ISSUED FOR CONSTRUCTION	CMC
0	11/05/20	ISSUED FOR REVIEW	CMC

SITE NUMBER:
CT11152C

SITE ADDRESS:
181A NORMAN ROAD
GRISWOLD, CT 06351

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

1815.154

GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SITE WORK GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

CONCRETE AND REINFORCING STEEL NOTES:

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

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

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

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

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

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

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

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

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

STRUCTURAL STEEL NOTES:

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

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

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

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

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

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

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

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

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

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

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

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

COMPACTION EQUIPMENT:

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

CONSTRUCTION NOTES:

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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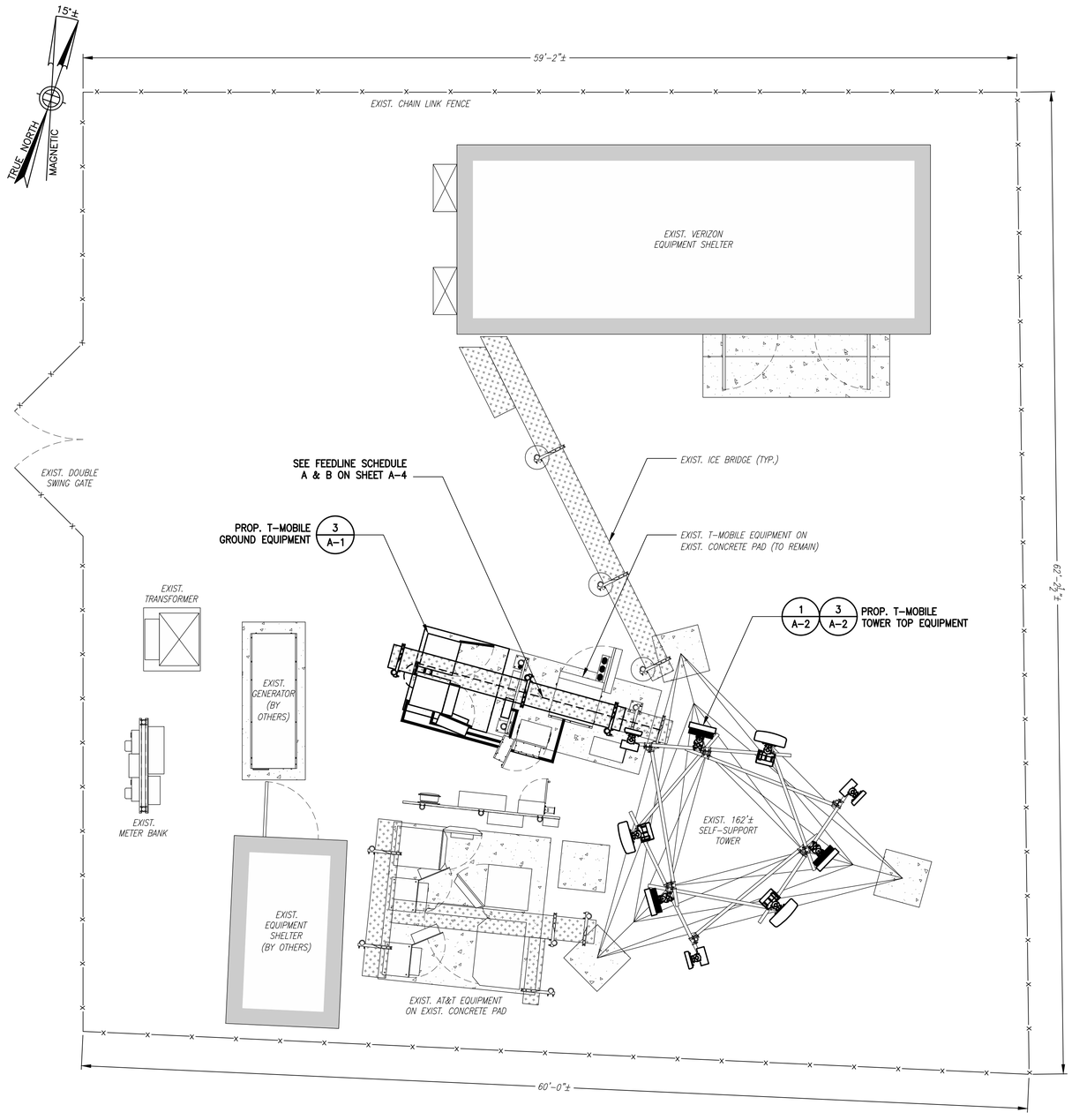
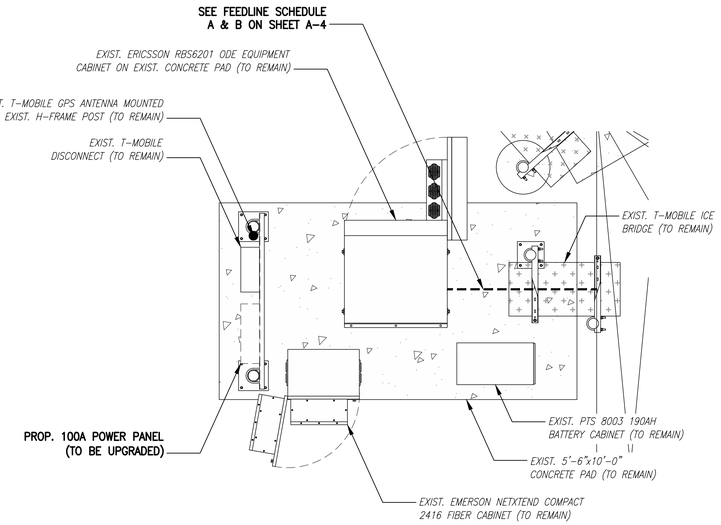
SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY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



COMPOUND PLAN

SCALE: 1/4" = 1'-0" (1 A-1)

0 4'-0" 8'-0' 12'-0"

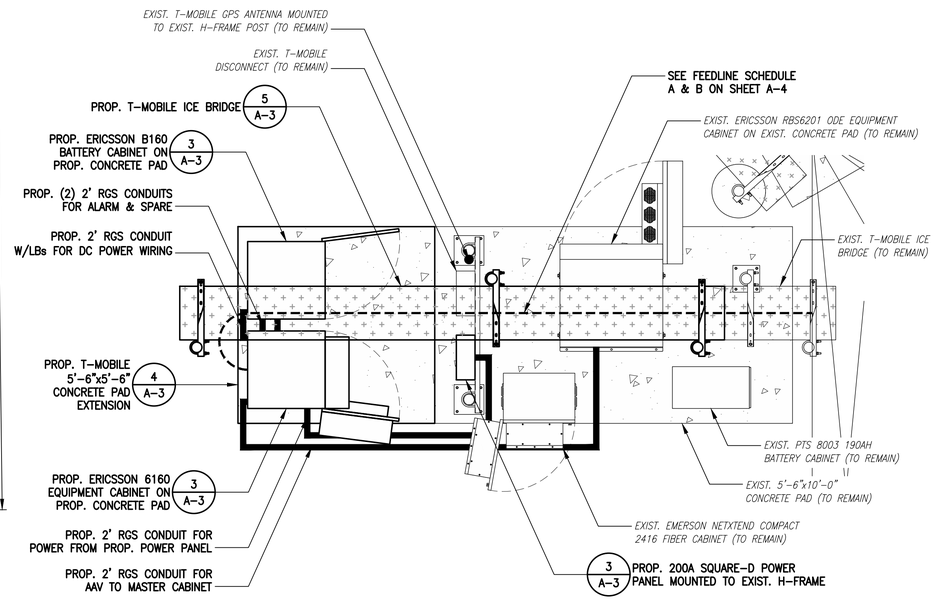


EXISTING EQUIPMENT PLAN

SCALE: 1/2" = 1'-0" (2 A-1)

NORTH

0 2'-0" 4'-0" 6'-0"



PROPOSED EQUIPMENT PLAN

SCALE: 1/2" = 1'-0" (3 A-1)

NORTH

0 2'-0" 4'-0" 6'-0"

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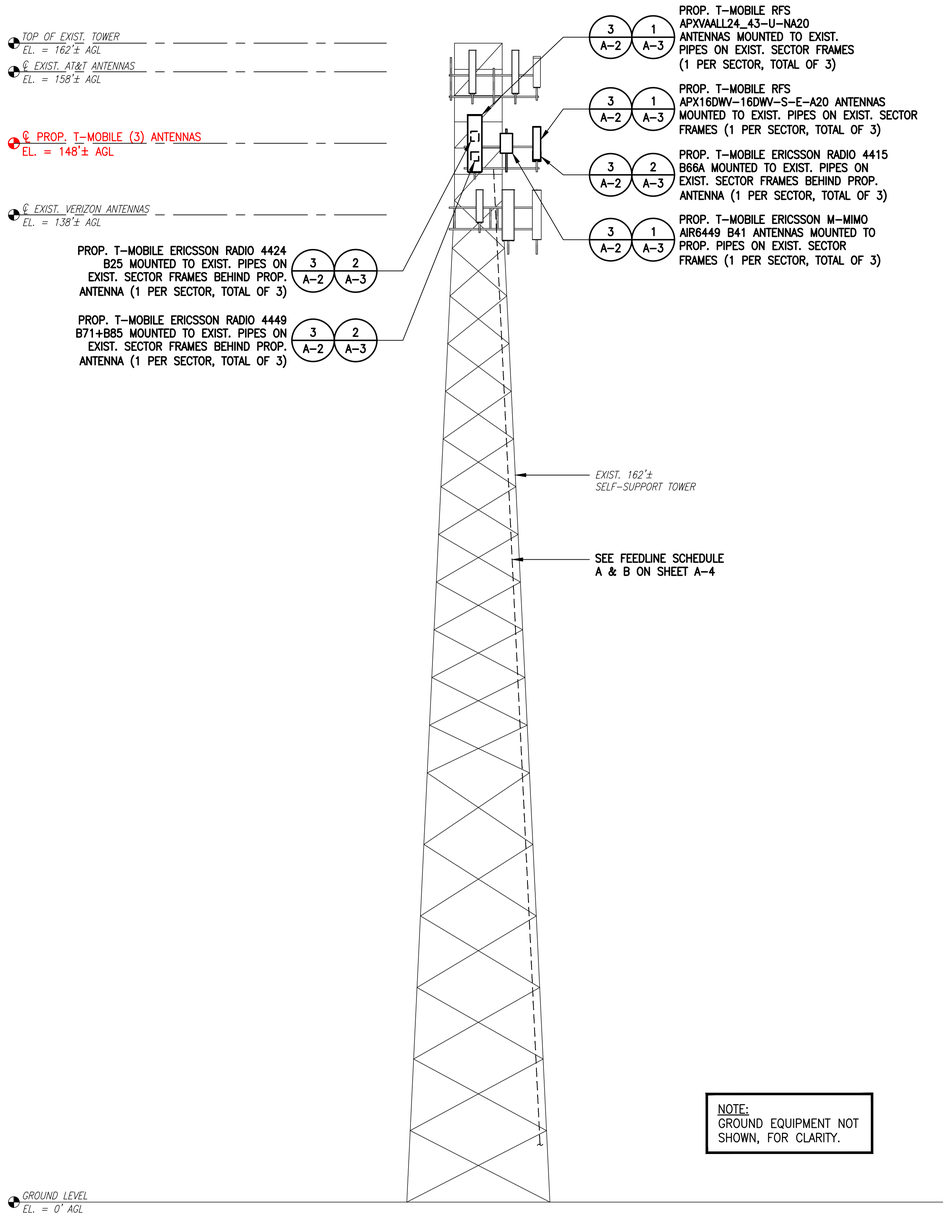
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY SPECIAL SHIELDING OF TOWER TOP EQUIPMENT AND FOR ANY SPECIAL FEEDLINE BUNDLING OR RELOCATION.

SPECIAL TOWER TOP EQUIPMENT INSTALLATION WORK NOTE (SAFETY-CLIMB ALIGNMENT REQUIREMENTS):
GENERAL CONTRACTOR SHALL ORIENT PROPOSED PLATFORM REINFORCEMENT KIT RING-MOUNTS SO THAT EXISTING SAFETY CLIMB CABLE IS NOT OBSTRUCTED/RE-ROUTED FROM VERTICAL ALIGNMENT AND IS NOT IN PHYSICAL CONTACT WITH EXISTING OR PROPOOSED RING-MOUNT HARDWARE. GENERAL CONTRACTOR SHALL INSTALL NEW OR ADDITIONAL SAFETY-CLIMB CABLE GUIDES IF ADDITIONAL CLEARANCE IS REQUIRED. ADDITIONAL CABLE GUIDES SHALL BE ATTACHED SECURELY TO THE POLE USING MECHANICAL FASTENERS OR FIELD WELDED BY A CERTIFIED WELDING TECHNICIAN.

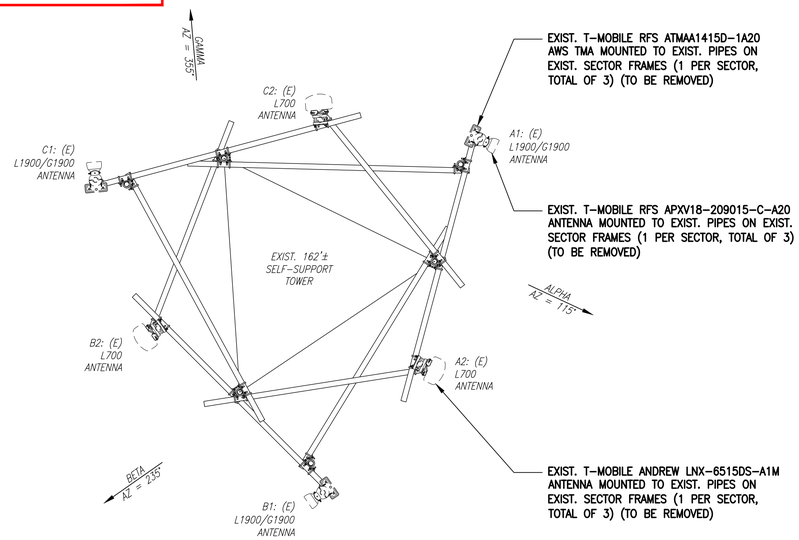
RAD CENTER NOTE:
T-MOBILE RAD CENTER SHOWN IN RED TEXT BASED ON SBA-PROVIDED CO-LOCATION APPLICATION, EQUIPMENT DATABASE, AND STRUCTURAL ANALYSIS. THE SBA-PROVIDED ANTENNA RAD CENTER SHALL SUPERSEDE ANY CONFLICTING INFORMATION DERIVED FROM THE T-MOBILE RFDS.

GENERAL CONTRACTOR NOTE:
GENERAL CONTRACTOR SHALL REFER TO MOUNT STRUCTURAL ANALYSIS AND ANY MOUNT MODIFICATION DESIGN PROVIDED BY SBA

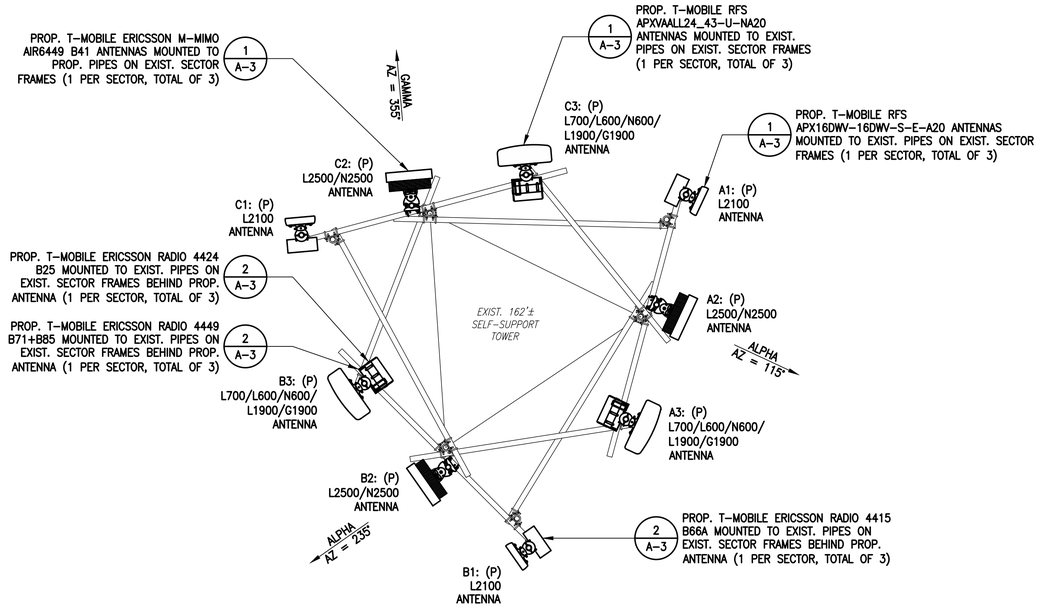


NOTE:
GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.

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



EXISTING ANTENNA PLAN
SCALE: N.T.S.
2 A-2
NORTH



PROPOSED ANTENNA PLAN
SCALE: N.T.S.
3 A-2
NORTH

T-MOBILE NORTHEAST LLC
15 COMMERCE WAY, SUITE B
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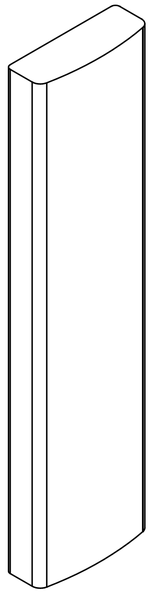
SITE ADDRESS:
181A NORMAN ROAD
GRISWOLD, CT 06351

SHEET TITLE
TOWER ELEVATION & ANTENNA PLANS

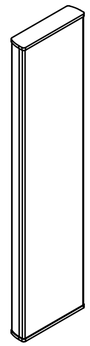
SHEET NUMBER
A-2

1815.154



RFS APXVAALL24_43-U-NA20 ANTENNA

DIMENSIONS: 95.9"H x 24.0"W x 8.5"D
WEIGHT: 122.8 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3



RFS APX16DWV-16DWV-S-E-A20 ANTENNA

DIMENSIONS: 55.9"H x 13.0"W x 3.15"D
WEIGHT: 40.7 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

ERICSSON M-MIMO AIR6449 B42 ANTENNA

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

ANTENNA DETAIL
SCALE: N.T.S.
1 / A-3

ERICSSON RADIO 4415 B66A

DIMENSIONS: 16.5"H x 13.4"W x 5.9"D
WEIGHT: 46.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

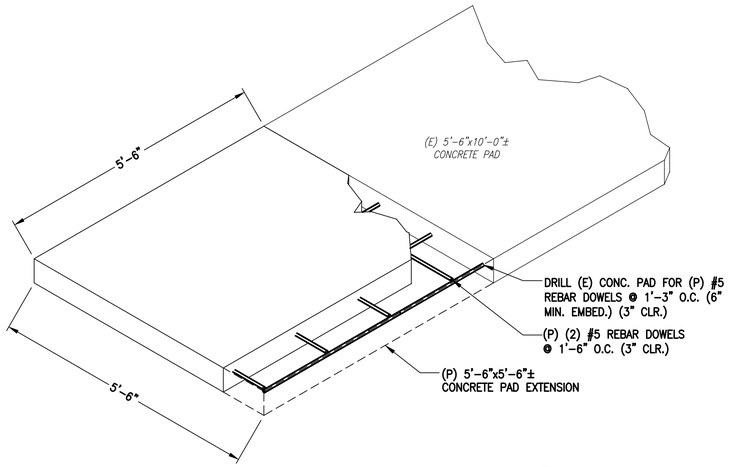
ERICSSON RADIO 4424 B25

DIMENSIONS: 16.5"H x 13.5"W x 9.6"D
WEIGHT: 88.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

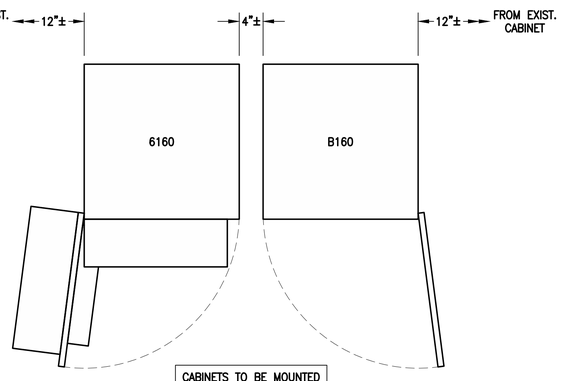
ERICSSON RADIO 4449 B71+B85

DIMENSIONS: 14.9"H x 13.2"W x 9.3"D
WEIGHT: 74.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

RADIO DETAIL
SCALE: N.T.S.
2 / A-3



CONCRETE PAD EXTENSION
SCALE: N.T.S.
4 / A-3



CABINETS TO BE MOUNTED PER MANUFACTURER'S SPECIFICATIONS

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

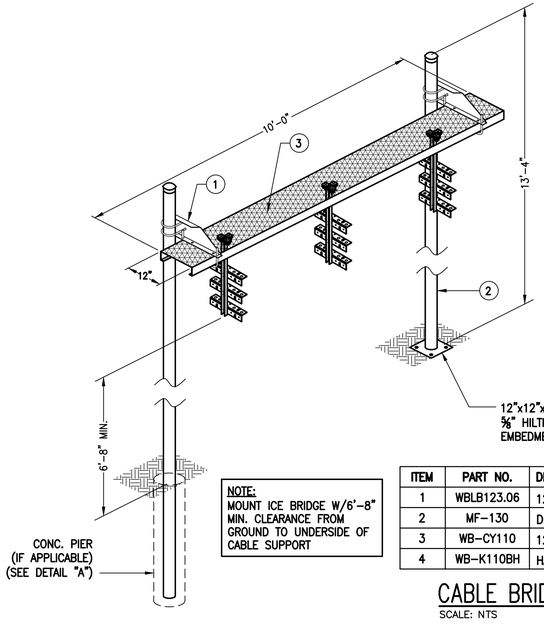
DIMENSIONS: 63.25"H x 26.0"W x 26.0"D
QUANTITY: TOTAL OF 1

GC TO SUPPLY & INSTALL 30A RELIANCE GENERATOR PLUG WITH INTERLOCK KIT (INSTALL ON PANEL COVER OF THE SQUARE-D PANEL)

SQUARE-D QO12040M200RB125 POWER PANEL

DIMENSIONS: 26.0"H x 14.76"W x 6.0"D
QUANTITY: TOTAL OF 1

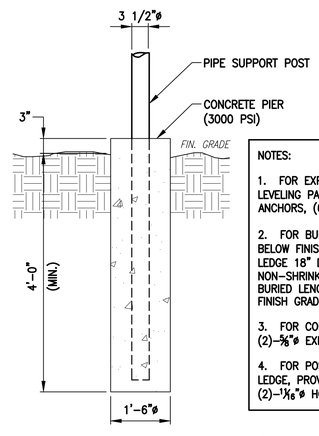
EQUIPMENT DETAILS
SCALE: N.T.S.
3 / A-3



NOTE:
MOUNT ICE BRIDGE W/6'-8" MIN. CLEARANCE FROM GROUND TO UNDERSIDE OF CABLE SUPPORT

ITEM	PART NO.	DESCRIPTION	QTY.
1	WBLB123.06	12" WAVEGUIDE BRIDGE SUPPORT BRACKET	2
2	MF-130	DIRECT BURIAL PIPE COLUMN, 13'-4"	2
3	WB-CY110	12" SAFETY GRATING	1
4	WB-K110BH	HARDWARE KIT ITEM #5-16	1

CABLE BRIDGE DETAIL
SCALE: NTS
5 / A-3



DETAIL "A"

NOTES:

1. FOR EXPOSED LEDGE, PROVIDE GROUT LEVELING PAD. INSTALL (2)-⅝"ø EXPANSION ANCHORS, (6" LONG).
2. FOR BURIED LEDGE AT LESS THAN 3'-6" BELOW FINISH GRADE, CORE 8"ø HOLE INTO LEDGE 18" DEEP. FILL AROUND PIPE WITH NON-SHRINK GROUT. USE COAL TAR ON BURIED LENGTH OF PIPE, AND BACKFILL TO FINISH GRADE
3. FOR CONCRETE, FASTEN BASEPLATE WITH (2)-⅝"ø EXPANSION ANCHORS, (6" LONG).
4. FOR POSTS ON CONCRETE OR EXPOSED LEDGE, PROVIDE 4"x8"x⅜" BASE PLATE WITH (2)-1⅛"ø HOLES @ 6" O.C.

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SHEET TITLE
SITE DETAILS

SHEET NUMBER
A-3

1815.154

FINAL ANTENNA CONFIGURATION

SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	CABLES
ALPHA	RFS APX16DWV-16DWV-S-E-A20	148'± AGL	115°	0°	–	L2100	ERICSSON RADIO 4415 B66A	PROP. (6) 1-⅝" (6x12) HCS FIBER CABLES
	ERICSSON M-MIMO AIR6449 B41	148'± AGL	115°	0°	–	L2500/N2500	–	
	RFS APXVAALL24_43-U-NA20	148'± AGL	115°	0°	–	L700/L600/N600	ERICSSON RADIO 4449 B71+B85	
					–	L1900/G1900	ERICSSON RADIO 4424 B25	
BETA	RFS APX16DWV-16DWV-S-E-A20	148'± AGL	235°	0°	–	L2100	ERICSSON RADIO 4415 B66A	
	ERICSSON M-MIMO AIR6449 B41	148'± AGL	235°	0°	–	L2500/N2500	–	
	RFS APXVAALL24_43-U-NA20	148'± AGL	235°	0°	–	L700/L600/N600	ERICSSON RADIO 4449 B71+B85	
					–	L1900/G1900	ERICSSON RADIO 4424 B25	
GAMMA	RFS APX16DWV-16DWV-S-E-A20	148'± AGL	355°	0°	–	L2100	ERICSSON RADIO 4415 B66A	
	ERICSSON M-MIMO AIR6449 B41	148'± AGL	355°	0°	–	L2500/N2500	–	
	RFS APXVAALL24_43-U-NA20	148'± AGL	355°	0°	–	L700/L600/N600	ERICSSON RADIO 4449 B71+B85	
					–	L1900/G1900	ERICSSON RADIO 4424 B25	

CABLE NOTE: EXISTING (6) 1-¼" COAX CABLES & (6) 1-⅝" COAX CABLES TO BE REMOVED. SEE FEEDLINE SCHEDULE A & B BELOW.

NOTE: RFDS REV4 – 09/29/20

FEEDLINE SCHEDULE

SCHEDULE	FEEDLINES		LOCATION
A	*EXISTING TO REMAIN:*	*(1) ½" COAX FOR GPS ANTENNA*	ROUTED PER STRUCTURAL ANALYSIS
	EXISTING TO BE REMOVED:	*(6) 1-¼" COAX CABLES* *(6) 1-⅝" COAX CABLES*	
B	PROPOSED:	(6) 1-⅝" (6x12) HCS FIBER CABLES	

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

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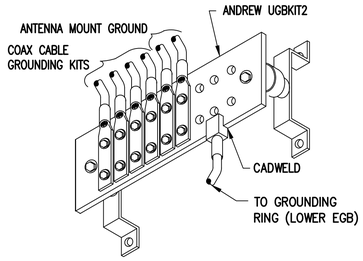
SHEET TITLE
ANTENNA & FEEDLINE CHARTS

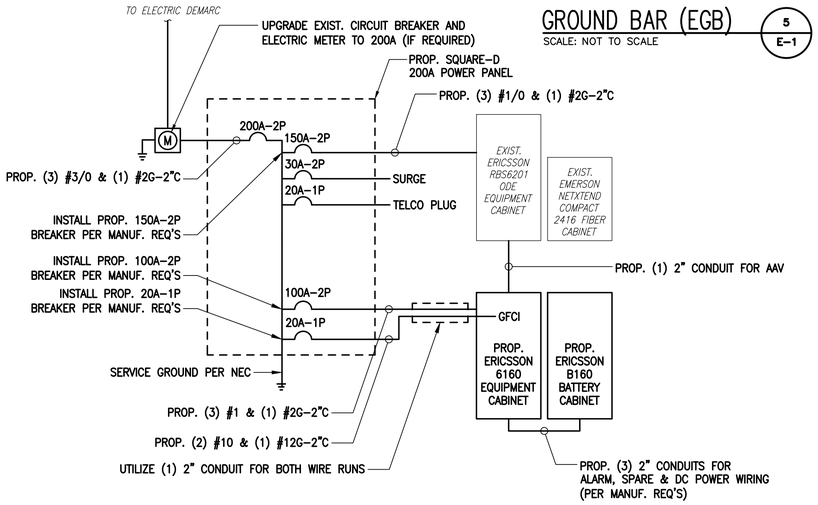
SHEET NUMBER
A-4

1815.154



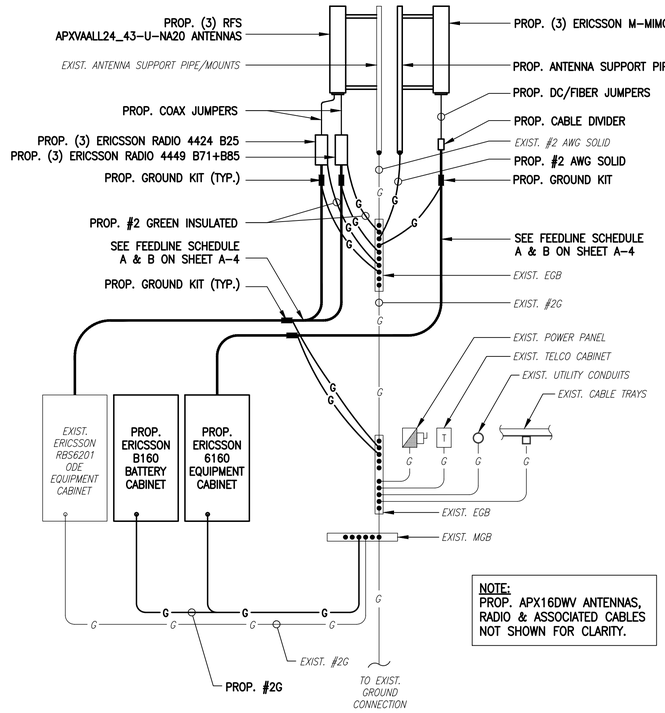
GROUND BAR (EGB)

SCALE: NOT TO SCALE — 5 / E-1



ONE LINE DIAGRAM

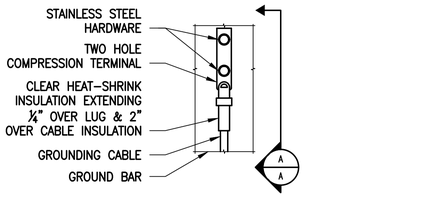
SCALE: NOT TO SCALE — 1 / E-1



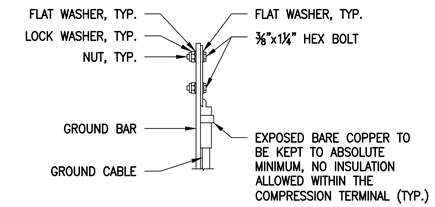
NOTE:
PROP. APX16DWV ANTENNAS, RADIO & ASSOCIATED CABLES NOT SHOWN FOR CLARITY.

GROUNDING RISER DIAGRAM

SCALE: NOT TO SCALE — 2 / E-1



ELEVATION

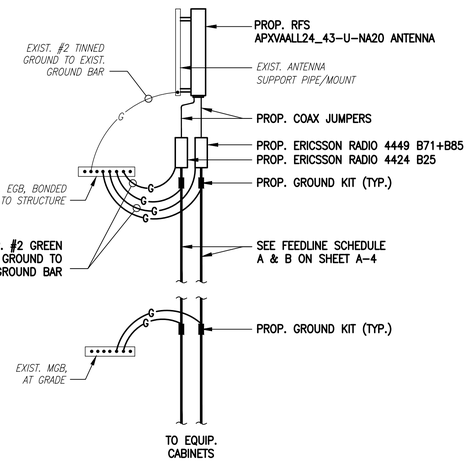


SECTION A-A

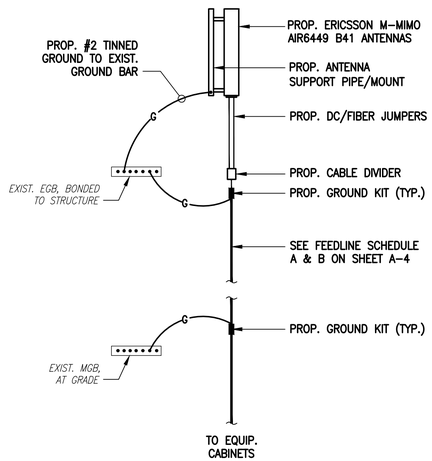
NOTES:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELL DOWNLEADS FROM UPPER EGB, LOWER EGB AND MGB.

TYPICAL GROUND BAR CONNECTIONS DETAIL

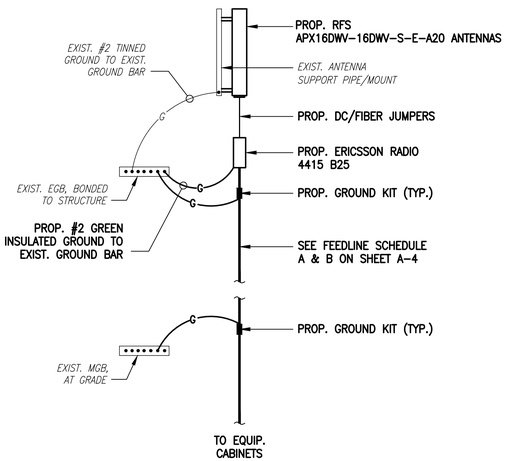
SCALE: NOT TO SCALE — 3 / E-1



L700/L600/N600/L1900/G1900 ANTENNA



L2500/N2500 ANTENNA



L2100 ANTENNA

COAX CABLE CONNECTION AND GROUNDING DETAIL

SCALE: NOT TO SCALE — 4 / E-1

ELECTRICAL AND GROUNDING NOTES

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

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SHEET TITLE
ELECTRIC & GROUNDING DETAILS

SHEET NUMBER
E-1

1815.154

EXHIBIT 7

PER THE INTERNATIONAL BUILDING CODE THIS STRUCTURE IS CLASSIFIED AS:

1. CONSTRUCTION TYPE II-B (TABLE 601)
2. GROUP U OCCUPANCY (SECTION 312.1 UNOCCUPIED TOWER SITE)

MODIFICATION AND DESIGN DRAWINGS FOR AN EXISTING 160' ROHN SELF SUPPORTING TOWER

PROPOSED CARRIER: T-MOBILE

SITE: CT10012-A-SBA / GRISWOLD 2, CT

COORDINATES (LATITUDE: 41.601097°, LONGITUDE: -71.954325°)

CONSTRUCTION CLASS

THE RIGGING PLAN FOR THIS SITE WOULD BE A MINIMUM OF A CLASS I AND THE CONTRACTOR SHALL MAKE FINAL DETERMINATION

NOTE:

1. THE MODIFICATION DRAWINGS ARE BASED ON THE **TES** PROJECT NO. 99095R1, DATED 11/09/20.

SHEET	SHEET TITLE	REV
T-1	TITLE SHEET	0
BOM	BILL OF MATERIALS	0
GN-1	GENERAL NOTES	0
A-1	TOWER PROFILE	0
A-1A	COMPOUND LAYOUT	0
FND-1A	FOUNDATION MODIFICATION LEG "A"	0
FND-1B	FOUNDATION MODIFICATION LEG "B"	0
FND-1C	FOUNDATION MODIFICATION LEG "C"	0
RBL-1	REBAR LIST	0

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TES JOB NO: 99307

CUSTOMER SITE NO: CT10012-A-SBA

CUSTOMER SITE NAME: GRISWOLD 2, CT

181 A NORMAN ROAD
GRISWOLD, CT 6351

STATE OF CONNECTICUT
JARRYD TIBBETTS
No. 34140
LICENSED
PROFESSIONAL ENGINEER
12/8/20

DRAWN BY: CH | CHECKED BY: CR/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CH	12/08/20

SHEET TITLE: TITLE SHEET

SHEET NUMBER: T-1 | REV #: 0

BILL OF MATERIALS

QUANTITY REQUIRED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTION	LENGTH	SHEET LIST	PIECE WEIGHT	WEIGHT (lb)	NOTES
			MATERIAL & HARDWARE					
3	3	---	FOR REBAR REQUIREMENTS SEE SHEET RBL-1	---	FND-1A, FND-1B, FND-1C, RBL-1			PROVIDED BY CONTRACTOR
3	3	---	1" PVC PIPE X 10'-0" DRAIN PIPE (FIELD TRIM TO FIT)	---	FND-1A, FND-1B, FND-1C			PROVIDED BY CONTRACTOR
3	3	---	GROUND ROD 5/8" X 10'-0" & #2 A.W.G. SOLID BARE TINNED COPPER CONDUCTOR-WIRE LENGTH 20 FT EA	---	FND-1A, FND-1B, FND-1C			
			COATING					
29	29	---	LANCO /HENRY 287 WHITE ACRYLIC ELASTOMERIC COATING AND SEALER OR EQUIV (GALLON)		A-1			PROVIDED BY CONTRACTOR
			Note:: Please note this set of drawings is for installation and assembly only. Fabrication Detail Drawings are not provided and must be completed by the steel fabricator selected. TES can provide the Fabrication Detail Drawings for an additional fee					
			NOTE: ALL MATERIALS REQUIRED FOR FOUNDATION MODIFICATIONS THAT ARE NOT LISTED IN THE BILL OF MATERIALS WILL BE PROVIDED BY CONTRACTOR. REFERENCE MODIFICATION SHEETS.					
			NOTE: ALL MATERIALS, WHICH WEREN'T LISTED IN THE BOM, ARE ASSUMED TO BE PROVIDED BY THE CONTRACTOR.					
			TOTAL WEIGHT (lb) =					

PAGE 1 OF 1

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DRAWN BY: CH | CHECKED BY: CR/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CH	12/08/20

SHEET TITLE:
BILL OF MATERIALS

SHEET NUMBER: BOM
REV #: 0

GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH THE ANSI/TIA–222–H, ANSI/ASSP A10.48, AND ANY OTHER GOVERNING BUILDING CODES AND OSHA SAFETY REGULATIONS.
2. ALL WORK INDICATED ON THE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TELECOMMUNICATIONS TOWER, POLE AND FOUNDATION CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND FABRICATION OF ALL MISCELLANEOUS PARTS (SUCH AS SHIMS), TEMPORARY SUPPORTS, AND GUYINGS, ETC., PER ANSI/ASSP A10.48, TO COMPLETE THE ASSEMBLY AS SHOWN IN THE DRAWINGS.
4. CONTRACTOR SHALL PROCEED WITH THE INSTALLATION WORK CAREFULLY SO THE WORK WILL NOT DAMAGE ANY EXISTING CABLE, EQUIPMENT OR THE STRUCTURE.
5. THE USE OF GAS TORCH OR WELDER, ARE NOT ALLOWED ON ANY TOWER STRUCTURE WITHOUT THE CONSENT OF THE TOWER OWNER.
6. GENERALLY THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AN ONSITE VISIT SURVEY OF THE JOB SITE AFTER AWARD, AND REPORT ANY ISSUES WITH THE SITE TO **TES** BEFORE PROCEEDING CONSTRUCTION.

FABRICATION

1. ALL STEEL SHALL MEET OR EXCEED THE MINIMUM STRENGTH AS SPECIFIED IN THE DRAWINGS. IF YIELD STRENGTH WAS NOT NOTED IN THE DRAWINGS, CONTRACTORS SHALL CONTACT TES FOR DIRECTION.
2. ALL FIELD CUT EDGES SHALL BE GROUND SMOOTH. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINGA COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

WELDING

1. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNO. (E70XX UNLESS NOTED OTHERWISE).
2. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING APPROX. 0.5" BEYOND THE PROPOSED FIELD WELD SURFACES.
3. ALL WELDS SHALL BE INSPECTED VISUALLY. A MINIMUM OF 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. 100% OF WELDS SHALL BE INSPECTED IF DEFECTS ARE FOUND.
4. WELD INSPECTIONS SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
5. AFTER INSPECTION, ALL FIELD WELDED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINGA COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

BOLTED ASSEMBLIES AND TIGHTENING OF CONNECTIONS

1. ALL HIGH STRENGTH BOLTS SHALL CONFORM TO THE PROVISIONS OF THE SPECIFICATIONS FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS AS APPROVED BY THE RCSC.
2. FLANGE BOLTS SHALL BE TIGHTENED BY THE AISC "TURN–OF–THE–NUT" METHOD. THE FOLLOWING TABLE SHOULD BE USED FOR THE "TURN–OF–THE–NUT" TIGHTENING.
3. SPLICE BOLTS AND ALL OTHER BOLTS IN BEARING TYPE CONNECTIONS SHALL BE TIGHTENED TO A SNUG–TIGHT CONDITION.
4. THE SNUG–TIGHT CONDITION IS DEFINED AS THE TIGHTNESS ATTAINED BY EITHER A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER WITH AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
5. HB HOLLO–BOLT SHALL BE INSTALLED PER ICC ESR–3330 INSTRUCTIONS.

VERIFICATION AND INSPECTION

1. IF APPLICABLE, VERIFICATION INSPECTION TO BE PERFORMED SHALL BE IN ACCORDANCE TO IBC–2018 SECTION 1705.2 FOR STEEL CONSTRUCTION & TABLE 1705.3 FOR CONCRETE CONSTRUCTION.

POST INSTALLED EPOXY INJECTED ANCHOR BOLTS:

1. CONCRETE MUST BE A MINIMUM OF 28 DAYS OLD.
2. FOLLOW MANUFACTURER'S REQUIREMENTS FOR CURE TIME VS. AMBIENT TEMPERATURE.
3. DRILL HOLE TO REQUIRED DIAMETER AND DEPTH. ALL WATER, DIRT, OIL, DEBRIS, GREASE OR DUST MUST BE REMOVED FROM EACH CORE HOLE. FOLLOW MANUFACTURER'S RECOMMENDATION FOR CORRECT TYPE OF CORE BIT. AVOID DAMAGING EXISTING REINFORCING STEEL OR OTHER EMBEDDED ITEMS. NOTIFY TES ENGINEERING IF VOIDS IN THE CONCRETE, REINFORCING STEEL OR OTHER EMBEDDED ITEMS ARE ENCOUNTERED. STOP CORING IMMEDIATELY IF THIS OCCURS.
4. A HOLE ROUGHENING DEVICE FROM EITHER HILTI OR ALLFASTENERS SHALL BE USED WITH ALL HOLES. FOLLOW ALL MANUFACTURER'S RECOMMENDED CORING AND INSTALLATION INSTRUCTIONS.
5. AFTER CORING AND ROUGHENING, FLUSH EACH HOLE WITH RUNNING WATER TO REMOVE ANY SLURRY OR DEBRIS. REMOVE ALL WATER FROM THE HOLE BY MECHANICAL PUMPING.
6. BRUSH EACH HOLE WITH AN APPROPRIATE SIZED NYLON BRUSH AND FLUSH WITH RUNNING WATER A SECOND TIME. REMOVE ALL WATER FROM THE HOLE.
7. AFTER THE SECOND WATER FLUSH BRUSH THE HOLE AGAIN WITH THE APPROPRIATE SIZED NYLON BRUSH.
8. BLOW EACH HOLE WITH COMPRESSED AIR TWO TIMES MINIMUM.
9. CONFIRM THAT EACH HOLE IS PROPERLY ROUGHED AND DRY.
10. NO EPOXY INJECTION SHALL TAKE PLACE IN RAINY CONDITIONS.
11. EPOXY SHOULD BE VISIBLE AT THE TOP OF THE CORE HOLE AFTER INSTALLATION.
12. CONTRACTOR TO SUPPLY ONE PHOTO OF EACH ROUGHED AND CLEANED HOLE IN CLOSEOUT PHOTO PACKAGE.

TABLE 8.2 NUT ROTATION FROM SNUG–TIGHT CONDITION FOR TURN–OF–NUT PRETENSIONING [a,b]

BOLT LENGTH [c]	DISPOSITION OF OUTER FACE OF BOLTED PARTS		
	BOTH FACES NORMAL TO BOLT AXIS	ONE FACE NORMAL TO BOLT AXIS, OTHER SLOPED NOT MORE THAN 1:20 [d]	BOTH FACES SLOPED NOT MORE THAN 1:20 FROM NORMAL TO BOLT AXIS [d]
NOT MORE THAN $4d_b$	1/3 TURN	1/2 TURN	2/3 TURN
MORE THAN $4d_b$ BUT NOT MORE THAN $8d_b$	1/2 TURN	2/3 TURN	5/6 TURN
MORE THAN $8d_b$ BUT NOT MORE THAN $12d_b$	2/3 TURN	5/6 TURN	1 TURN

[a] NUT ROTATION IS RELATIVE TO BOLT REGARDLESS OF THE ELEMENT (NUT OR BOLT) BEING TURNED. FOR REQUIRED NUT ROTATIONS OF 1/2 TURN AND LESS, THE TOLERANCE IS PLUS OR MINUS 30 DEGREES; FOR REQUIRED NUT ROTATIONS OF 2/3 TURN AND MORE, THE TOLERANCE IS PLUS OR MINUS 45 DEGREES.

[b] APPLICABLE ONLY TO JOINTS IN WHICH ALL MATERIAL WITHIN THE GRIP IS STEEL.

[c] WHEN THE BOLT LENGTH EXCEEDS $12d_b$, THE REQUIRED NUT ROTATION SHALL BE DETERMINED BY ACTUAL TESTING IN A SUITABLE TENSION CALIBRATOR THAT SIMULATES THE CONDITIONS OF SOLIDLY FITTING STEEL.

[d] BEVELED WASHER NOT USED.

SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, JUNE 30, 2004
RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS

INSTALLATION TORQUE REQUIRED FOR HOLLO BOLTS AND AJAX BOLTS:

1. HB12 HOLLO BOLT: 59 FT–LBS
2. HB16 HOLLO BOLT: 140 FT–LBS
3. HB20 HOLLO BOLT: 221 FT–LBS
4. M20 AJAX BOLT: 280 FT–LBS.

FIELD HOT WORK PLAN NOTES:

FOLLOWING GUIDELINES SHALL BE COMPLIED WITH:

1. CONTRACTOR'S RESPONSIBILITY TO COMPLETE A HOT WORK PLAN IF AWARDED PER CUSTOMER SPECIFICATIONS GUIDELINES FOR WELDING, CUTTING & SPARK PRODUCING WORK.
2. HAVE A FIRE PLAN APPROVED BY THE CUSTOMER AND THEIR SAFETY MANAGEMENT DEPT.
3. CONTRACTOR MUST OBTAIN THE CONTACT INFO OF THE LOCAL FIRE DEPARTMENT AND THE 911 ADDRESS OF THE TOWER SITE BEFORE CONSTRUCTION.
4. CONTRACTOR SHALL MAKE SURE THAT CELL PHONE COVERAGE IS AVAILABLE IN THE TOWER SITE. IF CELL COVERAGE IS NOT AVAILABLE, AN IMMEDIATE AVAILABLE MEANS OF DIRECT COMMUNICATION WITH THE FIRE DEPARTMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION START.
5. ALL CONSTRUCTION SHALL BE PERFORMED UNDER WIND SPEED LESS THAN 10 MPH ON THE GROUND LEVEL. IF WIND SPEED INCREASE, CONTRACTOR MUST DETERMINE IF CONSTRUCTION SHALL BE DISCONTINUED.
6. FIRE SUPPRESSION EQUIPMENT MUST BE MADE AVAILABLE ON SITE AND READY TO USE.
7. CONTRACTOR SHALL ASSIGN A FIRE WATCHER TO PERFORM FIRE–FIGHTING DUTIES.
8. ALL WELDERS SHALL BE AWS OR STATE CERTIFIED. THEY MUST ALSO BE EXPERIENCED IN WELDING ON GALVANIZED MATERIALS.
9. IF IT IS POSSIBLE, ALL EXISTING COAX NEAR WELDING AREA SHALL BE TEMPORARILY MOVED AWAY FROM THE WELDING AREA BEFORE WELDING THE PLATES.
10. PLEASE REPORT ANY FIELD ISSUE TO TES @ 972–483–0607.

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TES JOB NO:
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CUSTOMER SITE NAME:
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GRISWOLD, CT 6351

DRAWN BY: CH | CHECKED BY: CR/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CH	12/08/20

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER: GN–1
REV #: 0

NOTES:

1. TEMPORARY RELOCATION OF EXISTING EQUIPMENT AROUND THE FOUNDATION MAY BE REQUIRED DURING CONSTRUCTION.

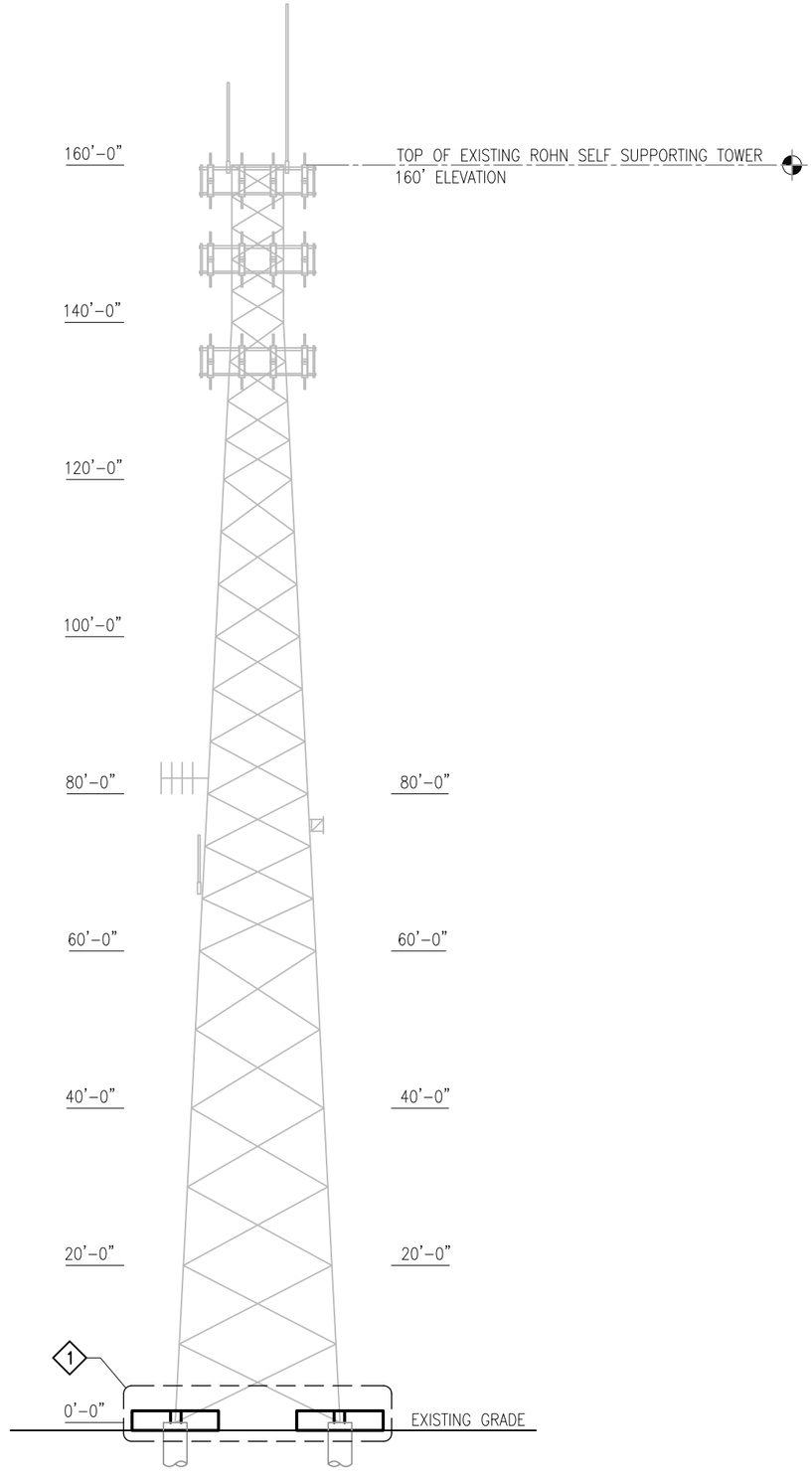
SCOPE OF WORK

1. INSTALL NEW FOUNDATION REINFORCEMENT. SEE SHEETS FND-1A, FND-1B, FND-1C FOR DETAILS.
2. APPLY FOUNDATION COATING.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEAN-UP, REMOVAL AND DISPOSAL OF EXCESS MATERIALS USED AND REMOVED FROM THE STRUCTURE AT THE COMPLETION OF THE PROJECT.

TOWER BASE LEG FOUNDATION PHOTO

FOUNDATION COATING NOTES:

1. THE COATING MATERIALS SHALL BE LANCO WHITE ACRYLIC ELASTOMERIC COATING AND SEALER, OR HYDRO ARMOR COATING.
2. THE COATING CAN BE PLACED AT LEAST (2) DAYS AFTER THE PLACEMENT OF THE CONCRETE FOR FOUNDATION REINFORCEMENT, AND MINIMUM (4) DAYS FOR NEW FOUNDATION CONSTRUCTION.
3. THE CONCRETE SURFACE SHALL BE CLEAN AND DRY PRIOR TO THE APPLICATION OF THE COATING.
4. THE COATING SHALL BE APPLIED TO ALL THE SURFACES OF THE CONCRETE ABOVE THE GROUND AND 6" BELOW THE GRADE SURFACE IF APPLICABLE.
5. MINIMUM 30 MILS COATING IS REQUIRED.



ELEVATION VIEW

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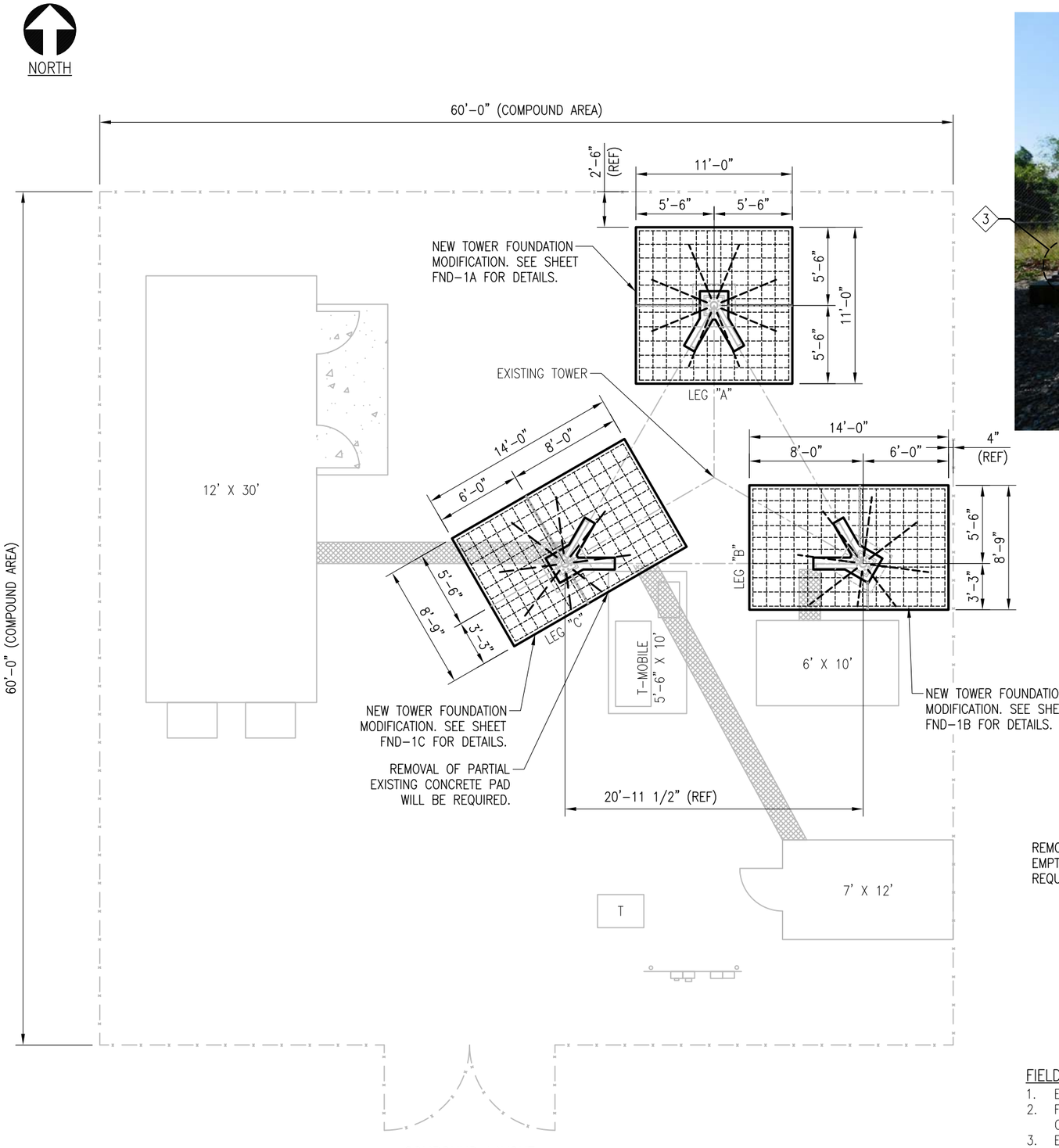
REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CH	12/08/20

SHEET TITLE: TOWER PROFILE

SHEET NUMBER: A-1

REV #: 0



COMPOUND LAYOUT

COMPOUND PHOTO "1"

COMPOUND PHOTO "2"

FIELD NOTES:

1. EXISTING WAVEGUIDE SUPPORT PIPES MAY BE ENCASED IN THE NEW MAT FOUNDATION (TYP)
2. FIELD ADJUST NEW FOUNDATION AROUND EXISTING TMO CONCRETE PAD WITH ELECTRICAL CABINET AND COAX, TO ALLOW WORKABLE ACCESS, MAY BE REQUIRED.
3. EXISTING GROUNDING WIRE NEEDS TO BE REMOVED TO ACCOMMODATE NEW MODIFICATIONS.
4. INSTALL NEW GROUNDING AFTER INSTALLATION OF MODIFICATION IS COMPLETED.

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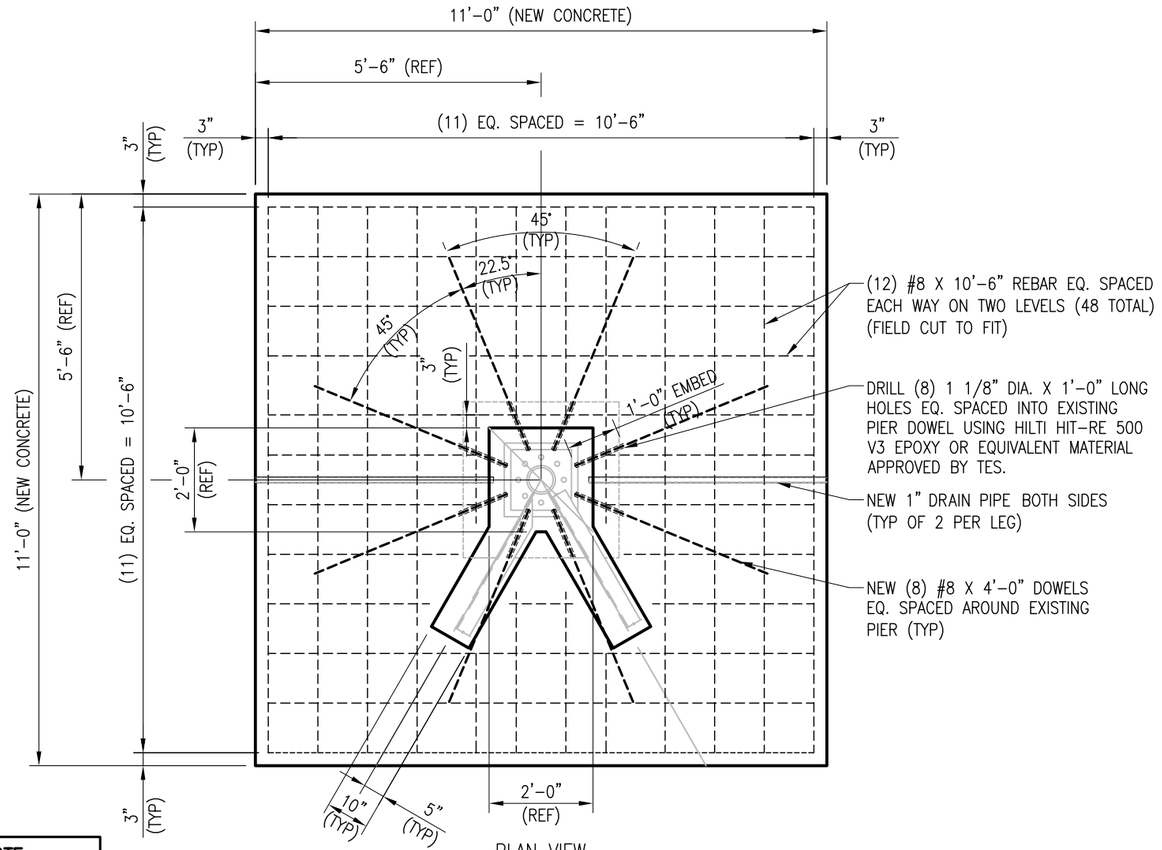
SHEET TITLE: COMPOUND LAYOUT

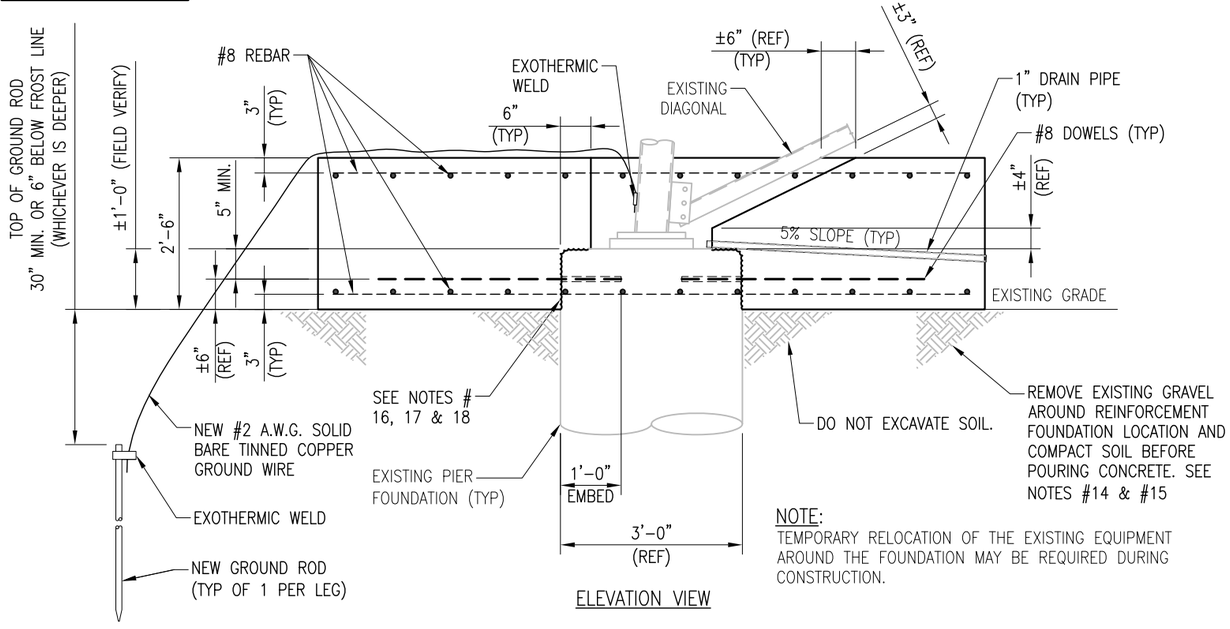
SHEET NUMBER: A-1A

REV #: 0



PLAN VIEW
(LEG "A")

FIELD NOTE:
DO NOT BLOCK ANY EXISTING WEEP HOLES.



ELEVATION VIEW

NOTE:
TEMPORARY RELOCATION OF THE EXISTING EQUIPMENT AROUND THE FOUNDATION MAY BE REQUIRED DURING CONSTRUCTION.

NOTES:

1. THE FOUNDATION MODIFICATION DESIGN IS BASED ON THE SOIL REPORT PROVIDED BY FDH VELOCITEL, PROJET # 16BDCN1600, DATED 03/04/2016.
2. CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI AT 28 DAYS.
3. TEST CYLINDERS SHALL BE MOLDED AND LABORATORY CURED IN ACCORDANCE WITH ASTM C31. THREE PAIRS OF CONCRETE COMPRESSION TEST CYLINDERS SHALL BE MADE FROM EACH TRUCK LOAD OF CONCRETE. TWO CYLINDERS SHALL BE TESTED AT 7 DAYS AND TWO CYLINDERS SHALL BE TESTED AT 28 DAYS. (REMAINING PAIR OF CYLINDERS ARE FOR REDUNDANCY).
4. REINFORCED CONCRETE CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH ACI STANDARDS 318.
5. ALL REBAR SHALL BE SECURELY WIRE TIED TO PREVENT DISPLACEMENT DURING POURING OF CONCRETE.
6. VERTICAL EMBEDMENTS OUT OF PLUMB: 1.0 DEGREE.
7. DEPTH OF FOUNDATION: PLUS 1" OR MINUS 0".
8. CONCRETE DIMENSIONS: PLUS OR MINUS 1/2".
9. REINFORCING STEEL PLACEMENT: PLUS OR MINUS 1/2" INCLUDING CONCRETE COVER.
10. CONCRETE VOLUME: 10.9 CUBIC YARDS TOTAL.
11. MATERIALS FOR REINFORCING SHALL BE IN ACCORDANCE WITH ASTM SPECIFICATION A615-85.
12. ALL REBAR TO BE GRADE 60 (UNLESS NOTED OTHERWISE). REBAR MILL TEST REPORT IS REQUIRED AS PART OF THE PROJECT CLOSEOUT DOCUMENTATION.
13. CONCRETE SLUMP: 2"~4".
14. FOUNDATION BASE SHOULD REST ON FIRM AND LEVELED SURFACE.
15. FILL MATERIALS SHALL BE COMPACTED USING LAYERS OF NO MORE THAN 6". FINAL COMPACTION MUST BE A MINIMUM OF 95% DENSITY (THE MAXIMUM DRY UNIT OF WEIGHT). BACKFILL MATERIALS SHALL BE SANDY SILT (ML), SILT SAND (SM), CLAYED SAND (SC). NO ORGANIC MATERIALS, ROOTS, PLASTIC SILTS OR CLAYS, DELETERIOUS MATERIALS AND STONES SHALL BE USED. IF ROCK/SOIL MIXTURE IS USED AS BACKFILL, THE ROCK SIZE SHOULD BE LESS THAN 4" IN GREATEST DIMENSION AND NOT MORE THAN 15% BY WEIGHT SHALL BE LARGER THAN 2" IN GREATEST DIMENSION.
16. CLEAN AND ROUGHEN THE SURFACE. THE SURFACE MUST BE PREPARED MECHANICALLY GIVING A SURFACE PROFILE OF MINIMUM 1/8", EXPOSING THE COARSE AGGREGATE OF THE OLD CONCRETE.
17. APPLY WELD-CRETE OR CORR-BOND AGENT OVER THE SURFACE OF THE OLD CONCRETE PER THE MANUFACTURER'S SPECIFICATIONS.
18. NEW CONCRETE MUST BE PLACED OVER THE BONDING AGENT WITHIN THE MAXIMUM ALLOWABLE TIME PER THE MANUFACTURER'S SPECIFICATIONS.
19. THE FOUNDATION MODIFICATION MUST BE PERFORMED AT A WIND SPEED LESS THAN 20 MPH.
20. THE EXCAVATION, FORMING AND CONCRETE PLACEMENT MUST BE COMPLETED IN A TIMEFRAME NOT TO EXCEED 48 HOURS.

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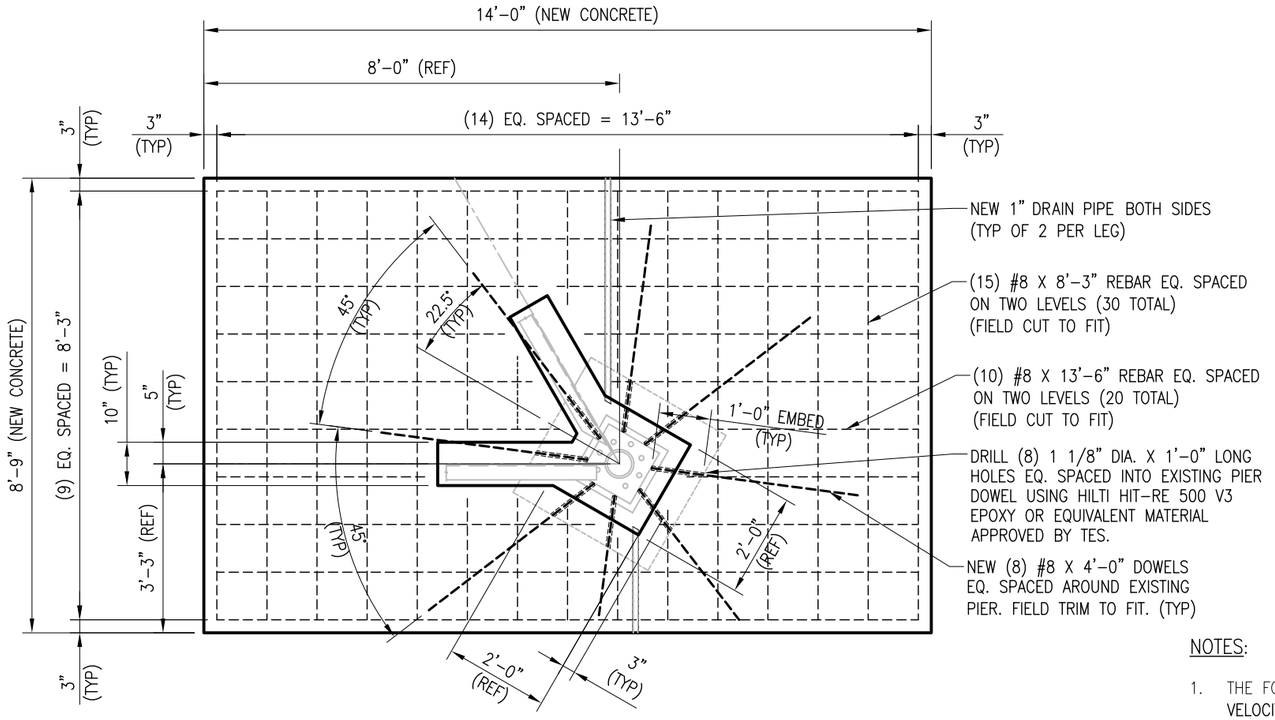
SHEET TITLE:
FOUNDATION MODIFICATION LEG "A"

SHEET NUMBER: FND-1A
REV #: 0



PLAN VIEW
(LEG "B")

FIELD NOTE:
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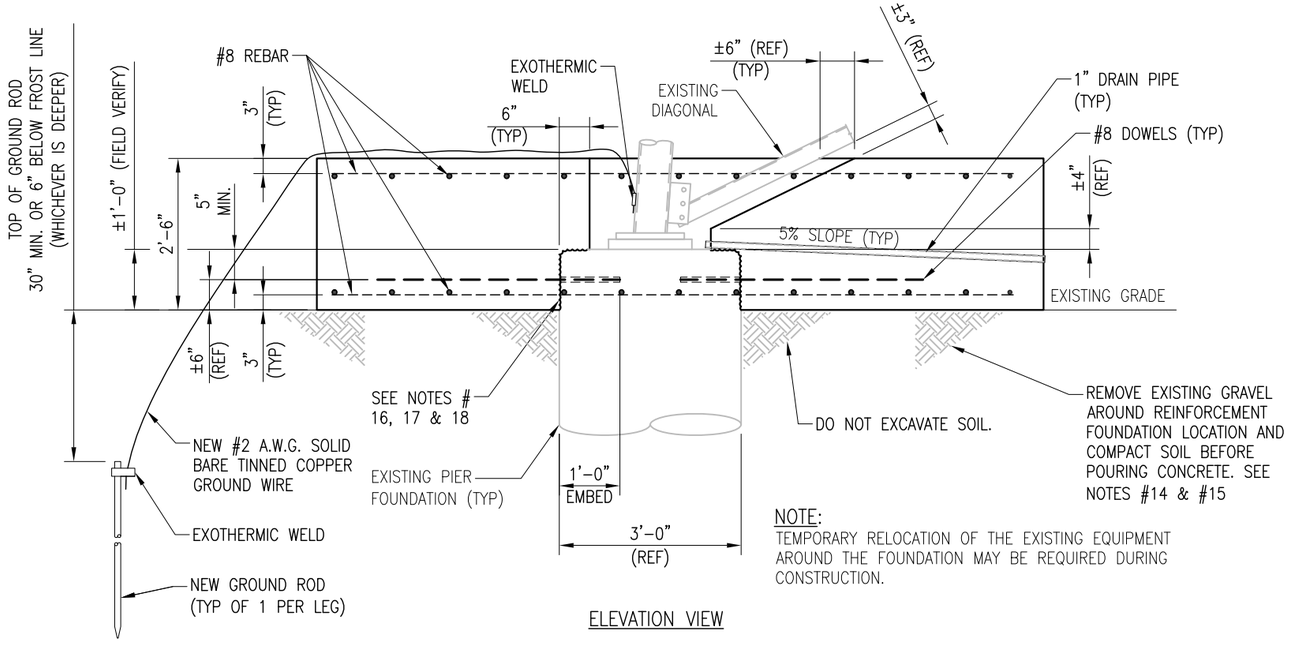

NOTE:
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ELEVATION VIEW

NOTES:

1. THE FOUNDATION MODIFICATION DESIGN IS BASED ON THE SOIL REPORT PROVIDED BY **FDH VELOCITEL**, PROJET # **16BDCN1600**, DATED **03/04/2016**.
2. CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF **4500** PSI AT 28 DAYS.
3. TEST CYLINDERS SHALL BE MOLDED AND LABORATORY CURED IN ACCORDANCE WITH ASTM C31. THREE PAIRS OF CONCRETE COMPRESSION TEST CYLINDERS SHALL BE MADE FROM EACH TRUCK LOAD OF CONCRETE. TWO CYLINDERS SHALL BE TESTED AT 7 DAYS AND TWO CYLINDERS SHALL BE TESTED AT 28 DAYS. (REMAINING PAIR OF CYLINDERS ARE FOR REDUNDANCY).
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5. ALL REBAR SHALL BE SECURELY WIRE TIED TO PREVENT DISPLACEMENT DURING POURING OF CONCRETE.
6. VERTICAL EMBEDMENTS OUT OF PLUMB: 1.0 DEGREE.
7. DEPTH OF FOUNDATION: PLUS 1" OR MINUS 0".
8. CONCRETE DIMENSIONS: PLUS OR MINUS 1/2".
9. REINFORCING STEEL PLACEMENT: PLUS OR MINUS 1/2" INCLUDING CONCRETE COVER.
10. CONCRETE VOLUME: **11** CUBIC YARDS TOTAL.
11. MATERIALS FOR REINFORCING SHALL BE IN ACCORDANCE WITH ASTM SPECIFICATION A615-85.
12. ALL REBAR TO BE GRADE 60 (UNLESS NOTED OTHERWISE). REBAR MILL TEST REPORT IS REQUIRED AS PART OF THE PROJECT CLOSEOUT DOCUMENTATION.
13. CONCRETE SLUMP: **2"~4"**.
14. FOUNDATION BASE SHOULD REST ON FIRM AND LEVELED SURFACE.
15. FILL MATERIALS SHALL BE COMPACTED USING LAYERS OF NO MORE THAN 6". FINAL COMPACTION MUST BE A MINIMUM OF 95% DENSITY (THE MAXIMUM DRY UNIT OF WEIGHT). BACKFILL MATERIALS SHALL BE SANDY SILT (ML), SILT SAND (SM), CLAYED SAND (SC). NO ORGANIC MATERIALS, ROOTS, PLASTIC SILTS OR CLAYS, DELETERIOUS MATERIALS AND STONES SHALL BE USED. IF ROCK/SOIL MIXTURE IS USED AS BACKFILL, THE ROCK SIZE SHOULD BE LESS THAN 4" IN GREATEST DIMENSION AND NOT MORE THAN 15% BY WEIGHT SHALL BE LARGER THAN 2" IN GREATEST DIMENSION.
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17. APPLY WELD-CRETE OR CORR-BOND AGENT OVER THE SURFACE OF THE OLD CONCRETE PER THE MANUFACTURER'S SPECIFICATIONS.
18. NEW CONCRETE MUST BE PLACED OVER THE BONDING AGENT WITHIN THE MAXIMUM ALLOWABLE TIME PER THE MANUFACTURER'S SPECIFICATIONS.
19. THE FOUNDATION MODIFICATION MUST BE PERFORMED AT A WIND SPEED LESS THAN **20** MPH.
20. THE EXCAVATION, FORMING AND CONCRETE PLACEMENT MUST BE COMPLETED IN A TIMEFRAME NOT TO EXCEED **48** HOURS.

TES
Tower Engineering Solutions
1320 GREENWAY DRIVE, SUITE 600
IRVING, TX 75038
PHONE: (972) 483-0607

SBA
5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800)-487-SITE

TES JOB NO:
99307

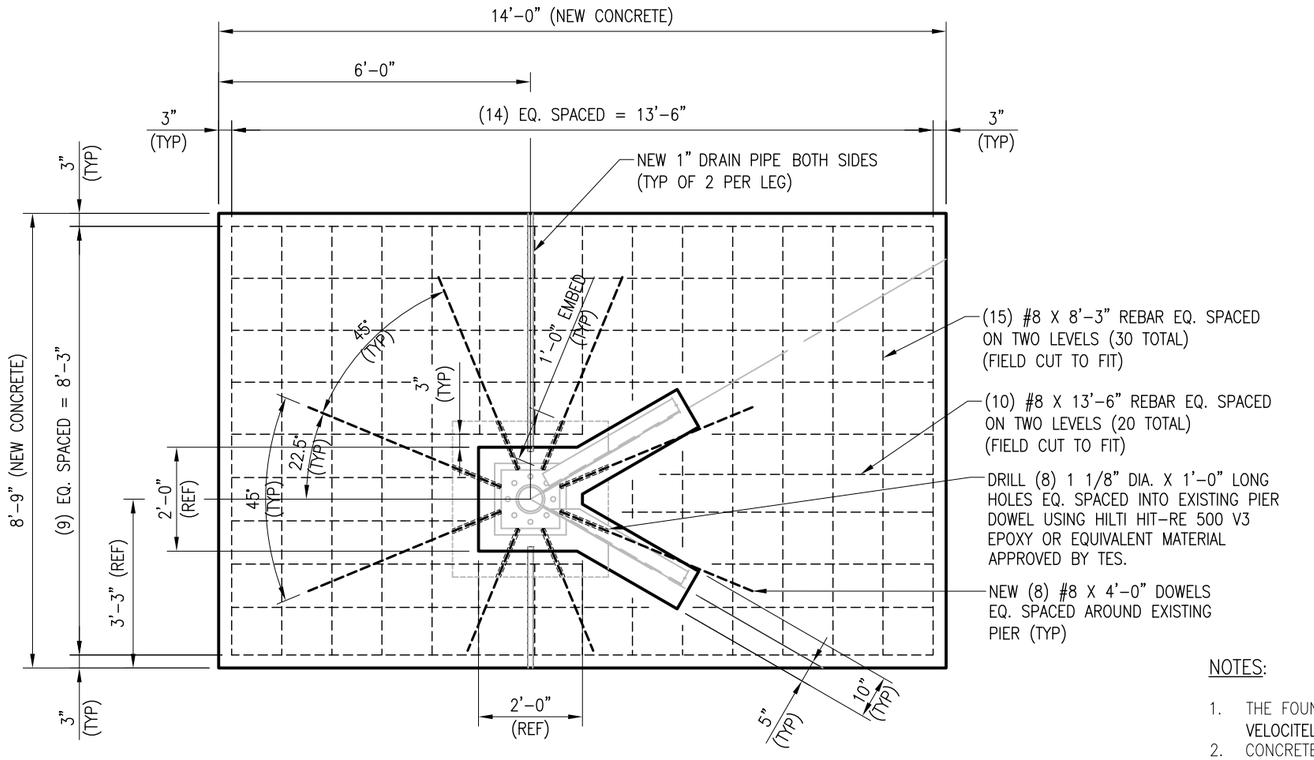
CUSTOMER SITE NO:
CT10012-A-SBA
CUSTOMER SITE NAME:
GRISWOLD 2, CT
181 A NORMAN ROAD
GRISWOLD, CT 6351

DRAWN BY: CH | CHECKED BY: CR/AD

REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	CH	12/08/20

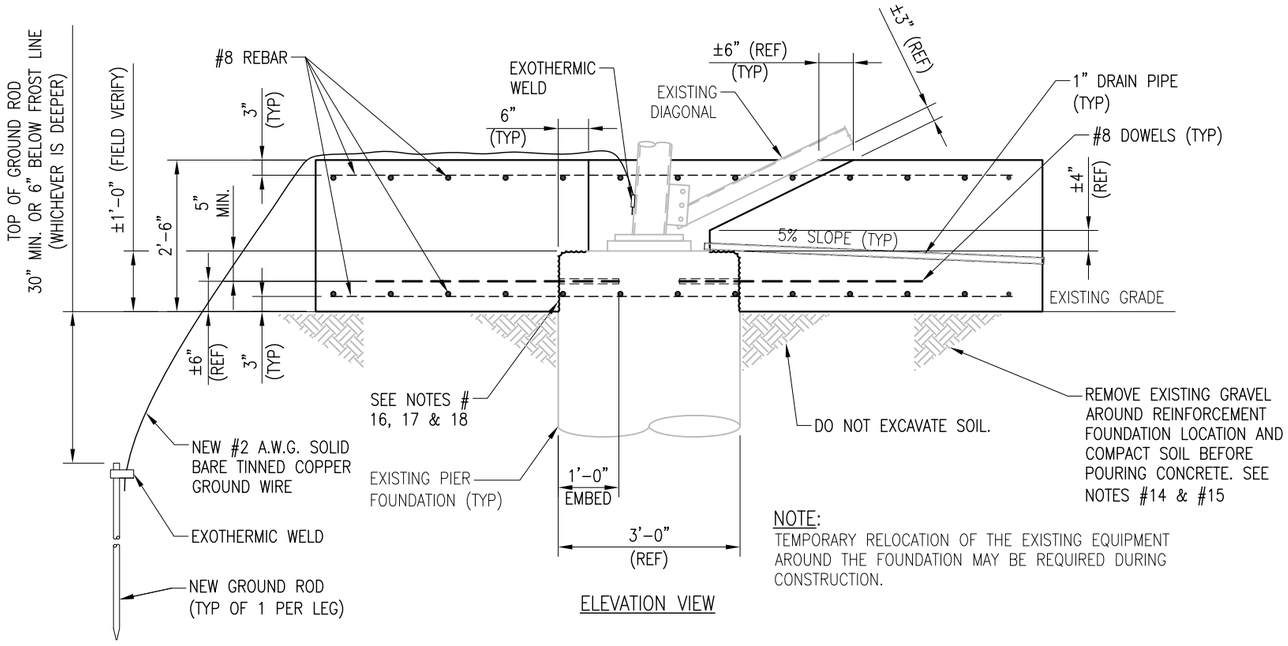
SHEET TITLE:
FOUNDATION MODIFICATION LEG "B"

SHEET NUMBER: FND-1B
REV #: 0



PLAN VIEW
(LEG "C")

FIELD NOTE:
DO NOT BLOCK ANY EXISTING WEEP HOLES.



ELEVATION VIEW

NOTE:
TEMPORARY RELOCATION OF THE EXISTING EQUIPMENT AROUND THE FOUNDATION MAY BE REQUIRED DURING CONSTRUCTION.

NOTES:

1. THE FOUNDATION MODIFICATION DESIGN IS BASED ON THE SOIL REPORT PROVIDED BY **FDH VELOCITEL**, PROJET # **16BDCN1600**, DATED **03/04/2016**.
2. CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF **4500** PSI AT 28 DAYS.
3. TEST CYLINDERS SHALL BE MOLDED AND LABORATORY CURED IN ACCORDANCE WITH ASTM C31. THREE PAIRS OF CONCRETE COMPRESSION TEST CYLINDERS SHALL BE MADE FROM EACH TRUCK LOAD OF CONCRETE. TWO CYLINDERS SHALL BE TESTED AT 7 DAYS AND TWO CYLINDERS SHALL BE TESTED AT 28 DAYS. (REMAINING PAIR OF CYLINDERS ARE FOR REDUNDANCY).
4. REINFORCED CONCRETE CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH ACI STANDARDS 318.
5. ALL REBAR SHALL BE SECURELY WIRE TIED TO PREVENT DISPLACEMENT DURING POURING OF CONCRETE.
6. VERTICAL EMBEDMENTS OUT OF PLUMB: 1.0 DEGREE.
7. DEPTH OF FOUNDATION: PLUS 1" OR MINUS 0".
8. CONCRETE DIMENSIONS: PLUS OR MINUS 1/2".
9. REINFORCING STEEL PLACEMENT: PLUS OR MINUS 1/2" INCLUDING CONCRETE COVER.
10. CONCRETE VOLUME: **10.9** CUBIC YARDS TOTAL.
11. MATERIALS FOR REINFORCING SHALL BE IN ACCORDANCE WITH ASTM SPECIFICATION A615-85.
12. ALL REBAR TO BE GRADE 60 (UNLESS NOTED OTHERWISE). REBAR MILL TEST REPORT IS REQUIRED AS PART OF THE PROJECT CLOSEOUT DOCUMENTATION.
13. CONCRETE SLUMP: **2"~4"**.
14. FOUNDATION BASE SHOULD REST ON FIRM AND LEVELED SURFACE.
15. FILL MATERIALS SHALL BE COMPACTED USING LAYERS OF NO MORE THAN 6". FINAL COMPACTION MUST BE A MINIMUM OF 95% DENSITY (THE MAXIMUM DRY UNIT OF WEIGHT). BACKFILL MATERIALS SHALL BE SANDY SILT (ML), SILT SAND (SM), CLAYED SAND (SC). NO ORGANIC MATERIALS, ROOTS, PLASTIC SILTS OR CLAYS, DELETERIOUS MATERIALS AND STONES SHALL BE USED. IF ROCK/SOIL MIXTURE IS USED AS BACKFILL, THE ROCK SIZE SHOULD BE LESS THAN 4" IN GREATEST DIMENSION AND NOT MORE THAN 15% BY WEIGHT SHALL BE LARGER THAN 2" IN GREATEST DIMENSION.
16. CLEAN AND ROUGHEN THE SURFACE. THE SURFACE MUST BE PREPARED MECHANICALLY GIVING A SURFACE PROFILE OF MINIMUM 1/8", EXPOSING THE COARSE AGGREGATE OF THE OLD CONCRETE.
17. APPLY WELD-CRETE OR CORR-BOND AGENT OVER THE SURFACE OF THE OLD CONCRETE PER THE MANUFACTURER'S SPECIFICATIONS.
18. NEW CONCRETE MUST BE PLACED OVER THE BONDING AGENT WITHIN THE MAXIMUM ALLOWABLE TIME PER THE MANUFACTURER'S SPECIFICATIONS.
19. THE FOUNDATION MODIFICATION MUST BE PERFORMED AT A WIND SPEED LESS THAN **20** MPH.
20. THE EXCAVATION, FORMING AND CONCRETE PLACEMENT MUST BE COMPLETED IN A TIMEFRAME NOT TO EXCEED **48** HOURS.

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GRISWOLD, CT 6351

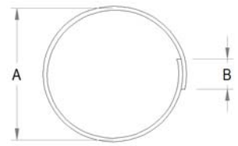
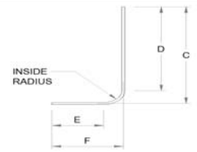
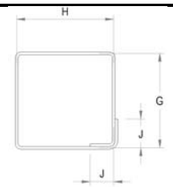
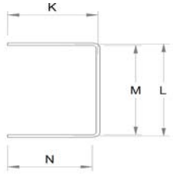
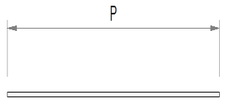
DRAWN BY: CH | CHECKED BY: CR/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CH	12/08/20

SHEET TITLE:
FOUNDATION MODIFICATION LEG "C"

SHEET NUMBER: FND-1C
REV #: 0

REBAR CHART

TYPE OF REBAR DIAGRAM	ITEMS	QTY. REQ'D	REBAR SIZE	LENGTH REQ'D (FT.)	TOTAL WEIGHT (LBS)	DETAILS OF BAR DIMENSIONS							REBAR DIAGRAM
ROUND TIE		-	-		-	A (FT.)	A	B	B (FT.)				
90° BEND VERTICAL BAR		-	-	-	-	C (FT.)	C	D (ft)	D	E	F	RADIUS	
SQUARE OR RETANGULAR TIE		-	-	-	-	G (FT.)	G	H (ft)	H	J	RADIUS		
U-SHAPE 90° BEND		-	-	-	-	K (FT.)	K	L (ft)	L	M	N	RADIUS	
STRAIGHT		-	-	-	-	P (FT.)	P	MINIMUM SPLICE LENGTHS REQUIRED					
	1	48	8	10'-6 "	1345.7	10.500	10'-6 "	BAR SIZE		LENGTH REQ'D			
	2	60	8	8'-3 "	1321.7	8.250	8'-3 "	#6		3'-7/8"			
	3	40	8	13'-6 "	1441.8	13.500	13'-6 "	#7		4'-4 1/2"			
	4	24	8	4'-0 "	256.3	4.000	4'-0 "	#8		5'-1 1/2"			
								#9		5'-9"			
								#10		6'-6"			
								#11		7'-1 1/2"			

BILL OF MATERIALS

TYPES OF REBAR CONFIGURATIONS	QTY. REQ'D	REBAR SIZE	LENGTH REQ'D (FT.)	TOTAL WEIGHT (LBS)
STRAIGHT	48	8	10'-6 "	1345.7
STRAIGHT	60	8	8'-3 "	1321.7
STRAIGHT	40	8	13'-6 "	1441.8
STRAIGHT	24	8	4'-0 "	256.3
TOTAL STEEL WEIGHT (LBS):	4365.5			

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DRAWN BY: CH | CHECKED BY: CR/AD

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	CH	12/08/20

SHEET TITLE: REBAR LIST

SHEET NUMBER: RBL-1

REV #: 0

EXHIBIT 8

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

Post-Mod Structural Analysis Report

Existing 160 ft Rohn Self Supporting Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT10012-A

Customer Site Name: Griswold 2, CT

Carrier Name: T-Mobile (App#: 116837, v3)

Carrier Site ID / Name: CT11152C / Griswold/I-395 X85/BMW

Site Location: 181 A Norman Road

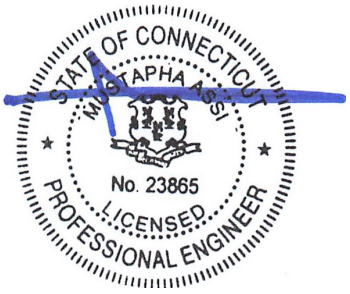
Griswold, Connecticut

New London County

Latitude: 41.601097

Longitude: -71.954325

Exp.01/31/2021



12/08/2020

Analysis Result:

Max Structural Usage: 82.5% [Pass]

Max Foundation Usage: 61.0% [Pass]

Report Prepared By: Cesar Rojas

Introduction

The purpose of this report is to summarize the analysis results on the 160 ft Rohn Self Supporting Tower to support the proposed antennas and transmission lines in addition to those currently installed. Any existing modification listed under Sources of Information was assumed completed and was included in this analysis.

The proposed modification by **TES** listed under Sources of Information was considered completed and was included in this analysis.

Sources of Information

Tower Drawings	ROHN Drawing # A991242, Eng. File # 37696SP001, dated 04/06/1999
Foundation Drawing	FDH Project # 16BDGF1500 (Mapping), dated 03/03/2016
Geotechnical Report	FDH Project # 16BDCN1600, dated 03/04/2016
Mount Analysis	Allpro Consulting Group Job # 18-2070, dated 04/12/2018.
Existing Modification	TES 99094, dated: October 27,2020
Proposed Modification	TES Job # 99307

Analysis Criteria

The comprehensive analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-H**.** 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.

Wind Speed Used in the Analysis:	124.0 mph (3-Sec. Gust) (Ultimate wind speed)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1” radial ice concurrent
Service Load Wind Speed:	60 mph + 0” Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-H
Exposure Category:	C
Risk Category:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.189, S_1 = 0.054

This structural analysis is based upon the tower being classified as a Risk Category 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	169.0	2	Decibel - 20' x 2" Dipole	Direct	(2) 7/8" (1) 1/2"	Quinebaug Comm 911
2	163.0	1	Andrew - DB201-C - Omni			
3	158.0	6	Commscope - SBNHH-1D65B - Panel	(3) Sector Frames (1) Sabre Universal Pipe Mount	(12) 1 5/8" (2) 1 5/8" Hybrid Fiber	Verizon
4		3	Antel - BXA-70080-4CF-EDIN-0 - Panel			
5		3	Alcatel Lucent - RH4x45-AWS - RRH			
6		3	Alcatel Lucent - RH 2x60-700U - RRH			
7		3	Alcatel-Lucent - RH 2x60-PCS - RRH			
8		2	RFS - DB-T1-6Z-8AB-0Z - SP			
-	148.0	3	RFS - APXV18-209015-C - Panel	(3) T-Frames	(12) 1 5/8"	T-Mobile
-		3	Commscope - LNX-6515DS-A1M - Panel			
-		3	RFS - ATMAA1412D-1A20 - TMA			
16	135.0	6	Powerwave - 7770 - Panel	(3) T-Frames (6) 2 1/2"x6" Mount Pipes	(12) 1 1/4" (1) 1/2" Fiber (1) 7/16" Fiber (4) 3/4" DC	AT&T
17		1	Cci - HPA-65R-BUU-H6 - Panel			
18		2	Cci - HPA-65R-BUU-H8 - Panel			
19		1	KMW - EPBQ-654L8H6-L2 - Panel			
20		2	KMW - EPBQ-654L8H8-L2 - Panel			
21		6	Powerwave - LGP21903 - Diplexer			
22		3	Ericsson - RRUS-11 - RRU			
23		3	Ericsson - RRUS-12 - RRU			
24		3	Ericsson - RRUS-32 - RRU			
25		3	Ericsson - 4478 - RRU			
26		3	Ericsson - RRUS A2 Module			
27		1	Raycap - DC6-48-60-0-8F - SP			
28		1	Raycap - DC6-48-60-18-8C - SP			
29	130.0	6	Powerwave - LGP21401 - TMA			
30	82.0	1	Yagi	Direct	(1) 1/2"	Quinebaug Comm 911
31	76.0	1	GPS	Standoff	(1) 1/2"	Verizon
32	68.0	1	6' Trombone	Direct	(1) 1/2"	Quinebaug Comm 911

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
9	148.0	3	RFS APX16DWV-16DWVS-E-A20-Panel	(3) Sector Frames	(6) 1 5/8" (6) 1 5/8" Fiber	T-Mobile
10		3	RFS APXVAALL24-43-U-NA20-Panel			
11		3	Ericsson AIR6449 B41-Panel			
12		3	RFS ATMAA1412D-1A20-TMA			
13		3	Ericsson 4449 B71 + B85-RRU			
14		3	Ericsson 4415 B66-RRU			
15		3	Ericsson 4424 B25-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
Max. Usage:	**82.4%**	**82.5%**	**45.2%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Compression (Kips)	Uplift (Kips)	Shear (Kips)
Analysis Reactions	260.0	224.6	28.3

The foundation has been investigated using the supplied documents and soils report and was found adequate after the proposed modifications mentioned in the source of information are completed. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.2176 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the structure and its foundation will be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222-H Standard after the following proposed modification is successfully completed.

- Proposed modification design drawing by **TES** Job # 99307

Pre-Mod Installation Determination

We have also checked this tower to determine if the proposed T-Mobile equipment loading can be installed prior to the completion of the required modifications. We ran a reduced wind loading case as required by TIA-322 considering a construction period of no more than 6 months.

The tower and/or foundations failed, so the Carrier cannot install their proposed loading prior to the mods completion.

completed. If the modifications cannot be completed within 6 months from the completed installation of the Carrier's proposed equipment, TES must be notified immediately for further review.

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 EIA/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: CT10012-A-SBA

Site Name:	Griswold 2, CT			**Code:**	EIA/TIA-222-H	12/8/2020
Type:	Self Support	**Base Shape:**	Triangle	**Basic WS:**	124.00	
Height:	160.00 (ft)	**Base Width:**	20.96	**Basic Ice WS:**	50.00	
Base Elev:	0.00 (ft)	**Top Width:**	6.58	**Operational WS:**	60.00	Page: 1

Tower Engineering Solutions

Section Properties

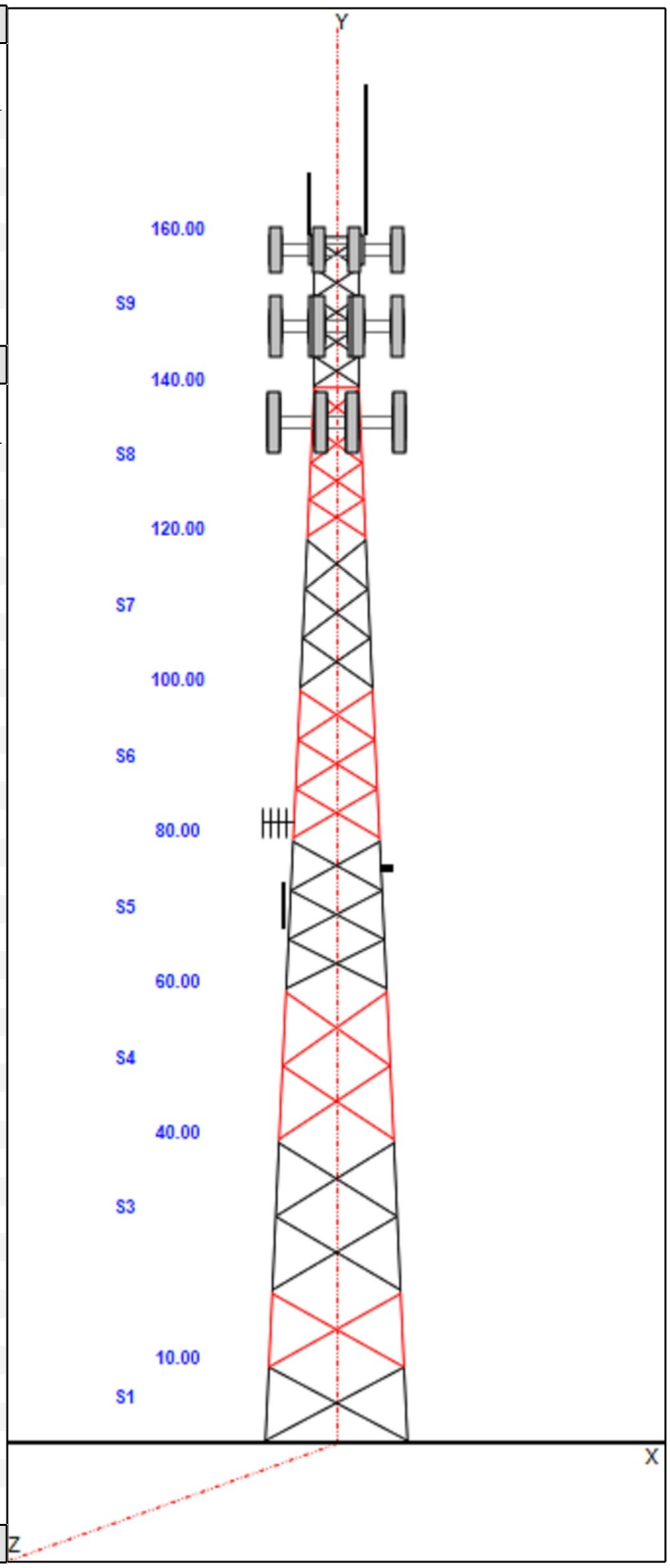
Sect	Leg Members	Diagonal Members	Horizontal Members
1	PX 6" DIA PIPE	MOD 2L3.5x3.5x1/4 Sp	
2-3	PX 6" DIA PIPE	SAE 3.5X3.5X0.25	
4	PSP ROHN 6 EHS	SAE 3.5X3.5X0.25	
5	PX 5" DIA PIPE	SAE 3X3X0.25	
6	PX 4" DIA PIPE	SAE 2.5X2.5X0.1875	
7	PX 3-1/2" DIA PIPE	SAE 2.5X2.5X0.1875	
8	PST 3" DIA PIPE	SAE 2X2X0.1875	SAE 2X2X0.1875
9	PST 2-1/2" DIA PIPE	SAE 1.75X1.75X0.1875	SAE 1.75X1.75X0.1875

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description
160.00	160.00	1	Beacon
160.00	170.00	2	20' Dipole
160.00	164.03	1	DB201-C
160.00	160.00	1	Lightning Rod
158.00	158.00	2	DB-T1-6Z-8AB-0Z
158.00	158.00	3	Sector Frame-Pipe/Rod
158.00	158.00	6	SBNHH-1D65B
158.00	158.00	3	BXA-70080-4CF-EDIN-X
158.00	158.00	3	RRH4X45-B66A
158.00	158.00	3	RRH2x60-1900
158.00	158.00	3	RRH2X60-PCS
148.00	148.00	3	Sector Frames
148.00	148.00	3	APX16DWV-16DWVS-E-A20
148.00	148.00	3	APXVAALL24-43-U-NA20
148.00	148.00	3	AIR6449 B41
148.00	148.00	3	ATMAA1412D-1A20
148.00	148.00	3	4449 B71 + B85
148.00	148.00	3	4415 B66
148.00	148.00	3	4424 B25
135.00	130.00	6	LGP21401
135.00	135.00	3	Sector Frame-Pipe/Rod
135.00	135.00	6	7770.00
135.00	135.00	1	HPA-65R-BUU-H6
135.00	135.00	2	HPA-65R-BUU-H8
135.00	135.00	1	EPBQ-654L8H6-B
135.00	135.00	2	EPBQ-654L8H8-L2
135.00	135.00	6	LGP21903
135.00	135.00	3	RRUS-11
135.00	135.00	3	RRUS-12 1900 MHz
135.00	135.00	3	RRUS-32
135.00	135.00	3	RRUS 4478 B14
135.00	135.00	3	RRUS A2 Module
135.00	135.00	1	DC6-48-60-18-8F
135.00	135.00	1	DC6-48-60-18-8F
82.00	82.00	1	4' Yagi
76.00	76.00	1	Side Arm (L. Heavy)
76.00	76.00	1	GPS
68.00	71.00	1	6' Dipole

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Qty	Description



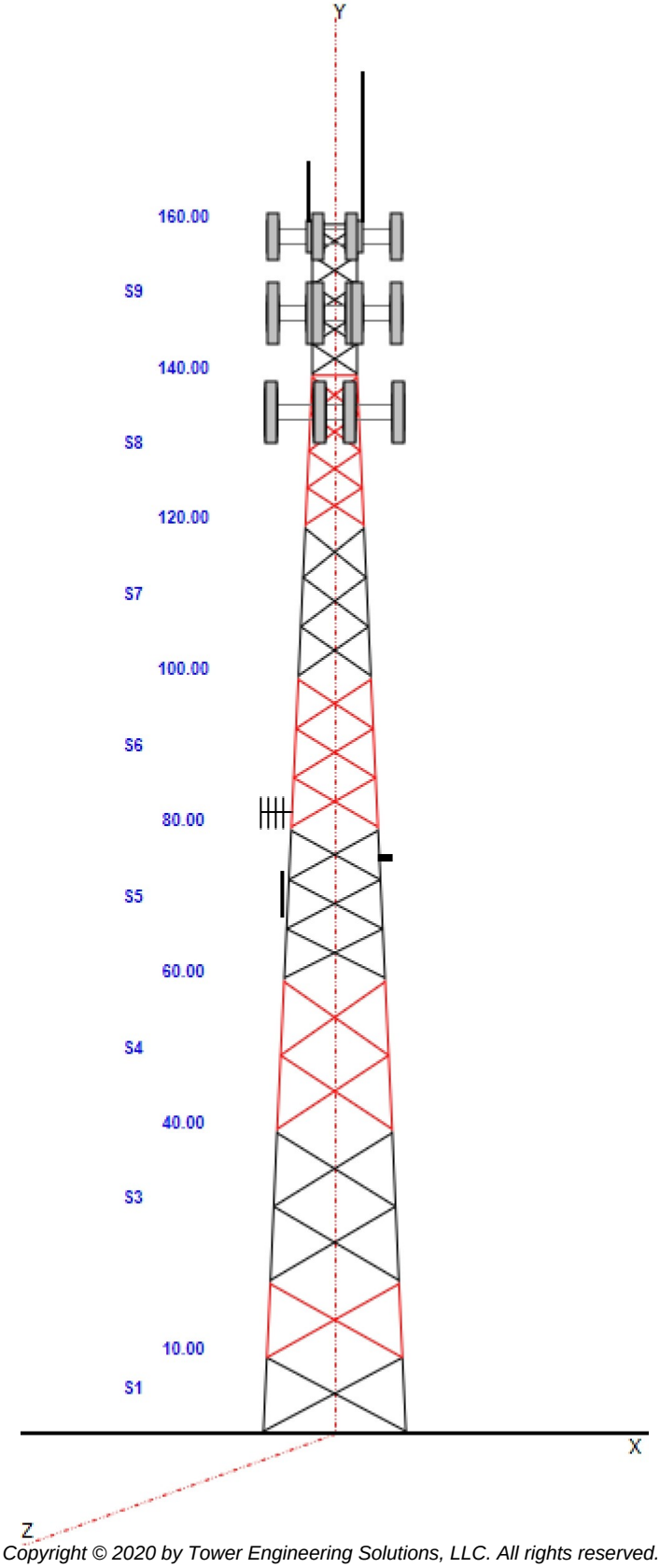
0.00	160.00	1	1/2" Coax
0.00	160.00	2	7/8" Coax
0.00	158.00	6	1 5/8" Coax
0.00	158.00	6	1 5/8" Coax
0.00	158.00	2	1 5/8" Hybrid Fiber
0.00	158.00	1	W/G Ladder
0.00	148.00	6	1 5/8" Coax
0.00	148.00	6	1 5/8" Fiber
0.00	148.00	1	W/G Ladder
0.00	135.00	12	1 1/4" Coax
0.00	135.00	1	1/2" Fiber
0.00	135.00	4	3/4" DC
0.00	135.00	1	7/16" Fiber
0.00	135.00	1	W/G Ladder
0.00	82.00	1	1/2" Coax
0.00	76.00	1	1/2" Coax
0.00	68.00	1	1/2" Coax

Base Reactions

Leg			Overturning		
Max Uplift:	-224.63	(kips	Moment:	4474.24	(ft-kips)
Max Down:	259.99	(kips	Total Down:	40.51	(kips)
Max Shear:	28.34	(kips	Total Shear:	46.39	(kips)

Structure: CT10012-A-SBA

Site Name:	Griswold 2, CT			**Code:**	EIA/TIA-222-H	12/8/2020
Type:	Self Support	**Base Shape:**	Triangle	**Basic WS:**	124.00	
Height:	160.00 (ft)	**Base Width:**	20.96	**Basic Ice WS:**	50.00	
Base Elev:	0.00 (ft)	**Top Width:**	6.58	**Operational WS:**	60.00	Page: 3

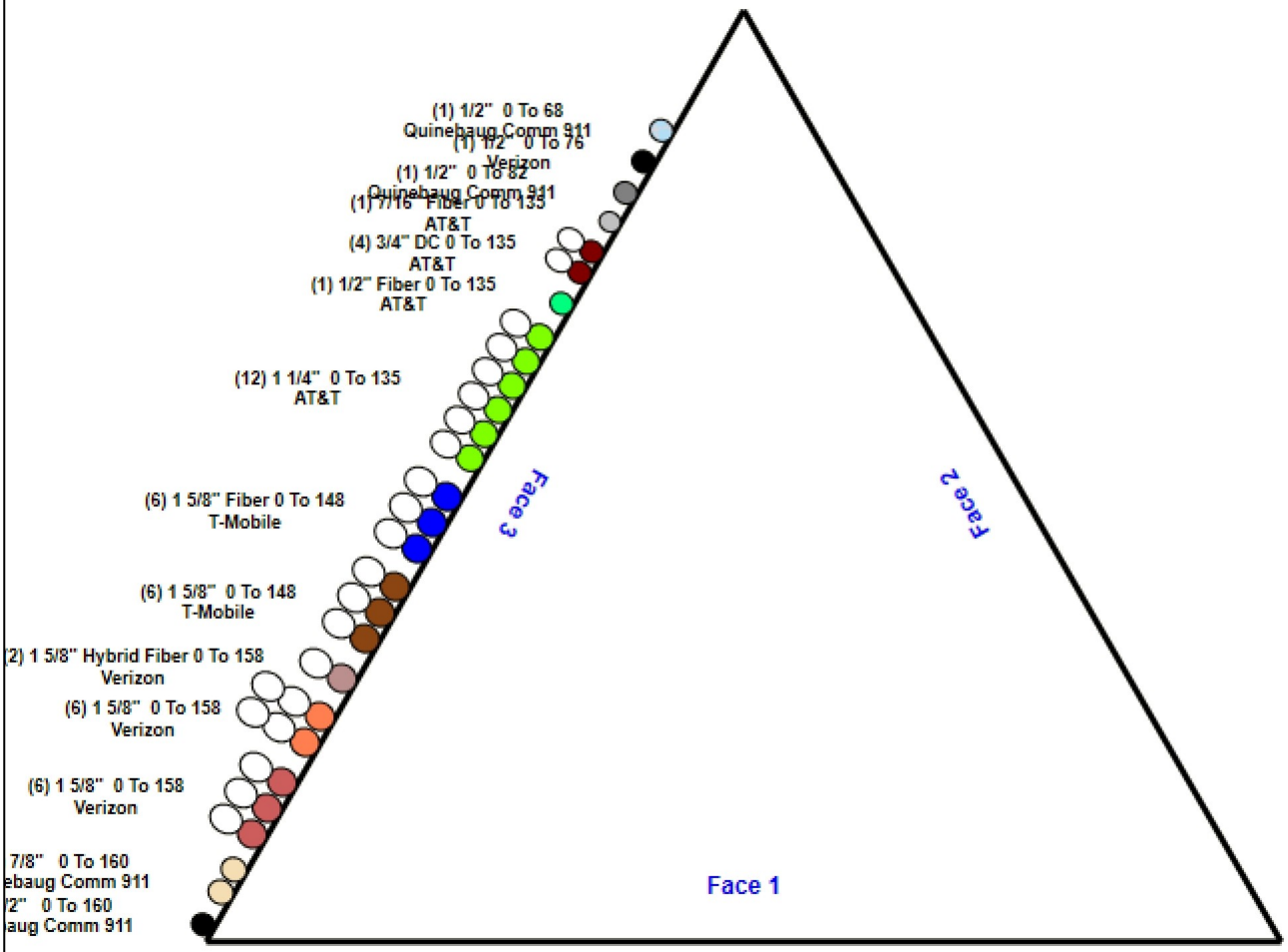


Structure: CT10012-A-SBA - Coax Line Placement

Type: Self Support
Site Name: Griswold 2, CT
Height: 160.00 (ft)

12/8/2020

Tower Engineering Solutions



Loading Summary

Structure:	CT10012-A-SBA		**Code:**	EIA/TIA-222-H	12/8/2020
Site Name:	Griswold 2, CT		**Exposure:**	C	
Height:	160.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 5

Tower Engineering Solutions

Discrete Appurtenances Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	Ice Weight (lb)	Ice CaAa (sf)	Len (in)	Width (in)	Depth (in)	Ka	Orientation Factor	Vert Ecc (ft)
160.00	Beacon	1	36.00	2.720	124.80	3.353	28.000	17.500	17.500	1.00	1.00	0.000
160.00	20' Dipole	2	60.00	7.520	207.83	15.443	240.000	3.000	3.000	1.00	1.00	10.00
160.00	DB201-C	1	25.00	2.860	85.17	9.093	96.800	0.000	0.000	1.00	1.00	4.033
160.00	Lightning Rod	1	5.00	0.500	18.96	1.663	72.000	1.000	1.000	1.00	1.00	0.000
158.00	DB-T1-6Z-8AB-0Z	2	18.90	4.800	99.62	5.917	24.000	24.000	10.000	0.80	0.50	0.000
158.00	Sector Frame-Pipe/Rod	3	450.00	14.000	684.56	18.691	0.000	0.000	0.000	0.75	0.75	0.000
158.00	SBNHH-1D65B	6	40.60	8.080	179.21	8.922	72.000	11.900	7.100	0.80	0.83	0.000
158.00	BXA-70080-4CF-EDIN-X	3	12.00	3.560	70.91	4.791	47.500	8.000	6.100	0.80	0.90	0.000
158.00	RRH4X45-B66A	3	56.80	2.540	94.07	2.989	25.800	11.800	7.200	0.80	0.67	0.000
158.00	RRH2x60-1900	3	19.50	1.510	49.63	1.861	20.100	9.000	7.200	0.80	0.67	0.000
158.00	RRH2X60-PCS	3	55.00	2.200	100.97	2.712	22.000	12.000	9.400	0.80	0.67	0.000
148.00	Sector Frames	3	400.00	10.000	586.16	15.817	0.000	0.000	0.000	0.75	0.75	0.000
148.00	APX16DWV-16DWVS-E-A20	3	40.70	6.610	118.74	8.062	55.900	13.300	3.100	0.80	0.62	0.000
148.00	APXVAALL24-43-U-NA20	3	128.00	20.240	394.91	21.491	95.900	24.000	7.800	0.80	0.70	0.000
148.00	AIR6449 B41	3	103.00	5.650	194.41	6.284	33.100	20.500	8.300	0.80	0.71	0.000
148.00	ATMAA1412D-1A20	3	13.00	1.170	30.72	1.692	12.000	10.000	4.000	0.80	0.67	0.000
148.00	4449 B71 + B85	3	73.20	1.970	111.70	2.350	17.900	13.200	10.600	0.80	0.67	0.000
148.00	4415 B66	3	46.30	1.860	83.15	2.222	16.500	13.500	5.900	0.80	0.67	0.000
148.00	4424 B25	3	46.00	1.640	73.40	1.984	15.000	13.200	5.400	0.80	0.67	0.000
135.00	LGP21401	6	14.10	1.290	30.53	1.839	14.400	9.200	2.600	0.80	0.50	-5.000
135.00	Sector Frame-Pipe/Rod	3	450.00	14.000	681.22	18.625	0.000	0.000	0.000	0.75	0.75	0.000
135.00	7770.00	6	35.00	5.500	119.99	6.176	55.000	11.000	5.000	0.80	0.77	0.000
135.00	HPA-65R-BUU-H6	1	51.00	9.660	206.31	10.542	72.000	14.800	9.000	0.80	0.83	0.000
135.00	HPA-65R-BUU-H8	2	68.00	12.980	258.96	14.022	92.400	14.800	7.400	0.80	0.79	0.000
135.00	EPBQ-654L8H6-B	1	54.90	8.270	184.89	9.108	73.000	12.000	7.400	0.80	0.84	0.000
135.00	EPBQ-654L8H8-L2	2	98.10	18.090	371.33	19.310	96.000	21.000	6.300	0.80	0.69	0.000
135.00	LGP21903	6	5.50	0.270	11.04	0.531	4.400	6.300	3.000	0.80	0.50	0.000
135.00	RRUS-11	3	51.00	2.520	98.50	2.936	17.000	17.800	7.200	0.80	0.67	0.000
135.00	RRUS-12 1900 MHz	3	60.00	2.700	108.83	3.407	18.200	17.800	6.000	0.80	0.67	0.000
135.00	RRUS-32	3	77.00	3.870	147.65	4.758	29.900	13.300	9.500	0.80	0.67	0.000
135.00	RRUS 4478 B14	3	59.40	1.650	86.65	1.991	15.000	13.200	7.300	0.80	0.67	0.000
135.00	RRUS A2 Module	3	21.20	1.860	44.93	2.500	12.800	15.000	3.400	0.80	0.67	0.000
135.00	DC6-48-60-18-8F	1	31.80	0.920	72.43	1.208	24.000	11.000	11.000	0.80	1.00	0.000
135.00	DC6-48-60-18-8F	1	31.80	0.920	72.43	1.208	24.000	11.000	11.000	0.80	1.00	0.000
82.00	4' Yagi	1	15.00	4.900	106.86	13.117	48.000	48.000	3.000	1.00	1.00	0.000
76.00	Side Arm (L. Heavy)	1	120.00	4.500	184.69	7.741	0.000	0.000	0.000	1.00	1.00	0.000
76.00	GPS	1	10.00	1.000	28.11	1.440	12.000	9.000	6.000	1.00	1.00	0.000
68.00	6' Dipole	1	20.00	2.220	61.71	3.887	72.000	3.000	3.000	1.00	1.00	3.000
	Totals:	**100**	**7,948.00**		**16,349.81**						**Number of Appurtenances :**	**38**

Loading Summary

Structure:	CT10012-A-SBA		**Code:**	EIA/TIA-222-H	12/8/2020
Site Name:	Griswold 2, CT		**Exposure:**	C	
Height:	160.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 6

Tower Engineering Solutions

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
0.00	160.00	1/2" Coax	1	0.65	0.16	100.00	3	Individual IR		N	0.50	1.00	0
0.00	160.00	7/8" Coax	2	1.11	0.52	100.00	3	Individual NR		N	0.50	1.00	0
0.00	158.00	1 5/8" Coax	6	1.98	1.04	50.00	3	Block		N	0.50	1.00	
0.00	158.00	1 5/8" Coax	6	1.98	1.04	33.30	3	Block		N	0.50	1.00	
0.00	158.00	1 5/8" Hybrid Fiber	2	2.00	1.10	50.00	3	Block		N	0.50	1.00	
0.00	158.00	W/G Ladder	1	0.50	6.00	100.00	3	Individual NR		N	0.50	1.00	
0.00	148.00	1 5/8" Coax	6	1.98	1.04	50.00	3	Block		N	0.50	1.00	
0.00	148.00	1 5/8" Fiber	6	2.00	1.10	50.00	3	Block		N	0.50	1.00	
0.00	148.00	W/G Ladder	1	0.50	6.00	100.00	3	Individual NR		N	0.50	1.00	
0.00	135.00	1 1/4" Coax	12	1.55	0.66	50.00	3	Block		N	0.50	1.00	
0.00	135.00	1/2" Fiber	1	0.50	0.16	100.00	3	Individual NR		N	0.50	1.00	
0.00	135.00	3/4" DC	4	0.75	0.40	50.00	3	Block		N	0.50	1.00	
0.00	135.00	7/16" Fiber	1	0.44	0.16	100.00	3	Individual NR		N	0.50	1.00	
0.00	135.00	W/G Ladder	1	0.50	6.00	100.00	3	Individual NR		N	0.50	1.00	
0.00	82.00	1/2" Coax	1	0.65	0.16	100.00	3	Individual NR		N	0.50	1.00	0
0.00	76.00	1/2" Coax	1	0.65	0.16	100.00	3	Individual NR		N	0.50	1.00	0
0.00	68.00	1/2" Coax	1	0.65	0.16	100.00	3	Individual NR		N	0.50	1.00	0

Section Forces

Structure:	CT10012-A-SBA	**Code:**	EIA/TIA-222-H	12/8/2020	
Site Name:	Griswold 2, CT	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 7	

Tower Engineering Solutions

Load Case: 1.2D + 1.0W Normal Wind — 1.2D + 1.0W 124 mph Wind at Normal To Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	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)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	28.10	0.000	35.76	0.00	0.17	2.70	1.00	1.00	0.00	17.55	40.33	0.00	3,602.7	0.0	1130.69	787.44	1,918.13
2	15.0	28.10	12.351	11.06	0.00	0.12	2.90	1.00	1.00	0.00	17.51	40.33	0.00	2,622.1	0.0	1210.88	787.44	1,998.32
3	30.0	32.47	23.140	22.12	0.00	0.12	2.87	1.00	1.00	0.00	33.06	80.67	0.00	5,132.0	0.0	2623.49	1819.92	4,443.41
4	50.0	36.16	21.096	22.12	0.00	0.13	2.84	1.00	1.00	0.00	30.76	80.67	0.00	4,572.8	0.0	2685.79	2026.55	4,712.33
5	70.0	38.81	22.170	18.58	0.00	0.14	2.80	1.00	1.00	0.00	31.05	79.80	0.00	4,478.2	0.0	2865.28	2174.96	5,040.25
6	90.0	40.92	16.261	15.03	0.00	0.13	2.85	1.00	1.00	0.00	24.01	77.52	0.00	3,325.9	0.0	2378.63	2292.19	4,670.82
7	110.0	42.69	14.103	13.36	0.00	0.14	2.82	1.00	1.00	0.00	21.26	77.42	0.00	3,029.3	0.0	2173.02	2391.05	4,564.07
8	130.0	44.22	12.689	11.69	0.00	0.15	2.75	1.00	1.00	0.00	19.21	71.07	0.00	2,500.9	0.0	1988.91	2262.14	4,251.05
9	150.0	45.57	11.730	9.58	0.00	0.16	2.75	1.00	1.00	0.00	17.18	35.26	0.00	1,707.2	0.0	1828.53	1077.24	2,905.78
														30,971.0	**0.0**			**34,504.16**

Load Case: 1.2D + 1.0W 60° Wind — 1.2D + 1.0W 124 mph Wind at 60° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.20

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	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)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	28.10	0.000	35.76	0.00	0.17	2.70	0.80	1.00	0.00	17.55	40.33	0.00	3,602.7	0.0	1130.69	787.44	1,918.13
2	15.0	28.10	12.351	11.06	0.00	0.12	2.90	0.80	1.00	0.00	15.04	40.33	0.00	2,622.1	0.0	1040.05	787.44	1,827.49
3	30.0	32.47	23.140	22.12	0.00	0.12	2.87	0.80	1.00	0.00	28.43	80.67	0.00	5,132.0	0.0	2256.27	1819.92	4,076.18
4	50.0	36.16	21.096	22.12	0.00	0.13	2.84	0.80	1.00	0.00	26.54	80.67	0.00	4,572.8	0.0	2317.42	2026.55	4,343.97
5	70.0	38.81	22.170	18.58	0.00	0.14	2.80	0.80	1.00	0.00	26.61	79.80	0.00	4,478.2	0.0	2456.05	2174.96	4,631.01
6	90.0	40.92	16.261	15.03	0.00	0.13	2.85	0.80	1.00	0.00	20.76	77.52	0.00	3,325.9	0.0	2056.45	2292.19	4,348.63
7	110.0	42.69	14.103	13.36	0.00	0.14	2.82	0.80	1.00	0.00	18.44	77.42	0.00	3,029.3	0.0	1884.77	2391.05	4,275.82
8	130.0	44.22	12.689	11.69	0.00	0.15	2.75	0.80	1.00	0.00	16.68	71.07	0.00	2,500.9	0.0	1726.21	2262.14	3,988.35
9	150.0	45.57	11.730	9.58	0.00	0.16	2.75	0.80	1.00	0.00	14.83	35.26	0.00	1,707.2	0.0	1578.77	1077.24	2,656.02
														30,971.0	**0.0**			**32,065.61**

Section Forces

Structure:	CT10012-A-SBA	**Code:**	EIA/TIA-222-H	12/8/2020	
Site Name:	Griswold 2, CT	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.0W 90° Wind — 1.2D + 1.0W 124 mph Wind at 90° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	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)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	28.10	0.000	35.76	0.00	0.17	2.70	0.85	1.00	0.00	17.55	40.33	0.00	3,602.7	0.0	1130.69	787.44	1,918.13
2	15.0	28.10	12.351	11.06	0.00	0.12	2.90	0.85	1.00	0.00	15.66	40.33	0.00	2,622.1	0.0	1082.76	787.44	1,870.20
3	30.0	32.47	23.140	22.12	0.00	0.12	2.87	0.85	1.00	0.00	29.59	80.67	0.00	5,132.0	0.0	2348.07	1819.92	4,167.99
4	50.0	36.16	21.096	22.12	0.00	0.13	2.84	0.85	1.00	0.00	27.60	80.67	0.00	4,572.8	0.0	2409.51	2026.55	4,436.06
5	70.0	38.81	22.170	18.58	0.00	0.14	2.80	0.85	1.00	0.00	27.72	79.80	0.00	4,478.2	0.0	2558.35	2174.96	4,733.32
6	90.0	40.92	16.261	15.03	0.00	0.13	2.85	0.85	1.00	0.00	21.57	77.52	0.00	3,325.9	0.0	2136.99	2292.19	4,429.18
7	110.0	42.69	14.103	13.36	0.00	0.14	2.82	0.85	1.00	0.00	19.15	77.42	0.00	3,029.3	0.0	1956.83	2391.05	4,347.88
8	130.0	44.22	12.689	11.69	0.00	0.15	2.75	0.85	1.00	0.00	17.31	71.07	0.00	2,500.9	0.0	1791.88	2262.14	4,054.03
9	150.0	45.57	11.730	9.58	0.00	0.16	2.75	0.85	1.00	0.00	15.42	35.26	0.00	1,707.2	0.0	1641.21	1077.24	2,718.46
														30,971.0	**0.0**			**32,675.25**

Load Case: 0.9D + 1.0W Normal Wind — 0.9D + 1.0W 124 mph Wind at Normal To Face

Wind Load Factor: 1.00
Dead Load Factor: 0.90
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	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)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	28.10	0.000	35.76	0.00	0.17	2.70	1.00	1.00	0.00	17.55	40.33	0.00	2,702.0	0.0	1130.69	787.44	1,918.13
2	15.0	28.10	12.351	11.06	0.00	0.12	2.90	1.00	1.00	0.00	17.51	40.33	0.00	1,966.6	0.0	1210.88	787.44	1,998.32
3	30.0	32.47	23.140	22.12	0.00	0.12	2.87	1.00	1.00	0.00	33.06	80.67	0.00	3,849.0	0.0	2623.49	1819.92	4,443.41
4	50.0	36.16	21.096	22.12	0.00	0.13	2.84	1.00	1.00	0.00	30.76	80.67	0.00	3,429.6	0.0	2685.79	2026.55	4,712.33
5	70.0	38.81	22.170	18.58	0.00	0.14	2.80	1.00	1.00	0.00	31.05	79.80	0.00	3,358.6	0.0	2865.28	2174.96	5,040.25
6	90.0	40.92	16.261	15.03	0.00	0.13	2.85	1.00	1.00	0.00	24.01	77.52	0.00	2,494.4	0.0	2378.63	2292.19	4,670.82
7	110.0	42.69	14.103	13.36	0.00	0.14	2.82	1.00	1.00	0.00	21.26	77.42	0.00	2,272.0	0.0	2173.02	2391.05	4,564.07
8	130.0	44.22	12.689	11.69	0.00	0.15	2.75	1.00	1.00	0.00	19.21	71.07	0.00	1,875.7	0.0	1988.91	2262.14	4,251.05
9	150.0	45.57	11.730	9.58	0.00	0.16	2.75	1.00	1.00	0.00	17.18	35.26	0.00	1,280.4	0.0	1828.53	1077.24	2,905.78
														23,228.2	**0.0**			**34,504.16**

Section Forces

Structure:	CT10012-A-SBA	**Code:**	EIA/TIA-222-H	12/8/2020	
Site Name:	Griswold 2, CT	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 0.9D + 1.0W 60° Wind — 0.9D + 1.0W 124 mph Wind at 60° From Face

Wind Load Factor: 1.00
Dead Load Factor: 0.90
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	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)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	28.10	0.000	35.76	0.00	0.17	2.70	0.80	1.00	0.00	17.55	40.33	0.00	2,702.0	0.0	1130.69	787.44	1,918.13
2	15.0	28.10	12.351	11.06	0.00	0.12	2.90	0.80	1.00	0.00	15.04	40.33	0.00	1,966.6	0.0	1040.05	787.44	1,827.49
3	30.0	32.47	23.140	22.12	0.00	0.12	2.87	0.80	1.00	0.00	28.43	80.67	0.00	3,849.0	0.0	2256.27	1819.92	4,076.18
4	50.0	36.16	21.096	22.12	0.00	0.13	2.84	0.80	1.00	0.00	26.54	80.67	0.00	3,429.6	0.0	2317.42	2026.55	4,343.97
5	70.0	38.81	22.170	18.58	0.00	0.14	2.80	0.80	1.00	0.00	26.61	79.80	0.00	3,358.6	0.0	2456.05	2174.96	4,631.01
6	90.0	40.92	16.261	15.03	0.00	0.13	2.85	0.80	1.00	0.00	20.76	77.52	0.00	2,494.4	0.0	2056.45	2292.19	4,348.63
7	110.0	42.69	14.103	13.36	0.00	0.14	2.82	0.80	1.00	0.00	18.44	77.42	0.00	2,272.0	0.0	1884.77	2391.05	4,275.82
8	130.0	44.22	12.689	11.69	0.00	0.15	2.75	0.80	1.00	0.00	16.68	71.07	0.00	1,875.7	0.0	1726.21	2262.14	3,988.35
9	150.0	45.57	11.730	9.58	0.00	0.16	2.75	0.80	1.00	0.00	14.83	35.26	0.00	1,280.4	0.0	1578.77	1077.24	2,656.02
														23,228.2	**0.0**			**32,065.61**

Load Case: 0.9D + 1.0W 90° Wind — 0.9D + 1.0W 124 mph Wind at 90° From Face

Wind Load Factor: 1.00
Dead Load Factor: 0.90
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	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)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	28.10	0.000	35.76	0.00	0.17	2.70	0.85	1.00	0.00	17.55	40.33	0.00	2,702.0	0.0	1130.69	787.44	1,918.13
2	15.0	28.10	12.351	11.06	0.00	0.12	2.90	0.85	1.00	0.00	15.66	40.33	0.00	1,966.6	0.0	1082.76	787.44	1,870.20
3	30.0	32.47	23.140	22.12	0.00	0.12	2.87	0.85	1.00	0.00	29.59	80.67	0.00	3,849.0	0.0	2348.07	1819.92	4,167.99
4	50.0	36.16	21.096	22.12	0.00	0.13	2.84	0.85	1.00	0.00	27.60	80.67	0.00	3,429.6	0.0	2409.51	2026.55	4,436.06
5	70.0	38.81	22.170	18.58	0.00	0.14	2.80	0.85	1.00	0.00	27.72	79.80	0.00	3,358.6	0.0	2558.35	2174.96	4,733.32
6	90.0	40.92	16.261	15.03	0.00	0.13	2.85	0.85	1.00	0.00	21.57	77.52	0.00	2,494.4	0.0	2136.99	2292.19	4,429.18
7	110.0	42.69	14.103	13.36	0.00	0.14	2.82	0.85	1.00	0.00	19.15	77.42	0.00	2,272.0	0.0	1956.83	2391.05	4,347.88
8	130.0	44.22	12.689	11.69	0.00	0.15	2.75	0.85	1.00	0.00	17.31	71.07	0.00	1,875.7	0.0	1791.88	2262.14	4,054.03
9	150.0	45.57	11.730	9.58	0.00	0.16	2.75	0.85	1.00	0.00	15.42	35.26	0.00	1,280.4	0.0	1641.21	1077.24	2,718.46
														23,228.2	**0.0**			**32,675.25**

Section Forces

Structure:	CT10012-A-SBA	**Code:**	EIA/TIA-222-H	12/8/2020	
Site Name:	Griswold 2, CT	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 10

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi Normal Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	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)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	4.57	0.000	44.77	9.01	0.21	2.56	1.00	1.00	0.83	26.17	54.13	11.04	5,747.5	2144.9	259.90	192.30	452.20
2	15.0	4.57	12.351	20.84	9.78	0.17	2.72	1.00	1.00	0.92	24.21	55.74	12.32	4,726.2	2104.1	255.48	200.53	456.01
3	30.0	5.28	23.140	42.19	20.08	0.18	2.68	1.00	1.00	0.99	47.22	113.68	26.41	9,555.6	4423.6	567.89	474.88	1,042.77
4	50.0	5.88	21.096	42.04	19.91	0.19	2.63	1.00	1.00	1.04	45.17	115.41	27.80	9,093.5	4520.7	593.57	538.38	1,131.95
5	70.0	6.31	22.170	42.21	23.63	0.22	2.52	1.00	1.00	1.08	46.61	115.74	25.87	9,199.1	4720.9	630.18	583.40	1,213.58
6	90.0	6.65	16.261	37.21	22.18	0.22	2.54	1.00	1.00	1.11	37.76	114.38	18.79	7,525.6	4199.7	541.73	620.84	1,162.57
7	110.0	6.94	14.103	33.99	20.63	0.24	2.48	1.00	1.00	1.13	33.88	115.01	18.80	7,075.0	4045.7	495.12	651.58	1,146.70
8	130.0	7.19	12.689	34.40	22.71	0.29	2.32	1.00	1.00	1.15	33.21	106.43	17.20	6,360.2	3859.3	470.36	613.13	1,083.49
9	150.0	7.41	11.730	33.45	23.86	0.32	2.24	1.00	1.00	1.16	32.00	53.88	11.63	4,535.9	2828.7	451.25	291.07	742.32
														63,818.7	**32847.7**			**8,431.58**

Load Case: 1.2D + 1.0Di + 1.0Wi 60° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	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)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	4.57	0.000	44.77	9.01	0.21	2.56	0.80	1.00	0.83	26.17	54.13	11.04	5,747.5	2144.9	259.90	192.30	452.20
2	15.0	4.57	12.351	20.84	9.78	0.17	2.72	0.80	1.00	0.92	21.74	55.74	12.32	4,726.2	2104.1	229.42	200.53	429.95
3	30.0	5.28	23.140	42.19	20.08	0.18	2.68	0.80	1.00	0.99	42.59	113.68	26.41	9,555.6	4423.6	512.23	474.88	987.11
4	50.0	5.88	21.096	42.04	19.91	0.19	2.63	0.80	1.00	1.04	40.96	115.41	27.80	9,093.5	4520.7	538.13	538.38	1,076.51
5	70.0	6.31	22.170	42.21	23.63	0.22	2.52	0.80	1.00	1.08	42.17	115.74	25.87	9,199.1	4720.9	570.23	583.40	1,153.63
6	90.0	6.65	16.261	37.21	22.18	0.22	2.54	0.80	1.00	1.11	34.51	114.38	18.79	7,525.6	4199.7	495.07	620.84	1,115.91
7	110.0	6.94	14.103	33.99	20.63	0.24	2.48	0.80	1.00	1.13	31.06	115.01	18.80	7,075.0	4045.7	453.90	651.58	1,105.48
8	130.0	7.19	12.689	34.40	22.71	0.29	2.32	0.80	1.00	1.15	30.67	106.43	17.20	6,360.2	3859.3	434.41	613.13	1,047.54
9	150.0	7.41	11.730	33.45	23.86	0.32	2.24	0.80	1.00	1.16	29.66	53.88	11.63	4,535.9	2828.7	418.17	291.07	709.24
														63,818.7	**32847.7**			**8,077.57**

Section Forces

Structure:	CT10012-A-SBA	**Code:**	EIA/TIA-222-H	12/8/2020	
Site Name:	Griswold 2, CT	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 90° Wind — 1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face

Wind Load Factor: 1.00
Dead Load Factor: 1.20
Ice Dead Load Factor: 1.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	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)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	4.57	0.000	44.77	9.01	0.21	2.56	0.85	1.00	0.83	26.17	54.13	11.04	5,747.5	2144.9	259.90	192.30	452.20
2	15.0	4.57	12.351	20.84	9.78	0.17	2.72	0.85	1.00	0.92	22.36	55.74	12.32	4,726.2	2104.1	235.94	200.53	436.46
3	30.0	5.28	23.140	42.19	20.08	0.18	2.68	0.85	1.00	0.99	43.75	113.68	26.41	9,555.6	4423.6	526.14	474.88	1,001.02
4	50.0	5.88	21.096	42.04	19.91	0.19	2.63	0.85	1.00	1.04	42.01	115.41	27.80	9,093.5	4520.7	551.99	538.38	1,090.37
5	70.0	6.31	22.170	42.21	23.63	0.22	2.52	0.85	1.00	1.08	43.28	115.74	25.87	9,199.1	4720.9	585.21	583.40	1,168.62
6	90.0	6.65	16.261	37.21	22.18	0.22	2.54	0.85	1.00	1.11	35.32	114.38	18.79	7,525.6	4199.7	506.74	620.84	1,127.58
7	110.0	6.94	14.103	33.99	20.63	0.24	2.48	0.85	1.00	1.13	31.77	115.01	18.80	7,075.0	4045.7	464.21	651.58	1,115.79
8	130.0	7.19	12.689	34.40	22.71	0.29	2.32	0.85	1.00	1.15	31.30	106.43	17.20	6,360.2	3859.3	443.40	613.13	1,056.53
9	150.0	7.41	11.730	33.45	23.86	0.32	2.24	0.85	1.00	1.16	30.24	53.88	11.63	4,535.9	2828.7	426.44	291.07	717.51
														63,818.7	**32847.7**			**8,166.07**

Load Case: 1.0D + 1.0W Normal Wind — 1.0D + 1.0W 60 mph Wind at Normal To Face

Wind Load Factor: 1.00
Dead Load Factor: 1.00
Ice Dead Load Factor: 0.00
Wind Importance Factor: 1.00
Ice Importance Factor: 1.00

Sect Seq	Wind Height (ft)	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)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	6.58	0.000	35.76	0.00	0.17	2.70	1.00	1.00	0.00	20.73	40.33	0.00	3,002.2	0.0	312.81	184.36	497.17
2	15.0	6.58	12.351	11.06	0.00	0.12	2.90	1.00	1.00	0.00	18.60	40.33	0.00	2,185.1	0.0	301.19	184.36	485.55
3	30.0	7.60	23.140	22.12	0.00	0.12	2.87	1.00	1.00	0.00	35.64	80.67	0.00	4,276.6	0.0	662.19	426.10	1,088.29
4	50.0	8.47	21.096	22.12	0.00	0.13	2.84	1.00	1.00	0.00	33.62	80.67	0.00	3,810.6	0.0	687.15	474.48	1,161.63
5	70.0	9.09	22.170	18.58	0.00	0.14	2.80	1.00	1.00	0.00	32.70	79.80	0.00	3,731.8	0.0	706.63	509.23	1,215.86
6	90.0	9.58	16.261	15.03	0.00	0.13	2.85	1.00	1.00	0.00	24.76	77.52	0.00	2,771.6	0.0	574.36	536.67	1,111.04
7	110.0	9.99	14.103	13.36	0.00	0.14	2.82	1.00	1.00	0.00	21.67	77.42	0.00	2,524.4	0.0	518.46	559.82	1,078.28
8	130.0	10.35	12.689	11.69	0.00	0.15	2.75	1.00	1.00	0.00	19.33	71.07	0.00	2,084.1	0.0	468.42	529.64	998.05
9	150.0	10.67	11.730	9.58	0.00	0.16	2.75	1.00	1.00	0.00	17.18	35.26	0.00	1,422.7	0.0	428.12	252.22	680.33
														25,809.2	**0.0**			**8,316.20**

Section Forces

Structure:	CT10012-A-SBA	**Code:**	EIA/TIA-222-H	12/8/2020	
Site Name:	Griswold 2, CT	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60° Wind — 1.0D + 1.0W 60 mph Wind at 60° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	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)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	6.58	0.000	35.76	0.00	0.17	2.70	0.80	1.00	0.00	20.73	40.33	0.00	3,002.2	0.0	312.81	184.36	497.17
2	15.0	6.58	12.351	11.06	0.00	0.12	2.90	0.80	1.00	0.00	16.13	40.33	0.00	2,185.1	0.0	261.19	184.36	445.55
3	30.0	7.60	23.140	22.12	0.00	0.12	2.87	0.80	1.00	0.00	31.02	80.67	0.00	4,276.6	0.0	576.21	426.10	1,002.31
4	50.0	8.47	21.096	22.12	0.00	0.13	2.84	0.80	1.00	0.00	29.40	80.67	0.00	3,810.6	0.0	600.91	474.48	1,075.39
5	70.0	9.09	22.170	18.58	0.00	0.14	2.80	0.80	1.00	0.00	28.27	79.80	0.00	3,731.8	0.0	610.82	509.23	1,120.04
6	90.0	9.58	16.261	15.03	0.00	0.13	2.85	0.80	1.00	0.00	21.51	77.52	0.00	2,771.6	0.0	498.93	536.67	1,035.60
7	110.0	9.99	14.103	13.36	0.00	0.14	2.82	0.80	1.00	0.00	18.85	77.42	0.00	2,524.4	0.0	450.97	559.82	1,010.79
8	130.0	10.35	12.689	11.69	0.00	0.15	2.75	0.80	1.00	0.00	16.79	71.07	0.00	2,084.1	0.0	406.91	529.64	936.55
9	150.0	10.67	11.730	9.58	0.00	0.16	2.75	0.80	1.00	0.00	14.83	35.26	0.00	1,422.7	0.0	369.64	252.22	621.86
														25,809.2	**0.0**			**7,745.26**

Load Case: 1.0D + 1.0W 90° Wind — 1.0D + 1.0W 60 mph Wind at 90° From Face

Wind Load Factor: 1.00 — **Wind Importance Factor:** 1.00

Dead Load Factor: 1.00

Ice Dead Load Factor: 0.00 — **Ice Importance Factor:** 1.00

Sect Seq	Wind Height (ft)	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)	Linear Area (sqft)	Ice Linear Area (sqft)	Total Weight (lb)	Weight Ice (lb)	Struct Force (lb)	Linear Force (lb)	Total Force (lb)
1	5.0	6.58	0.000	35.76	0.00	0.17	2.70	0.85	1.00	0.00	20.73	40.33	0.00	3,002.2	0.0	312.81	184.36	497.17
2	15.0	6.58	12.351	11.06	0.00	0.12	2.90	0.85	1.00	0.00	16.75	40.33	0.00	2,185.1	0.0	271.19	184.36	455.55
3	30.0	7.60	23.140	22.12	0.00	0.12	2.87	0.85	1.00	0.00	32.17	80.67	0.00	4,276.6	0.0	597.71	426.10	1,023.81
4	50.0	8.47	21.096	22.12	0.00	0.13	2.84	0.85	1.00	0.00	30.45	80.67	0.00	3,810.6	0.0	622.47	474.48	1,096.95
5	70.0	9.09	22.170	18.58	0.00	0.14	2.80	0.85	1.00	0.00	29.38	79.80	0.00	3,731.8	0.0	634.77	509.23	1,144.00
6	90.0	9.58	16.261	15.03	0.00	0.13	2.85	0.85	1.00	0.00	22.32	77.52	0.00	2,771.6	0.0	517.79	536.67	1,054.46
7	110.0	9.99	14.103	13.36	0.00	0.14	2.82	0.85	1.00	0.00	19.55	77.42	0.00	2,524.4	0.0	467.84	559.82	1,027.66
8	130.0	10.35	12.689	11.69	0.00	0.15	2.75	0.85	1.00	0.00	17.42	71.07	0.00	2,084.1	0.0	422.29	529.64	951.92
9	150.0	10.67	11.730	9.58	0.00	0.16	2.75	0.85	1.00	0.00	15.42	35.26	0.00	1,422.7	0.0	384.26	252.22	636.48
														25,809.2	**0.0**			**7,888.00**

Force/Stress Compression Summary

Structure:	CT10012-A-SBA	**Code:**	EIA/TIA-222-H	12/8/2020	
Site Name:	Griswold 2, CT	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 13	

Tower Engineering Solutions

LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	10	PX - 6" DIA PIPE	-252.70	1.2D + 1.0W Normal Wind	9.77	100	100	100	53.52	50.00	306.57	82.4	Member X
2	20	PX - 6" DIA PIPE	-238.97	1.2D + 1.0W Normal Wind	9.77	100	100	100	53.52	50.00	306.57	77.9	Member X
3	40	PX - 6" DIA PIPE	-222.80	1.2D + 1.0W Normal Wind	9.77	100	100	100	53.51	50.00	306.60	72.7	Member X
4	60	PSP - ROHN 6 EHS	-191.04	1.2D + 1.0W Normal Wind	9.77	100	100	100	52.68	50.00	246.61	77.5	Member X
5	80	PX - 5" DIA PIPE	-161.70	1.2D + 1.0W Normal Wind	6.51	100	100	100	42.47	50.00	240.98	67.1	Member X
6	100	PX - 4" DIA PIPE	-129.27	1.2D + 1.0W Normal Wind	6.51	100	100	100	52.80	50.00	161.86	79.9	Member X
7	120	PX - 3-1/2" DIA PIPE	-96.10	1.2D + 1.0W Normal Wind	6.51	100	100	100	59.65	50.00	127.67	75.3	Member X
8	140	PST - 3" DIA PIPE	-61.30	1.2D + 1.0W Normal Wind	4.88	100	100	100	50.52	50.00	83.27	73.6	Member X
9	160	PST - 2-1/2" DIA PIPE	-23.83	1.2D + 1.0W Normal Wind	3.90	100	100	100	49.42	50.00	64.14	37.2	Member X

Splices

		Top Splice					Bottom Splice					
Sect	Top Elev	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts
1	10	1.2D + 1.0W Normal Wind	245.98	0.00	0.0			1.2D + 1.0W Normal Wind	260.81	0.00			
2	20	1.2D + 1.0W Normal Wind	232.16	0.00	0.0			1.2D + 1.0W Normal Wind	245.98	0.00			
3	40	1.2D + 1.0W Normal Wind	199.82	0.00	0.0			1.2D + 1.0W Normal Wind	232.16	0.00		1 A325	6
4	60	1.2D + 1.0W Normal Wind	168.12	0.00	0.0			1.2D + 1.0W Normal Wind	199.82	0.00		1 A325	6
5	80	1.2D + 1.0W Normal Wind	135.49	0.00	0.0			1.2D + 1.0W Normal Wind	168.12	0.00		1 A325	6
6	100	1.2D + 1.0W Normal Wind	102.68	0.00	0.0			1.2D + 1.0W Normal Wind	135.49	0.00		1 A325	4
7	120	1.2D + 1.0W Normal Wind	66.76	0.00	0.0			1.2D + 1.0W Normal Wind	102.68	0.00		7/8 A325	4
8	140	1.2D + 1.0W Normal Wind	27.73	0.00	0.0			1.2D + 1.0W Normal Wind	66.76	0.00		7/8 A325	4
9	160	1.2D + 1.0Di + 1.0Wi 60° Wind	0.47	0.00	0.0			1.2D + 1.0W Normal Wind	27.73	0.00		3/4 A325	4

HORIZONTAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	10										0.00	0	0				
2	20										0.00	0	0				
3	40										0.00	0	0				
4	60										0.00	0	0				
5	80										0.00	0	0				
6	100										0.00	0	0				
7	120										0.00	0	0				
8	140	SAE - 2X2X0.1875	-0.23	1.2D + 1.0W Normal Wind	6.58	100	100	100	200.41	36.00	5.06	1	1	13.81	7.84	4.5	Member Z
9	160	SAE - 1.75X1.75X0.1875	-1.51	0.9D + 1.0W Normal Wind	6.58	100	100	100	230.20	36.00	3.35	1	1	13.81	7.82	45.2	Member Z

DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls
1	10	MOD - 2L3.5x3.5x1/4 Sp	-8.51	1.2D + 1.0W 90° Wind	22.64	49	49	49	124.05	50.00	49.98	1	1	19.87		42.8	Bolt Shear
2	20	SAE - 3.5X3.5X0.25	-8.84	0.9D + 1.0W 90° Wind	21.73	49	49	49	184.07	50.00	14.28	1	1	19.87	14.1	62.6	Bolt Bear
3	40	SAE - 3.5X3.5X0.25	-8.89	0.9D + 1.0W 90° Wind	19.97	49	49	49	169.17	50.00	16.90	1	1	19.87	14.1	62.9	Bolt Bear
4	60	SAE - 3.5X3.5X0.25	-8.14	1.2D + 1.0W 90° Wind	18.20	49	49	49	154.20	50.00	20.34	1	1	19.87	14.1	57.6	Bolt Bear
5	80	SAE - 3X3X0.25	-7.00	1.2D + 1.0W 90° Wind	14.63	49	49	49	145.32	50.00	19.52	1	1	13.81	11.7	59.8	Bolt Bear
6	100	SAE - 2.5X2.5X0.1875	-6.47	1.2D + 1.0W 90° Wind	12.79	49	49	49	151.95	36.00	11.18	1	1	13.81	7.84	82.5	Bolt Bear
7	120	SAE - 2.5X2.5X0.1875	-6.37	1.2D + 1.0W 90° Wind	11.06	49	49	49	131.42	36.00	14.95	1	1	13.81	7.84	81.4	Bolt Bear
8	140	SAE - 2X2X0.1875	-5.36	1.2D + 1.0W 90° Wind	8.81	48	48	48	128.83	36.00	12.24	1	1	13.81	7.84	68.5	Bolt Bear
9	160	SAE - 1.75X1.75X0.1875	-4.00	1.2D + 1.0W 90° Wind	7.65	46	46	46	123.10	36.00	11.69	1	1	13.81	7.84	51.0	Bolt Bear

Force/Stress Compression Summary

Structure:	CT10012-A-SBA	**Code:**	EIA/TIA-222-H	12/8/2020	
Site Name:	Griswold 2, CT	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 14	

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DIAGONAL MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	Use %	Controls

Force/Stress Tension Summary

Structure:	CT10012-A-SBA	**Code:**	EIA/TIA-222-H	12/8/2020	
Site Name:	Griswold 2, CT	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 15	

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LEG MEMBERS

Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Leg Use %	Controls
1	10	PX - 6" DIA PIPE	226.04	0.9D + 1.0W 60° Wind	50	378.00	59.8	Member
2	20	PX - 6" DIA PIPE	207.12	0.9D + 1.0W 60° Wind	50	378.00	54.8	Member
3	40	PX - 6" DIA PIPE	201.63	0.9D + 1.0W 60° Wind	50	378.00	53.3	Member
4	60	PSP - ROHN 6 EHS	174.21	0.9D + 1.0W 60° Wind	50	302.09	57.7	Member
5	80	PX - 5" DIA PIPE	146.83	0.9D + 1.0W 60° Wind	50	274.95	53.4	Member
6	100	PX - 4" DIA PIPE	118.58	0.9D + 1.0W 60° Wind	50	198.45	59.8	Member
7	120	PX - 3-1/2" DIA PIPE	89.07	0.9D + 1.0W 60° Wind	50	165.60	53.8	Member
8	140	PST - 3" DIA PIPE	56.00	0.9D + 1.0W 60° Wind	50	100.35	55.8	Member
9	160	PST - 2-1/2" DIA PIPE	20.86	0.9D + 1.0W 60° Wind	50	76.68	27.2	Member

Splices

		Top Splice					Bottom Splice					
Sect	Top Elev	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts	Load Case	Force (kips)	Cap (kips)	Use %	Bolt Type	Num Bolts
1	10	0.9D + 1.0W 60° Wind	212.85	0.00	0.0			0.9D + 1.0W 60° Wind	226.0	0.00			
2	20	0.9D + 1.0W 60° Wind	201.36	0.00	0.0			0.9D + 1.0W 60° Wind	212.8	0.00			
3	40	0.9D + 1.0W 60° Wind	173.87	0.00	0.0			0.9D + 1.0W 60° Wind	201.3	318.06	63.3	1 A325	6
4	60	0.9D + 1.0W 60° Wind	146.57	0.00	0.0			0.9D + 1.0W 60° Wind	173.8	318.06	54.7	1 A325	6
5	80	0.9D + 1.0W 60° Wind	118.38	0.00	0.0			0.9D + 1.0W 60° Wind	146.5	318.06	46.1	1 A325	6
6	100	0.9D + 1.0W 60° Wind	88.93	0.00	0.0			0.9D + 1.0W 60° Wind	118.3	212.04	55.8	1 A325	4
7	120	0.9D + 1.0W 60° Wind	55.88	0.00	0.0			0.9D + 1.0W 60° Wind	88.93	166.24	53.5	7/8 A325	4
8	140	0.9D + 1.0W 60° Wind	20.99	0.00	0.0			0.9D + 1.0W 60° Wind	55.88	166.24	33.6	7/8 A325	4
9	160		0.00	0.00	0.0			0.9D + 1.0W 60° Wind	20.99	120.40	17.4	3/4 A325	4

HORIZONTAL MEMBERS

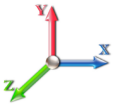
Sect	Top Elev	Member	Force (kips)	Load Case	Fy (ksi)	Mem Cap (kips)	Num Bolts	Num Holes	Shear Cap (kips)	Bear Cap (kips)	B.S. Cap (kips)	Use %	Controls
1	10	-			50	0.00	0	0					
2	20	-			50	0.00	0	0					
3	40	-			50	0.00	0	0					
4	60	-			50	0.00	0	0					
5	80	-			50	0.00	0	0					
6	100	-			36	0.00	0	0					
7	120	-			36	0.00	0	0					
8	140	SAE - 2X2X0.1875	0.04	0.9D + 1.0W Normal Wi	36	18.58	1	1	13.81	7.84	8.48	0.5	Bolt Bear
9	160	SAE - 1.75X1.75X0.1875	1.53	1.2D + 1.0W Normal Wi	36	15.64	1	1	13.81	7.82	7.37	20.7	Blck Shear

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	10	MOD - 2L3.5x3.5x1/4 Spec	8.12	0.9D + 1.0W 90° Wind	50	153.18	1	1	19.87			40.8	Bolt Shear
2	20	SAE - 3.5X3.5X0.25	8.67	0.9D + 1.0W 90° Wind	50	53.79	1	1	19.87	14.14	26.00	61.3	Bolt Bear
3	40	SAE - 3.5X3.5X0.25	8.73	1.2D + 1.0W 90° Wind	50	53.79	1	1	19.87	14.14	26.00	61.8	Bolt Bear
4	60	SAE - 3.5X3.5X0.25	7.87	0.9D + 1.0W 90° Wind	50	53.79	1	1	19.87	14.14	26.00	55.7	Bolt Bear
5	80	SAE - 3X3X0.25	6.84	1.2D + 1.0W 90° Wind	50	45.79	1	1	13.81	11.71	19.25	58.5	Bolt Bear
6	100	SAE - 2.5X2.5X0.1875	6.35	1.2D + 1.0W 90° Wind	36	24.84	1	1	13.81	7.84	10.68	81.1	Bolt Bear
7	120	SAE - 2.5X2.5X0.1875	6.24	1.2D + 1.0W 90° Wind	36	24.84	1	1	13.81	7.84	10.68	79.6	Bolt Bear
8	140	SAE - 2X2X0.1875	5.36	1.2D + 1.0W 90° Wind	36	18.58	1	1	13.81	7.84	8.48	68.4	Bolt Bear
9	160	SAE - 1.75X1.75X0.1875	3.95	1.2D + 1.0W 90° Wind	36	15.64	1	1	13.81	7.84	7.38	53.5	Blck Shear

Seismic Section Forces

Structure:	CT10012-A-SBA	**Code:**	EIA/TIA-222-H	12/8/2020	
Site Name:	Griswold 2, CT	**Exposure:**	C		
Height:	160.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	0.85 **Topography:** 1	**Struct Class:**	II	Page: 16	



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Load Case: 1.2D + 1.0Ev + 1.0Eh

Dead Load Factor	1.20	**Sds**	0.201	**Ss**	0.1890	**Fa**	1.6000	**Ke**	1.0000	**TL**	6.0000
Seismic Load Factor	1.00	**Sd1**	0.086	**S1**	0.0540	**Fv**	2.4000	**Kg**	0.0000	**Cs**	0.0614
Seismic Importance Factor	1.00	**W1**	17.79	**R**	3.0000	**Vs**	2.0741	**T**	0.4690	**f1**	2.1323

Sect #	Elev (ft)	Wz (lb)	Lateral Fsz (lbs)	Vertical Ev (lbs)
1	5.00	3002.2	11.29	121.11
2	15.00	2185.1	24.64	88.15
3	30.00	4276.6	96.45	172.52
4	50.00	3810.6	143.24	153.72
5	70.00	3881.8	204.28	156.59
6	90.00	2786.5	188.54	112.41
7	110.00	2524.4	208.76	101.84
8	130.00	5069.1	495.43	204.49
9	150.00	6220.5	701.49	250.94

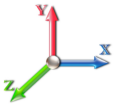
Load Case: 0.9D + 1.0Ev + 1.0Eh

Dead Load Factor	0.90	**Sds**	0.201	**Ss**	0.1890	**Fa**	1.6000	**Ke**	1.0000	**TL**	6.0000
Seismic Load Factor	1.00	**Sd1**	0.086	**S1**	0.0540	**Fv**	2.4000	**Kg**	0.0000	**Cs**	0.0614
Seismic Importance Factor	1.00	**W1**	17.79	**R**	3.0000	**Vs**	2.0741	**T**	0.4690	**f1**	2.1323

Sect #	Elev (ft)	Wz (lb)	Lateral Fsz (lbs)	Vertical Ev (lbs)
1	5.00	3002.2	11.29	121.11
2	15.00	2185.1	24.64	88.15
3	30.00	4276.6	96.45	172.52
4	50.00	3810.6	143.24	153.72
5	70.00	3881.8	204.28	156.59
6	90.00	2786.5	188.54	112.41
7	110.00	2524.4	208.76	101.84
8	130.00	5069.1	495.43	204.49
9	150.00	6220.5	701.49	250.94

Support Forces Summary

Structure:	CT10012-A-SBA		**Code:**	EIA/TIA-222-H	12/8/2020
Site Name:	Griswold 2, CT		**Exposure:**	C	
Height:	160.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 17



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Load Case	Node	FX (kips)	FY (kips)	FZ (kips)	(-) = Uplift (+) = Down
1.2D + 1.0W Normal Wind	1	-0.05	259.99	-28.34	
	1a	9.83	-109.80	-8.99	
	1b	-9.78	-109.68	-9.06	
1.2D + 1.0W 60° Wind	1	-2.88	131.26	-13.79	
	1a	-13.35	130.74	4.45	
	1b	-21.84	-221.49	-12.63	
1.2D + 1.0W 90° Wind	1	-3.29	13.48	-0.72	
	1a	-21.37	219.25	10.39	
	1b	-19.90	-192.22	-9.67	
0.9D + 1.0W Normal Wind	1	-0.04	256.35	-28.13	
	1a	10.01	-113.03	-9.09	
	1b	-9.96	-112.94	-9.17	
0.9D + 1.0W 60° Wind	1	-2.88	127.76	-13.59	
	1a	-13.16	127.24	4.35	
	1b	-22.02	-224.63	-12.74	
0.9D + 1.0W 90° Wind	1	-3.29	10.11	-0.51	
	1a	-21.19	215.66	10.28	
	1b	-20.08	-195.39	-9.77	
1.2D + 1.0Di + 1.0Wi Normal Wind	1	-0.01	84.25	-6.04	
	1a	2.87	-2.68	-2.44	
	1b	-2.86	-2.52	-2.46	
1.2D + 1.0Di + 1.0Wi 60° Wind	1	-0.69	54.52	-2.69	
	1a	-2.65	54.29	0.77	
	1b	-5.83	-29.75	-3.38	
1.2D + 1.0Di + 1.0Wi 90° Wind	1	-0.79	26.33	0.46	
	1a	-4.54	75.09	2.18	
	1b	-5.32	-22.36	-2.64	
1.2D + 1.0Ev + 1.0Eh	1	0.00	26.93	2.41	
	1a	3.70	7.47	-2.23	
	1b	-3.70	7.47	-2.23	
0.9D + 1.0Ev + 1.0Eh	1	0.00	23.54	2.63	
	1a	3.89	4.10	-2.34	
	1b	-3.89	4.10	-2.34	
1.0D + 1.0W Normal Wind	1	-0.01	69.49	-7.26	
	1a	1.88	-17.92	-1.91	
	1b	-1.87	-17.82	-1.93	
1.0D + 1.0W 60° Wind	1	-0.69	39.08	-3.81	
	1a	-3.64	38.95	1.32	
	1b	-4.79	-44.27	-2.77	
1.0D + 1.0W 90° Wind	1	-0.80	11.23	-0.69	
	1a	-5.53	59.74	2.73	
	1b	-4.32	-37.21	-2.03	

[Max Reactions]

Leg			Overturning		
Max Uplift:	-224.63	(kips)	Moment:	4474.24	(ft-kips)
Max Down:	259.99	(kips)	Total Down:	40.51	(kips)
Max Shear:	28.34	(kips)	Total Shear:	46.39	(kips)

Analysis Summary

Structure:	CT10012-A-SBA		**Code:**	EIA/TIA-222-H	12/8/2020
Site Name:	Griswold 2, CT		**Exposure:**	C	
Height:	160.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	0.85	**Topography:** 1	**Struct Class:**	II	Page: 19

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Max Reactions

Leg			Overturning		
Max Uplift:	-224.63	(kips)	Moment:	4474.24	(ft-kips)
Max Down:	259.99	(kips)	Total Down:	40.51	(kips)
Max Shear:	28.34	(kips)	Total Shear:	46.39	(kips)

Anchor Bolts

Bolt Size (in.):	1.00	Number Bolts:	8	Type:	UnGrouted
Yield Strength (Ksi):	109.00	Tensile Strength (Ksi):	125.00		
		Length:	1.50		

Interaction Ratios:

Tensile: **0.71** Compression: **0.64**

Max Usages

Max Leg: 82.4% (1.2D + 1.0W Normal Wind - Sect 1)
Max Diag: 82.5% (1.2D + 1.0W 90° Wind - Sect 6)
Max Horiz: 45.2% (0.9D + 1.0W Normal Wind - Sect 9)

Max Deflection, Twist and Sway

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)
0.9D + 1.0Ev + 1.0Eh - Normal To Face	66.75	0.0080	0.0000	0.0176
	73.25	0.0153	-0.0009	0.0206
	80.25	0.0137	0.0000	0.0271
	134.88	0.0528	0.0013	0.0484
	148.05	0.0650	0.0015	0.0547
	159.75	0.0761	-0.0013	0.0559
	160.00	0.0763	0.0013	0.0561
0.9D + 1.0W 124 mph Wind at 60° From Face	66.75	0.2025	-0.0116	0.3309
	73.25	0.2440	0.0232	0.3588
	80.25	0.2919	-0.0129	0.4531
	134.88	0.8821	0.1781	0.8054
	148.05	1.0796	0.2789	0.8968
	159.75	1.2603	0.3788	0.8653
	160.00	1.2629	0.3794	0.8920
0.9D + 1.0W 124 mph Wind at 90° From Face	66.75	0.2042	-0.0178	0.3333
	73.25	0.2460	0.0058	0.3649
	80.25	0.2943	-0.0205	0.4450
	134.88	0.8888	-0.0306	0.8250
	148.05	1.0875	-0.0357	0.9036
	159.75	1.2682	-0.0420	0.7390
	160.00	1.2692	-0.0420	0.7160

0.9D + 1.0W 124 mph Wind at Normal To Face	66.75	0.2127	0.0001	0.3461
	73.25	0.2544	-0.0243	0.3834
	80.25	0.3060	0.0001	0.5070
	134.88	0.9195	0.0665	0.8143
	148.05	1.1269	0.0678	0.9304
	159.75	1.3171	-0.0630	1.5356
	160.00	1.3241	-0.0628	1.6704
1.0D + 1.0W 60 mph Wind at 60° From Face	66.75	0.0479	-0.0036	0.0779
	73.25	0.0575	-0.0006	0.0845
	80.25	0.0689	-0.0042	0.1065
	134.88	0.2074	0.0112	0.1885
	148.05	0.2539	0.0168	0.2111
	159.75	0.2961	0.0219	0.2019
	160.00	0.2968	0.0219	0.2066
1.0D + 1.0W 60 mph Wind at 90° From Face	66.75	0.0481	-0.0047	0.0782
	73.25	0.0578	0.0013	0.0858
	80.25	0.0692	-0.0054	0.1044
	134.88	0.2085	-0.0027	0.1929
	148.05	0.2549	-0.0022	0.2120
	159.75	0.2971	-0.0022	0.1727
	160.00	0.2974	-0.0022	0.1673
1.0D + 1.0W 60 mph Wind at Normal To Face	66.75	0.0503	0.0000	0.0817
	73.25	0.0601	-0.0056	0.0904
	80.25	0.0723	0.0000	0.1192
	134.88	0.2166	0.0150	0.1915
	148.05	0.2651	0.0154	0.2176
	159.75	0.3098	0.0148	0.3605
	160.00	0.3114	0.0148	0.3921
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 60° From Face	66.75	0.0477	-0.0037	0.0782
	73.25	0.0594	0.0002	0.0845
	80.25	0.0690	-0.0042	0.1077
	134.88	0.2087	0.0158	0.1872
	148.05	0.2549	0.0237	0.2117
	159.75	0.2971	0.0311	0.2215
	160.00	0.2975	0.0311	0.2467
1.2D + 1.0Di + 1.0Wi 50 mph Wind at 90° From Face	66.75	0.0485	-0.0052	0.0784
	73.25	0.0592	0.0014	0.0854
	80.25	0.0697	-0.0060	0.1052
	134.88	0.2086	-0.0028	0.1909
	148.05	0.2547	-0.0024	0.2118
	159.75	0.2964	-0.0027	0.1418
	160.00	0.2964	-0.0027	0.1307
1.2D + 1.0Di + 1.0Wi 50 mph Wind at Normal From Face	66.75	0.0486	0.0000	0.0808
	73.25	0.0604	-0.0054	0.0896
	80.25	0.0707	0.0000	0.1186
	134.88	0.2149	0.0142	0.1896
	148.05	0.2631	-0.0144	0.2151
	159.75	0.3075	-0.0136	0.4218
	160.00	0.3094	-0.0136	0.4671
1.2D + 1.0Ev + 1.0Eh - Normal To Face	66.75	0.0080	0.0000	0.0176
	73.25	0.0153	-0.0009	0.0207
	80.25	0.0137	0.0000	0.0272
	134.88	0.0529	0.0013	0.0485
	148.05	0.0651	0.0015	0.0549
	159.75	0.0762	0.0013	0.0562
	160.00	0.0765	0.0013	0.0564
1.2D + 1.0W 124 mph Wind at 60° From Face	66.75	0.2028	-0.0116	0.3314
	73.25	0.2442	0.0233	0.3593
	80.25	0.2922	-0.0129	0.4537
	134.88	0.8834	0.1784	0.8069
	148.05	1.0814	0.2794	0.8989
	159.75	1.2625	0.3796	0.8667
	160.00	1.2651	0.3801	0.8935

1.2D + 1.0W 124 mph Wind at 90° From Face	66.75	0.2044	-0.0178	0.3338
	73.25	0.2462	0.0058	0.3655
	80.25	0.2946	-0.0205	0.4456
	134.88	0.8902	-0.0306	0.8266
	148.05	1.0893	-0.0357	0.9057
	159.75	1.2703	-0.0420	0.7408
	160.00	1.2713	-0.0420	0.7178
1.2D + 1.0W 124 mph Wind at Normal To Face	66.75	0.2129	0.0001	0.3467
	73.25	0.2547	-0.0244	0.3840
	80.25	0.3064	0.0001	0.5078
	134.88	0.9210	0.0664	0.8160
	148.05	1.1288	0.0677	0.9320
	159.75	1.3194	-0.0629	1.5377
	160.00	1.3264	-0.0627	1.6725

EXHIBIT 9

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

Antenna Mount Analysis Report

Existing 162-Ft Self Support Tower

Customer Name: SBA Communications Corp

Customer Site Number: CT10012-A-SBA / Griswold 2, CT

Customer Site Name: Griswold 2, CT

Carrier Name: T-Mobile (App#: 116837, V2)

Carrier Site ID / Name: CT11152C / Griswold/I-395 X85/BMW

Site Location: 181 A Norman Road

Griswold, Connecticut

New London County

Latitude: 41.601097

Longitude: -71.954325

Analysis Result:

Max Structural Usage: 59.4% [Pass]

Report Prepared By : Mariana Franco

Introduction

The purpose of this report is to summarize the analysis results on the (3) Sector Mounts at 148.00' 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 SkyTower, LLC. Dated 5/2/2019
Antenna Loading	Provided by SBA Application #: 116837, v2
Modification Drawings	N/A

Analysis Criteria

Basic Wind Speed Used in the Analysis: V_{ULT} = 135 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/ 2015 IBC/ 2018 Connecticut State Building Code
Exposure Category: C
Structure Class: II
Topographic Category: 1
Crest Height (Ft): 0

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

Mount Information

(3) Sector Mounts at 148.00' elevation

Final Antenna Configuration

3 RFS APXVAALL24-43-U-NA20
3 RFS APX16DWV-16DWVS-E-A20
3 Ericsson AIR6449 B41
3 RFS ATMAA1412D-1A20
3 Ericsson 4449 B71 + B85
3 Ericsson 4415 B66
3 Ericsson4424 B25

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 59.4%, which occurs in the face horizontal. 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.


02.05.2019
05.03.2019

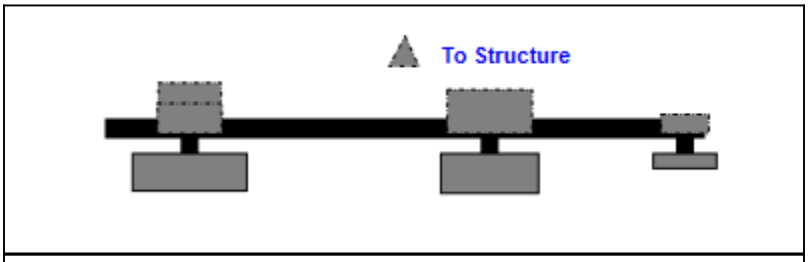
Structure: CT10012-A-SBA - Griswold 2, CT

Sector: A
Structure Type: Self Support
Mount Elev: 148.00

10/27/2020

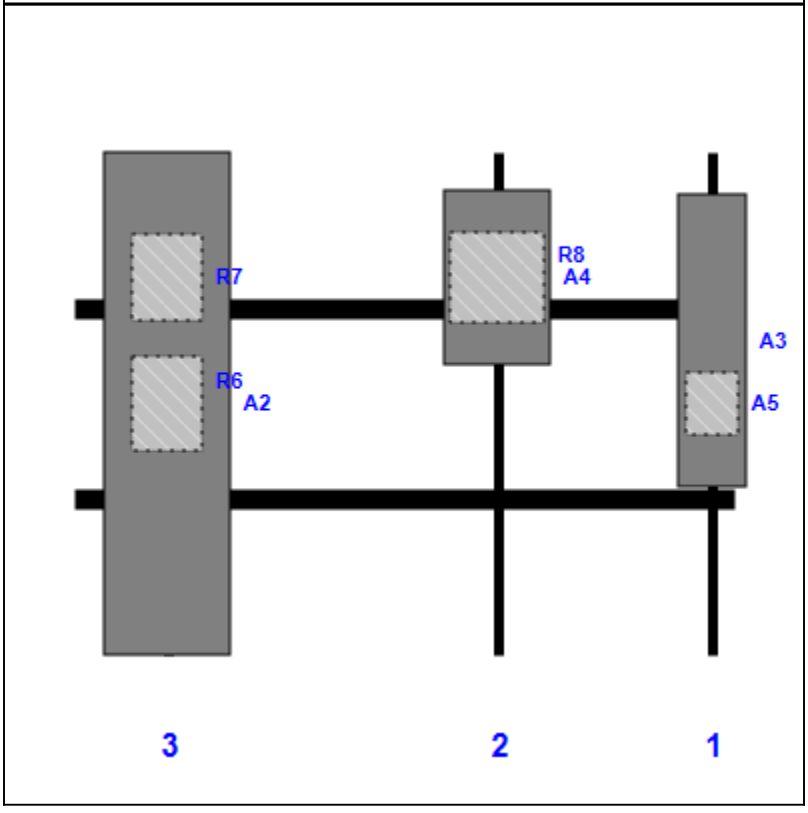
Tower Engineering Solutions

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
A3	APX16DWV-16DWVS-E-A20	55.90	13.30	122.00	1	a	Front	36.00			
A5	ATMAA1412D-1A20	12.00	10.00	122.00	1	a	Behind	48.00			
A4	AIR6449 B41	33.10	20.50	81.00	2	a	Front	24.00			
R8	4424 B25	17.00	17.80	81.00	2	a	Behind	24.00			
A2	APXVAALL24-43-U-NA20	95.90	24.00	18.00	3	a	Front	48.00			
R6	4449 B71 + B85	17.90	13.20	18.00	3	a	Behind	48.00			
R7	4415 B66	16.50	13.50	18.00	3	a	Behind	24.00			

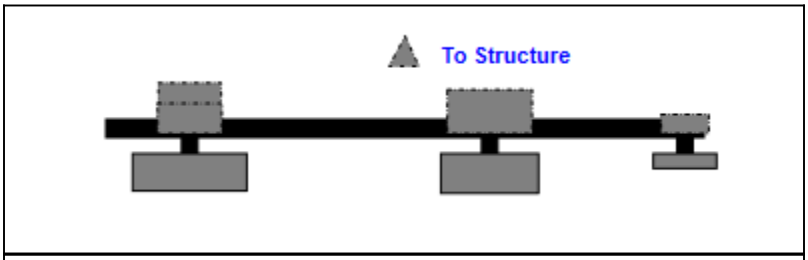
Structure: CT10012-A-SBA - Griswold 2, CT

Sector: B
Structure Type: Self Support
Mount Elev: 148.00

10/27/2020

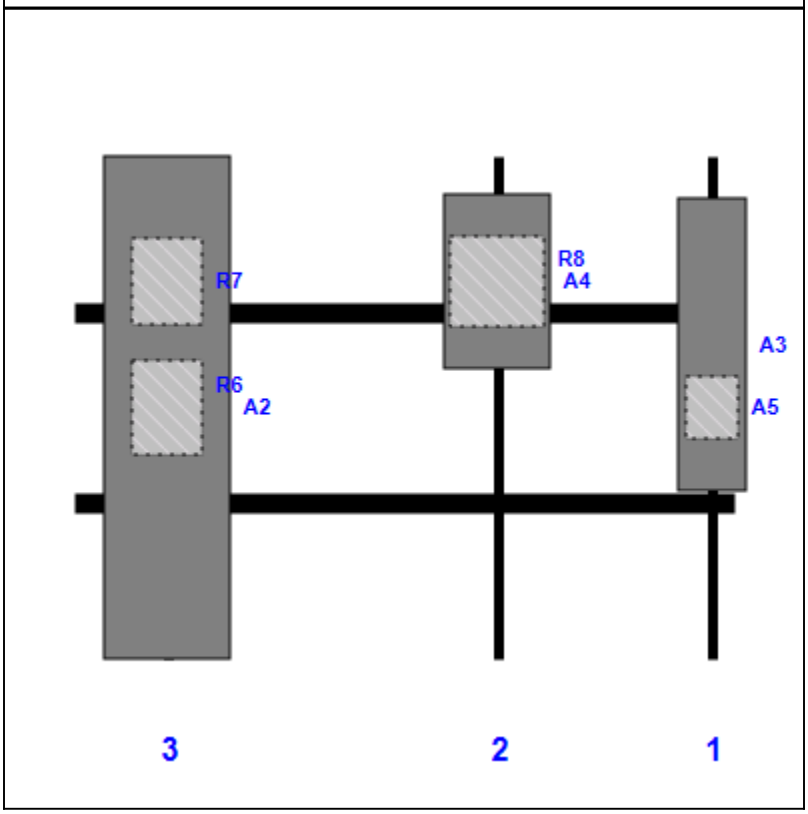
IES Tower Engineering Solutions

Plan View



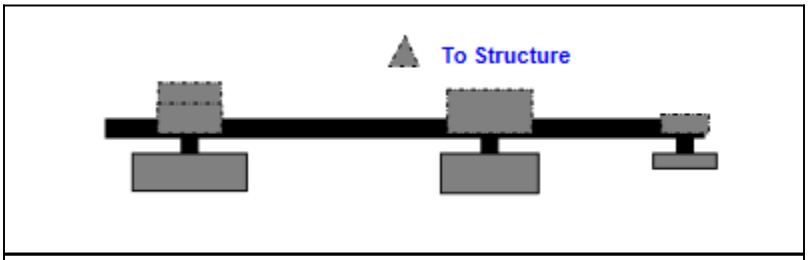
Front View

Looking Toward Structure



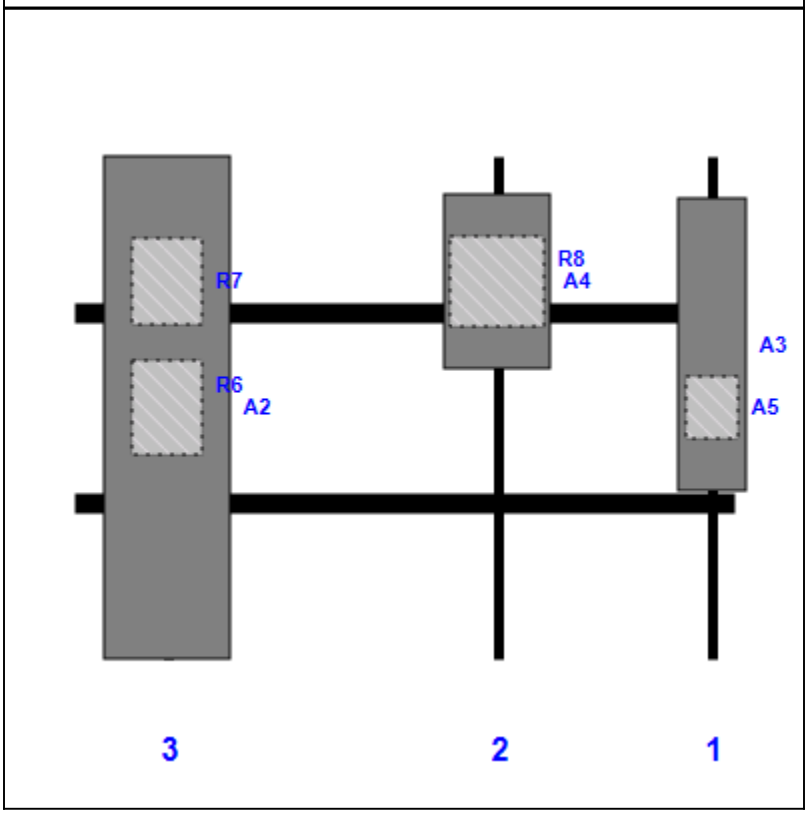
Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A3	APX16DWV-16DWVS-E-A20	55.90	13.30	122.00	1	a	Front	36.00			
A5	ATMAA1412D-1A20	12.00	10.00	122.00	1	a	Behind	48.00			
A4	AIR6449 B41	33.10	20.50	81.00	2	a	Front	24.00			
R8	4424 B25	17.00	17.80	81.00	2	a	Behind	24.00			
A2	APXVAALL24-43-U-NA20	95.90	24.00	18.00	3	a	Front	48.00			
R6	4449 B71 + B85	17.90	13.20	18.00	3	a	Behind	48.00			
R7	4415 B66	16.50	13.50	18.00	3	a	Behind	24.00			

Plan View



Front View

Looking Toward Structure

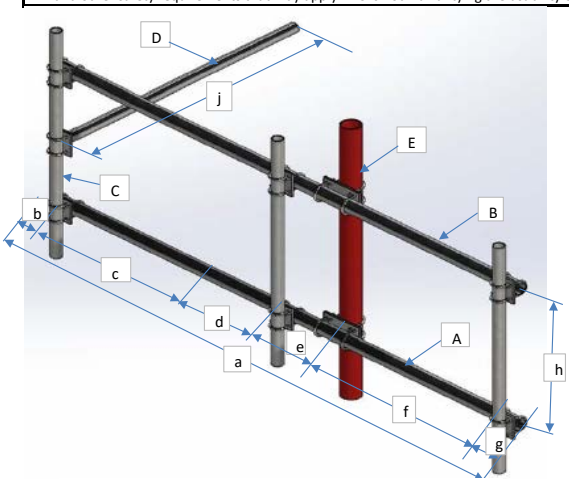


Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A3	APX16DWV-16DWVS-E-A20	55.90	13.30	122.00	1	a	Front	36.00			
A5	ATMAA1412D-1A20	12.00	10.00	122.00	1	a	Behind	48.00			
A4	AIR6449 B41	33.10	20.50	81.00	2	a	Front	24.00			
R8	4424 B25	17.00	17.80	81.00	2	a	Behind	24.00			
A2	APXVAALL24-43-U-NA20	95.90	24.00	18.00	3	a	Front	48.00			
R6	4449 B71 + B85	17.90	13.20	18.00	3	a	Behind	48.00			
R7	4415 B66	16.50	13.50	18.00	3	a	Behind	24.00			

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

FCC # 1223274

Tower Owner:	SBA Corp.	**Mapping Date:**	5/2/19
Site Name:	Griswold 2, CT	**Structure Type:**	Other
Site Number or ID:	CT10012	**Structure Height (Ft.):**	162
Mapping Contractor:	SKYTOWER, LLC	**Mount Height (Ft.):**	146



Geometries (Unit: inches)									
a	126	**e**	13	**j**	92	**o**		**s**	
b	18	**f**	X	**k**		**p**		**t**	
c	46	**g**	4	**m**		**q**		**u ***	66
d	45	**h**	36	**n**		**r**		**v ***	96

#VALUE!

Members (Unit: inches)						* - See Ant. Layout for "u", "v" and member "K" (pipe)			
Items	**Member**	**Lx (O.D.)**	**Ly (I.D.)**	**T**	**Items**	**Member**	**Lx (O.D.)**	**Ly (I.D.)**	**T**
A	2.375 OD x 0.154 Pipe	2.375	2.067	0.154	**F**				
B	2.375 OD x 0.154 Pipe	2.375	2.067	0.154	**G**				
C	2.375 OD x 0.154 Pipe	2.375	2.067	0.154	**H**				
D	1.9 OD x 0.145 Pipe	1.9	1.61	0.145	**J**				
E	2.875 OD x 0.276 Pipe	2.875	2.323	0.276	**K (pipe)***	2.375 OD x 0.154 Pipe	2.375	2.067	0.154

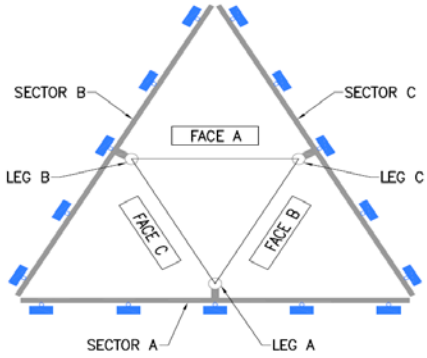
Please enter the infomation below if members can't be found from the drop down lists

One atenna pipe per sector is 2.87x0.21

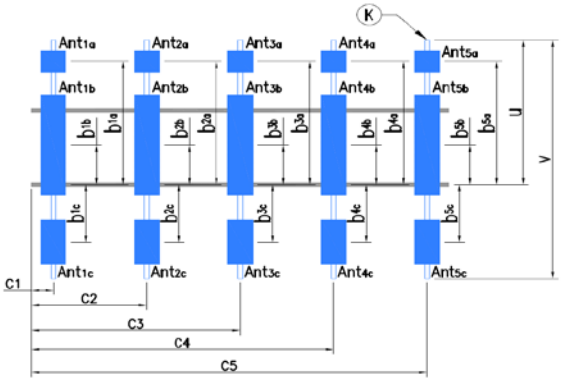
additional stabilizing bars attached to hand and footrail, pass footrail at 60" total length is 79"

connected using four 1/2 bolts

Tower Face Width at the mount (ft.): 6'8" Tower Leg Size at the mount:2.88"



Climbing facility is , at 355 Degree Azimuth

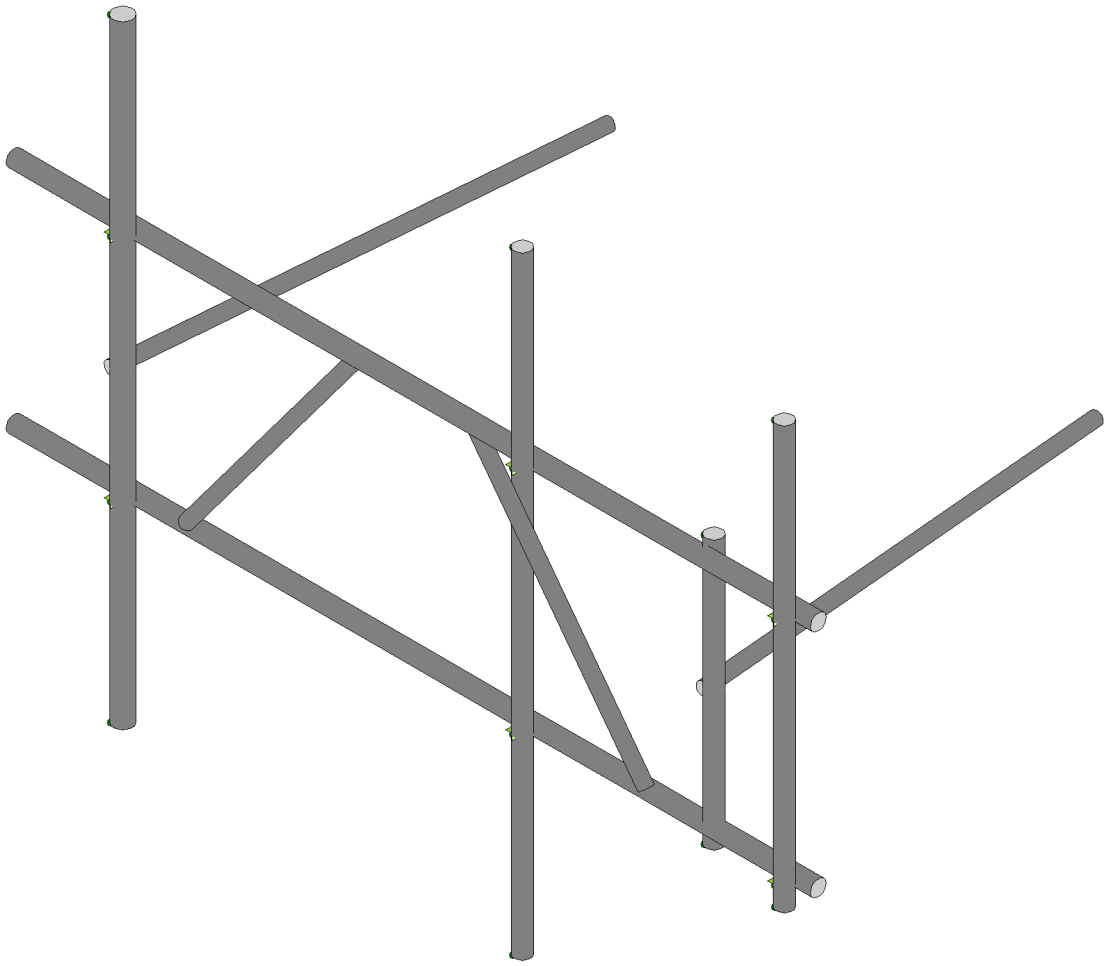


Antenna Layout

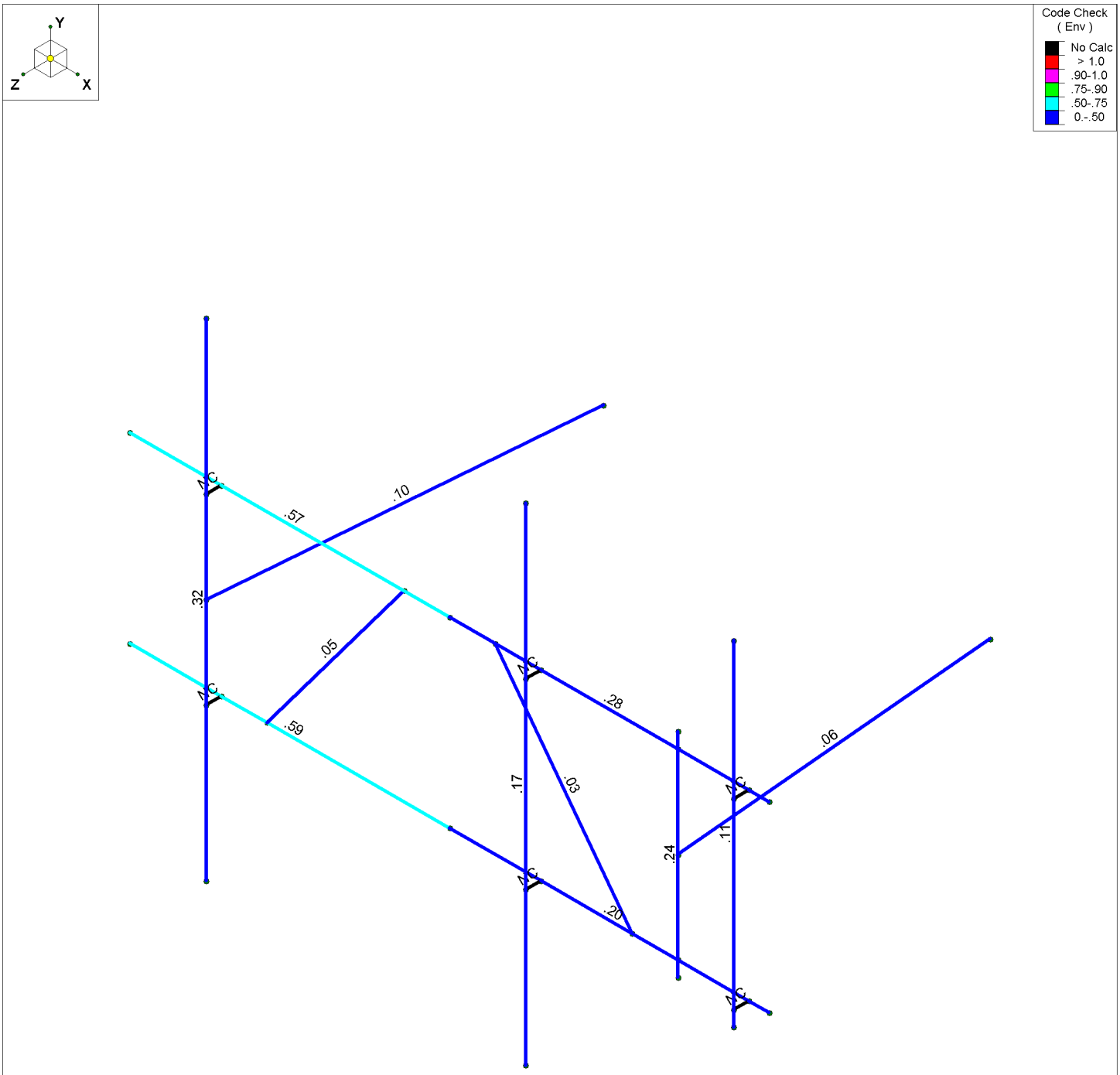
Ants. Items	Enter antenna model. If not labled, enter "Unknown". If no antenna at specified location, enter "N/A". If antennas and the locations are the same on all three sectors, only enter one sector.	Width (in.)	Depth (in.)	Height (in.)	Coax Size and Qty	Mounting Locations (Unit: inches) Vertical Distances"b_{1a}, b_{2a}, b_{3a}, b_{1b}...." (In.)	Horiz. offset (Use "-" if Ant. is inside)	Horiz. offset "C_1, C_2, C_3, C_4, C_5" (in.)	Photos of antennas Photo Numbers
Sector A									
Ant_{1a}	Unknown	6.5	3.5	73	2 (1/2)	38	4.5	18	960-968
Ant_{1b}	DTMA1900	6	4	10.5					
Ant_{1c}									
Ant_{2a}	LNX-6515DS-A1M	12	7.5	96	2 (1/2)	38	4	122	969-973
Ant_{2b}									
Ant_{2c}									
Ant_{3a}									
Ant_{3b}									
Ant_{3c}									
Ant_{4a}									
Ant_{4b}									
Ant_{4c}									
Ant_{5a}									
Ant_{5b}									
Ant_{5c}									
Are Ant same as sector A?	Yes	**Antennas on Sector B are the same as Sector A**							

Azimuth (Degree) of Each Sector and Climbing Information

Sector A:	100	Deg	
Sector B:	240	Deg	
Sector C:	350	Deg	
Climbing	355	Deg	
Climbing Facility	Corrosion Type:	Good condition	
	Access:	Climbing path was unobstructed.	
	Condition:	N/A	

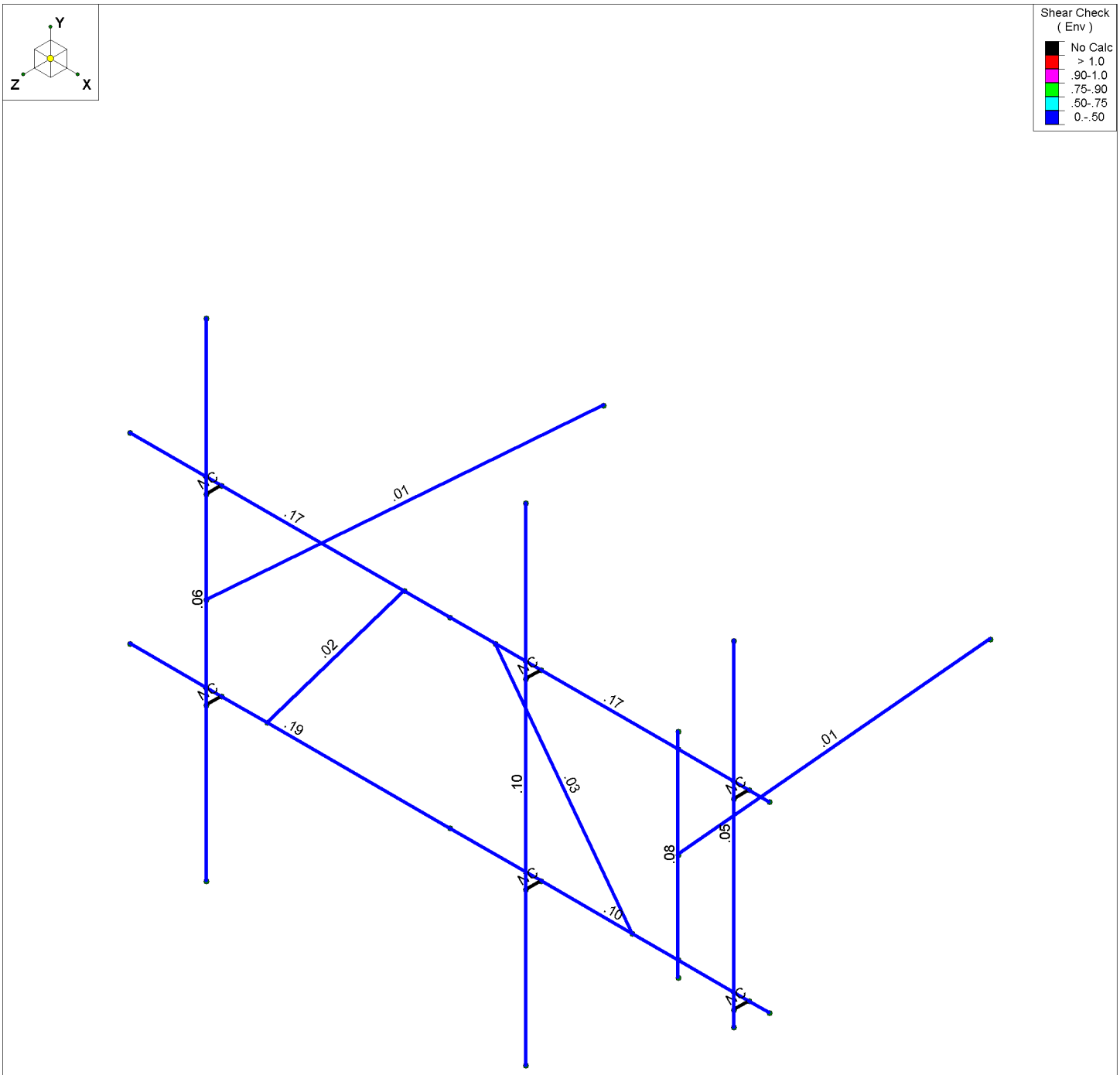


Tower Engineering Solutio...	CT10012-A-SBA_MT-BT_Loads Only_Sector A_G	SK - 1
		Oct 27, 2020 at 1:40 PM
TES Project No. 99094		CT10012-A-SBA_99094_G_RISA_L...



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

Tower Engineering Solutio...	CT10012-A-SBA_MT-BT_Loads Only_Sector A_G	SK - 3
		Oct 27, 2020 at 1:53 PM
TES Project No. 99094		CT10012-A-SBA_99094_G_RISA_L...



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

Basic Load Cases

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

Load Combinations

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

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N5	-5.25	3	0	0	
2	N6	-5.25	0	0	0	
3	N7	5.25	3	0	0	
4	N8	5.25	0	0	0	
5	NP1	4.916667	5.25	.25	0	
6	NP2	4.916667	-.25	.25	0	
7	NP3	-3.75	5.5	.25	0	
8	NP4	-3.75	-2.5	.25	0	
9	N9	0	3	0	0	
10	N10	0	0	0	0	
11	N11	.75	3	0	0	
12	N12	-.75	3	0	0	
13	N13	4.916667	3	.25	0	
14	N14	-3.75	3	.25	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
15	N15	4.916667	0	.25	0	
16	N16	-3.75	0	.25	0	
17	N17	-3	0	0	0	
18	N18	3	0	0	0	
19	N19	3.75	3.25	0	0	
20	N20	3.75	-.25	0	0	
21	N21	3.25	1.5	-5.63	0	
22	N22	-3.25	1.5	-5.777	0	
23	N23	3.75	3	0	0	
24	N24	3.75	0	0	0	
25	N25	-3.75	1.5	.25	0	
26	N26	3.75	1.5	0	0	
27	N27	4.916667	3	0	0	
28	N28	-3.75	3	0	0	
29	N29	4.916667	0	0	0	
30	N30	-3.75	0	0	0	
31	N31	1.5	5.5	.25	0	
32	N32	1.5	-2.5	.25	0	
33	N33	1.5	3	.25	0	
34	N34	1.5	0	.25	0	
35	N35	1.5	3	0	0	
36	N36	1.5	0	0	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	xxxxx	HSS16x0.438	Beam	None	A572 Gr.50	Typical	19.9	606	606	1210

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	CF	4CU5.25X03...	Beam	CU	A570 Gr.33	Typical	4.854	13.238	12.817	.228

Aluminum Section Sets

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

Hot Rolled Steel Properties

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

Cold Formed Steel Properties

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

Aluminum Properties

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

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N5	N9			PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
2	M2	N6	N10			PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
3	MP1A	NP1	NP2			PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
4	MP3A	NP3	NP4			PIPE_2.5X	Beam	Pipe	A53 Gr.B	DR1
5	M5	N12	N17			PIPE_1.5	Beam	Pipe	A53 Gr.B	Typical
6	M6	N11	N18			PIPE_1.5	Beam	Pipe	A53 Gr.B	Typical
7	M7	N19	N20			PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
8	M8	N25	N22			PIPE_1.5	Beam	Pipe	A53 Gr.B	Typical
9	M9	N26	N21			PIPE_1.5	Beam	Pipe	A53 Gr.B	Typical
10	M10	N28	N14			RIGID	Beam	None	RIGID	DR1
11	M11	N30	N16			RIGID	Beam	None	RIGID	DR1
12	M12	N27	N13			RIGID	Beam	None	RIGID	DR1
13	M13	N29	N15			RIGID	Beam	None	RIGID	DR1
14	MP2A	N31	N32			PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
15	M15	N35	N33			RIGID	Beam	None	RIGID	DR1
16	M16	N36	N34			RIGID	Beam	None	RIGID	DR1
17	M17	N9	N7			PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1
18	M18	N10	N8			PIPE_2.0	Beam	Pipe	A53 Gr.B	DR1

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
1	M1						Yes			None
2	M2						Yes			None
3	MP1A						Yes	-z		None
4	MP3A						Yes	-z		None
5	M5	BenPIN	BenPIN				Yes			None
6	M6	BenPIN	BenPIN				Yes			None
7	M7						Yes	-z		None
8	M8	BenPIN	BenPIN				Yes			None
9	M9	BenPIN	BenPIN				Yes			None
10	M10						Yes			None
11	M11						Yes			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Analysis ...	Inactive	Seismic Design ...
12	M12						Yes			None
13	M13						Yes			None
14	MP2A						Yes	-z		None
15	M15						Yes			None
16	M16						Yes			None
17	M17						Yes			None
18	M18						Yes			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length...	Lbyy[ft]	Lbzz[ft]	Lcomp to...	Lcomp bo...	L-torq...	Kyy	Kzz	Cb	Funct...
1	M1	PIPE_2.0	5.25			Lbyy			2.1	2.1		Gravity
2	M2	PIPE_2.0	5.25			Lbyy			2.1	2.1		Gravity
3	MP1A	PIPE_2.0	5.5			Lbyy			2.1	2.1		Gravity
4	MP3A	PIPE_2.5X	8			Lbyy			2.1	2.1		Lateral
5	M5	PIPE_1.5	3.75			Lbyy			1	1		Lateral
6	M6	PIPE_1.5	3.75			Lbyy			1	1		Lateral
7	M7	PIPE_2.0	3.5			Lbyy			2.1	2.1		Gravity
8	M8	PIPE_1.5	6.048			Lbyy			1	1		Lateral
9	M9	PIPE_1.5	5.652			Lbyy			1	1		Lateral
10	MP2A	PIPE_2.0	8			Lbyy			2.1	2.1		Lateral
11	M17	PIPE_2.0	5.25			Lbyy			2.1	2.1		Gravity
12	M18	PIPE_2.0	5.25			Lbyy			2.1	2.1		Gravity

Cold Formed Steel Design Parameters

Label	Shape	Lengt...	Lbyy[ft]	Lbzz[ft]	Lcomp t...	Lcomp ...	L-torque...	Kyy	Kzz	Cm-...	Cm-...	Cb	R	a[ft]	y sw...	z sw...
No Data to Print ...																

Aluminum Design Parameters

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

Joint Loads and Enforced Displacements

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

Member Point Loads (BLC 1 : Antenna D)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	Y	-64	1
2	MP3A	Y	-64	7
3	MP1A	Y	-20.35	1
4	MP1A	Y	-20.35	5
5	MP2A	Y	-51.5	1
6	MP2A	Y	-51.5	3
7	MP1A	Y	-13	4

Member Point Loads (BLC 1 : Antenna D) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
8	MP3A	Y	-73.2	4
9	MP3A	Y	-49.6	2
10	MP2A	Y	-54	2

Member Point Loads (BLC 2 : Antenna Di)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	Y	-208.65	1
2	MP3A	Y	-208.65	7
3	MP1A	Y	-69.03	1
4	MP1A	Y	-69.03	5
5	MP2A	Y	-76.327	1
6	MP2A	Y	-76.327	3
7	MP1A	Y	-35.107	4
8	MP3A	Y	-81.723	4
9	MP3A	Y	-62.179	2
10	MP2A	Y	-89.048	2

Member Point Loads (BLC 3 : Antenna W Front)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	Z	-283.651	1
2	MP3A	Z	-283.651	7
3	MP1A	Z	-92.635	1
4	MP1A	Z	-92.635	5
5	MP2A	Z	-79.181	1
6	MP2A	Z	-79.181	3
7	MP1A	Z	-16.397	4
8	MP3A	Z	-27.608	4
9	MP3A	Z	-26.067	2
10	MP2A	Z	-41.202	2

Member Point Loads (BLC 4 : Antenna Wi Front)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	Z	-70.35	1
2	MP3A	Z	-70.35	7
3	MP1A	Z	-24.488	1
4	MP1A	Z	-24.488	5
5	MP2A	Z	-21.043	1
6	MP2A	Z	-21.043	3
7	MP1A	Z	-4.55	4
8	MP3A	Z	-8.12	4
9	MP3A	Z	-7.702	2
10	MP2A	Z	-10.075	2

Member Point Loads (BLC 5 : Antenna W Side)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	X	114.767	1
2	MP3A	X	114.767	7
3	MP1A	X	29.813	1
4	MP1A	X	29.813	5
5	MP2A	X	33.853	1

Member Point Loads (BLC 5 : Antenna W Side) (Continued)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
6	MP2A	X	33.853	3
7	MP1A	X	11.419	4
8	MP3A	X	44.318	4
9	MP3A	X	24.387	2
10	MP2A	X	36.531	2

Member Point Loads (BLC 6 : Antenna Wi Side)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	MP3A	X	31.032	1
2	MP3A	X	31.032	7
3	MP1A	X	9.672	1
4	MP1A	X	9.672	5
5	MP2A	X	9.902	1
6	MP2A	X	9.902	3
7	MP1A	X	4.641	4
8	MP3A	X	13.494	4
9	MP3A	X	8.337	2
10	MP2A	X	11.481	2

Member Point Loads (BLC 7 : Service Lm1)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M2	Y	-500	0

Member Point Loads (BLC 8 : Service Lm2)

	Member Label	Direction	Magnitude[lb,k-ft]	Location[ft,%]
1	M2	Y	-500	5.25

Member Area Loads

Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
No Data to Print ...						

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N10	Reaction	Reaction	Reaction	Reaction		Reaction
2	N9	Reaction	Reaction	Reaction	Reaction		Reaction
3	N21	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N22	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N10	max	210.025	4	829.019	10	162.019	7	.003	2	0	1	.294	6
2		min	-1297.432	9	-97.113	9	-24.978	1	-.169	5	0	1	.023	1
3	N9	max	1300.426	9	2105.87	5	379.157	1	.271	1	0	1	-.086	4
4		min	-586.337	3	672.154	2	-484.715	2	-.305	2	0	1	-.842	9
5	N21	max	64.548	1	30.618	6	728.733	1	0	1	0	1	.003	1
6		min	-64.914	2	8.501	1	-733.102	2	0	2	0	1	-.004	2

Envelope Joint Reactions (Continued)

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
7	N22	max	94.191	2	32.872	6	1132.935	1	0	2	0	1	.004	5
8		min	-93.934	1	8.502	1	-1137.651	2	0	5	0	1	0	2
9	Totals:	max	1192.296	4	2376.25	6	2215.847	1						
10		min	-1192.296	3	839.389	1	-2215.847	2						

Envelope Member Section Forces

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
1	M1	1	max	0	1	0	1	0	1	0	1	0	1	0	1
2			min	0	1	0	1	0	1	0	1	0	1	0	1
3		2	max	0	1	-5.467	10	13.979	2	0	1	.009	2	.011	5
4			min	0	1	-16.975	5	-13.979	1	0	1	-.009	1	.004	4
5		3	max	233.397	3	88.774	2	85.294	2	.117	2	.053	2	.022	4
6			min	-589.809	9	-99.306	9	-36.905	1	-.081	1	-.099	1	-.209	9
7		4	max	233.397	3	83.308	2	99.273	2	.117	2	.174	2	.04	1
8			min	-589.809	9	-104.772	9	-50.884	1	-.081	1	-.156	1	-.115	6
9		5	max	-61.017	3	-438.918	4	130.382	2	.105	2	.31	2	1.022	9
10			min	-1543.112	9	-1384.883	9	-82.383	1	-.069	1	-.231	1	.205	2
11	M2	1	max	0	1	0	1	0	1	0	1	0	1	0	1
12			min	0	1	-750	9	0	1	0	1	0	1	0	1
13		2	max	0	1	-5.467	2	13.979	2	0	1	.009	2	.988	9
14			min	0	1	-755.467	9	-13.979	1	0	1	-.009	1	.004	3
15		3	max	1533.875	9	213.989	9	4.638	4	.189	1	.089	3	.407	9
16			min	138.068	4	16.2	4	-81.508	7	-.119	2	-.047	4	.036	4
17		4	max	1533.875	9	208.523	9	4.638	4	.189	1	.013	3	.13	9
18			min	138.068	4	10.733	4	-81.508	7	-.119	2	-.046	8	.018	4
19		5	max	1533.875	9	203.056	9	4.638	4	.189	1	-.027	1	.015	1
20			min	138.068	4	5.267	4	-81.508	7	-.119	2	-.141	7	-.14	9
21	MP1A	1	max	0	1	.008	4	.123	1	0	7	0	1	0	1
22			min	0	1	-.041	7	-.142	6	0	4	0	1	0	1
23		2	max	111.233	5	62.354	4	162.984	1	0	7	.066	1	.028	3
24			min	30.147	10	-62.359	3	-162.993	2	0	4	-.066	2	-.028	4
25		3	max	40.921	2	84.662	7	58.317	2	.053	2	.134	1	.086	7
26			min	-104.032	5	-21.238	4	-45.936	1	-.048	1	-.147	2	-.012	4
27		4	max	62.248	2	74.9	7	23.679	6	.053	2	.084	1	.014	1
28			min	-76.926	1	11.678	4	-5.056	1	-.048	1	-.08	2	-.028	6
29		5	max	0	1	0	7	.003	6	0	4	0	1	0	1
30			min	0	6	0	1	-.002	1	0	7	0	6	0	2
31	MP3A	1	max	0	1	.105	4	.359	1	0	7	0	1	0	1
32			min	0	1	-.162	7	-.649	6	0	4	0	1	0	1
33		2	max	419.626	5	240.734	4	513.352	1	0	7	.481	1	.21	3
34			min	141.566	1	-240.759	3	-513.464	2	0	4	-.481	2	-.21	4
35		3	max	720.217	6	-92.427	2	600.535	2	.123	9	1.434	1	.562	9
36			min	178.517	9	-589.897	9	30.593	11	-.058	6	-1.31	2	-.045	4
37		4	max	-93.95	2	209.311	3	479.323	2	0	7	.479	1	.209	3
38			min	-322.266	5	-209.37	4	-479.191	1	0	4	-.479	2	-.209	4
39		5	max	0	2	.044	4	.843	5	0	7	0	2	0	1
40			min	0	9	-.321	7	-.305	2	0	4	0	9	0	2
41	M5	1	max	-413.41	1	16.275	7	15.976	2	.019	1	0	1	0	1
42			min	-1593.709	9	-6.784	4	-15.976	1	-.02	2	0	1	0	1
43		2	max	-411.116	1	8.137	7	7.988	2	.019	1	.011	2	.005	4

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
44			min	-1591.415	9	-3.392	4	-7.988	1	-.02	2	-.011	1	-.011	7
45		3	max	-408.822	1	0	1	0	1	.019	1	.015	2	.006	4
46			min	-1589.122	9	0	1	0	1	-.02	2	-.015	1	-.015	7
47		4	max	-406.528	1	3.392	4	7.988	1	.019	1	.011	2	.005	4
48			min	-1586.828	9	-8.137	7	-7.988	2	-.02	2	-.011	1	-.011	7
49		5	max	-404.234	1	6.784	4	15.976	1	.019	1	0	1	0	1
50			min	-1584.534	9	-16.275	7	-15.976	2	-.02	2	0	1	0	1
51	M6	1	max	-249.073	4	16.275	8	15.976	1	.024	2	0	1	0	1
52			min	-947.996	7	-6.784	3	-15.976	2	-.024	1	0	1	0	1
53		2	max	-250.613	4	8.137	8	7.988	1	.024	2	.011	1	.005	3
54			min	-938.344	7	-3.392	3	-7.988	2	-.024	1	-.011	2	-.011	8
55		3	max	-252.154	4	0	1	0	1	.024	2	.015	1	.006	3
56			min	-928.692	7	0	1	0	1	-.024	1	-.015	2	-.015	8
57		4	max	-253.695	4	3.392	3	7.988	2	.024	2	.011	1	.005	3
58			min	-919.041	7	-8.137	8	-7.988	1	-.024	1	-.011	2	-.011	8
59		5	max	-255.235	4	6.784	3	15.976	2	.024	2	0	1	0	1
60			min	-909.389	7	-16.275	8	-15.976	1	-.024	1	0	1	0	1
61	M7	1	max	0	1	0	2	.003	1	0	5	0	1	0	1
62			min	0	1	0	5	-.003	2	0	2	0	1	0	1
63		2	max	320.48	5	104.213	7	361.299	1	.077	2	.119	1	.062	5
64			min	-12.621	2	-11.22	2	-356.957	2	-.065	1	-.112	2	.003	2
65		3	max	362.416	5	102.613	5	370.618	1	.077	2	.44	1	.017	2
66			min	-8.977	2	-11.22	2	-366.277	2	-.065	1	-.429	2	-.031	7
67		4	max	373.733	5	101.778	8	353.162	2	.07	2	.134	1	-.02	4
68			min	3.298	2	-2.146	1	-345.157	1	-.059	1	-.114	2	-.107	7
69		5	max	0	1	.001	7	.002	6	0	4	0	1	0	1
70			min	0	5	0	4	-.001	1	0	7	0	6	0	1
71	M8	1	max	1132.576	1	32.704	5	25.589	4	.004	5	0	1	0	1
72			min	-1137.298	2	9.248	9	-25.589	3	0	2	0	1	0	1
73		2	max	1133.638	1	16.352	5	12.795	4	.004	5	.029	4	-.01	9
74			min	-1138.36	2	4.624	9	-12.795	3	0	2	-.029	3	-.037	5
75		3	max	1134.699	1	0	1	0	1	.004	5	.039	4	-.014	9
76			min	-1139.421	2	0	1	0	1	0	2	-.039	3	-.049	5
77		4	max	1135.761	1	-4.624	1	12.795	3	.004	5	.029	4	-.01	9
78			min	-1140.482	2	-16.352	5	-12.795	4	0	2	-.029	3	-.037	5
79		5	max	1136.822	1	-9.248	1	25.589	3	.004	5	0	1	0	1
80			min	-1141.544	2	-32.704	5	-25.589	4	0	2	0	1	0	1
81	M9	1	max	727.342	1	30.565	5	23.892	4	.003	1	0	1	0	1
82			min	-731.727	2	8.643	1	-23.892	3	-.004	2	0	1	0	1
83		2	max	728.403	1	15.282	5	11.946	4	.003	1	.025	4	-.009	1
84			min	-732.788	2	4.322	1	-11.946	3	-.004	2	-.025	3	-.032	5
85		3	max	729.464	1	0	1	0	1	.003	1	.034	4	-.012	1
86			min	-733.849	2	0	1	0	1	-.004	2	-.034	3	-.043	5
87		4	max	730.525	1	-4.322	1	11.946	3	.003	1	.025	4	-.009	1
88			min	-734.91	2	-15.282	5	-11.946	4	-.004	2	-.025	3	-.032	5
89		5	max	731.586	1	-8.643	1	23.892	3	.003	1	0	1	0	1
90			min	-735.971	2	-30.565	5	-23.892	4	-.004	2	0	1	0	1
91	M10	1	max	11.339	3	89.312	9	233.409	3	.323	9	.164	8	.117	2
92			min	-76.441	8	-99.961	2	-589.779	9	-.099	2	-.057	3	-.081	1
93		2	max	11.339	3	89.312	9	233.409	3	.323	9	.145	8	.123	2
94			min	-76.441	8	-99.961	2	-589.779	9	-.099	2	-.043	3	-.086	1
95		3	max	11.339	3	89.312	9	233.409	3	.323	9	.126	8	.13	2

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
96			min	-76.441	8	-99.961	2	-589.779	9	-.099	2	-.028	3	-.092	1
97		4	max	11.339	3	89.312	9	233.409	3	.323	9	.107	8	.136	2
98			min	-76.441	8	-99.961	2	-589.779	9	-.099	2	-.015	9	-.097	1
99		5	max	11.339	3	89.312	9	233.409	3	.323	9	.088	8	.142	2
100			min	-76.441	8	-99.961	2	-589.779	9	-.099	2	-.052	9	-.103	1
101	M11	1	max	95.112	6	1079.556	6	580.583	9	1.43	9	.056	4	.2	1
102			min	-41.058	1	289.652	9	-205.729	4	.107	3	-.164	7	-.131	2
103		2	max	95.112	6	1079.556	6	580.583	9	1.43	9	.044	4	.182	1
104			min	-41.058	1	289.652	9	-205.729	4	.107	3	-.145	7	-.161	2
105		3	max	95.112	6	1079.556	6	580.583	9	1.43	9	.031	4	.164	1
106			min	-41.058	1	289.652	9	-205.729	4	.107	3	-.127	7	-.191	2
107		4	max	95.112	6	1079.556	6	580.583	9	1.43	9	.018	4	.146	1
108			min	-41.058	1	289.652	9	-205.729	4	.107	3	-.108	7	-.221	2
109		5	max	95.112	6	1079.556	6	580.583	9	1.43	9	.052	9	.127	1
110			min	-41.058	1	289.652	9	-205.729	4	.107	3	-.089	7	-.251	2
111	M12	1	max	223.076	1	233.041	5	139.333	3	-.002	3	.042	1	.043	6
112			min	-236.176	2	-6.686	2	-98.226	4	-.121	8	-.061	2	-.008	1
113		2	max	223.076	1	233.041	5	139.333	3	-.002	3	.043	1	.033	2
114			min	-236.176	2	-6.686	2	-98.226	4	-.121	8	-.06	2	-.016	1
115		3	max	223.076	1	233.041	5	139.333	3	-.002	3	.044	1	.034	2
116			min	-236.176	2	-6.686	2	-98.226	4	-.121	8	-.058	2	-.024	1
117		4	max	223.076	1	233.041	5	139.333	3	-.002	3	.045	1	.034	2
118			min	-236.176	2	-6.686	2	-98.226	4	-.121	8	-.057	2	-.033	1
119		5	max	223.076	1	233.041	5	139.333	3	-.002	3	.047	1	.035	2
120			min	-236.176	2	-6.686	2	-98.226	4	-.121	8	-.055	2	-.041	1
121	M13	1	max	158.176	1	103.58	6	32.918	3	-.005	1	.061	2	.136	2
122			min	-145.067	2	-47.396	1	-86.48	8	-.111	6	-.042	1	-.138	1
123		2	max	158.176	1	103.58	6	32.918	3	-.005	1	.06	2	.13	2
124			min	-145.067	2	-47.396	1	-86.48	8	-.111	6	-.044	1	-.135	1
125		3	max	158.176	1	103.58	6	32.918	3	-.005	1	.058	2	.125	2
126			min	-145.067	2	-47.396	1	-86.48	8	-.111	6	-.045	1	-.132	1
127		4	max	158.176	1	103.58	6	32.918	3	-.005	1	.057	2	.119	2
128			min	-145.067	2	-47.396	1	-86.48	8	-.111	6	-.046	1	-.129	1
129		5	max	158.176	1	103.58	6	32.918	3	-.005	1	.055	2	.113	2
130			min	-145.067	2	-47.396	1	-86.48	8	-.111	6	-.047	1	-.126	1
131	MP2A	1	max	0	1	.058	4	.32	1	0	7	0	1	0	1
132			min	0	1	-.109	7	-.318	2	0	4	0	1	0	1
133		2	max	287.072	6	122.284	4	201.05	1	0	7	.149	1	.076	3
134			min	121.97	9	-122.305	3	-201.048	2	0	4	-.149	2	-.076	4
135		3	max	469.373	6	54.199	6	53.613	6	.125	2	.06	1	.01	1
136			min	58.219	1	-8.259	1	8.341	1	-.115	1	-.038	2	-.006	2
137		4	max	-8.33	1	21.301	3	21.31	2	0	3	.021	1	.021	3
138			min	-25.867	6	-21.3	4	-21.307	1	0	8	-.021	2	-.021	4
139		5	max	0	1	.005	8	.018	6	0	3	0	1	0	1
140			min	0	1	0	3	-.005	1	0	8	0	1	0	2
141	M15	1	max	353.626	1	145.698	1	230.696	3	.068	3	.118	1	.07	2
142			min	-394.772	2	-72.897	2	-194.306	4	-.126	4	-.141	2	-.083	1
143		2	max	353.626	1	145.698	1	230.696	3	.068	3	.117	1	.075	2
144			min	-394.772	2	-72.897	2	-194.306	4	-.126	4	-.138	2	-.092	1
145		3	max	353.626	1	145.698	1	230.696	3	.068	3	.117	1	.079	2
146			min	-394.772	2	-72.897	2	-194.306	4	-.126	4	-.135	2	-.101	1
147		4	max	353.626	1	145.698	1	230.696	3	.068	3	.116	1	.084	2

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shear[lb]	LC	Torque[k-...	LC	y-y Mome...	LC	z-z Mome...	LC
148			min	-394.772	2	-72.897	2	-194.306	4	-.126	4	-.132	2	-.111	1
149		5	max	353.626	1	145.698	1	230.696	3	.068	3	.116	1	.088	2
150			min	-394.772	2	-72.897	2	-194.306	4	-.126	4	-.13	2	-.12	1
151	M16	1	max	64.188	5	521.151	6	21.287	3	.023	1	.141	2	.07	2
152			min	-9.737	2	74.819	1	-64.131	8	-.077	6	-.118	1	-.025	1
153		2	max	64.188	5	521.151	6	21.287	3	.023	1	.138	2	.052	2
154			min	-9.737	2	74.819	1	-64.131	8	-.077	6	-.117	1	-.03	1
155		3	max	64.188	5	521.151	6	21.287	3	.023	1	.135	2	.034	2
156			min	-9.737	2	74.819	1	-64.131	8	-.077	6	-.117	1	-.035	1
157		4	max	64.188	5	521.151	6	21.287	3	.023	1	.132	2	.015	2
158			min	-9.737	2	74.819	1	-64.131	8	-.077	6	-.116	1	-.039	1
159		5	max	64.188	5	521.151	6	21.287	3	.023	1	.13	2	-.003	2
160			min	-9.737	2	74.819	1	-64.131	8	-.077	6	-.116	1	-.065	5
161	M17	1	max	165.928	4	808.66	5	296.685	1	.201	1	.31	2	.502	5
162			min	-871.125	7	185.578	2	-354.143	2	-.2	2	-.231	1	.079	2
163		2	max	304.435	4	94.955	1	267.694	1	.216	1	.122	1	-.003	3
164			min	-433.083	3	-44.008	2	-325.019	2	-.214	2	-.118	2	-.128	8
165		3	max	110.123	4	22.152	2	83.611	2	.133	1	.05	2	.01	4
166			min	-212.009	7	-57.316	1	-99.916	1	-.144	2	-.052	1	-.021	3
167		4	max	98.228	4	249.971	5	236.982	1	.008	1	.179	2	.123	5
168			min	-139.34	3	.423	2	-250.059	2	-.043	6	-.185	1	-.02	2
169		5	max	0	1	0	1	0	1	0	1	0	1	0	1
170			min	0	1	0	1	0	1	0	1	0	1	0	1
171	M18	1	max	808.841	8	320.484	6	117.212	2	.076	1	-.027	1	.255	6
172			min	133.76	3	29.273	1	-55.339	1	-.117	2	-.141	7	.038	1
173		2	max	808.841	8	303.509	6	131.191	2	.076	1	.092	2	.003	1
174			min	133.76	3	23.807	1	-69.318	1	-.117	2	-.109	1	-.155	6
175		3	max	744.694	8	-56.524	1	154.68	2	.051	1	.144	2	.125	7
176			min	155.047	3	-235.02	6	-134.012	1	-.046	2	-.148	1	.023	4
177		4	max	86.482	8	120.621	6	172.192	1	.138	1	.212	2	.04	2
178			min	-32.912	3	-41.31	1	-159.094	2	-.136	2	-.207	1	-.047	1
179		5	max	0	1	0	1	0	1	0	1	0	1	0	1
180			min	0	1	0	1	0	1	0	1	0	1	0	1

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc...	phi*Pnt ...	phi*Mn ...	phi*Mn ...	Cb	Eqn
1	M1	PIPE_2.0	.570	5.25	9	.174	5.25		6	8092.593	32130	1.872	1.872	3...	H1-1b
2	M2	PIPE_2.0	.594	1.477	9	.187	2.242		5	8092.593	32130	1.872	1.872	1...	H1-1b
3	MP1A	PIPE_2.0	.114	2.234	2	.047	5.214		2	7373.623	32130	1.872	1.872	2...	H1-1b
4	MP3A	PIPE_2.5X	.319	5.5	9	.061	4		9	10172.0...	66150	4.646	4.646	3...	H1-1b
5	M5	PIPE_1.5	.046	1.875	7	.023	3.75		2	18102.0...	23593.5	1.105	1.105	1...	H1-1b
6	M6	PIPE_1.5	.033	1.875	8	.027	0		1	18102.0...	23593.5	1.105	1.105	1...	H1-1b
7	M7	PIPE_2.0	.242	1.75	1	.084	1.75		2	16811.6...	32130	1.872	1.872	1...	H1-1b
8	M8	PIPE_1.5	.096	6.048	1	.009	0		7	11844.7...	23593.5	1.105	1.105	1...	H1-1b*
9	M9	PIPE_1.5	.057	5.652	1	.007	5.652		6	12923.8...	23593.5	1.105	1.105	1...	H1-1b*
10	MP2A	PIPE_2.0	.171	2.5	2	.098	2.5		2	3485.189	32130	1.872	1.872	4...	H1-1b
11	M17	PIPE_2.0	.282	0	5	.169	0		1	8092.593	32130	1.872	1.872	3...	H1-1b
12	M18	PIPE_2.0	.202	0	6	.101	3.773		1	8092.593	32130	1.872	1.872	2	H1-1b

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

Member	Shape	Code Check	Loc[ft]	LC	Shear...	Loc[ft]	Dir	LC	phi*Pn[lb]	phi*Tn[lb]	phi*Mn...	phi*Mn...	Cb	Cmyy	Cmzz	Eqn
No Data to Print ...																

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

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

EXHIBIT 10

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11152C

Griswold/ I-395 X85/ BMW
257 Norman Road
Griswold, Connecticut 06351

January 12, 2021

EBI Project Number: 6221000123

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**21.81%**

January 12, 2021

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

Emissions Analysis for Site: CT11152C - Griswold/ I-395 X85/ BMW

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **257 Norman Road** in **Griswold, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 257 Norman Road in Griswold, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

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

5) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

7) 1 LTE channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

8) 1 NR channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.

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

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

11) The antennas used in this modeling are the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector A, the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector B, the RFS APX16DWV-16DWV-S-E-A20 for the 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

12) The antenna mounting height centerline of the proposed antennas is 148 feet above ground level (AGL).

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

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	148 feet	Height (AGL):	148 feet	Height (AGL):	148 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,668.54	ERP (W):	4,668.54	ERP (W):	4,668.54
Antenna A1 MPE %:	**0.77%**	Antenna B1 MPE %:	**0.77%**	Antenna C1 MPE %:	**0.77%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 1900 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 15.45 dBd
Height (AGL):	148 feet	Height (AGL):	148 feet	Height (AGL):	148 feet
Channel Count:	11	Channel Count:	11	Channel Count:	11
Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts	Total TX Power (W):	440 Watts
ERP (W):	12,569.87	ERP (W):	12,569.87	ERP (W):	12,569.87
Antenna A2 MPE %:	**3.00%**	Antenna B2 MPE %:	**3.00%**	Antenna C2 MPE %:	**3.00%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd
Height (AGL):	148 feet	Height (AGL):	148 feet	Height (AGL):	148 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	38,477.89	ERP (W):	38,477.89	ERP (W):	38,477.89
Antenna A3 MPE %:	**6.32%**	Antenna B3 MPE %:	**6.32%**	Antenna C3 MPE %:	**6.32%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	10.09%
Metro PCS	0.32%
Verizon	2.63%
AT&T	6.89%
Fire Dept	1.88%
Site Total MPE % :	21.81%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	10.09%
T-Mobile Sector B Total:	10.09%
T-Mobile Sector C Total:	10.09%
Site Total MPE % :	21.81%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 2100 MHz LTE	2	2334.27	148.0	7.66	2100 MHz LTE	1000	0.77%
T-Mobile 600 MHz LTE	2	591.73	148.0	1.94	600 MHz LTE	400	0.49%
T-Mobile 600 MHz NR	1	1577.94	148.0	2.59	600 MHz NR	400	0.65%
T-Mobile 700 MHz LTE	2	695.22	148.0	2.28	700 MHz LTE	467	0.49%
T-Mobile 1900 MHz GSM	4	1052.26	148.0	6.91	1900 MHz GSM	1000	0.69%
T-Mobile 1900 MHz LTE	2	2104.51	148.0	6.91	1900 MHz LTE	1000	0.69%
T-Mobile 2500 MHz LTE	1	19238.94	148.0	31.58	2500 MHz LTE	1000	3.16%
T-Mobile 2500 MHz NR	1	19238.94	148.0	31.58	2500 MHz NR	1000	3.16%
						Total:	**10.09%**

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

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	10.09%
Sector B:	10.09%
Sector C:	10.09%
T-Mobile Maximum MPE % (Sector A):	10.09%
Site Total:	21.81%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **21.81%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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