Filed by:
G. Scott Shepherd, Sr. Property Specialist - SBA Communications
134 Flanders Rd., Suite 125, Westborough, MA 01581
508.251.0720 x 3807 - GShepherd@sbasite.com

August 2, 2019

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

RE: Notice of Exempt Modification
107 Wilcox Road, Stonington, CT 06378
Latitude: 41.341111
Longitude: -71.940916
T-Mobile Site #: CTNL071B_L600

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 96-foot level of the existing 100-foot Monopole Tower at 107 Wilcox Road, Stonington, CT. The 100-foot tower is owned by SBA Infrastructure, LLC. The property is owned JBG Ventures LLC. T-Mobile now intends to install three (3) new 600/700 MHz antennas. The new antennas would be installed at the 96-foot level of the tower.

Planned Modifications:

TOWER

Remove: (3) 1-5/8" coax

Remove and Replace:
- (3) Ericsson S11B12 RRU (Remove) – (3) Ericsson Radio 4449 B71+B12 (Replace)
- (1) Commscope P/N MC-HPM1250-B (Remove) – (1) Sitepro RMPQ-4096-HK (Replace)

Install New:
- (3) RFS APXVAARR24-43-U-NA20 antennas 600/700 MHz
- (3) 1-5/8" fiber

Existing Equipment to Remain:
- (3) Ericsson Air21 B2A/B4 antennas
- (3) Ericsson Air21 B4A/B12P antennas
- (3) Ericsson KRY 112 144/1 TMA
- (1) 1-5/8" fiber
- (9) 1-5/8" coax

Entitlements:
- N/A

[redacted]

GROUND

Install New: Equipment inside existing 6102 cabinet

This facility was approved by the Council under Petition No. 765. Approval was given to replace an existing lattice tower with a new 100' monopole. The compound was to have an 8' high chain link fence with privacy slats. Landscaping was to be planted. And the applicant was to provide free space for municipal use at the top of the tower, provided it was structurally feasible to do so. 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 Stonington's First Selectman, Robert Simmons, Zoning Enforcement Officer, Candace Palmer, as well as to the property owner, JBRV, LLC. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

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

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

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-referenced telecommunication facility constitute an exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

G. Scott Shepherd
Sr. Property Specialist
SBA COMMUNICATIONS CORPORATION
134 Flanders Rd., Suite 125
Westborough, MA 01581
508.251.0720 x3807 + T
508.366.2610 + F
508.868.6000 + C
GShepherd@sbasite.com

Attachments

[redacted]

cc: Robert Simmons, First Selectman – Stonington Elected Official / with attachments
Town of Stonington, 152 Elm Street, Stonington, CT 06378
Candace Palmer, Zoning Enforcement Officer, / with attachments
Town of Stonington, 152 Elm Street, Stonington, CT 06378
JBG Ventures LLC / with attachments
107 Wilcox Avenue, Stonington CT 06378 (SBA address on file)
239 Bank Street, New London, CT 06320 (Town address on file)

EXHIBIT LIST

Exhibit 1	Check Copy	
Exhibit 2	Notification Receipts	
Exhibit 3	Property Card	
Exhibit 4	Property Map	
Exhibit 5	Original Zoning Approval	CSC Petition 765
Exhibit 6	Construction Drawings	Chappell Engineering dated 7/17/19
Exhibit 7	Structural Analysis	TES dated 6/17/19
Exhibit 8	EME Report	Transcom dated 5/29/19

EXHIBIT 1

EXHIBIT 2

EXHIBIT 3

Town of Stonington, CT

Property Listing Report

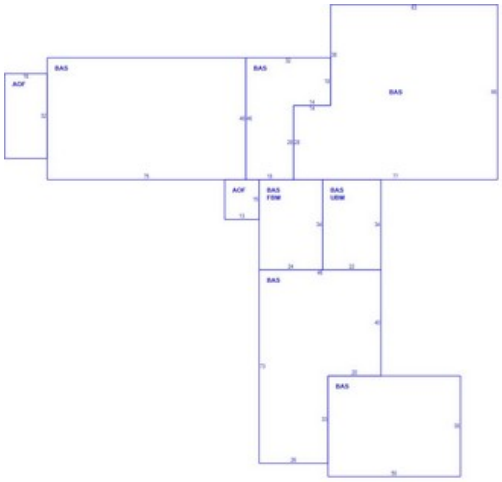
Map Block Lot	156-3-1	Building #	1	Section #	1	Account	00902500

Property Information

Property Location	107 WILCOX RD
Owner	JBG VENTURES LLC
Co-Owner	
Mailing Address	239 BANK ST NEW LONDON CT 06320
Land Use	3400 OFFICE BLD M-94
Land Class	C
Zoning Code	RR-80
Census Tract	7053

Photo

Sketch



Street Index	4000
Acreage	6.95
Utilities	Public Sewer,Well
Lot Setting/Desc	Suburban Well
Survey Map #	3649
School District	
Fire District	Quiambaug
Trash Day	T
Polling Place (District)	4

Primary Construction Details

Year Built	1965
Stories	1
Building Style	Office Bldg
Building Use	Commercial
Building Condition	G
Occupancy	15
Extra Fixtures	
Bath Style	NA
Kitchen Style	NA
AC Type	Central
Heating Type	Forced Air-Duc
Heating Fuel	Gas

Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Total Rooms	0
Roof Style	Flat
Roof Cover	Tar & Gravel
Interior Floors 1	Carpet
Interior Floors 2	
Exterior Walls	Concr/Cinder
Exterior Walls 2	Brick/Masonry
Interior Walls	Drywall/Sheet
Interior Walls 2	NA

(*Industrial / Commercial Details)

Building Desc.	OFFICE BLD M-94
Building Grade	Average
Heat / AC	HEAT/AC SPLIT
Frame Type	MASONRY
Baths / Plumbing	AVERAGE
Ceiling / Wall	SUS-CEIL & WL
Rooms / Prtns	AVERAGE
Wall Height	16
First Floor Use	3400

Report Created On 6/20/2019

Town of Stonington, CT

Property Listing Report | Map Block Lot 156-3-1 | Building # 1 | Section # 1 | Account 00902500

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	833500	583500
Extras	108200	75800
Improvements		
Outbuildings	169300	118500
Land	337100	236000
Total	1448100	1013800

Outbuilding and Extra Features

Type	Description
PAVING-ASPHALT	40000.00 S.F.
FENCE-6' CHAIN	218.00 L.F.
CELL TOWER	1.00 UNIT
LIGHTS-IN W/PL	5.00 UNITS
THEATRE 49 SEAT	1.00 UNIT
STEEL PLATFORM	288.00 UNIT
SOLAR	1.00 UNIT

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Office, (Average)	707	707
First Floor	15242	15242
Basement, Finished	816	571
Basement, Unfinished	748	0
Total Area	17513	16520

Sales History

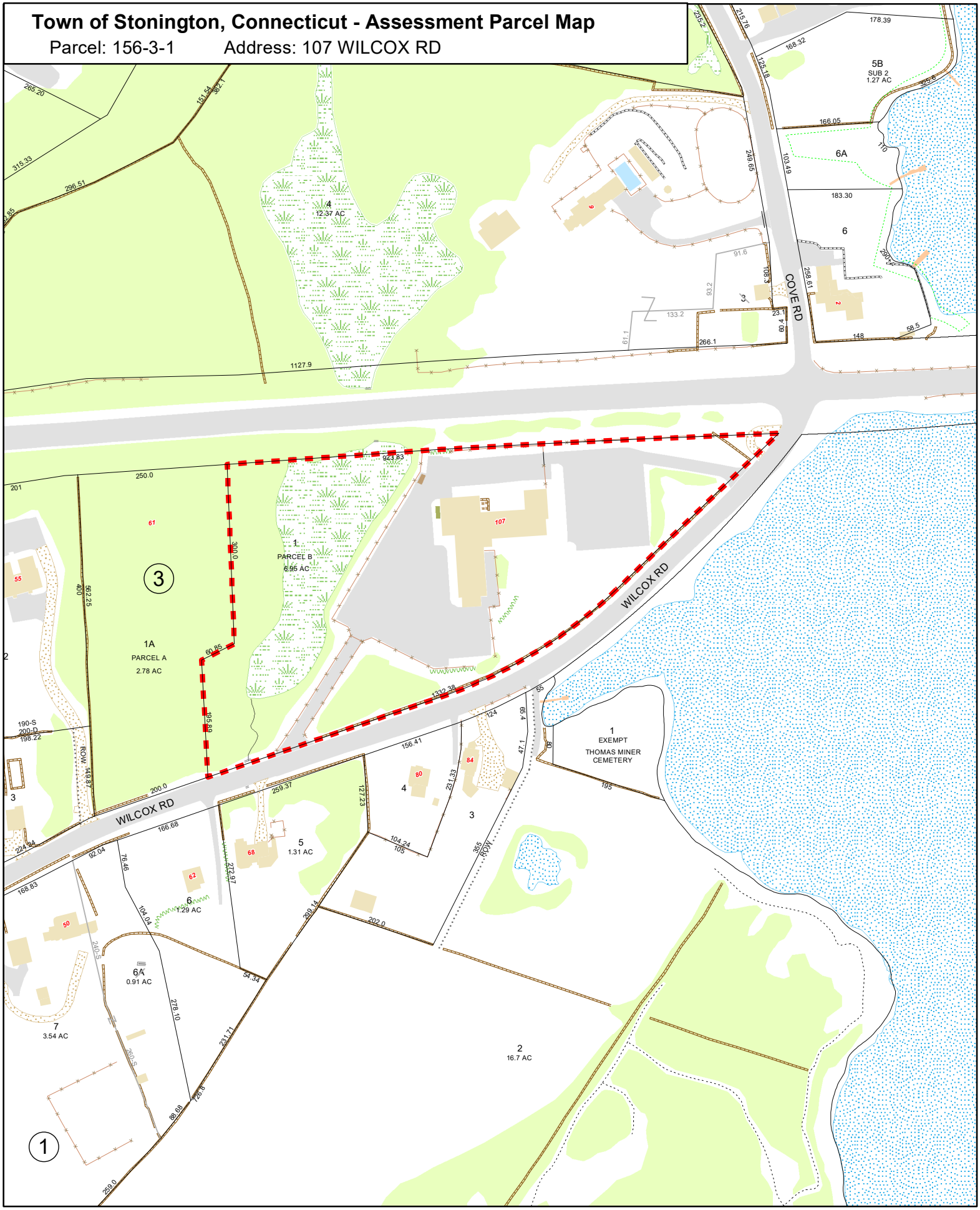
Owner of Record	Book/ Page	Sale Date	Sale Price
JBG VENTURES LLC	0755/0041	8/18/2016	0
JBG VENTURES LLC	0567/0022	11/16/2004	898900
QUIAMBOG COVE PROFESSIONAL CENTER LLC	0558/0770	7/20/2004	0
QUIAMBOG COVE PROFESSIONAL CENTER LLC	0492/0625	7/9/2002	680000
YANKEE GAS SERVICE CO	0313/0169	6/30/1989	0
CT LIGHT & POWER CO	0140/0565	6/25/1963	0

Report Created On 6/20/2019

EXHIBIT 4

Town of Stonington, Connecticut - Assessment Parcel Map

Parcel: 156-3-1 Address: 107 WILCOX RD



Approximate Scale:

1 inch = 200 feet

0 120 240 360 480 Feet

Revised To: October 2018 **Map Produced: April 2019**

EXHIBIT 5

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
www.ct.gov/csc

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

June 13, 2006

Christopher B. Fisher, Esq.
Cuddy & Feder LLP
90 Maple Avenue
White Plains, NY 10601-5196

RE: **PETITION NO. 765** - Optasite, Inc. petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the replacement of an existing tower facility at 107 Wilcox Road, Stonington, Connecticut.

Dear Attorney Fisher:

At a public meeting held on June 7, 2006, the Connecticut Siting Council (Council) considered and ruled that this proposal would not have a substantial adverse environmental effect, and pursuant to General Statutes § 16-50k would not require a Certificate of Environmental Compatibility and Public Need with the following conditions:

1. The applicant shall provide free space for municipal use at the top of the tower, provided it is structurally feasible to do so.
2. The applicant shall curve the northeast end of the driveway (adjacent the compound) to reduce the visibility of the compound from Wilcox Road and add appropriate landscaping to the new corner created.
3. The applicant shall plant evergreens on both sides of the new access gate to further reduce the visibility of the compound from Wilcox Road.

This decision is under the exclusive jurisdiction of the Council and is not applicable to any other modification or construction. All work is to be implemented as specified in the petition, dated April 25, 2006.

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

Very truly yours,

Pamela B. Katz, P.E.
Chairman

PBK/MP/laf

Enclosure: Staff Report dated June 7, 2006

c: The Honorable William S. Brown, First Selectman, Town of Stonington
Jason Vincent, Town Planner, Town of Stonington
JBG Ventures, LLC

G:\PETITION\765\letter060706.DOC

CSC
CONNECTICUT SITING COUNCIL

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
www.ct.gov/csc

Petition No.765
Optasite
107 Wilcox Road, Stonington
June 7, 2006

On April 27, 2006, the Connecticut Siting Council (Council) received a Petition (Petition) from Optasite, Inc. for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the proposed replacement of an existing tower at 107 Wilcox Road, Stonington, Connecticut. Specifically, Optasite seeks to relocate and replace an existing lattice tower with a total height of 105' with a new 100' monopole and construct a fenced and landscaped equipment area within an already improved area of the property.

The existing tower was formerly used for "in-house" communications purposes by CL&P and Yankee Gas. It is located adjacent to an administrative office building. The property is no longer owned by the utilities, and the building has been re-designed as commercial offices and space for non-profit organizations. The existing tower no longer serves its former use.

To improve the aesthetics of the property, and to permit sufficient ground space for multiple carriers, Optasite, in cooperation with the property owner, proposes to install a new 100' monopole and associated equipment compound at one corner of the property. The new monopole's location would be approximately 200' to the west of the existing tower. The monopole would have T-Mobile's antennas flush mounted at a centerline height of 97'. Thus, the total height with appurtenances would be 100'. Also, the tower setback radius would remain within the subject property. The existing tower would be removed.

The compound would be 38' x 70' and would include an 8' high chain link fence with privacy slats. The compound would include four equipment cabinets located in a 10' x 20' area. The location for the replacement tower and compound is already paved, so no additional wetland impacts are anticipated, nor is any tree clearing expected. A paved access drive (entrance) to the lot already exists. Optasite, would, however, relocate the gate.

The property is zoned RR-80 residential. Route 1 is located to the north of the proposed site, and Wilcox Road is located to the south. of the proposed site. Surrounding land uses are predominately low-density residential. To minimize the visual impact of the compound, existing landscaping would be supplemented along Wilcox Road with approximately 8' tall evergreens, spaced 10' on center.

Vanasse Hangen Brustlin Inc. (VHB) conducted a balloon float at the proposed facility in order to evaluate the potential viewshed within the study area. The balloon was secured at a height of 100'. VHB concluded that most of the total visibility of the proposed tower would fall on open water over Long Island Sound. In total, visibility from Long Island Sound accounts for approximately 1,712 acres of the 1,800 acres of visibility. Approximately 17 residences would have year-round views of the tower. VHB also notes that there appears to be little if any difference in visibility between the existing lattice tower and the proposed relocated monopole.

This petition was field reviewed by Council member Dr. Barbara Currier Bell, Executive Director S. Derek Phelps, and Michael Perrone of the Council staff on May 10, 2006. Also at the field review were: Attorney Christopher Fisher, Keith Coppins of Optasite, and Michael Blair of JBC Ventures, LLC. At the field review, staff requested that the applicant issue a notice to abutters with a date to reply by.

The abutters' notice was issued on May 15, 2006. Pursuant to the notice, residents were asked to send any comments to Mr. Phelps by May 31, 2006. On May 22, 2006, Optasite met with the Town Planner to go over the project. In addition, the abutters' notice invited any interested neighbors to attend a meeting with Optasite and the property owners on May 25, 2006 to discuss project.

By letter dated May 30, 2006, the Town of Stonington, Director of Planning states that the Town Planning Department supports the proposal because: the tower replacement to a monopole would be an improvement in aesthetics; the tower would enhance communications on Route 1; the applicant is proposing screening and security measures that should adequately satisfy any neighborhood concerns; and the tower would provide an opportunity for co-location. However, the Town Planning Department requests that the applicant provide an opportunity for the local government or fire department to install a whip antenna at the zenith of the monopole, at the discretion of those agencies.

On May 31, 2006, a letter was received at the Council office from a nearby resident. The resident's home is directly across from the proposed access driveway. The resident suggests that the access be curved on both ends to allow for more screening on the southeast side of the tower. (The existing access drive is currently straight.) The neighbor also asked if other possible sites on the property have been considered.

EXHIBIT 6

NL071/OPTASITE
WILCOX FT

107 WILCOX ROAD
STONINGTON, CT 06378
NEW LONDON COUNTY

SITE NO.: CTNL071B

SITE TYPE: 100'± MONOPOLE

RF DESIGN GUIDELINE: 67D02C OUTDOOR

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.

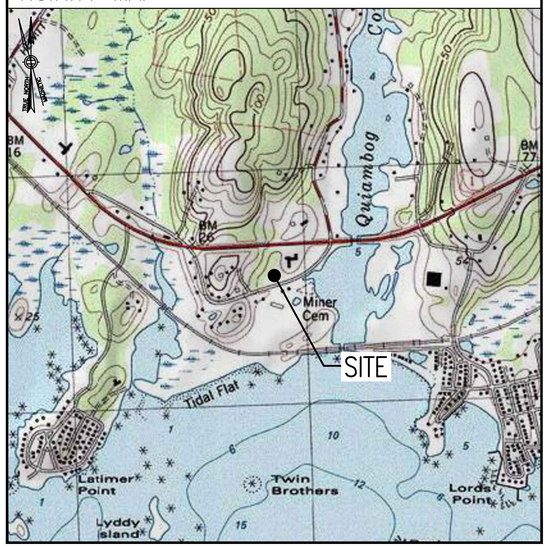
GENERAL NOTES

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	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & EQUIPMENT PLAN	1
A-2	TOWER ELEVATIONS & ANTENNA PLAN	1
A-3	SITE DETAILS	1
E-1	ELECTRIC & GROUNDING DETAILS	1

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:	CTNL071B
SBA SITE NUMBER:	CT13074-A
SBA SITE NAME:	STONINGTON
SITE ADDRESS:	107 WILCOX ROAD STONINGTON, CT 06378
PROPERTY OWNER:	JBG VENTURES LLC. 239 BANK STREET NEW LONDON, CT 06320
TOWER OWNER:	SBA INFRASTRUCTURE, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	NEW LONDON COUNTY
ZONING DISTRICT:	C (COMMERCIAL)
STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	100'±
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.41.340913° N41°20'27.29" LONGITUDE W.71.940167° W71°56'24.60"

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

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

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

STATE OF CONNECTICUT
CLEMENT J. SAMEK
No. 26876
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	07/17/19	ISSUED FOR CONSTRUCTION	CMC
0	06/17/19	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CTNL071B

SITE ADDRESS:
107 WILCOX ROAD
STONINGTON, CT 06378

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

1815.122

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.

T-MOBILE
NORTHEAST LLC

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

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

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil· Structural ·Land Surveying

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

STATE OF CONNECTICUT
CLEMENT J. SAM
26876
LICENSED
PROFESSIONAL ENGINEER

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	07/17/19	ISSUED FOR CONSTRUCTION	CMC
0	06/17/19	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CTNL071B

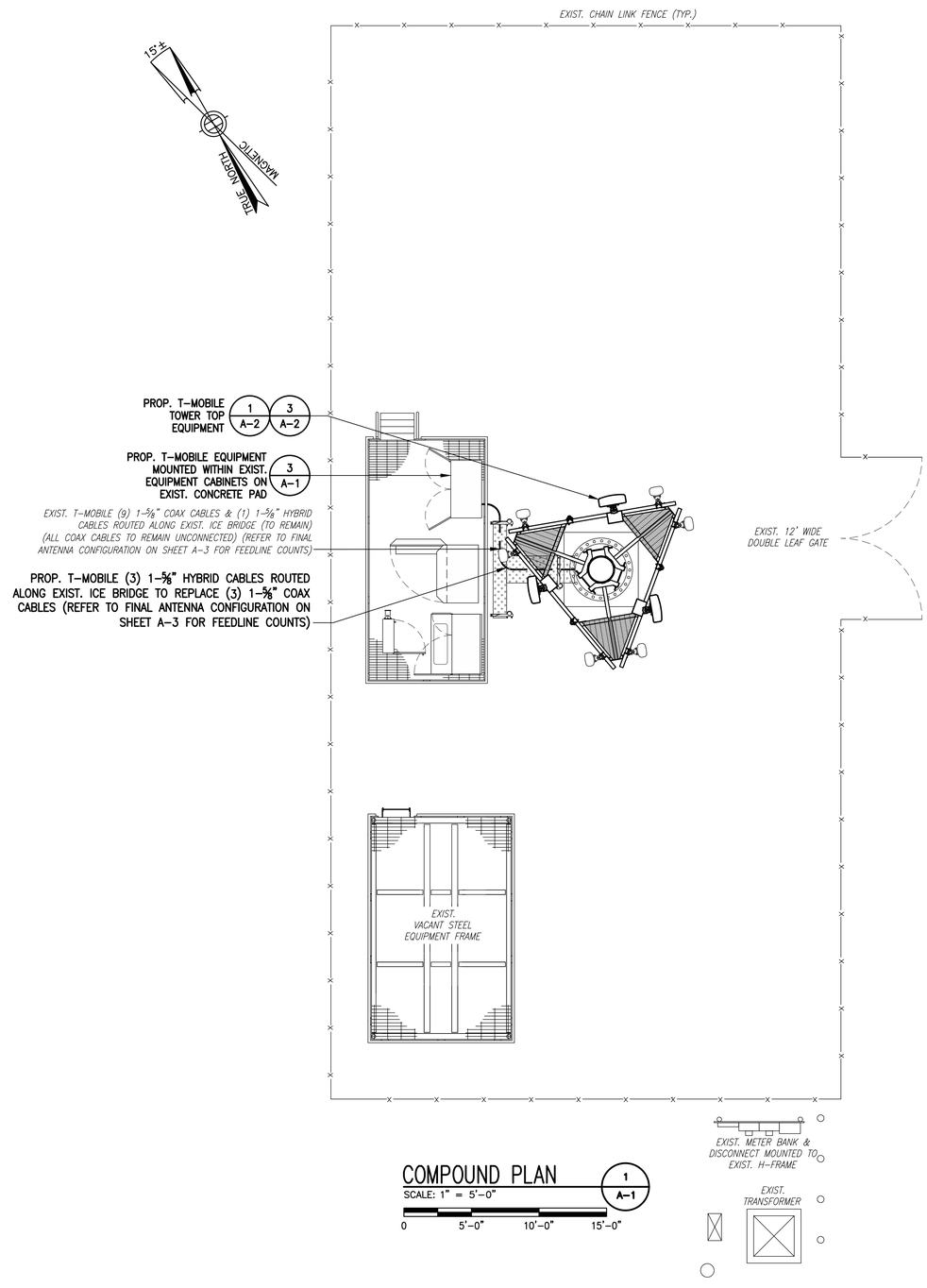
SITE ADDRESS:
107 WILCOX ROAD
STONINGTON, CT 06378

SHEET TITLE
GENERAL NOTES

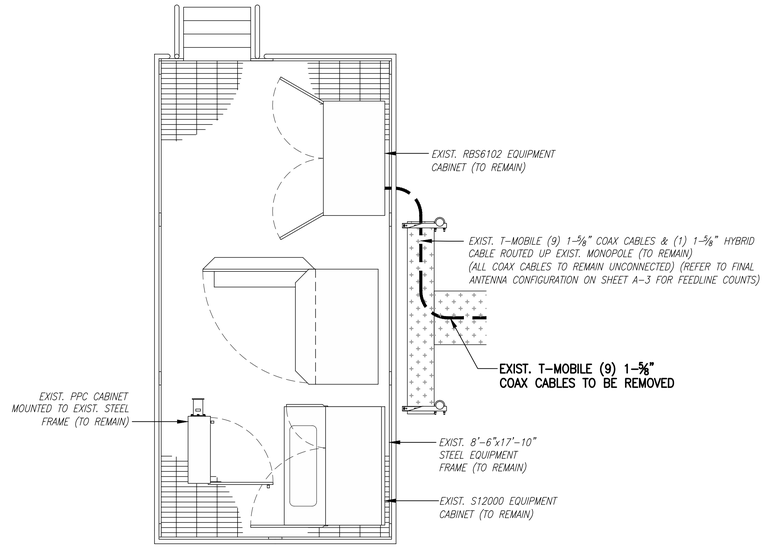
SHEET NUMBER
GN-1

1815.122

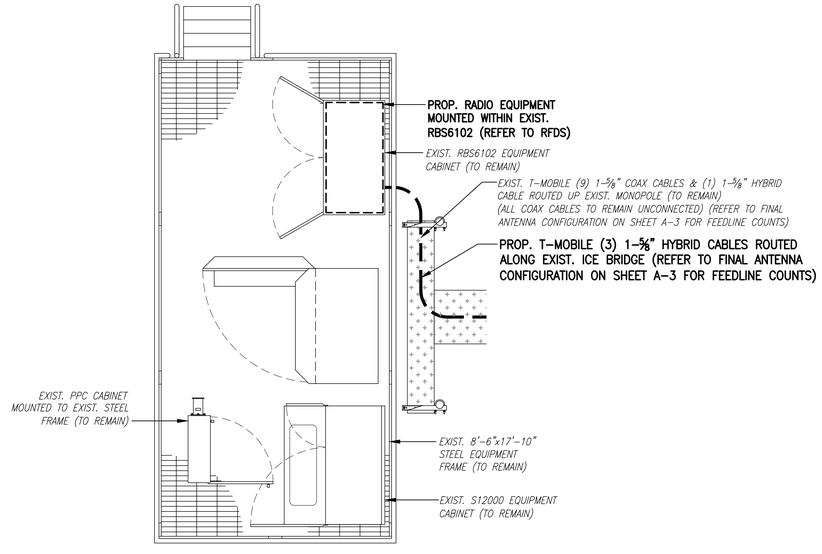
SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY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



COMPOUND PLAN
1 A-1
SCALE: 1" = 5'-0"
0 5'-0" 10'-0" 15'-0"



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



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

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

SBA
SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
WESTBOROUGH, MA 01581
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STATE OF CONNECTICUT
CLEMENT J. SAMEK
No. 26876
LICENSED PROFESSIONAL ENGINEER

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CTNL071B

SITE ADDRESS:
107 WILCOX ROAD
STONINGTON, CT 06378

SHEET TITLE
COMPOUND & EQUIPMENT PLAN

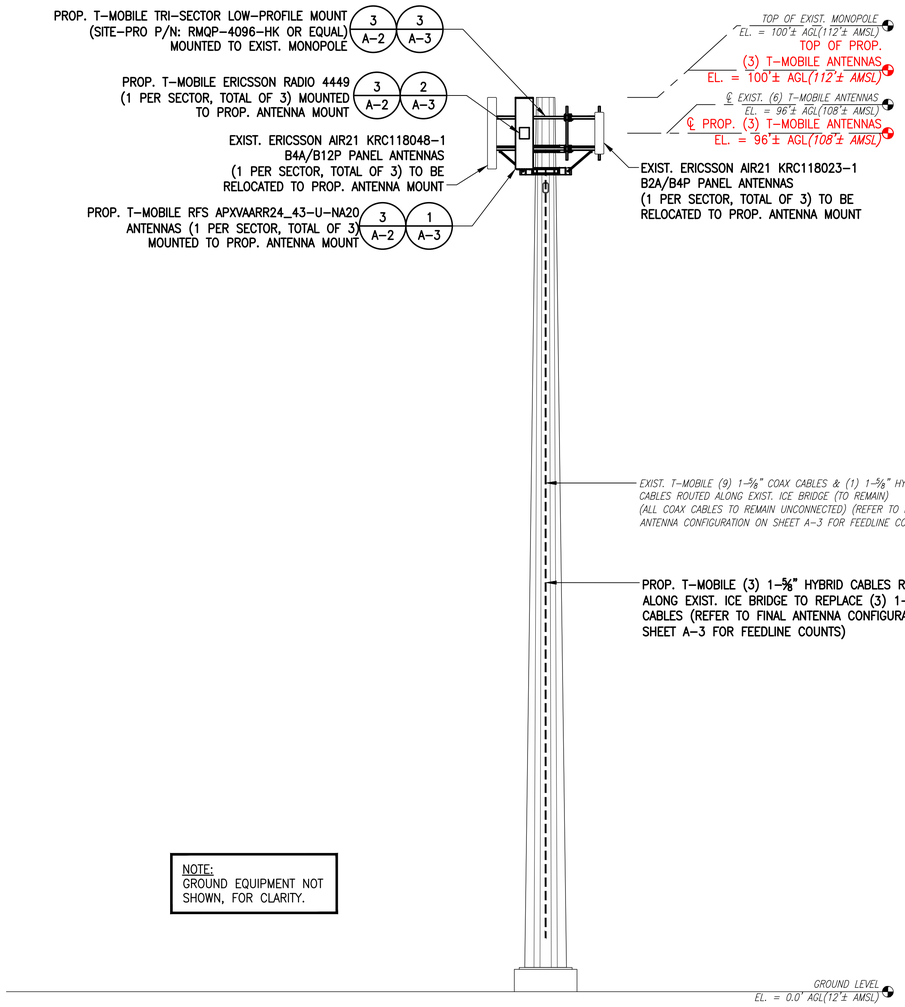
SHEET NUMBER
A-1

1815.122

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

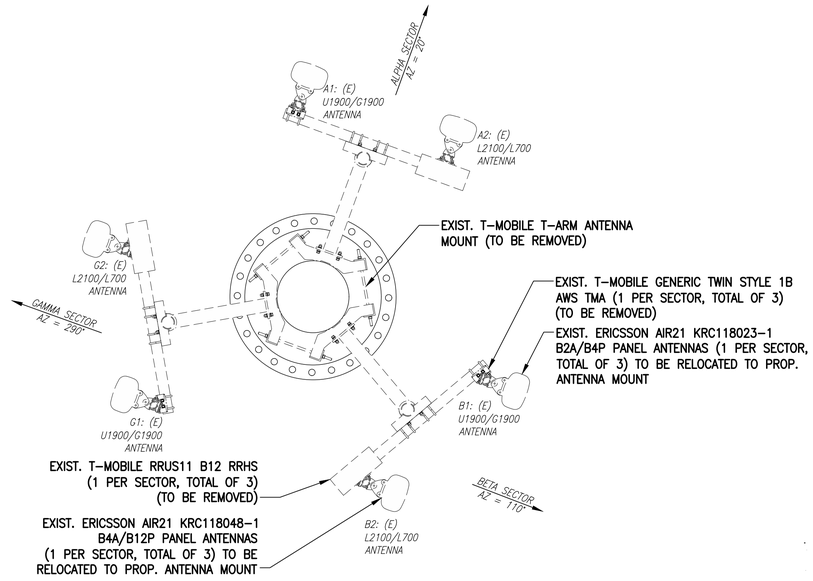
SPECIAL TOWER TOP EQUIPMENT INSTALLATION WORK NOTE (SAFETY-CLIMB ALIGNMENT REQUIREMENTS):
GENERAL CONTRACTOR SHALL ORIENT PROPOSED PLATFORM REINFORCEMENT KIT RING-MOUNTS SO THAT EXISTING SAFETY CLIMB CABLE IS NOT OBSTRUCTED/RE-ROUTED FROM VERTICAL ALIGNMENT AND IS NOT IN PHYSICAL CONTACT WITH EXISTING 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.

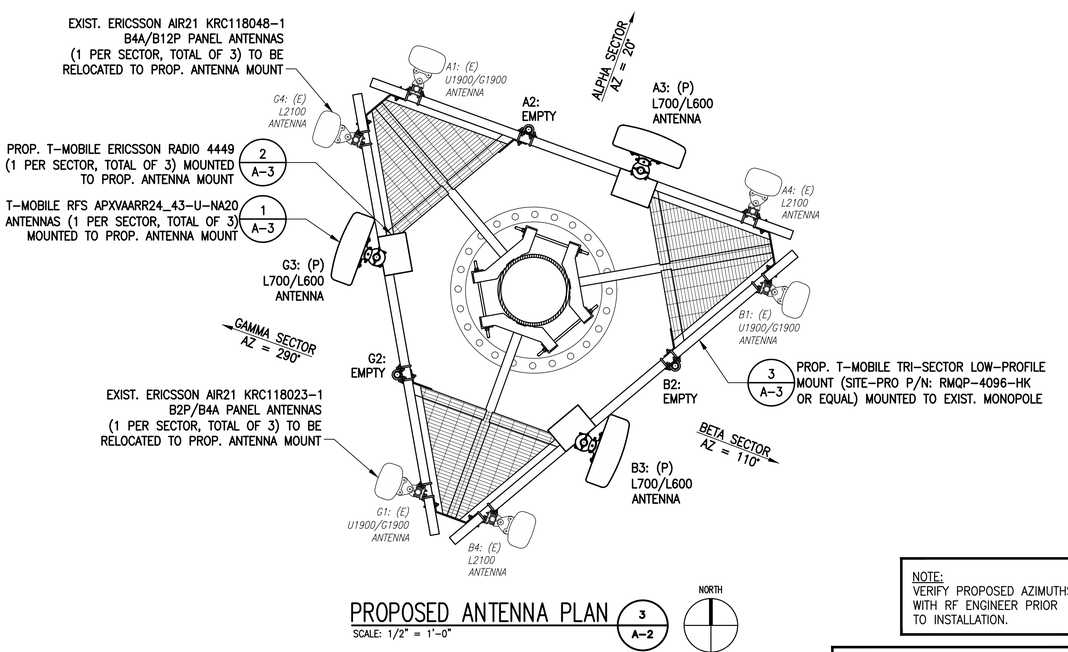


NOTE:
GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.

TOWER ELEVATION 1 A-2
SCALE: 1" = 8'
0 4' 8' 16' 24'



EXISTING ANTENNA PLAN 2 A-2
SCALE: 1/2" = 1'-0"



PROPOSED ANTENNA PLAN 3 A-2
SCALE: 1/2" = 1'-0"

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

ANTENNA STATUS LEGEND:

EMPTY – EMPTY PIPE

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

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

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

STATE OF CONNECTICUT
CLEMENT J. SAMEK
No. 26876
LICENSED PROFESSIONAL ENGINEER

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	07/17/19	ISSUED FOR CONSTRUCTION	CMC
0	06/17/19	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CTNL071B

SITE ADDRESS:
107 WILCOX ROAD
STONINGTON, CT 06378

SHEET TITLE
TOWER ELEVATIONS & ANTENNA PLAN

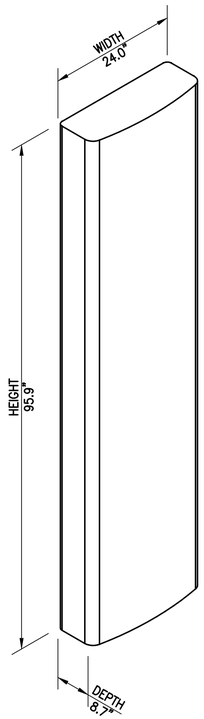
SHEET NUMBER
A-2

1815.122

FINAL ANTENNA CONFIGURATION

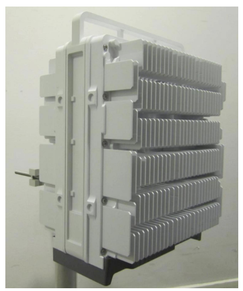
SECTOR	ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	RADIOS/TMAS	CABLES
ALPHA	*ERICSSON AIR21 KRC118023-1 B2A/B4P*	*96'± AGL*	*20°*	*0°*	*2°*	–	–	*(3) 1-5/8" COAX CABLES*
						U1900/G1900	–	*(1) 1-5/8" HYBRID CABLE (SHARED)*
	RFS APXVAARR24_43-U-NA20	**96'± AGL**	**20°**	**0°**	**0°**	**L600/L700**	**RADIO 4449 B71+B12**	**(1) 1-5/8" HYBRID CABLE**
	ERICSSON AIR21 KRC118048-1 B4A/B12P	*96'± AGL*	*20°*	*0°*	*2°*	*L2100*	–	*(1) 1-5/8" HYBRID CABLE (SHARED)*
BETA	*ERICSSON AIR21 KRC118023-1 B2A/B4P*	*96'± AGL*	*110°*	*0°*	*2°*	–	–	*(3) 1-5/8" COAX CABLES*
						U1900/G1900	–	*(1) 1-5/8" HYBRID CABLE (SHARED)*
	RFS APXVAARR24_43-U-NA20	**96'± AGL**	**110°**	**0°**	**0°**	**L600/L700**	**RADIO 4449 B71+B12**	**(1) 1-5/8" HYBRID CABLE**
	ERICSSON AIR21 KRC118048-1 B4A/B12P	*96'± AGL*	*110°*	*0°*	*2°*	*L2100*	–	*(1) 1-5/8" HYBRID CABLE (SHARED)*
GAMMA	*ERICSSON AIR21 KRC118023-1 B2A/B4P*	*96'± AGL*	*290°*	*0°*	*2°*	–	–	*(3) 1-5/8" COAX CABLES*
						U1900/G1900	–	*(1) 1-5/8" HYBRID CABLE (SHARED)*
	RFS APXVAARR24_43-U-NA20	**96'± AGL**	**290°**	**0°**	**0°**	**L600/L700**	**RADIO 4449 B71+B12**	**(1) 1-5/8" HYBRID CABLE**
	ERICSSON AIR21 KRC118048-1 B4A/B12P	*96'± AGL*	*290°*	*0°*	*2°*	*L2100*	–	*(1) 1-5/8" HYBRID CABLE (SHARED)*

NOTE: EXISTING (9) 1-5/8" COAX CABLES TO BE REMOVED & EXISTING (6) 1-5/8" COAX CABLES TO REMAIN DISCONNECTED.



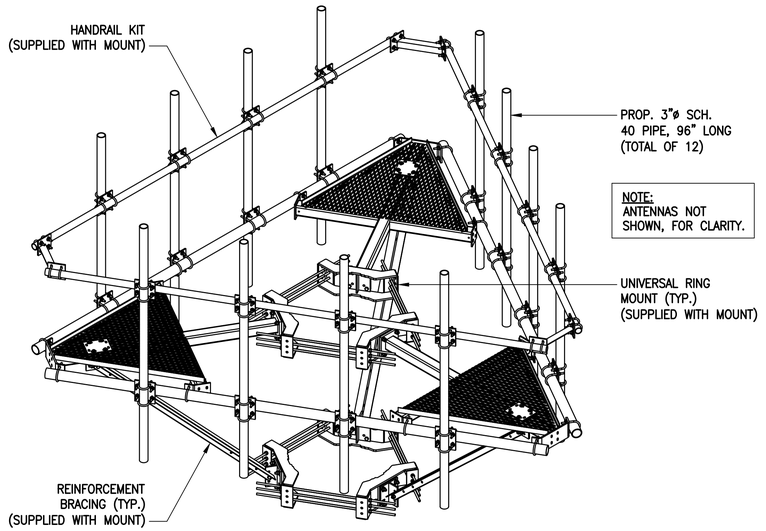
RFS APXVAARR24_43-NA20 PANEL ANTENNA
DIMENSIONS: 95.9"H x 24.0"W x 8.7"D
WEIGHT: 128.0 LBS
1 PER SECTOR, TOTAL OF 3

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



ERICSSON RADIO 4449 B12+B71
DIMENSIONS: 14.9"H x 13.2"W x 9.3"D
WEIGHT: 74.0 LBS
1 PER SECTOR, TOTAL OF 3

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



SITE-PRO 1 12'-6" LOW-PROFILE CO-LOCATION PLATFORM W/HANDRAIL KIT
PART NUMBERS: RMQP-4096-HK
(TOTAL OF 1 REQUIRED)

TYPICAL SITE PRO 1
12'-6" PLATFORM MOUNT (3 / A-3)
SCALE: N.T.S.

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NORTON, MA 02766
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SBA COMMUNICATIONS CORP.
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WESTBOROUGH, MA 01581
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SITE ADDRESS:
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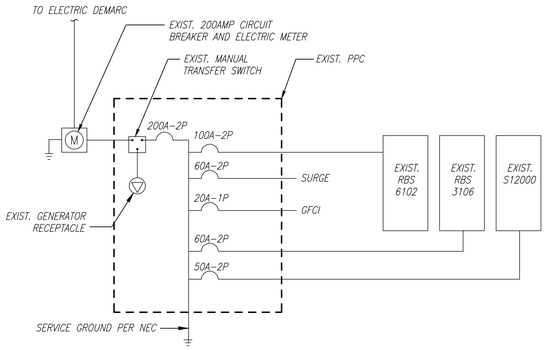
STONINGTON, CT 06378

SHEET TITLE
SITE DETAILS

SHEET NUMBER
A-3

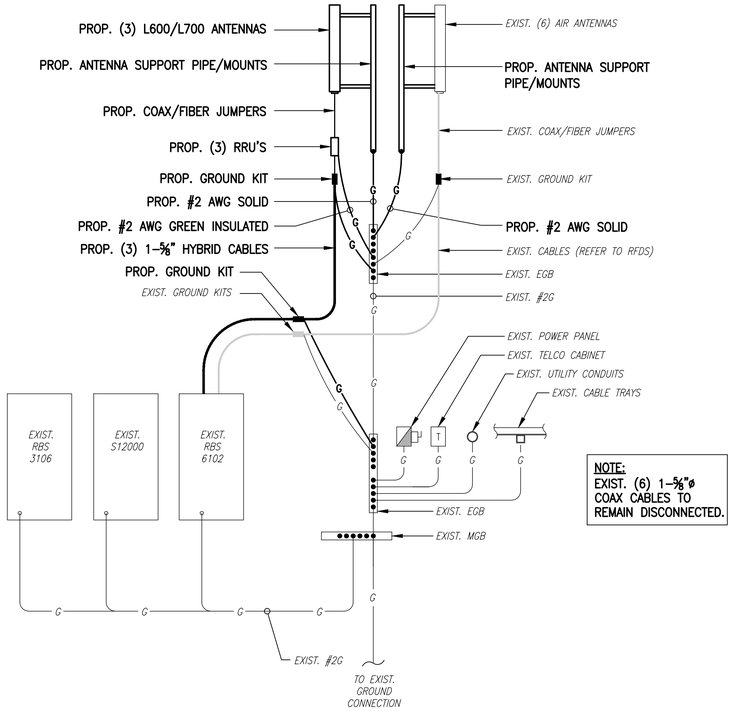
1815.122



ONE LINE DIAGRAM

SCALE: NOT TO SCALE

1 / E-1

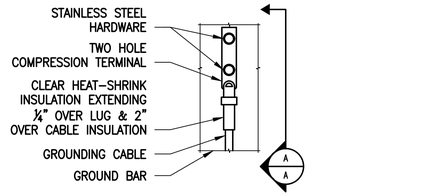


NOTE:
EXIST. (6) 1-5/8"ø COAX CABLES TO REMAIN DISCONNECTED.

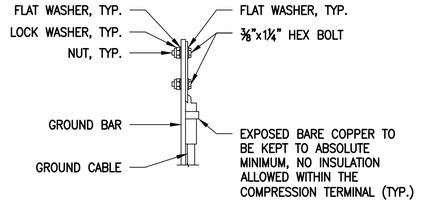
GROUNDING RISER DIAGRAM

SCALE: NOT TO SCALE

2 / E-1



ELEVATION



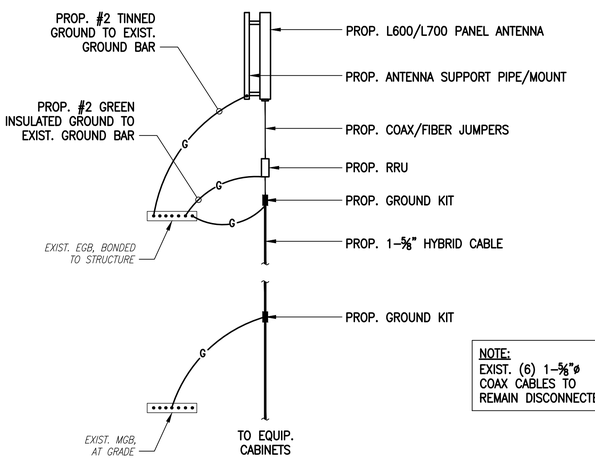
SECTION A-A

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

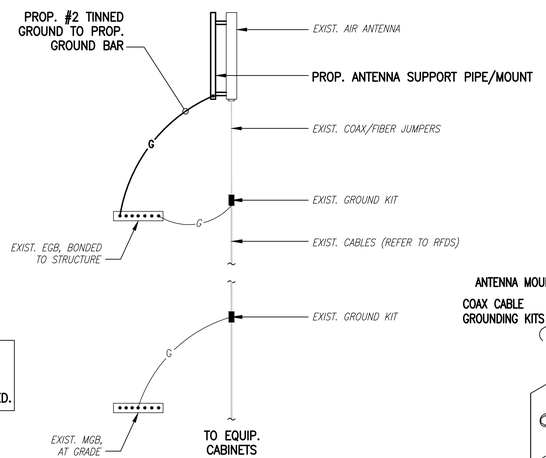
SCALE: NOT TO SCALE

3 / E-1



L600/L700

NOTE:
EXIST. (6) 1-5/8"ø COAX CABLES TO REMAIN DISCONNECTED.

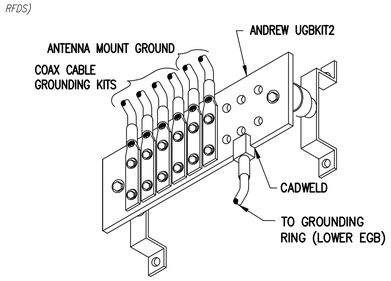


EXISTING ANTENNA

COAX CABLE CONNECTION AND GROUNDING DETAIL

SCALE: NOT TO SCALE

4 / E-1



GROUND BAR (EGB)

SCALE: NOT TO SCALE

5 / E-1

ELECTRICAL AND GROUNDING NOTES

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

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15 COMMERCE WAY, SUITE B
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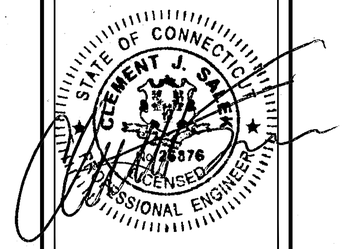

CHECKED BY: JMT

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SUBMITTALS

REV.	DATE	DESCRIPTION	BY
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SITE NUMBER:
CTNL071B

SITE ADDRESS:
107 WILCOX ROAD
STONINGTON, CT 06378

SHEET TITLE
ELECTRIC & GROUNDING DETAILS

SHEET NUMBER
E-1

1815.122

EXHIBIT 7

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

Structural Analysis Report

Existing 100 ft SABRE Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT13074-A

Customer Site Name: Stonington

Carrier Name: T-Mobile (App#: 117049-1)

Carrier Site ID / Name: CTNL071B / Stonington

Site Location: 107 Wilcox Road

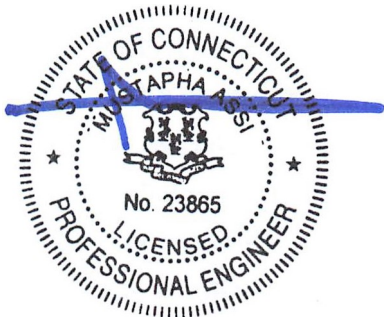
Stonington, Connecticut

New London County

Latitude: 41.341111

Longitude: -71.940916

Exp.01/31/2020



06/17/2019

Analysis Result:

Max Structural Usage: 86.6% [Pass]

Max Foundation Usage: 78.0% [Pass]

Additional Usage Caused by New Mount: +18%

Report Prepared By : Tawfeeq Alajaj

Introduction

The purpose of this report is to summarize the analysis results on the 100 ft SABRE Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Sabre, Job # 07-07052, Dated 7/11/2006 FDH, Project # 1422XR1400, Dated 2/21/2014
Foundation Drawing	Sabre, Job # 07-07052, Dated 7/11/2006
Geotechnical Report	JGI Eastern, Inc., Project # 06437G, Dated 7/21/2006
Modification Drawings	N/A

Analysis Criteria

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

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 140.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 108.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	D
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.158, S_1 = 0.057

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

Existing Antennas, Mounts and Transmission Lines

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	96.0	3	Ericsson Air21 B2A/B4P - Panel	(COMMSCOPE P/N MC-HPM1250-B)	(12) 1 1/4" (1) 1 5/8" Fiber	T-Mobile
2		3	Ericsson Air21 B4A B12P - Panel			
3		3	Ericsson KRY 112 144/1 TMA			
4		3	Ericsson S11B12 RRU			

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

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

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	96.0	3	Ericsson - Air 21 B2A/B4P - Panel	Sitepro RMPQ-4096-HK	(9) 1 5/8" (4) 1 5/8" Fiber	T-Mobile
2		3	Ericsson - Air 21 B4A/B12P - Panel			
3		3	RFS - APXVAARR24_43-U-NA20 - Panel			
4		3	Ericsson KRY 112 144/1 TMAs			
5		3	Ericsson Radio 4449 B71+B12			

All transmission lines are considered running inside of the pole shafts.

Analysis Results

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

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**86.6%**	**74.4%**	**64.9%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Original Design Reactions	1150.0	13.4	22.4
Analysis Reactions	1442.6	19.9	27.2
Factored Reactions*	1552.5	18.1	30.2
% of Design Reactions	92.9%	110.0%	90.1%

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.7388 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

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

[MODIFICATIONS]

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.

Usage Diagram - Max Ratio 86.64% at 0.0ft

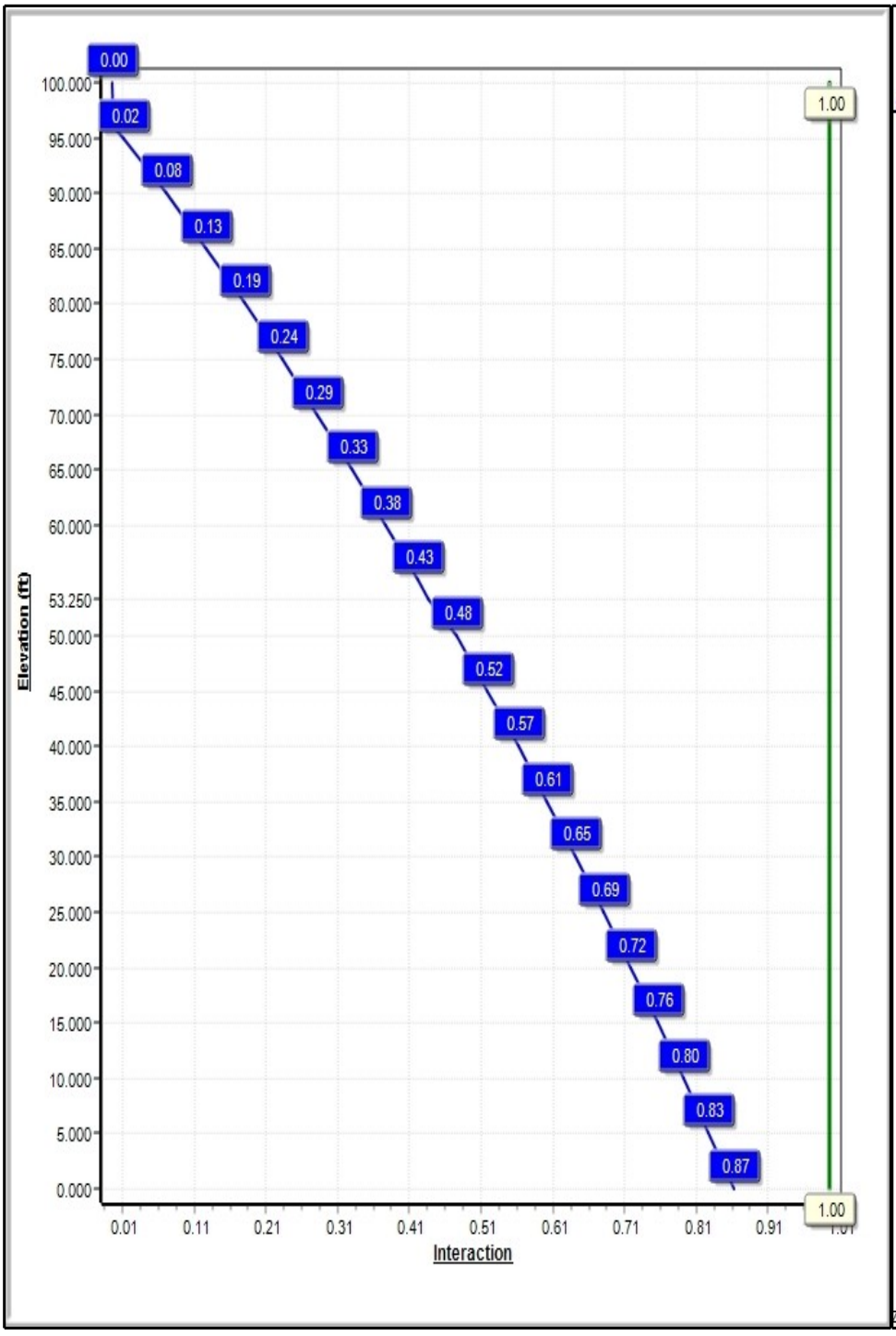
Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019
Site Name:	Stonington	**Exposure:**	D	
Height:	100.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

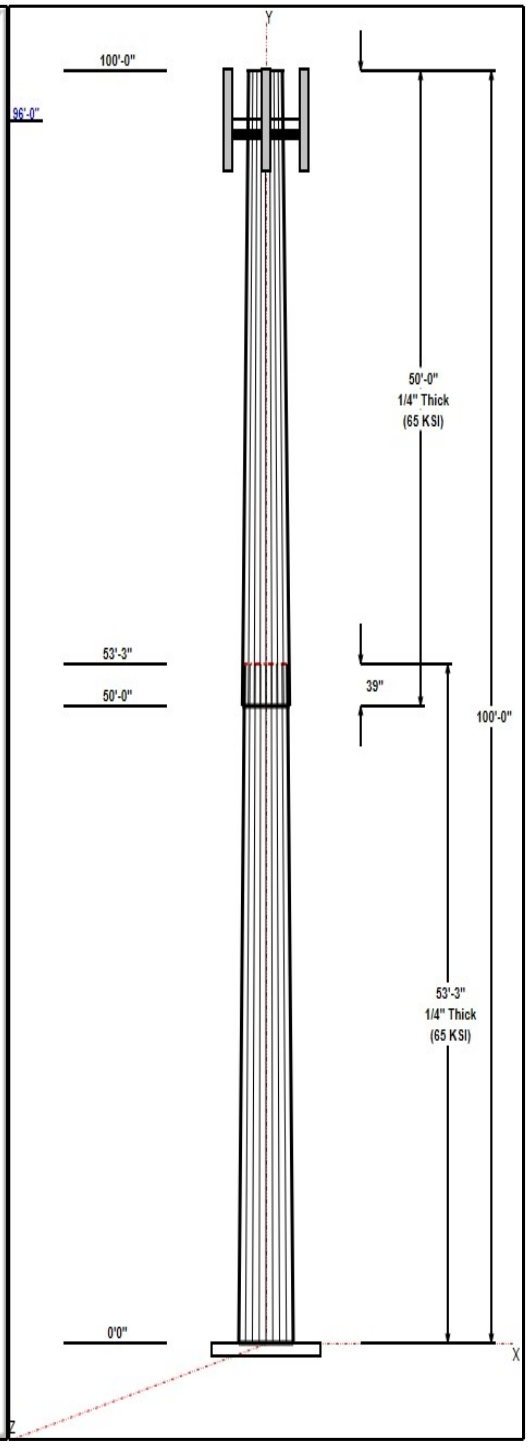
Tower Engineering Solutions

Dead Load Factor:	1.20
Wind Load Factor:	1.60

Load Case : 1.2D + 1.6W 108 mph Wind

Iterations: 21





Structure: CT13074-A-SBA

Type: Tapered
Site Name: Stonington
Height: 100.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.16140

6/17/2019

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.25	32.32	40.91	0.250		0.16140	65
2	50.00	25.27	33.34	0.250	Slip	0.16140	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
96.00	96.00	3	Air 21 B2A/B4P	T-Mobile
96.00	96.00	3	Air 21 B4A/B12P	T-Mobile
96.00	96.00	3	APXVAARR24_43-U-NA20	T-Mobile
96.00	96.00	3	Ericsson KRY 112 144/1	T-Mobile
96.00	96.00	3	Ericsson Radio 4449	T-Mobile
96.00	96.00	1	RMPQ-4096-HK	T-Mobile

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	96.00	Inside	1 5/8" Coax	T-Mobile
0.00	96.00	Inside	1 5/8" Fiber	T-Mobile

Anchor Bolts

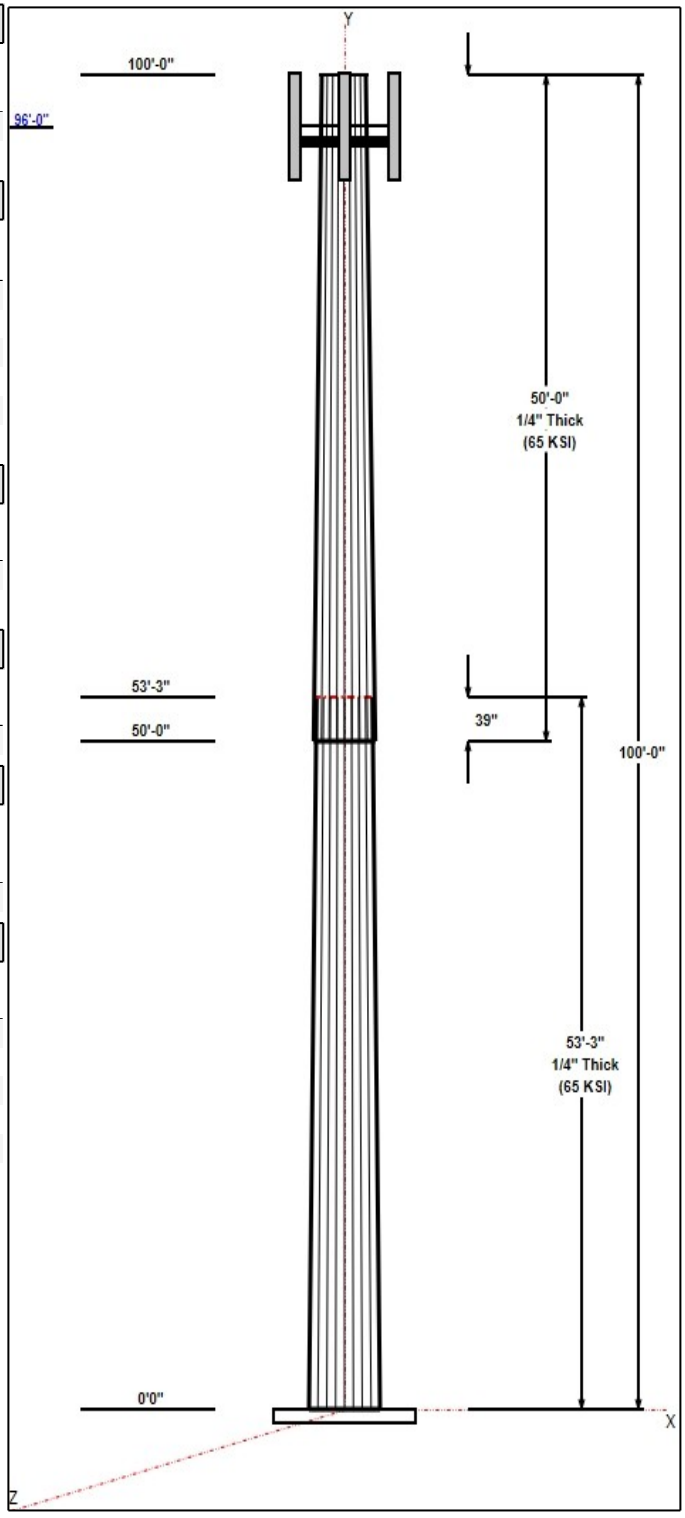
Qty	Specifications	Grade (ksi)	Arrangement
8	2.25" 18J	75.0	Cluster

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.2500	44.8	60.0	Clipped

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 108 mph Wind	1442.6	19.9	16.8
0.9D + 1.6W 108 mph Wind	1433.5	19.9	12.6
1.2D + 1.0Di + 1.0Wi 50 mph Wind	324.8	4.6	27.2
1.2D + 1.0E	80.5	0.9	16.8
0.9D + 1.0E	80.0	0.9	12.6
1.0D + 1.0W 60 mph Wind	277.3	3.8	14.0

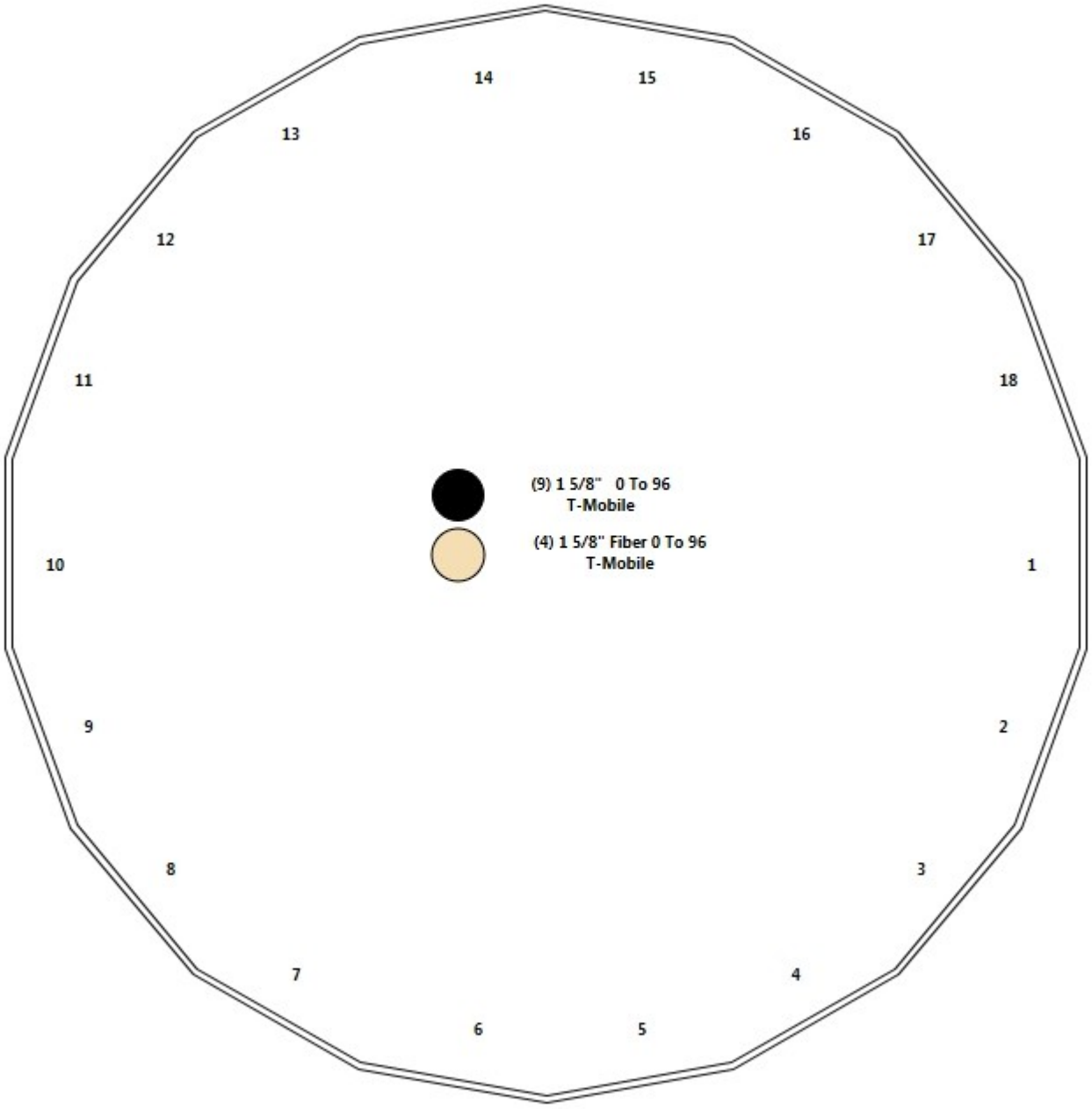


Structure: CT13074-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Stonington
Height: 100.00 (ft)

6/17/2019

Tower Engineering Solutions



Shaft Properties

Structure:	CT13074-A-SBA		**Code:**	EIA/TIA-222-G	6/17/2019
Site Name:	Stonington		**Exposure:**	D	
Height:	100.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 4

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.250	0.2500	65		0.00	5,228
2	18	50.000	0.2500	65	Slip	39.00	3,922
					Total Shaft Weight:		**9,150**

	Bottom						Top						
Sec. No.	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Taper**
1	40.91	0.00	32.26	6738.86	27.44	163.64	32.32	53.25	25.44	3305.19	21.38	129.2	0.161400
2	33.34	50.00	26.26	3632.24	22.10	133.36	25.27	100.00	19.85	1570.17	16.41	101.0	0.161400

Load Summary

Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 5	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	96.00	Air 21 B2A/B4P	3	91.50	6.09	0.86	251.65	7.136	0.86	0.00	0.00
2	96.00	Air 21 B4A/B12P	3	126.00	11.54	0.89	396.78	13.125	0.89	0.00	0.00
3	96.00	APXVAARR24_43-U-NA20	3	128.00	20.24	0.70	525.47	22.054	0.70	0.00	0.00
4	96.00	Ericsson KRY 112 144/1 TMAs	3	11.00	0.41	0.70	21.31	0.864	0.70	0.00	0.00
5	96.00	Ericsson Radio 4449 B71+B12	3	70.00	1.65	0.67	134.54	2.162	0.67	0.00	0.00
6	96.00	RMPQ-4096-HK	1	2280.00	51.70	1.00	4563.25	88.287	1.00	0.00	0.00
		Totals:	**16**	**3,559.50**			**8,552.51**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	96.00	(9) 1 5/8" Coax	0.00	Inside
0.00	96.00	(4) 1 5/8" Fiber	0.00	Inside

Shaft Section Properties

Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.2500	40.910	32.263	6738.9	27.44	163.64	69.1	324.4	0.0
5.00		0.2500	40.103	31.622	6345.5	26.87	160.41	69.8	311.7	543.5
10.00		0.2500	39.296	30.982	5967.8	26.31	157.18	70.5	299.1	532.6
15.00		0.2500	38.489	30.342	5605.4	25.74	153.96	71.1	286.8	521.7
20.00		0.2500	37.682	29.701	5257.9	25.17	150.73	71.8	274.8	510.8
25.00		0.2500	36.875	29.061	4925.1	24.60	147.50	72.5	263.1	499.9
30.00		0.2500	36.068	28.421	4606.7	24.03	144.27	73.1	251.6	489.0
35.00		0.2500	35.261	27.780	4302.3	23.46	141.04	73.8	240.3	478.1
40.00		0.2500	34.454	27.140	4011.6	22.89	137.82	74.5	229.3	467.2
45.00		0.2500	33.647	26.500	3734.3	22.32	134.59	75.1	218.6	456.3
50.00	Bot - Section 2	0.2500	32.840	25.859	3470.1	21.75	131.36	75.8	208.1	445.4
53.25	Top - Section 1	0.2500	32.815	25.840	3462.2	21.73	131.26	0.0	0.0	571.7
55.00		0.2500	32.533	25.616	3372.9	21.54	130.13	76.1	204.2	153.2
60.00		0.2500	31.726	24.975	3126.2	20.97	126.90	76.7	194.1	430.4
65.00		0.2500	30.919	24.335	2891.9	20.40	123.68	77.4	184.2	419.5
70.00		0.2500	30.112	23.695	2669.6	19.83	120.45	78.1	174.6	408.6
75.00		0.2500	29.305	23.054	2458.9	19.26	117.22	78.7	165.3	397.7
80.00		0.2500	28.498	22.414	2259.7	18.69	113.99	79.4	156.2	386.8
85.00		0.2500	27.691	21.774	2071.5	18.12	110.76	80.1	147.3	375.9
90.00		0.2500	26.884	21.133	1894.1	17.55	107.54	80.8	138.8	365.0
95.00		0.2500	26.077	20.493	1727.1	16.98	104.31	81.4	130.4	354.1
96.00		0.2500	25.916	20.365	1694.9	16.87	103.66	81.6	128.8	69.5
100.00		0.2500	25.270	19.853	1570.2	16.41	101.08	82.1	122.4	273.7
										9150.5

Wind Loading - Shaft

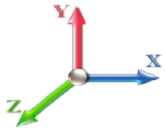
Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 108 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 21

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	1.03	29.218	32.14	379.44	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	1.03	29.218	32.14	371.95	0.650	0.000	5.00	17.138	11.14	572.8	0.0	652.2
10.00		1.00	1.03	29.218	32.14	364.47	0.650	0.000	5.00	16.797	10.92	561.4	0.0	639.1
15.00		1.00	1.03	29.224	32.15	357.02	0.650	0.000	5.00	16.455	10.70	550.1	0.0	626.0
20.00		1.00	1.08	30.724	33.80	358.39	0.650	0.000	5.00	16.114	10.47	566.4	0.0	612.9
25.00		1.00	1.13	31.939	35.13	357.59	0.650	0.000	5.00	15.772	10.25	576.3	0.0	599.9
30.00		1.00	1.16	32.968	36.27	355.35	0.650	0.000	5.00	15.431	10.03	582.0	0.0	586.8
35.00		1.00	1.19	33.864	37.25	352.09	0.650	0.000	5.00	15.089	9.81	584.6	0.0	573.7
40.00		1.00	1.22	34.660	38.13	348.05	0.650	0.000	5.00	14.748	9.59	584.8	0.0	560.6
45.00		1.00	1.25	35.377	38.91	343.39	0.650	0.000	5.00	14.407	9.36	583.1	0.0	547.6
50.00	Bot - Section 2	1.00	1.27	36.031	39.63	338.24	0.650	0.000	5.00	14.065	9.14	579.8	0.0	534.5
53.25	Top - Section 1	1.00	1.28	36.428	40.07	334.67	0.650	0.000	3.25	9.097	5.91	379.1	0.0	686.1
55.00		1.00	1.29	36.634	40.30	337.87	0.650	0.000	1.75	4.838	3.15	202.8	0.0	183.8
60.00		1.00	1.31	37.192	40.91	331.99	0.650	0.000	5.00	13.594	8.84	578.4	0.0	516.4
65.00		1.00	1.33	37.713	41.48	325.81	0.650	0.000	5.00	13.252	8.61	571.8	0.0	503.4
70.00		1.00	1.35	38.203	42.02	319.35	0.650	0.000	5.00	12.911	8.39	564.3	0.0	490.3
75.00		1.00	1.36	38.664	42.53	312.67	0.650	0.000	5.00	12.570	8.17	556.0	0.0	477.2
80.00		1.00	1.38	39.100	43.01	305.77	0.650	0.000	5.00	12.228	7.95	547.0	0.0	464.2
85.00		1.00	1.39	39.515	43.47	298.68	0.650	0.000	5.00	11.887	7.73	537.3	0.0	451.1
90.00		1.00	1.41	39.909	43.90	291.42	0.650	0.000	5.00	11.545	7.50	527.1	0.0	438.0
95.00		1.00	1.42	40.286	44.32	284.00	0.650	0.000	5.00	11.204	7.28	516.4	0.0	424.9
96.00	Appurtenance(s)	1.00	1.42	40.360	44.40	282.50	0.650	0.000	1.00	2.200	1.43	101.6	0.0	83.4
100.00		1.00	1.43	40.647	44.71	276.44	0.650	0.000	4.00	8.663	5.63	402.8	0.0	328.4
								Totals:	**100.00**			**11,225.6**		**10,980.6**

Discrete Appurtenance Forces

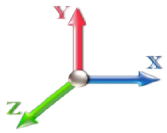
Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 108 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 21

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	96.00	Air 21 B2A/B4P	3	40.360	44.396	0.65	0.75	11.78	329.40	0.000	0.000	837.07	0.00	0.00
2	96.00	Air 21 B4A/B12P	3	40.360	44.396	0.67	0.75	23.11	453.60	0.000	0.000	1641.50	0.00	0.00
3	96.00	APXVAARR24_43-U-NA2	3	40.360	44.396	0.52	0.75	31.88	460.80	0.000	0.000	2264.40	0.00	0.00
4	96.00	Ericsson KRY 112 144/1	3	40.360	44.396	0.52	0.75	0.65	39.60	0.000	0.000	45.87	0.00	0.00
5	96.00	Ericsson Radio 4449	3	40.360	44.396	0.50	0.75	2.49	252.00	0.000	0.000	176.69	0.00	0.00
6	96.00	RMPQ-4096-HK	1	40.360	44.396	1.00	1.00	51.70	2736.00	0.000	0.000	3672.43	0.00	0.00
							Totals:		**4,271.40**			**8,637.96**		

Total Applied Force Summary

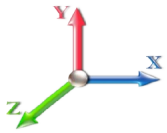
Structure:	CT13074-A-SBA		**Code:**	EIA/TIA-222-G	6/17/2019
Site Name:	Stonington		**Exposure:**	D	
Height:	100.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 9

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 108 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 21

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		572.84	734.72	0.00	0.00
10.00		561.43	721.64	0.00	0.00
15.00		550.14	708.57	0.00	0.00
20.00		566.37	695.50	0.00	0.00
25.00		576.30	682.42	0.00	0.00
30.00		581.99	669.35	0.00	0.00
35.00		584.58	656.28	0.00	0.00
40.00		584.77	643.20	0.00	0.00
45.00		583.05	630.13	0.00	0.00
50.00		579.76	617.06	0.00	0.00
53.25		379.10	739.75	0.00	0.00
55.00		202.78	212.74	0.00	0.00
60.00		578.39	599.01	0.00	0.00
65.00		571.76	585.94	0.00	0.00
70.00		564.26	572.86	0.00	0.00
75.00		555.97	559.79	0.00	0.00
80.00		546.97	546.72	0.00	0.00
85.00		537.33	533.64	0.00	0.00
90.00		527.11	520.57	0.00	0.00
95.00		516.36	507.50	0.00	0.00
96.00	(16) attachments	8739.53	4371.33	0.00	0.00
100.00		402.81	328.44	0.00	0.00
	Totals:	**19,863.60**	**16,837.15**	**0.00**	**0.00**

Calculated Forces

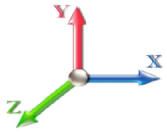
Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 108 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 21

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-16.78	-19.91	0.00	-1442.5	0.00	1442.59	2007.06	1003.53	3358.95	1681.97	0.00	0.000	0.000	0.866
5.00	-15.95	-19.41	0.00	-1343.0	0.00	1343.06	1986.27	993.14	3257.79	1631.31	0.16	-0.294	0.000	0.832
10.00	-15.14	-18.92	0.00	-1245.9	0.00	1245.99	1964.72	982.36	3156.78	1580.73	0.62	-0.584	0.000	0.796
15.00	-14.35	-18.44	0.00	-1151.3	0.00	1151.37	1942.39	971.20	3055.99	1530.27	1.39	-0.870	0.000	0.760
20.00	-13.58	-17.92	0.00	-1059.1	0.00	1059.19	1919.30	959.65	2955.51	1479.95	2.45	-1.150	0.000	0.723
25.00	-12.82	-17.39	0.00	-969.57	0.00	969.57	1895.43	947.71	2855.41	1429.83	3.80	-1.425	0.000	0.685
30.00	-12.09	-16.85	0.00	-882.61	0.00	882.61	1870.79	935.39	2755.77	1379.93	5.44	-1.692	0.000	0.646
35.00	-11.38	-16.29	0.00	-798.37	0.00	798.37	1845.37	922.69	2656.67	1330.31	7.35	-1.952	0.000	0.607
40.00	-10.70	-15.73	0.00	-716.90	0.00	716.90	1819.19	909.60	2558.18	1280.99	9.53	-2.202	0.000	0.566
45.00	-10.03	-15.17	0.00	-638.24	0.00	638.24	1792.24	896.12	2460.38	1232.02	11.97	-2.443	0.000	0.524
50.00	-9.39	-14.59	0.00	-562.42	0.00	562.42	1764.51	882.25	2363.35	1183.43	14.65	-2.671	0.000	0.481
53.25	-8.64	-14.19	0.00	-515.00	0.00	515.00	1763.65	881.83	2360.41	1181.96	16.52	-2.815	0.000	0.441
55.00	-8.41	-14.00	0.00	-490.17	0.00	490.17	1753.76	876.88	2326.65	1165.06	17.56	-2.891	0.000	0.426
60.00	-7.80	-13.41	0.00	-420.18	0.00	420.18	1724.97	862.48	2230.81	1117.06	20.70	-3.083	0.000	0.381
65.00	-7.21	-12.83	0.00	-353.11	0.00	353.11	1695.40	847.70	2135.92	1069.55	24.02	-3.259	0.000	0.335
70.00	-6.63	-12.25	0.00	-288.95	0.00	288.95	1665.07	832.53	2042.06	1022.55	27.52	-3.416	0.000	0.287
75.00	-6.08	-11.68	0.00	-227.69	0.00	227.69	1633.96	816.98	1949.30	976.10	31.17	-3.554	0.000	0.237
80.00	-5.55	-11.11	0.00	-169.30	0.00	169.30	1602.08	801.04	1857.73	930.25	34.95	-3.669	0.000	0.186
85.00	-5.04	-10.54	0.00	-113.77	0.00	113.77	1569.43	784.71	1767.43	885.03	38.85	-3.758	0.000	0.132
90.00	-4.55	-9.99	0.00	-61.06	0.00	61.06	1536.01	768.00	1678.46	840.48	42.81	-3.818	0.000	0.076
95.00	-4.08	-9.44	0.00	-11.13	0.00	11.13	1501.81	750.91	1590.91	796.64	46.83	-3.845	0.000	0.017
96.00	-0.30	-0.42	0.00	-1.70	0.00	1.70	1494.88	747.44	1573.57	787.96	47.63	-3.846	0.000	0.002
100.00	0.00	-0.40	0.00	0.00	0.00	0.00	1466.85	733.42	1504.85	753.54	50.85	-3.847	0.000	0.000

Wind Loading - Shaft

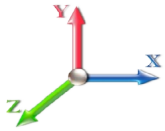
Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 108 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 20

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	1.03	29.218	32.14	379.44	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	1.03	29.218	32.14	371.95	0.650	0.000	5.00	17.138	11.14	572.8	0.0	489.1
10.00		1.00	1.03	29.218	32.14	364.47	0.650	0.000	5.00	16.797	10.92	561.4	0.0	479.3
15.00		1.00	1.03	29.224	32.15	357.02	0.650	0.000	5.00	16.455	10.70	550.1	0.0	469.5
20.00		1.00	1.08	30.724	33.80	358.39	0.650	0.000	5.00	16.114	10.47	566.4	0.0	459.7
25.00		1.00	1.13	31.939	35.13	357.59	0.650	0.000	5.00	15.772	10.25	576.3	0.0	449.9
30.00		1.00	1.16	32.968	36.27	355.35	0.650	0.000	5.00	15.431	10.03	582.0	0.0	440.1
35.00		1.00	1.19	33.864	37.25	352.09	0.650	0.000	5.00	15.089	9.81	584.6	0.0	430.3
40.00		1.00	1.22	34.660	38.13	348.05	0.650	0.000	5.00	14.748	9.59	584.8	0.0	420.5
45.00		1.00	1.25	35.377	38.91	343.39	0.650	0.000	5.00	14.407	9.36	583.1	0.0	410.7
50.00	Bot - Section 2	1.00	1.27	36.031	39.63	338.24	0.650	0.000	5.00	14.065	9.14	579.8	0.0	400.9
53.25	Top - Section 1	1.00	1.28	36.428	40.07	334.67	0.650	0.000	3.25	9.097	5.91	379.1	0.0	514.6
55.00		1.00	1.29	36.634	40.30	337.87	0.650	0.000	1.75	4.838	3.15	202.8	0.0	137.9
60.00		1.00	1.31	37.192	40.91	331.99	0.650	0.000	5.00	13.594	8.84	578.4	0.0	387.3
65.00		1.00	1.33	37.713	41.48	325.81	0.650	0.000	5.00	13.252	8.61	571.8	0.0	377.5
70.00		1.00	1.35	38.203	42.02	319.35	0.650	0.000	5.00	12.911	8.39	564.3	0.0	367.7
75.00		1.00	1.36	38.664	42.53	312.67	0.650	0.000	5.00	12.570	8.17	556.0	0.0	357.9
80.00		1.00	1.38	39.100	43.01	305.77	0.650	0.000	5.00	12.228	7.95	547.0	0.0	348.1
85.00		1.00	1.39	39.515	43.47	298.68	0.650	0.000	5.00	11.887	7.73	537.3	0.0	338.3
90.00		1.00	1.41	39.909	43.90	291.42	0.650	0.000	5.00	11.545	7.50	527.1	0.0	328.5
95.00		1.00	1.42	40.286	44.32	284.00	0.650	0.000	5.00	11.204	7.28	516.4	0.0	318.7
96.00	Appurtenance(s)	1.00	1.42	40.360	44.40	282.50	0.650	0.000	1.00	2.200	1.43	101.6	0.0	62.6
100.00		1.00	1.43	40.647	44.71	276.44	0.650	0.000	4.00	8.663	5.63	402.8	0.0	246.3
								Totals:	**100.00**			**11,225.6**		**8,235.4**

Discrete Appurtenance Forces

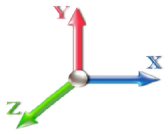
Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 108 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 20

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	96.00	Air 21 B2A/B4P	3	40.360	44.396	0.65	0.75	11.78	247.05	0.000	0.000	837.07	0.00	0.00
2	96.00	Air 21 B4A/B12P	3	40.360	44.396	0.67	0.75	23.11	340.20	0.000	0.000	1641.50	0.00	0.00
3	96.00	APXVAARR24_43-U-NA2	3	40.360	44.396	0.52	0.75	31.88	345.60	0.000	0.000	2264.40	0.00	0.00
4	96.00	Ericsson KRY 112 144/1	3	40.360	44.396	0.52	0.75	0.65	29.70	0.000	0.000	45.87	0.00	0.00
5	96.00	Ericsson Radio 4449	3	40.360	44.396	0.50	0.75	2.49	189.00	0.000	0.000	176.69	0.00	0.00
6	96.00	RMPQ-4096-HK	1	40.360	44.396	1.00	1.00	51.70	2052.00	0.000	0.000	3672.43	0.00	0.00
							Totals:		**3,203.55**			**8,637.96**		

Total Applied Force Summary

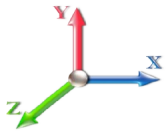
Structure:	CT13074-A-SBA		**Code:**	EIA/TIA-222-G	6/17/2019
Site Name:	Stonington		**Exposure:**	D	
Height:	100.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 13

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 108 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 20

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		572.84	551.04	0.00	0.00
10.00		561.43	541.23	0.00	0.00
15.00		550.14	531.43	0.00	0.00
20.00		566.37	521.62	0.00	0.00
25.00		576.30	511.82	0.00	0.00
30.00		581.99	502.01	0.00	0.00
35.00		584.58	492.21	0.00	0.00
40.00		584.77	482.40	0.00	0.00
45.00		583.05	472.60	0.00	0.00
50.00		579.76	462.79	0.00	0.00
53.25		379.10	554.81	0.00	0.00
55.00		202.78	159.56	0.00	0.00
60.00		578.39	449.26	0.00	0.00
65.00		571.76	439.45	0.00	0.00
70.00		564.26	429.65	0.00	0.00
75.00		555.97	419.84	0.00	0.00
80.00		546.97	410.04	0.00	0.00
85.00		537.33	400.23	0.00	0.00
90.00		527.11	390.43	0.00	0.00
95.00		516.36	380.62	0.00	0.00
96.00	(16) attachments	8739.53	3278.50	0.00	0.00
100.00		402.81	246.33	0.00	0.00
	Totals:	**19,863.60**	**12,627.86**	**0.00**	**0.00**

Calculated Forces

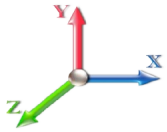
Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 108 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 20

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-12.58	-19.90	0.00	-1433.5	0.00	1433.54	2007.06	1003.53	3358.95	1681.97	0.00	0.000	0.000	0.859
5.00	-11.93	-19.38	0.00	-1334.0	0.00	1334.06	1986.27	993.14	3257.79	1631.31	0.16	-0.292	0.000	0.824
10.00	-11.30	-18.87	0.00	-1237.1	0.00	1237.15	1964.72	982.36	3156.78	1580.73	0.62	-0.580	0.000	0.789
15.00	-10.68	-18.37	0.00	-1142.7	0.00	1142.78	1942.39	971.20	3055.99	1530.27	1.38	-0.864	0.000	0.753
20.00	-10.09	-17.84	0.00	-1050.9	0.00	1050.94	1919.30	959.65	2955.51	1479.95	2.43	-1.142	0.000	0.716
25.00	-9.51	-17.30	0.00	-961.73	0.00	961.73	1895.43	947.71	2855.41	1429.83	3.78	-1.415	0.000	0.678
30.00	-8.94	-16.75	0.00	-875.24	0.00	875.24	1870.79	935.39	2755.77	1379.93	5.40	-1.680	0.000	0.639
35.00	-8.40	-16.18	0.00	-791.51	0.00	791.51	1845.37	922.69	2656.67	1330.31	7.30	-1.937	0.000	0.600
40.00	-7.87	-15.61	0.00	-710.60	0.00	710.60	1819.19	909.60	2558.18	1280.99	9.46	-2.186	0.000	0.559
45.00	-7.36	-15.04	0.00	-632.53	0.00	632.53	1792.24	896.12	2460.38	1232.02	11.88	-2.424	0.000	0.518
50.00	-6.88	-14.46	0.00	-557.32	0.00	557.32	1764.51	882.25	2363.35	1183.43	14.54	-2.650	0.000	0.475
53.25	-6.32	-14.07	0.00	-510.31	0.00	510.31	1763.65	881.83	2360.41	1181.96	16.40	-2.793	0.000	0.436
55.00	-6.13	-13.88	0.00	-485.68	0.00	485.68	1753.76	876.88	2326.65	1165.06	17.43	-2.868	0.000	0.421
60.00	-5.67	-13.29	0.00	-416.30	0.00	416.30	1724.97	862.48	2230.81	1117.06	20.54	-3.058	0.000	0.376
65.00	-5.23	-12.71	0.00	-349.84	0.00	349.84	1695.40	847.70	2135.92	1069.55	23.84	-3.232	0.000	0.330
70.00	-4.80	-12.14	0.00	-286.27	0.00	286.27	1665.07	832.53	2042.06	1022.55	27.30	-3.389	0.000	0.283
75.00	-4.39	-11.57	0.00	-225.58	0.00	225.58	1633.96	816.98	1949.30	976.10	30.93	-3.525	0.000	0.234
80.00	-4.00	-11.00	0.00	-167.75	0.00	167.75	1602.08	801.04	1857.73	930.25	34.68	-3.639	0.000	0.183
85.00	-3.62	-10.45	0.00	-112.74	0.00	112.74	1569.43	784.71	1767.43	885.03	38.54	-3.727	0.000	0.130
90.00	-3.26	-9.90	0.00	-60.51	0.00	60.51	1536.01	768.00	1678.46	840.48	42.48	-3.786	0.000	0.074
95.00	-2.91	-9.36	0.00	-11.03	0.00	11.03	1501.81	750.91	1590.91	796.64	46.46	-3.813	0.000	0.016
96.00	-0.22	-0.42	0.00	-1.67	0.00	1.67	1494.88	747.44	1573.57	787.96	47.26	-3.814	0.000	0.002
100.00	0.00	-0.40	0.00	0.00	0.00	0.00	1466.85	733.42	1504.85	753.54	50.45	-3.815	0.000	0.000

Wind Loading - Shaft

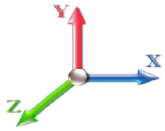
Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 20

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	1.03	6.262	6.89	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	1.03	6.262	6.89	0.00	1.200	1.242	5.00	18.173	21.81	150.2	321.7	973.8
10.00		1.00	1.03	6.262	6.89	0.00	1.200	1.331	5.00	17.906	21.49	148.0	338.7	977.8
15.00		1.00	1.03	6.264	6.89	0.00	1.200	1.386	5.00	17.610	21.13	145.6	346.2	972.2
20.00		1.00	1.08	6.585	7.24	0.00	1.200	1.427	5.00	17.303	20.76	150.4	349.5	962.4
25.00		1.00	1.13	6.846	7.53	0.00	1.200	1.459	5.00	16.988	20.39	153.5	350.3	950.1
30.00		1.00	1.16	7.066	7.77	0.00	1.200	1.486	5.00	16.669	20.00	155.5	349.4	936.2
35.00		1.00	1.19	7.258	7.98	0.00	1.200	1.509	5.00	16.347	19.62	156.6	347.5	921.2
40.00		1.00	1.22	7.429	8.17	0.00	1.200	1.529	5.00	16.022	19.23	157.1	344.6	905.2
45.00		1.00	1.25	7.583	8.34	0.00	1.200	1.547	5.00	15.696	18.84	157.1	341.0	888.6
50.00	Bot - Section 2	1.00	1.27	7.723	8.50	0.00	1.200	1.564	5.00	15.368	18.44	156.7	336.9	871.4
53.25	Top - Section 1	1.00	1.28	7.808	8.59	0.00	1.200	1.574	3.25	9.949	11.94	102.5	220.3	906.3
55.00		1.00	1.29	7.852	8.64	0.00	1.200	1.579	1.75	5.299	6.36	54.9	118.0	301.9
60.00		1.00	1.31	7.972	8.77	0.00	1.200	1.592	5.00	14.921	17.90	157.0	332.2	848.7
65.00		1.00	1.33	8.083	8.89	0.00	1.200	1.605	5.00	14.590	17.51	155.7	326.9	830.3
70.00		1.00	1.35	8.188	9.01	0.00	1.200	1.617	5.00	14.259	17.11	154.1	321.3	811.6
75.00		1.00	1.36	8.287	9.12	0.00	1.200	1.628	5.00	13.926	16.71	152.3	315.4	792.6
80.00		1.00	1.38	8.381	9.22	0.00	1.200	1.639	5.00	13.594	16.31	150.4	309.3	773.4
85.00		1.00	1.39	8.469	9.32	0.00	1.200	1.649	5.00	13.261	15.91	148.2	302.9	754.0
90.00		1.00	1.41	8.554	9.41	0.00	1.200	1.658	5.00	12.927	15.51	146.0	296.4	734.4
95.00		1.00	1.42	8.635	9.50	0.00	1.200	1.667	5.00	12.593	15.11	143.5	289.6	714.6
96.00	Appurtenance(s)	1.00	1.42	8.651	9.52	0.00	1.200	1.669	1.00	2.478	2.97	28.3	57.7	141.1
100.00		1.00	1.43	8.712	9.58	0.00	1.200	1.676	4.00	9.780	11.74	112.5	226.2	554.6
								Totals:	**100.00**			**3,036.2**		**17,522.5**

Discrete Appurtenance Forces

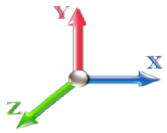
Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 20

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	96.00	Air 21 B2A/B4P	3	8.651	9.516	0.65	0.75	13.81	809.85	0.000	0.000	131.40	0.00	0.00
2	96.00	Air 21 B4A/B12P	3	8.651	9.516	0.67	0.75	26.28	1265.95	0.000	0.000	250.09	0.00	0.00
3	96.00	APXVAARR24_43-U-NA2	3	8.651	9.516	0.52	0.75	34.74	1653.22	0.000	0.000	330.53	0.00	0.00
4	96.00	Ericsson KRY 112 144/1	3	8.651	9.516	0.52	0.75	1.36	61.23	0.000	0.000	12.95	0.00	0.00
5	96.00	Ericsson Radio 4449	3	8.651	9.516	0.50	0.75	3.26	445.61	0.000	0.000	31.01	0.00	0.00
6	96.00	RMPQ-4096-HK	1	8.651	9.516	1.00	1.00	88.29	3899.25	0.000	0.000	840.10	0.00	0.00
							Totals:		**8,135.11**			**1,596.08**		

Total Applied Force Summary

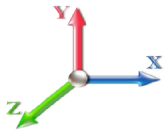
Structure:	CT13074-A-SBA		**Code:**	EIA/TIA-222-G	6/17/2019
Site Name:	Stonington		**Exposure:**	D	
Height:	100.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 17

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 20

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		150.23	1056.38	0.00	0.00
10.00		148.02	1060.39	0.00	0.00
15.00		145.61	1054.80	0.00	0.00
20.00		150.40	1044.97	0.00	0.00
25.00		153.51	1032.69	0.00	0.00
30.00		155.48	1018.80	0.00	0.00
35.00		156.62	1003.73	0.00	0.00
40.00		157.12	987.79	0.00	0.00
45.00		157.10	971.15	0.00	0.00
50.00		156.66	953.94	0.00	0.00
53.25		102.54	960.01	0.00	0.00
55.00		54.92	330.77	0.00	0.00
60.00		157.00	931.25	0.00	0.00
65.00		155.68	912.86	0.00	0.00
70.00		154.11	894.16	0.00	0.00
75.00		152.34	875.19	0.00	0.00
80.00		150.38	855.98	0.00	0.00
85.00		148.25	836.55	0.00	0.00
90.00		145.96	816.92	0.00	0.00
95.00		143.54	797.11	0.00	0.00
96.00	(16) attachments	1624.38	8292.69	0.00	0.00
100.00		112.47	554.62	0.00	0.00
	Totals:	**4,632.30**	**27,242.74**	**0.00**	**0.00**

Calculated Forces

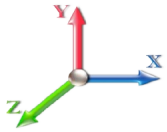
Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 20

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-27.24	-4.65	0.00	-324.82	0.00	324.82	2007.06	1003.53	3358.95	1681.97	0.00	0.000	0.000	0.207
5.00	-26.18	-4.53	0.00	-301.58	0.00	301.58	1986.27	993.14	3257.79	1631.31	0.04	-0.066	0.000	0.198
10.00	-25.11	-4.41	0.00	-278.94	0.00	278.94	1964.72	982.36	3156.78	1580.73	0.14	-0.131	0.000	0.189
15.00	-24.05	-4.28	0.00	-256.92	0.00	256.92	1942.39	971.20	3055.99	1530.27	0.31	-0.195	0.000	0.180
20.00	-23.01	-4.15	0.00	-235.50	0.00	235.50	1919.30	959.65	2955.51	1479.95	0.55	-0.258	0.000	0.171
25.00	-21.97	-4.02	0.00	-214.73	0.00	214.73	1895.43	947.71	2855.41	1429.83	0.85	-0.318	0.000	0.162
30.00	-20.95	-3.88	0.00	-194.64	0.00	194.64	1870.79	935.39	2755.77	1379.93	1.22	-0.378	0.000	0.152
35.00	-19.94	-3.73	0.00	-175.25	0.00	175.25	1845.37	922.69	2656.67	1330.31	1.64	-0.435	0.000	0.143
40.00	-18.95	-3.59	0.00	-156.58	0.00	156.58	1819.19	909.60	2558.18	1280.99	2.13	-0.490	0.000	0.133
45.00	-17.98	-3.44	0.00	-138.65	0.00	138.65	1792.24	896.12	2460.38	1232.02	2.67	-0.542	0.000	0.123
50.00	-17.02	-3.28	0.00	-121.47	0.00	121.47	1764.51	882.25	2363.35	1183.43	3.26	-0.591	0.000	0.112
53.25	-16.06	-3.18	0.00	-110.80	0.00	110.80	1763.65	881.83	2360.41	1181.96	3.68	-0.622	0.000	0.103
55.00	-15.73	-3.13	0.00	-105.25	0.00	105.25	1753.76	876.88	2326.65	1165.06	3.91	-0.639	0.000	0.099
60.00	-14.80	-2.97	0.00	-89.62	0.00	89.62	1724.97	862.48	2230.81	1117.06	4.60	-0.680	0.000	0.089
65.00	-13.89	-2.81	0.00	-74.78	0.00	74.78	1695.40	847.70	2135.92	1069.55	5.33	-0.717	0.000	0.078
70.00	-12.99	-2.65	0.00	-60.73	0.00	60.73	1665.07	832.53	2042.06	1022.55	6.10	-0.750	0.000	0.067
75.00	-12.12	-2.49	0.00	-47.48	0.00	47.48	1633.96	816.98	1949.30	976.10	6.90	-0.779	0.000	0.056
80.00	-11.27	-2.33	0.00	-35.01	0.00	35.01	1602.08	801.04	1857.73	930.25	7.73	-0.803	0.000	0.045
85.00	-10.43	-2.18	0.00	-23.34	0.00	23.34	1569.43	784.71	1767.43	885.03	8.59	-0.822	0.000	0.033
90.00	-9.62	-2.02	0.00	-12.45	0.00	12.45	1536.01	768.00	1678.46	840.48	9.45	-0.834	0.000	0.021
95.00	-8.82	-1.87	0.00	-2.35	0.00	2.35	1501.81	750.91	1590.91	796.64	10.33	-0.839	0.000	0.009
96.00	-0.55	-0.12	0.00	-0.48	0.00	0.48	1494.88	747.44	1573.57	787.96	10.51	-0.840	0.000	0.001
100.00	0.00	-0.11	0.00	0.00	0.00	0.00	1466.85	733.42	1504.85	753.54	11.21	-0.840	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case:	1.2D + 1.0E					**Iterations**	18
Gust Response Factor	1.10			**Sds**	0.17	**Ss**	0.16
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.09	**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.60	**SA**	0.05	**Seismic Importance Factor**	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		543.46	0.00	0.04	0.02	7.53	
10.00		532.57	0.02	0.06	0.04	10.40	
15.00		521.68	0.04	0.07	0.04	11.49	
20.00		510.78	0.08	0.07	0.04	12.02	
25.00		499.89	0.12	0.07	0.03	12.42	
30.00		488.99	0.17	0.07	0.03	12.70	
35.00		478.10	0.23	0.06	0.02	12.61	
40.00		467.20	0.30	0.04	0.01	11.74	
45.00		456.31	0.38	0.02	0.01	9.72	
50.00	Bot - Section 2	445.41	0.47	-0.01	0.01	6.47	
53.25	Top - Section 1	571.74	0.54	-0.03	0.01	5.06	
55.00		153.20	0.57	-0.04	0.01	0.86	
60.00		430.37	0.68	-0.08	0.03	-1.32	
65.00		419.48	0.80	-0.11	0.05	-3.38	
70.00		408.59	0.93	-0.12	0.10	-2.51	
75.00		397.69	1.06	-0.09	0.16	1.93	
80.00		386.80	1.21	0.01	0.26	10.05	
85.00		375.90	1.37	0.22	0.40	21.71	
90.00		365.01	1.53	0.58	0.58	36.66	
95.00		354.11	1.71	1.14	0.82	54.60	
96.00	Appurtenance(s)	3629.0	1.74	1.29	0.88	603.51	
100.00		273.70	1.89	1.98	1.14	60.02	
	Totals:	**12,710.0**				**894.3**	**Total Wind:** **19,863.6**

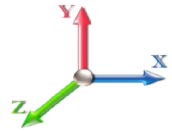
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

Calculated Forces

Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Tower Engineering Solutions

Load Case: 1.2D + 1.0E



Gust Response Factor	1.10			**Sds**	0.17			**Iterations**	18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.09			**Ss**	0.16
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.60	**SA**	0.05			**S1**	0.06
								Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-16.84	-0.90	0.00	-80.52	0.00	80.52	2007.06	1003.53	3358.95	1681.97		0.00	0.00	0.056
5.00	-16.10	-0.90	0.00	-76.00	0.00	76.00	1986.27	993.14	3257.79	1631.31		0.01	-0.02	0.055
10.00	-15.38	-0.89	0.00	-71.50	0.00	71.50	1964.72	982.36	3156.78	1580.73		0.04	-0.03	0.053
15.00	-14.67	-0.89	0.00	-67.03	0.00	67.03	1942.39	971.20	3055.99	1530.27		0.08	-0.05	0.051
20.00	-13.98	-0.88	0.00	-62.60	0.00	62.60	1919.30	959.65	2955.51	1479.95		0.14	-0.07	0.050
25.00	-13.29	-0.87	0.00	-58.22	0.00	58.22	1895.43	947.71	2855.41	1429.83		0.22	-0.08	0.048
30.00	-12.62	-0.86	0.00	-53.88	0.00	53.88	1870.79	935.39	2755.77	1379.93		0.31	-0.10	0.046
35.00	-11.97	-0.85	0.00	-49.59	0.00	49.59	1845.37	922.69	2656.67	1330.31		0.42	-0.11	0.044
40.00	-11.32	-0.84	0.00	-45.35	0.00	45.35	1819.19	909.60	2558.18	1280.99		0.55	-0.13	0.042
45.00	-10.69	-0.83	0.00	-41.17	0.00	41.17	1792.24	896.12	2460.38	1232.02		0.70	-0.15	0.039
50.00	-10.08	-0.82	0.00	-37.02	0.00	37.02	1764.51	882.25	2363.35	1183.43		0.86	-0.16	0.037
53.25	-9.34	-0.82	0.00	-34.35	0.00	34.35	1763.65	881.83	2360.41	1181.96		0.97	-0.17	0.034
55.00	-9.12	-0.82	0.00	-32.92	0.00	32.92	1753.76	876.88	2326.65	1165.06		1.03	-0.18	0.033
60.00	-8.52	-0.82	0.00	-28.84	0.00	28.84	1724.97	862.48	2230.81	1117.06		1.22	-0.19	0.031
65.00	-7.94	-0.82	0.00	-24.75	0.00	24.75	1695.40	847.70	2135.92	1069.55		1.43	-0.20	0.028
70.00	-7.36	-0.82	0.00	-20.67	0.00	20.67	1665.07	832.53	2042.06	1022.55		1.64	-0.21	0.025
75.00	-6.81	-0.81	0.00	-16.59	0.00	16.59	1633.96	816.98	1949.30	976.10		1.87	-0.22	0.021
80.00	-6.26	-0.80	0.00	-12.53	0.00	12.53	1602.08	801.04	1857.73	930.25		2.11	-0.23	0.017
85.00	-5.72	-0.78	0.00	-8.52	0.00	8.52	1569.43	784.71	1767.43	885.03		2.35	-0.24	0.013
90.00	-5.20	-0.74	0.00	-4.63	0.00	4.63	1536.01	768.00	1678.46	840.48		2.60	-0.24	0.009
95.00	-4.70	-0.68	0.00	-0.93	0.00	0.93	1501.81	750.91	1590.91	796.64		2.86	-0.24	0.004
96.00	-0.33	-0.06	0.00	-0.25	0.00	0.25	1494.88	747.44	1573.57	787.96		2.91	-0.24	0.001
100.00	0.00	-0.06	0.00	0.00	0.00	0.00	1466.85	733.42	1504.85	753.54		3.11	-0.24	0.000

Seismic Segment Forces (Factored)

Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E

Gust Response Factor	1.10			**Sds**	0.17	**Iterations**	18
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.09	**Ss**	0.16
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.60	**SA**	0.05	**S1**	0.06
						Seismic Importance Factor	1.00

Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		543.46	0.00	0.04	0.02	7.53	
10.00		532.57	0.02	0.06	0.04	10.40	
15.00		521.68	0.04	0.07	0.04	11.49	
20.00		510.78	0.08	0.07	0.04	12.02	
25.00		499.89	0.12	0.07	0.03	12.42	
30.00		488.99	0.17	0.07	0.03	12.70	
35.00		478.10	0.23	0.06	0.02	12.61	
40.00		467.20	0.30	0.04	0.01	11.74	
45.00		456.31	0.38	0.02	0.01	9.72	
50.00	Bot - Section 2	445.41	0.47	-0.01	0.01	6.47	
53.25	Top - Section 1	571.74	0.54	-0.03	0.01	5.06	
55.00		153.20	0.57	-0.04	0.01	0.86	
60.00		430.37	0.68	-0.08	0.03	-1.32	
65.00		419.48	0.80	-0.11	0.05	-3.38	
70.00		408.59	0.93	-0.12	0.10	-2.51	
75.00		397.69	1.06	-0.09	0.16	1.93	
80.00		386.80	1.21	0.01	0.26	10.05	
85.00		375.90	1.37	0.22	0.40	21.71	
90.00		365.01	1.53	0.58	0.58	36.66	
95.00		354.11	1.71	1.14	0.82	54.60	
96.00	Appurtenance(s)	3629.0	1.74	1.29	0.88	603.51	
100.00		273.70	1.89	1.98	1.14	60.02	
	Totals:	**12,710.0**				**894.3**	**Total Wind:** **19,863.6**

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

Calculated Forces

Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E

Iterations 18

Gust Response Factor	1.10			**Sds**	0.17			**Ss**	0.16
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.09			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.60	**SA**	0.05			**Seismic Importance Factor**	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-12.63	-0.90	0.00	-79.98	0.00	79.98	2007.06	1003.53	3358.95	1681.97		0.00	0.00	0.054
5.00	-12.08	-0.90	0.00	-75.46	0.00	75.46	1986.27	993.14	3257.79	1631.31		0.01	-0.02	0.052
10.00	-11.53	-0.89	0.00	-70.97	0.00	70.97	1964.72	982.36	3156.78	1580.73		0.03	-0.03	0.051
15.00	-11.00	-0.88	0.00	-66.52	0.00	66.52	1942.39	971.20	3055.99	1530.27		0.08	-0.05	0.049
20.00	-10.48	-0.87	0.00	-62.10	0.00	62.10	1919.30	959.65	2955.51	1479.95		0.14	-0.07	0.047
25.00	-9.97	-0.86	0.00	-57.74	0.00	57.74	1895.43	947.71	2855.41	1429.83		0.22	-0.08	0.046
30.00	-9.47	-0.85	0.00	-53.43	0.00	53.43	1870.79	935.39	2755.77	1379.93		0.31	-0.10	0.044
35.00	-8.97	-0.84	0.00	-49.17	0.00	49.17	1845.37	922.69	2656.67	1330.31		0.42	-0.11	0.042
40.00	-8.49	-0.83	0.00	-44.97	0.00	44.97	1819.19	909.60	2558.18	1280.99		0.55	-0.13	0.040
45.00	-8.02	-0.82	0.00	-40.82	0.00	40.82	1792.24	896.12	2460.38	1232.02		0.69	-0.14	0.038
50.00	-7.56	-0.82	0.00	-36.71	0.00	36.71	1764.51	882.25	2363.35	1183.43		0.85	-0.16	0.035
53.25	-7.00	-0.81	0.00	-34.06	0.00	34.06	1763.65	881.83	2360.41	1181.96		0.96	-0.17	0.033
55.00	-6.84	-0.81	0.00	-32.64	0.00	32.64	1753.76	876.88	2326.65	1165.06		1.03	-0.17	0.032
60.00	-6.39	-0.81	0.00	-28.60	0.00	28.60	1724.97	862.48	2230.81	1117.06		1.21	-0.19	0.029
65.00	-5.95	-0.81	0.00	-24.55	0.00	24.55	1695.40	847.70	2135.92	1069.55		1.42	-0.20	0.026
70.00	-5.52	-0.81	0.00	-20.50	0.00	20.50	1665.07	832.53	2042.06	1022.55		1.63	-0.21	0.023
75.00	-5.10	-0.81	0.00	-16.46	0.00	16.46	1633.96	816.98	1949.30	976.10		1.86	-0.22	0.020
80.00	-4.69	-0.80	0.00	-12.43	0.00	12.43	1602.08	801.04	1857.73	930.25		2.09	-0.23	0.016
85.00	-4.29	-0.77	0.00	-8.45	0.00	8.45	1569.43	784.71	1767.43	885.03		2.33	-0.23	0.012
90.00	-3.90	-0.73	0.00	-4.59	0.00	4.59	1536.01	768.00	1678.46	840.48		2.58	-0.24	0.008
95.00	-3.52	-0.68	0.00	-0.92	0.00	0.92	1501.81	750.91	1590.91	796.64		2.83	-0.24	0.004
96.00	-0.25	-0.06	0.00	-0.24	0.00	0.24	1494.88	747.44	1573.57	787.96		2.88	-0.24	0.000
100.00	0.00	-0.06	0.00	0.00	0.00	0.00	1466.85	733.42	1504.85	753.54		3.08	-0.24	0.000

Wind Loading - Shaft

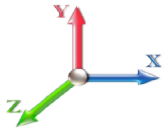
Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 19

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	1.03	9.018	9.92	210.80	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	1.03	9.018	9.92	206.64	0.650	0.000	5.00	17.138	11.14	110.5	0.0	543.5
10.00		1.00	1.03	9.018	9.92	202.48	0.650	0.000	5.00	16.797	10.92	108.3	0.0	532.6
15.00		1.00	1.03	9.020	9.92	198.35	0.650	0.000	5.00	16.455	10.70	106.1	0.0	521.7
20.00		1.00	1.08	9.483	10.43	199.11	0.650	0.000	5.00	16.114	10.47	109.3	0.0	510.8
25.00		1.00	1.13	9.858	10.84	198.66	0.650	0.000	5.00	15.772	10.25	111.2	0.0	499.9
30.00		1.00	1.16	10.175	11.19	197.42	0.650	0.000	5.00	15.431	10.03	112.3	0.0	489.0
35.00		1.00	1.19	10.452	11.50	195.60	0.650	0.000	5.00	15.089	9.81	112.8	0.0	478.1
40.00		1.00	1.22	10.697	11.77	193.36	0.650	0.000	5.00	14.748	9.59	112.8	0.0	467.2
45.00		1.00	1.25	10.919	12.01	190.77	0.650	0.000	5.00	14.407	9.36	112.5	0.0	456.3
50.00	Bot - Section 2	1.00	1.27	11.121	12.23	187.91	0.650	0.000	5.00	14.065	9.14	111.8	0.0	445.4
53.25	Top - Section 1	1.00	1.28	11.243	12.37	185.93	0.650	0.000	3.25	9.097	5.91	73.1	0.0	571.7
55.00		1.00	1.29	11.307	12.44	187.71	0.650	0.000	1.75	4.838	3.15	39.1	0.0	153.2
60.00		1.00	1.31	11.479	12.63	184.44	0.650	0.000	5.00	13.594	8.84	111.6	0.0	430.4
65.00		1.00	1.33	11.640	12.80	181.00	0.650	0.000	5.00	13.252	8.61	110.3	0.0	419.5
70.00		1.00	1.35	11.791	12.97	177.42	0.650	0.000	5.00	12.911	8.39	108.8	0.0	408.6
75.00		1.00	1.36	11.933	13.13	173.70	0.650	0.000	5.00	12.570	8.17	107.2	0.0	397.7
80.00		1.00	1.38	12.068	13.27	169.87	0.650	0.000	5.00	12.228	7.95	105.5	0.0	386.8
85.00		1.00	1.39	12.196	13.42	165.93	0.650	0.000	5.00	11.887	7.73	103.7	0.0	375.9
90.00		1.00	1.41	12.318	13.55	161.90	0.650	0.000	5.00	11.545	7.50	101.7	0.0	365.0
95.00		1.00	1.42	12.434	13.68	157.78	0.650	0.000	5.00	11.204	7.28	99.6	0.0	354.1
96.00	Appurtenance(s)	1.00	1.42	12.457	13.70	156.95	0.650	0.000	1.00	2.200	1.43	19.6	0.0	69.5
100.00		1.00	1.43	12.546	13.80	153.58	0.650	0.000	4.00	8.663	5.63	77.7	0.0	273.7
								Totals:	**100.00**			**2,165.4**		**9,150.5**

Discrete Appurtenance Forces

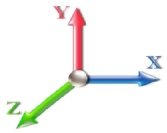
Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 19

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	96.00	Air 21 B2A/B4P	3	12.457	13.702	0.65	0.75	11.78	274.50	0.000	0.000	161.47	0.00	0.00
2	96.00	Air 21 B4A/B12P	3	12.457	13.702	0.67	0.75	23.11	378.00	0.000	0.000	316.65	0.00	0.00
3	96.00	APXVAARR24_43-U-NA2	3	12.457	13.702	0.52	0.75	31.88	384.00	0.000	0.000	436.81	0.00	0.00
4	96.00	Ericsson KRY 112 144/1	3	12.457	13.702	0.52	0.75	0.65	33.00	0.000	0.000	8.85	0.00	0.00
5	96.00	Ericsson Radio 4449	3	12.457	13.702	0.50	0.75	2.49	210.00	0.000	0.000	34.08	0.00	0.00
6	96.00	RMPQ-4096-HK	1	12.457	13.702	1.00	1.00	51.70	2280.00	0.000	0.000	708.42	0.00	0.00
							Totals:		**3,559.50**			**1,666.27**		

Total Applied Force Summary

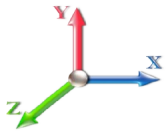
Structure:	CT13074-A-SBA		**Code:**	EIA/TIA-222-G	6/17/2019
Site Name:	Stonington		**Exposure:**	D	
Height:	100.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 25

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 19

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		110.50	612.26	0.00	0.00
10.00		108.30	601.37	0.00	0.00
15.00		106.12	590.48	0.00	0.00
20.00		109.25	579.58	0.00	0.00
25.00		111.17	568.69	0.00	0.00
30.00		112.27	557.79	0.00	0.00
35.00		112.77	546.90	0.00	0.00
40.00		112.80	536.00	0.00	0.00
45.00		112.47	525.11	0.00	0.00
50.00		111.84	514.21	0.00	0.00
53.25		73.13	616.46	0.00	0.00
55.00		39.12	177.28	0.00	0.00
60.00		111.57	499.17	0.00	0.00
65.00		110.29	488.28	0.00	0.00
70.00		108.85	477.39	0.00	0.00
75.00		107.25	466.49	0.00	0.00
80.00		105.51	455.60	0.00	0.00
85.00		103.65	444.70	0.00	0.00
90.00		101.68	433.81	0.00	0.00
95.00		99.61	422.91	0.00	0.00
96.00	(16) attachments	1685.87	3642.78	0.00	0.00
100.00		77.70	273.70	0.00	0.00
	Totals:	**3,831.71**	**14,030.96**	**0.00**	**0.00**

Calculated Forces

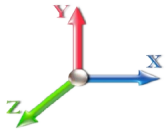
Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 26	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 19

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-14.03	-3.84	0.00	-277.31	0.00	277.31	2007.06	1003.53	3358.95	1681.97	0.00	0.000	0.000	0.172
5.00	-13.41	-3.74	0.00	-258.12	0.00	258.12	1986.27	993.14	3257.79	1631.31	0.03	-0.057	0.000	0.165
10.00	-12.81	-3.64	0.00	-239.42	0.00	239.42	1964.72	982.36	3156.78	1580.73	0.12	-0.112	0.000	0.158
15.00	-12.21	-3.55	0.00	-221.20	0.00	221.20	1942.39	971.20	3055.99	1530.27	0.27	-0.167	0.000	0.151
20.00	-11.63	-3.45	0.00	-203.46	0.00	203.46	1919.30	959.65	2955.51	1479.95	0.47	-0.221	0.000	0.144
25.00	-11.06	-3.34	0.00	-186.22	0.00	186.22	1895.43	947.71	2855.41	1429.83	0.73	-0.274	0.000	0.136
30.00	-10.50	-3.24	0.00	-169.50	0.00	169.50	1870.79	935.39	2755.77	1379.93	1.05	-0.325	0.000	0.128
35.00	-9.95	-3.13	0.00	-153.32	0.00	153.32	1845.37	922.69	2656.67	1330.31	1.41	-0.375	0.000	0.121
40.00	-9.41	-3.02	0.00	-137.67	0.00	137.67	1819.19	909.60	2558.18	1280.99	1.83	-0.423	0.000	0.113
45.00	-8.89	-2.91	0.00	-122.56	0.00	122.56	1792.24	896.12	2460.38	1232.02	2.30	-0.469	0.000	0.104
50.00	-8.37	-2.80	0.00	-108.00	0.00	108.00	1764.51	882.25	2363.35	1183.43	2.82	-0.513	0.000	0.096
53.25	-7.76	-2.72	0.00	-98.90	0.00	98.90	1763.65	881.83	2360.41	1181.96	3.17	-0.541	0.000	0.088
55.00	-7.58	-2.69	0.00	-94.13	0.00	94.13	1753.76	876.88	2326.65	1165.06	3.38	-0.555	0.000	0.085
60.00	-7.08	-2.58	0.00	-80.69	0.00	80.69	1724.97	862.48	2230.81	1117.06	3.98	-0.592	0.000	0.076
65.00	-6.59	-2.46	0.00	-67.81	0.00	67.81	1695.40	847.70	2135.92	1069.55	4.62	-0.626	0.000	0.067
70.00	-6.11	-2.35	0.00	-55.50	0.00	55.50	1665.07	832.53	2042.06	1022.55	5.29	-0.656	0.000	0.058
75.00	-5.65	-2.24	0.00	-43.73	0.00	43.73	1633.96	816.98	1949.30	976.10	5.99	-0.683	0.000	0.048
80.00	-5.19	-2.13	0.00	-32.52	0.00	32.52	1602.08	801.04	1857.73	930.25	6.72	-0.705	0.000	0.038
85.00	-4.75	-2.03	0.00	-21.86	0.00	21.86	1569.43	784.71	1767.43	885.03	7.47	-0.722	0.000	0.028
90.00	-4.32	-1.92	0.00	-11.73	0.00	11.73	1536.01	768.00	1678.46	840.48	8.23	-0.733	0.000	0.017
95.00	-3.89	-1.81	0.00	-2.14	0.00	2.14	1501.81	750.91	1590.91	796.64	9.00	-0.739	0.000	0.005
96.00	-0.27	-0.08	0.00	-0.32	0.00	0.32	1494.88	747.44	1573.57	787.96	9.15	-0.739	0.000	0.001
100.00	0.00	-0.08	0.00	0.00	0.00	0.00	1466.85	733.42	1504.85	753.54	9.77	-0.739	0.000	0.000

Final Analysis Summary

Structure:	CT13074-A-SBA	**Code:**	EIA/TIA-222-G	6/17/2019	
Site Name:	Stonington	**Exposure:**	D		
Height:	100.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 108 mph Wind	19.9	0.00	16.78	0.00	0.00	1442.59
0.9D + 1.6W 108 mph Wind	19.9	0.00	12.58	0.00	0.00	1433.54
1.2D + 1.0Di + 1.0Wi 50 mph Wind	4.6	0.00	27.24	0.00	0.00	324.82
1.2D + 1.0E	0.9	0.00	16.84	0.00	0.00	80.52
0.9D + 1.0E	0.9	0.00	12.63	0.00	0.00	79.98
1.0D + 1.0W 60 mph Wind	3.8	0.00	14.03	0.00	0.00	277.31

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 108 mph Wind	-16.78	-19.91	0.00	-1442.5	0.00	-1442.5	2007.06	1003.5	3358.95	1681.97	0.00	0.866
0.9D + 1.6W 108 mph Wind	-12.58	-19.90	0.00	-1433.5	0.00	-1433.5	2007.06	1003.5	3358.95	1681.97	0.00	0.859
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-27.24	-4.65	0.00	-324.82	0.00	-324.82	2007.06	1003.5	3358.95	1681.97	0.00	0.207
1.2D + 1.0E	-16.84	-0.90	0.00	-80.52	0.00	-80.52	2007.06	1003.5	3358.95	1681.97	0.00	0.056
0.9D + 1.0E	-12.63	-0.90	0.00	-79.98	0.00	-79.98	2007.06	1003.5	3358.95	1681.97	0.00	0.054
1.0D + 1.0W 60 mph Wind	-14.03	-3.84	0.00	-277.31	0.00	-277.31	2007.06	1003.5	3358.95	1681.97	0.00	0.172

Base Plate Summary

Structure:	CT13074-A-SB		**Code:**	EIA/TIA-222-G	6/17/2019
Site Name:	Stonington		**Exposure:**	D	
Height:	100.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 28

Tower Engineering Solutions

Reactions		Base Plate		Anchor Bolts	
Original Design		**Yield (ksi):**	60.00	**Bolt Circle:**	46.75
Moment (kip-ft):	1150.00	**Width (in):**	44.75	**Number Bolts:**	8.00
Axial (kip):	22.40	**Style:**	Clipped	**Bolt Type:**	2.25" 18J
Shear (kip):	13.40	**Polygon Sides:**	0.00	**Bolt Diameter (in):**	2.25
Analysis		**Clip Length (in):**	7.00	**Yield (ksi):**	75.00
Moment (kip-ft):	1442.59	**Effective Len (in):**	12.41	**Ultimate (ksi):**	100.00
Axial (kip):	27.24	**Moment (kip-in):**	550.57	**Arrangement:**	Clustered
Shear (kip):	19.91	**Allow Stress (ksi):**	81.00	**Cluster Dist (in):**	6.00
		Applied Stress (ksi):	0.00	**Start Angle (deg):**	45.00
Moment Design %:	125.44	**Stress Ratio:**	0.65	Compression	
				Force (kip):	188.55
				Allowable (kip):	260.00
				Ratio:	0.74
				Tension	
				Force (kip):	181.74
				Allowable (kip):	260.00
				Ratio:	0.72

Monopole Mat Foundation Design

				Date
				6/17/2019
	Customer Name:	T-Mobile	**EIA/TIA Standard:**	EIA-222-G
	Site Name:		**Structure Height (Ft.):**	100
	Site Number:	CT13074-A-SBA	**Engineer Name:**	T. Alajaj
	Engr. Number:	78645	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

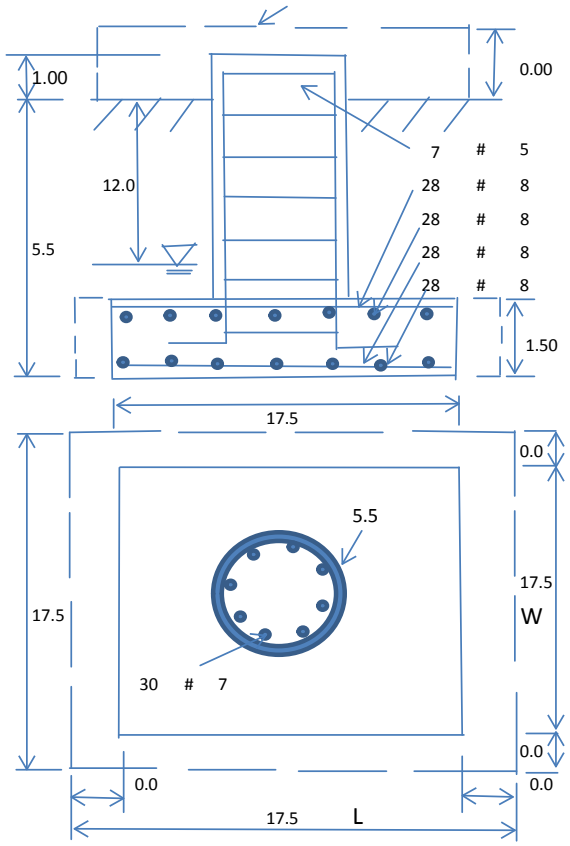
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	27.2	Shear Force (Kips):	19.9
Uplift Force (Kips):	0.0	Moment (Kips-ft):	1442.6
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	5.5	Depth of Base BG (ft.):	5.5
Pier Height A. G. (ft.):	1.00	Thickness of Pad (ft):	1.50
Length of Pad (ft.):	17.5	Width of Pad (ft.):	17.5
Final Length of pad (ft)	17.5	Final width of pad (ft):	17.5



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	7	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	30	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	28	Qty. of Rebar in Pad (W):	28	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	28	Qty. of Rebar in Pad (W):	28	
Apply 1.35 factor for e/w Per G:	1.35			

Soil Design Parameters:

Soil Unit Weight (pcf):	115.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	12.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	6000	Ultimate Skin Friction:	425	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	Yes		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:			1.00	

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

Total Dry Soil Volume (cu. Ft.):	1129.97	Total Dry Soil Weight (Kips):	129.95
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	129.95	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	578.17	Total Dry Concrete Weight (Kips):	86.72
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	86.72	Total Vertical Load on Base (Kips):	243.87

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	2877	<	Allowable Factored Soil Bearing (psf):	4500	0.64	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	1944.3	>	Design Factored Momont (kips-ft):	1517	0.78	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.28	OK!				

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75			
Strength reduction factor (Axial compresion):	0.65	Wind Load Factor on Concrete Design:	1.00			
					Load/ Capacity Ratio	
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	0.60		Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	2410.8	>	Design Factored Moment (Mu, Kips-F	1542.1	0.64	OK!
Calculated Shear Capacity (Kips):	488.2	>	Design Factored Shear (Kips):	19.9	0.04	OK!
Calculated Tension Capacity (Tn, Kips):	972.0	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	6016.8	>	Design Factored Axial Load (Pu Kips):	27.2	0.00	OK!
Moment & Axial Strength Combination:	0.64	OK!	Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.005		Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Direction, Kips):	288.9	>	One-Way Factored Shear (L-D. Kips):	133.4	0.46	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	288.9	>	One-Way Factored Shear (W-D., Kips)	133.4	0.46	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	277.8	>	One-Way Factored Shear (C-C, Kips):	138.8	0.50	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0073	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0073		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	1350.8	>	Moment at Bottom (L-Dir. K-Ft):	439.9	0.33	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	1350.8	>	Moment at Bottom (W-Dir. K-Ft):	439.9	0.33	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	1873.0	>	Moment at Bottom (C-C Dir. K-Ft):	622.2	0.33	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0073	OK!	Upper Steel Reinf. Ratio (W-Dir.):	0.0073		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	1350.8	>	Moment at the top (L-Dir K-Ft):	202.1	0.15	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	1350.8	>	Moment at the top (W-Dir K-Ft):	202.1	0.15	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	1873.0	>	Moment at the top (C-C Dir. K-Ft):	190.6	0.10	OK!
(3).Check Punching Shear Capacity due to Moment in the Pier:						
Moment transferred by punching shear:	577.0	k-ft.	Max. factored shear stress v_{u_CD}:		2.4	Psi
Max. factored shear stress v_{u_AB}:	15.0	Psi	Factored shear Strength ϕv_n:		189.7	Psi
Max. factored shear stress v_u:	15.0	Psi	Check Usage of Punching Shear Capacity:		0.08	OK!

EXHIBIT 8

Transcom Engineering, Inc.

Wireless Network Design and Deployment

Radio Frequency Emissions Analysis Report

T-MOBILE Existing Facility

Site ID: CTNL071B

NL071/OptasiteWilcoxFT
107 Wilcox Rd
Stonington, CT 06378

May 29, 2019

Transcom Engineering Project Number: 737001-0069

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**5.59 %**

May 29, 2019

T-MOBILE
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 6009

Emissions Analysis for Site: **CTNL071B – NL071/OptasiteWilcoxFT**

Transcom Engineering, Inc ("Transcom") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **107 Wilcox Rd, Stonington, CT**, for the purpose of determining whether the emissions from the Proposed T-MOBILE Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 & 700 MHz bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report 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 performed for the proposed upgrades to the T-MOBILE antenna facility located at **107 Wilcox Rd, Stonington, CT**, 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 manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

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

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

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling for transmission in the 600, 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, 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.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Ericsson AIR21 B2A/B4P	96
A	2	Ericsson AIR21 B4A/B12P	96
A	3	RFS APXVAARR24_43-U-NA20	96
B	1	Ericsson AIR21 B2A/B4P	96
B	2	Ericsson AIR21 B4A/B12P	96
B	3	RFS APXVAARR24_43-U-NA20	96
C	1	Ericsson AIR21 B2A/B4P	96
C	2	Ericsson AIR21 B4A/B12P	96
C	3	RFS APXVAARR24_43-U-NA20	96

Table 2: Antenna Data

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

RESULTS

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

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Ericsson AIR21 B2A/B4P	1900 MHz (PCS)	15.9	2	55	2,139.75	0.95
Antenna A2	Ericsson AIR21 B4A/B12P	2100 MHz (AWS)	15.9	2	120	4,668.54	2.07
Antenna A3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	2.57
						Sector A Composite MPE%	**5.59**
Antenna B1	Ericsson AIR21 B2A/B4P	1900 MHz (PCS)	15.9	2	55	2,139.75	0.95
Antenna B2	Ericsson AIR21 B4A/B12P	2100 MHz (AWS)	15.9	2	120	4,668.54	2.07
Antenna B3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	2.57
						Sector B Composite MPE%	**5.59**
Antenna C1	Ericsson AIR21 B2A/B4P	1900 MHz (PCS)	15.9	2	55	2,139.75	0.95
Antenna C2	Ericsson AIR21 B4A/B12P	2100 MHz (AWS)	15.9	2	120	4,668.54	2.07
Antenna C3	RFS APXVAARR24_43-U-NA20	600 MHz / 700 MHz	12.95 / 13.35	4	120	2,443.03	2.57
						Sector C Composite MPE%	**5.59**

Table 3: T-MOBILE Emissions Levels

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

Site Composite MPE%	
Carrier	**MPE%**
T-MOBILE – Max Per Sector Value	**5.59 %**
No Additional Carriers per CSC Active MPE Database	N/A
Site Total MPE %:	**5.59 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	5.59 %
T-MOBILE Sector B Total:	5.59 %
T-MOBILE Sector C Total:	5.59 %
Site Total:	5.59 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated T-MOBILE sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 1900 MHz (PCS) UMTS	1	1,556.18	96	6.91	1900 MHz (PCS)	1000	0.69%
T-Mobile 1900 MHz (PCS) GSM	1	583.57	96	2.59	1900 MHz (PCS)	1000	0.26%
T-Mobile 2100 MHz (AWS) LTE	2	2,334.27	96	20.72	2100 MHz (AWS)	1000	2.07%
T-Mobile 600 MHz LTE / 5G NR	2	788.97	96	7.00	600 MHz	400	1.75%
T-Mobile 700 MHz LTE	2	432.54	96	3.84	700 MHz	467	0.82%
						Total:	**5.59%**

Table 6: T-MOBILE Maximum Sector MPE Power Values

Summary

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

The anticipated maximum composite contributions from the T-MOBILE facility as well as the site composite emissions 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:	5.59 %
Sector B:	5.59 %
Sector C:	5.59 %
T-MOBILE Maximum Total (per sector):	5.59 %
Site Total:	5.59 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **5.59 %** 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.

Scott Heffernan
RF Engineering Director
Transcom Engineering, Inc
PO Box 1048
Sterling, MA 01564