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

May 3, 2021

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

RE: Notice of Exempt Modification
160 West Street, Cromwell, CT 06416
Latitude: 41.606000
Longitude: -72.670388
T-Mobile Site #: CTHA521A_Anchor

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 75-foot level of the existing 76-foot Monopole Tower at 160 West St., Cromwell, CT. The 76-foot tower is owned by SBA Towers IV, LLC. The property is owned by 160 West Street, LLC. T-Mobile now intends to remove six (6) antennas and replace with six (6) new 600/700/1900/2100MHz antennas and install three (3) new 2500MHz antennas, for a total of nine (9) antennas.

The new antennas would support 5G services and be installed at the 75-foot level of the tower.

Planned Modifications:

TOWER

Remove:
- N/A

Remove and Replace:
- (3) RFS AIR21 B2P/B4P antenna (remove) – (3) RFS APXVAALL24-43-U-NA20 600/700/1900/2100MHz antenna (replace)
- (3) Ericsson Air 21 B4A/B2P antennas (remove) – (3) AIR32 KRD901146-1_B66A_B2A 1900/2100MHz antennas (replace)

Install New:
- (3) Ericsson AIR6449 B41 2500MHz antenna
- (3) Commscope SDX1926Q-43 Diplexers
- (3) Ericsson 4449 B71 + B85 RRUs
- (3) Ericsson 4415 B25 RRUs

- New standoff face, new support rail with end connection (P/N C10856401DP)
- (3) Ericsson 4415 B66A RRUs
- (3) 1-5/8" Fiber

Existing Equipment to Remain:

- (3) T-Arms
- (6) Andrew ATM200-A20 RETs
- (6) 7/8" Coax
- (1) 1-5/8" Fiber
- (6) 3/8" RET Line

Entitlements:

- (6) 7/8" Coax

GROUND

Install New:

- Radio Equipment within existing RBS6201 Equipment cabinet
- (1) Ericsson 6160 Equipment cabinet
- (1) Ericsson B160 Battery cabinet
- (4) 2" conduit

Remain:

- (1) Nextend 2416 Fiber cabinet
- (1) PPC mounted to existing H-Frame
- (1) RBS 6201 Equipment cabinet
- (1) existing Battery cabinet
- 10' x 16' concrete pad
- GPS antenna mounted to existing ice bridge

This facility was approved by Council on November 29, 2007 under Docket #338. Approval was given for a tower of a simulated Pine Tree design no taller than 80' above ground level. The certificate holder was to provide a recalculated RF report when circumstances in operation caused a change in power density. Upon establishment of any new State or Federal radio frequency standards applicable to frequencies of the facility, the facility was to be brought into compliance with such standards. Certificate Holder was to permit public and private entities to share space for fair consideration and to provide reasonable space on tower for no compensation for any Town of Cromwell public safety services provided such use can be accommodated and is compatible with the structural integrity of the tower. If the facility ceased to provide wireless service for a period of one year the Certificate Holder was to dismantle

the tower and remove all associated equipment or reapply for any continued or new use to Council. And the Certificate Holder was to remove any non-functioning equipment within 60 days. There were no further post construction stipulations set. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16.50j-72(b)(2). In accordance with R.C.S.A. § 16.50j-73, a copy of this letter is being sent to the Town of Cromwell's Mayor, Enzo Faienza, and Director of Planning and Development, Stuart Popper, as well as to the property owner. (Separate notice is not being sent to tower owner, as it belongs to SBA.)

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

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

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

Sincerely,

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

Attachments

cc: The Honorable Enzo Faienza / with attachments
Town of Cromwell, Town Hall, 41 West Street, Cromwell, CT 06416
Anthony J. Salvatore, Town Manager / with attachments
Town of Cromwell, Town Hall, 41 West Street, Cromwell, CT 06416
Stuart B. Popper, Director of Planning and Development / with attachments
Town of Cromwell, Town Hall, 41 West Street, Cromwell, CT 06416
160 West Street LLC / with attachments
213 Court Street, Middletown, CT 06457

EXHIBIT LIST

Exhibit 1	Check Copy	
Exhibit 2	Notification Receipts	
Exhibit 3	Property Card	X
Exhibit 4	Property Map	X
Exhibit 5	Original Zoning Approval	CSC 11/29/2007
Exhibit 6	Construction Drawings	Chappell Engineering 4/15/21
Exhibit 7	Structural Analysis	TES 11/30/20
Exhibit 8	Mount Analysis	TES 4/30/21
Exhibit 9	EME Report	EBI Consulting 12/31/20

EXHIBIT 1

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

EXHIBIT 2

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

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

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EXHIBIT 3

TOWN OF CROMWELL

Printed By: Shawna 04/06/2018 3:41:00PM

Parcel ID: **00033900** ***Location:*** 160 WEST STREET ***Map-Lot*** 31-14A ***Last Revaluation - October 1, 2017***

Current Owner
160 WEST STREET LLC

Percent
100

213 COURT STREET
MIDDLETOWN CT 06457

Previous Owner(s)
160 WEST STREET LIMITED PARTNERSHIP

Current Value Information

Inc (appr)

Use Code	Land Value	PA 490 Value	Building Value	Outbuildings	Total Value	Total Assessed
201	241,800	0	2,122,400	110,000	2,474,200	1,731,940
TOTAL	**241,800**	**0**	**2,122,400**	**110,000**	**2,474,200**	**1,731,940**

Previous Value Information

Tax Yr	Land Value	Bldg Value	Outbuildings	Total Value	Total Assessmen
2018	241,800	2,122,400	110,000	2,474,200	1,731,940
2017	241,800	2,122,400	110,000	2,474,200	1,731,940
2016	356,290	1,635,220	43,320	2,034,830	1,424,390
2015	356,290	1,635,220	43,320	2,034,830	1,424,390
2014	356,290	1,635,220	43,320	2,034,830	1,424,390
2013	356,290	1,635,220	43,320	2,034,830	1,424,390

Sales Information

Grantee	Vol-Page	Type	SaleDate	SalePrice	Sale Verif	GeneralNotes
160 WEST STREET LLC	896-268		01/27/2003	0	Other	
160 WEST STREET LIMITED F	546-322		12/29/1993	0	Other	

General Notes

MEDICAL OFFICE;

Bldg #1 Middlesex Home Care + Supplies INC, Family Eye Care, Feet First

Bldg # 2 Wildwood Property management, Great Blue Research, Beacon Services of CT

Activity Information

Date	Results	Visited By
12/27/2017	Informal Review No Change	John Valente
09/11/2017	Change - Value Change Company	John Valente
05/18/2017	No Change - Field Review	Dave Stannard
09/11/2014	Permit- Miscellaneous	AO
09/11/2014	Permit- Drive By	MM
09/09/2014	Permit- Miscellaneous	AO
09/11/2012	Permit - Int & Ext Inspect	
09/11/2012	Permit- Miscellaneous	AO
09/11/2012	Permit- Miscellaneous	AO
09/11/2012	Permit- Miscellaneous	AO

Building Permit Information

Date	Permit #	Description	Amount	% Comp	Visit Date	CO Date	GeneralNotes
08/15/2014	22787	Electric	900	100	09/11/2014		Reception area
08/13/2014	22776	Other	4,800	100	09/09/2014	09/09/2014	Emrgncy repair to drywall
12/12/2011	20377	Other	3,000	100	09/11/2012	09/11/2012	Run gas line to new gener
11/16/2011	20315	Other	10,000	100	09/11/2012	09/11/2012	New cell site for Metro P
09/28/2011	20183	Propane Tank	2,850	100	09/11/2012	09/11/2012	Undergrounf gas line
09/19/2011	20156		35,000	100	09/11/2012	01/12/2012	Inst of cell site antenna
03/21/2006	15920	Remodel	33,000	100	03/28/2006		off & bth reno
03/21/2006	15921	Electric	0	100	03/28/2006		wire new area,rfd exstg m

Land Data

Use	Description	Units	Unit Type	Neigh	Land Adjustments	Special Land Calc	Appraised Value	PA 490 Asmt	Neigh Order	Notes
201	Commercial	43,560	SF	CJ			178,500	0	1200	
201	Commercial	2.530	AC	CJ			63,300	0	1200	

Total Area: 3.53 **PA 490 Use Asmt: 0** **Total Appraised: 241,800** **Assessed Value: 169,260**

Property Factors

Census 5702
Flood:
Topo:
Street: Paved
Dev. Map
Dev. Map

Zoning Data

Desc.	%
LB	100.00

Utilities

2 Public Water
3 Public Sewer

BAA

17K

ParcelID: 00033900 **Location:** 160 WEST STREET **Printed By:** Shawna 04/06/2018 3:41:00PM

Bldg Seq 1 **Of** 2

Exterior Information

Building Type:	Office Bldg
Story Ht:	1 Story
Living Units:	0
Foundation:	
Prim. Ext. Wall:	Brick/Masonr
Sec. Ext. Wall:	
Roof Type:	Flat
Roof Cover:	Asphalt Shin
Avg. Wall Ht:	18.00
Color:	

Interior Information

Prime Wall:	Drywall	
Sec. Wall:		
Floor Type:	Carpet	50%
Sec. Floor:	Vinyl	50 %
Heat Fuel:	Gas	
Heat Type:	Forced Air	
Sec. Ht Type:		
% A/C:	100	
% Sprinkled:	0	
Bsmt. Gar:	0	
Kitchens:	0	Add. Kit: 0
Fireplaces:	0	Gas: 0
Int. Condition:	Typical	

Room Count

Total Rooms:	
Bedrooms:	

Bath Features

Full Baths:	0
Addl. Full Baths:	0
Half Baths:	0
Addl. Half Baths:	0
Full Bths Below:	0
Half Bths Below:	0
Other Fixtures:	0
Total Baths:	0 0

Condo Information

Name:	
Style:	
Location:	
Tot Units:	

General Information

Year Blt:	1985
Grade:	C
Remodeled Yr:	
Rem. Kitchen Yr:	
Rem. Bath Yr:	

Depreciation %

Phys Cond	Average	24.00
Func		0.00
Econ		5.00
Spec		0.00
OV		0.00
Total %Dep:		**27.80**

Calculation

Basic $/SQ	120.00
Replacement Cost	1,342,305
Depreciation	373,161
Depreciated Value	969,144
Final Total (Rounded)	**969,100**

Extra Features / Yard Items (1st 10 Lines Displayed)

Code	Description	Qty	Size	Cond.	Year	Unit Price	Dep%	UndepValue	Appraised Value	Assessment
LT1	Light 1	1	6	AV	2002	1,000.00	13	7,200	6,300	4,410
PAV1	Paving Asph.	1	38,400	AV	1985	3.00	25	138,240	103,700	72,590

Total Sp. Features: **Total Yard Items** **110,000** **Total Appraised:** **110,000** **Total Assessed Value** **77,000**

Sub Area Detail

Code	Desc.	Living	Gross Area
FFL	First Floor	13,500	13,500
Total		**13,500**	**13,500**

ParcelID: 00033900 **Location:** 160 WEST STREET **Printed By:** Shawna 04/06/2018 3:41:00PM

Bldg Seq 2 **Of** 2

Exterior Information

Building Type:	Office Bldg
Story Ht:	1 Story
Living Units:	0
Foundation:	
Prim. Ext. Wall:	Brick/Masonr
Sec. Ext. Wall:	
Roof Type:	Flat
Roof Cover:	Asphalt Shin
Avg. Wall Ht:	18.00
Color:	

Interior Information

Prime Wall:	Drywall	
Sec. Wall:		
Floor Type:	Carpet	50%
Sec. Floor:	Vinyl	50 %
Heat Fuel:	Gas	
Heat Type:	Forced Air	
Sec. Ht Type:		
% A/C:	100	
% Sprinkled:	0	
Bsmt. Gar:	0	
Kitchens:	0	Add. Kit: 0
Fireplaces:	0	Gas: 0
Int. Condition:	Typical	

Room Count

Total Rooms:	
Bedrooms:	

Bath Features

Full Baths:	0
Addl. Full Baths:	0
Half Baths:	0
Addl. Half Baths:	0
Full Bths Below:	0
Half Bths Below:	0
Other Fixtures:	0
Total Baths:	0 0

Condo Information

Name:	
Style:	
Location:	
Tot Units:	

General Information

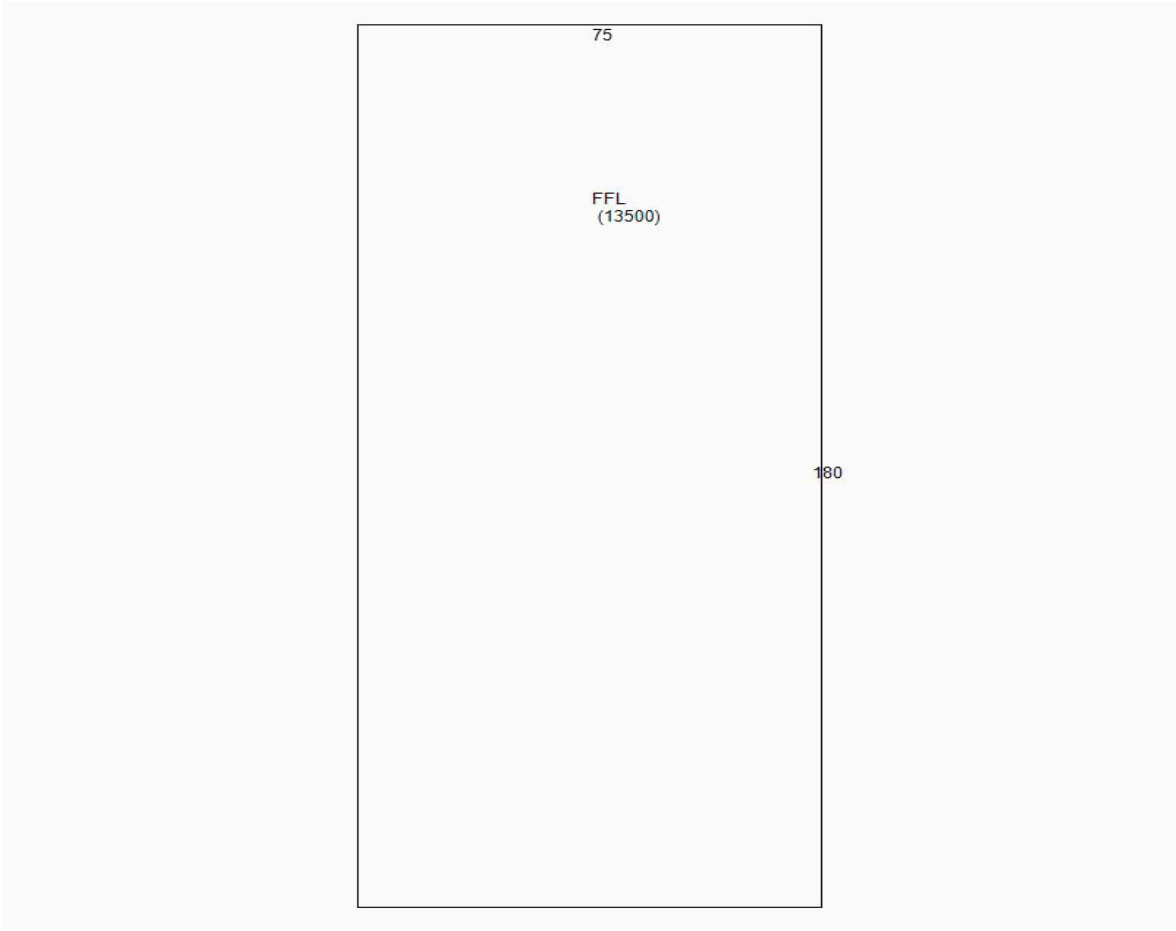
Year Blt:	1985
Grade:	C
Remodeled Yr:	
Rem. Kitchen Yr:	
Rem. Bath Yr:	

Depreciation %

Phys Cond	Average	24.00
Func		0.00
Econ		5.00
Spec		0.00
OV		0.00
Total %Dep:		**27.80**

Calculation

Basic $/SQ	120.00
Replacement Cost	1,342,305
Depreciation	373,161
Depreciated Value	969,144
Final Total (Rounded)	**969,100**



Extra Features / Yard Items (1st 10 Lines Displayed)

Code	Description	Qty	Size	Cond.	Year	Unit Price	Dep%	UndepValue	Appraised Value	Assessment

Total Sp. Features: **Total Yard Items** **Total Appraised:** **Total Assessed Value**

Sub Area Detail

Code	Desc.	Living	Gross Area
FFL	First Floor	13,500	13,500
Total		**13,500**	**13,500**

EXHIBIT 4

Google Maps 160 West St

Imagery ©2021 Maxar Technologies, Map data ©2021 20 ft

Property Information

Property ID	00033900
Location	160 WEST STREET
Owner	160 WEST STREET LLC

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Cromwell, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 7/1/2018
Data updated 11/18/2018

EXHIBIT 5

DOCKET NO. 338 – Sprint Nextel Corporation application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility located at 160 West Street, Cromwell, Connecticut.	}	Connecticut Siting Council November 29, 2007

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Sprint Nextel Corporation, hereinafter referred to as the Certificate Holder, for the construction, maintenance and operation of a wireless telecommunications facility at 160 West Street in Cromwell, Connecticut.

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

1. The tower shall be designed and constructed as a simulated pine tree no taller than 80 feet above ground level, sufficient to accommodate the antennas of Sprint Nextel Corporation, Cellco Partnership d/b/a Verizon Wireless and other entities. Such design shall attempt to mimic the existing pine trees adjacent to the site to the greatest extent possible.

2. The tower shall be relocated 20 to 40 feet to the south.

3. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Cromwell for comment, and all parties and intervenors, and interested parties, as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
   a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping; and
   b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
   c) Photo-simulations of the selected tree tower design from the site property and adjacent residential neighborhood.

4. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

5. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

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

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

8. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline.

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

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

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

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

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

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

The parties and intervenors to this proceeding are:

Applicant
Sprint Nextel Corporation

Its Representative
Thomas J. Regan, Esq.
Brown Rudnick Berlack Israels LLP
CityPlace I, 185 Asylum Street
Hartford, CT 06103

Intervenor
Cellco Partnership d/b/a
Verizon Wireless

Its Representative
Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

CERTIFICATION

The undersigned members of the Connecticut Siting Council (Council) hereby certify that they have heard this case, or read the record thereof, in **DOCKET NO. 338** - Sprint Nextel Corporation application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility located at 160 West Street, Cromwell, Connecticut, and voted as follows to approve the proposed telecommunications facility:

Council Members	Vote Cast
Daniel F. Caruso, Chairman	Yes
Colin C. Tait, Vice Chairman	Absent
Commissioner Donald W. Downes Designee: Gerald J. Heffernan	Yes
Commissioner Gina McCarthy Designee: Brian J. Emerick	Yes
Philip T. Ashton	Yes
Daniel P. Lynch, Jr.	Yes
James J. Murphy, Jr.	Yes
Dr. Barbara Currier Bell	Yes
Edward S. Wilensky	Yes

Dated at New Britain, Connecticut, November 29, 2007

STATE OF CONNECTICUT)

ss. New Britain, Connecticut :

COUNTY OF HARTFORD)

I hereby certify that the foregoing is a true and correct copy of the Findings of Fact, Opinion, and Decision and Order issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:

S. Derek Phelps
Executive Director
Connecticut Siting Council

I certify that a copy of the Findings of Fact, Opinion, and Decision and Order in Docket No. 338 has been forwarded by Certified First Class Return Receipt Requested mail on December 4, 2007, to all parties and intervenors of record as listed on the attached service list, dated September 21, 2007.

ATTEST:

Lisa A. Fontaine
Fiscal Administrative Officer
Connecticut Siting Council

EXHIBIT 6

SBA CROMWELL MONOPINE

160 WEST STREET
CROMWELL, CT 06416
MIDDLESEX COUNTY

SITE NO.: CTHA521A

RF DESIGN GUIDELINE: 67D5A997DB MUAC

APPROVALS

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

T-MOBILE TECHNICIAN SITE SAFETY NOTES

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

SITE NOTES

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

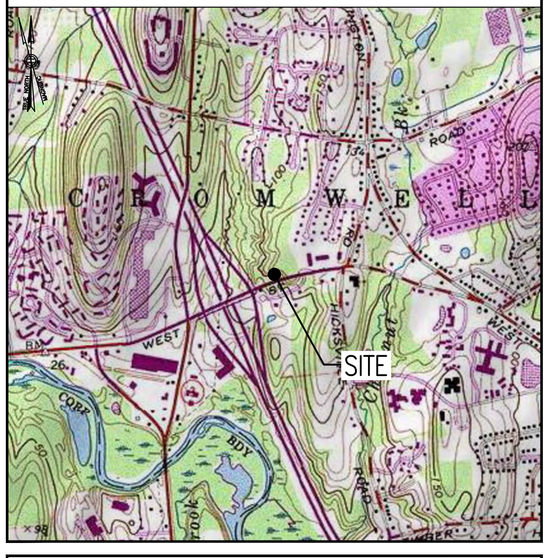
GENERAL NOTES

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

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

VICINITY MAP

SCALE: 1" = 1000'-0"



DIRECTIONS

TURN LEFT ONTO S WASHINGTON ST. TURN RIGHT ONTO MA-123 E. TURN LEFT TO MERGE ONTO I-495 NORTH TOWARD MANSFIELD/MARLBORO. MERGE ONTO I-495 NORTH. TAKE EXIT 22 TO MERGE ONTO I-90 WEST TOWARD ALBANY. TAKE EXIT 9 FOR I-84 TOWARD HARTFORD CT/NEW YORK CITY. CONTINUE ONTO I-84. TAKE EXIT 57 ON THE LEFT FOR CT-15 SOUTH TOWARD I-91 SOUTH/CHARTER OAK BRIDGE/N.Y. CITY. CONTINUE ONTO CT-15 SOUTH. TAKE EXIT 86 TO MERGE ONTO I-91 SOUTH TOWARD NEW HAVEN/NEW YORK CITY. TAKE EXIT 22S ON THE LEFT TO MERGE ONTO CT-9 SOUTH TOWARD MIDDLETOWN/OLD SAYBROOK. TAKE EXIT 19 FOR CT-372/WEST STREET TOWARD CROMWELL. TURN LEFT ONTO CT-372 EAST. SITE WILL BE ON THE LEFT.

SHEET INDEX

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DO NOT SCALE DRAWINGS

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

PROJECT SUMMARY

SITE NUMBER:	CTHA521A
SBA SITE NUMBER:	CT46122-A
SBA SITE NAME:	MIDDLETOWN NORTH
SITE ADDRESS:	160 WEST STREET CROMWELL, CT 06416
PROPERTY OWNER:	160 WEST STREET LLC 160 WEST STREET CROMWELL, CT 06416
TOWER OWNER:	SBA TOWERS IV, LLC 8501 CONGRESS AVENUE BOCA RATON, FL 33487 PHONE: 561-226-9523
COUNTY:	MIDDLESEX COUNTY
ZONING DISTRICT:	BP, BUSINESS PARK
STRUCTURE TYPE:	MONOPINE
STRUCTURE HEIGHT:	76'
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.41.606000° N.41°36'21.60" LONGITUDE W.72.670400° W.72°40'13.44"

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

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

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

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

STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED
PROFESSIONAL CIVIL ENGINEER
4/13/2021

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	04/15/21	CONSTRUCTION REVISED	CMC
1	12/22/20	ISSUED FOR CONSTRUCTION	CMC
0	11/22/20	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CTHA521A

SITE ADDRESS:
160 WEST STREET
CROMWELL, CT 06416

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

1815.110

GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SITE WORK GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

CONCRETE AND REINFORCING STEEL NOTES:

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

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

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

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

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

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

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

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

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

STRUCTURAL STEEL NOTES:

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

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

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

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

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

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

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

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

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

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

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

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

COMPACTION EQUIPMENT:

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

CONSTRUCTION NOTES:

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

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

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

ELECTRICAL INSTALLATION NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25937
LICENSED
PROFESSIONAL CIVIL ENGINEER
4/15/2021

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

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SITE NUMBER:
CTHA521A

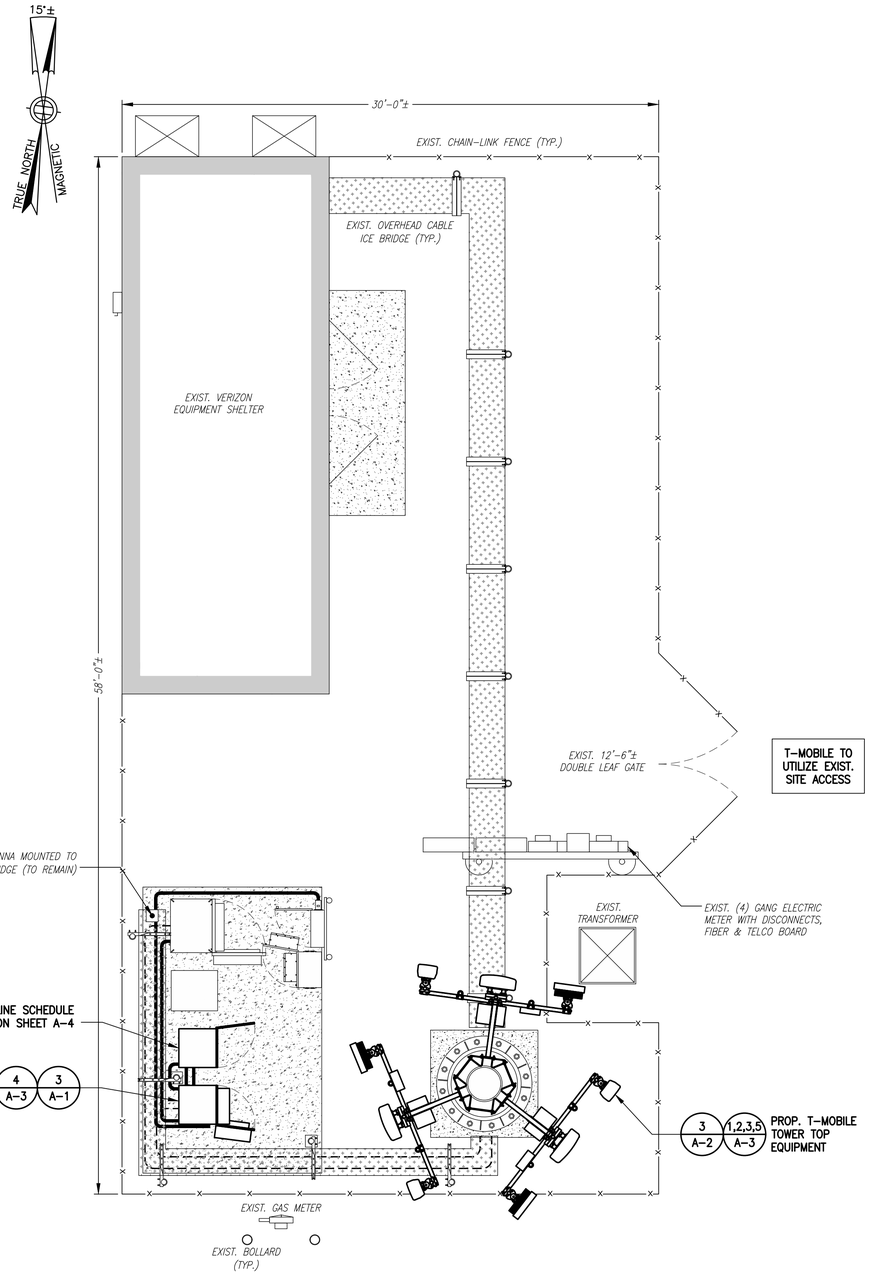
SITE ADDRESS:
160 WEST STREET
CROMWELL, CT 06416

SHEET TITLE
GENERAL NOTES

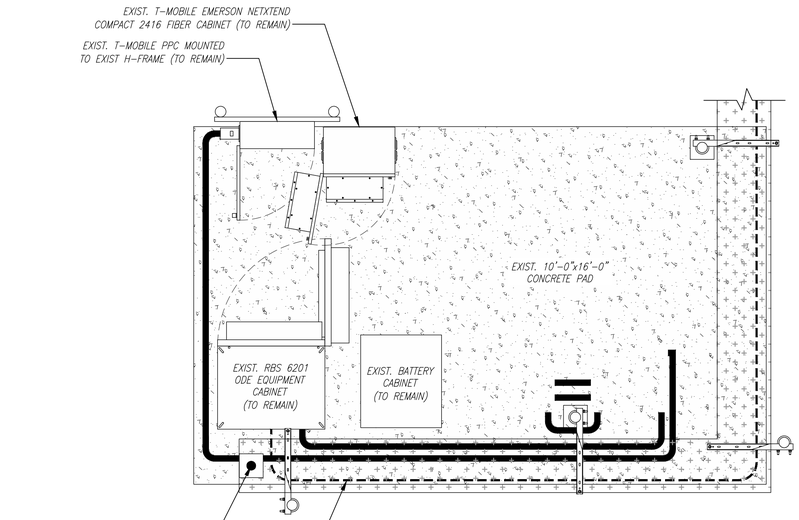
SHEET NUMBER
GN-1

1815.110

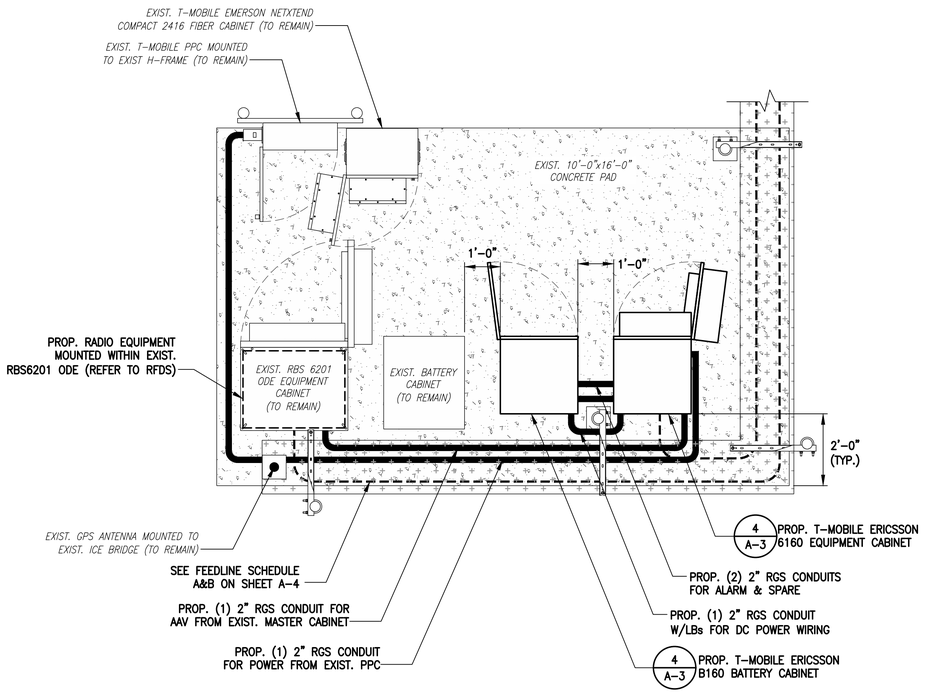
SPECIAL PRE-CONSTRUCTION WORK NOTE (SBA-PROVIDED TOWER STRUCTURAL ANALYSIS SPECIAL EQUIPMENT INSTALLATION REQUIREMENTS):
GENERAL CONTRACTOR SHALL FURNISH AND INSTALL ALL SPECIAL OR SUPPLEMENTAL ADDITIONAL TOWER-MOUNTED EQUIPMENT PER RECOMMENDATIONS FROM SBA-PROVIDED TOWER STRUCTURAL ANALYSIS FOR ANY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



COMPOUND PLAN 1 A-1
SCALE: 1/4" = 1'-0"
0 4'-0" 8'-0 12'-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"

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SHEET TITLE
COMPOUND & EQUIPMENT PLAN

SHEET NUMBER
A-1

1815.110

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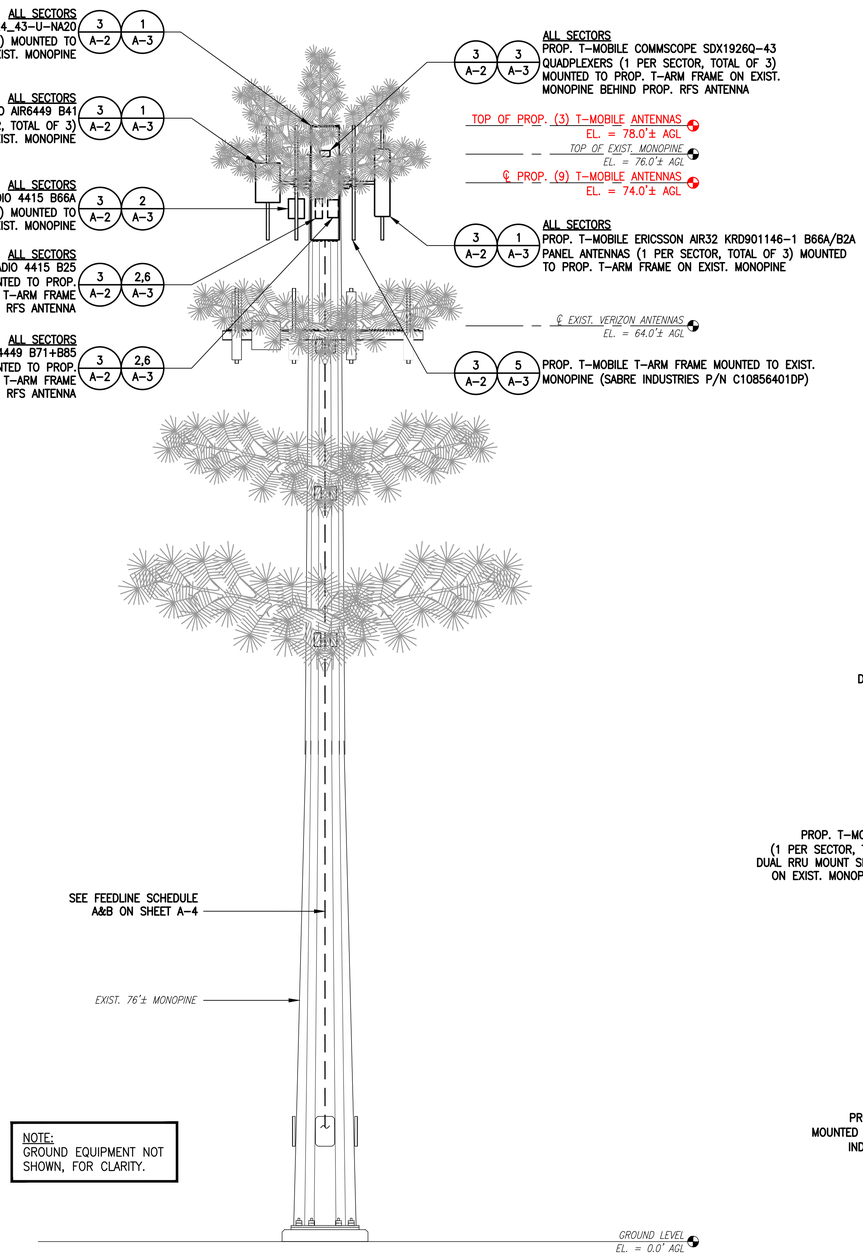
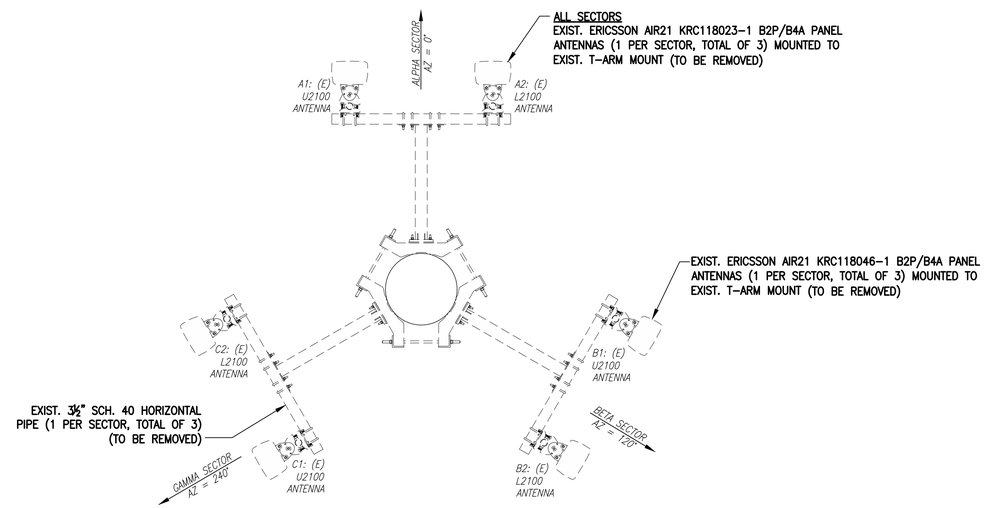
RAD CENTER NOTE:
T-MOBILE RAD CENTER SHOWN IN RED TEXT BASED ON SBA-PROVIDED CO-LOCATION APPLICATION, EQUIPMENT DATABASE, AND STRUCTURAL ANALYSIS. THE SBA-PROVIDED ANTENNA RAD CENTER SHALL SUPERSEDE ANY CONFLICTING INFORMATION DERIVED FROM THE T-MOBILE RFDS.

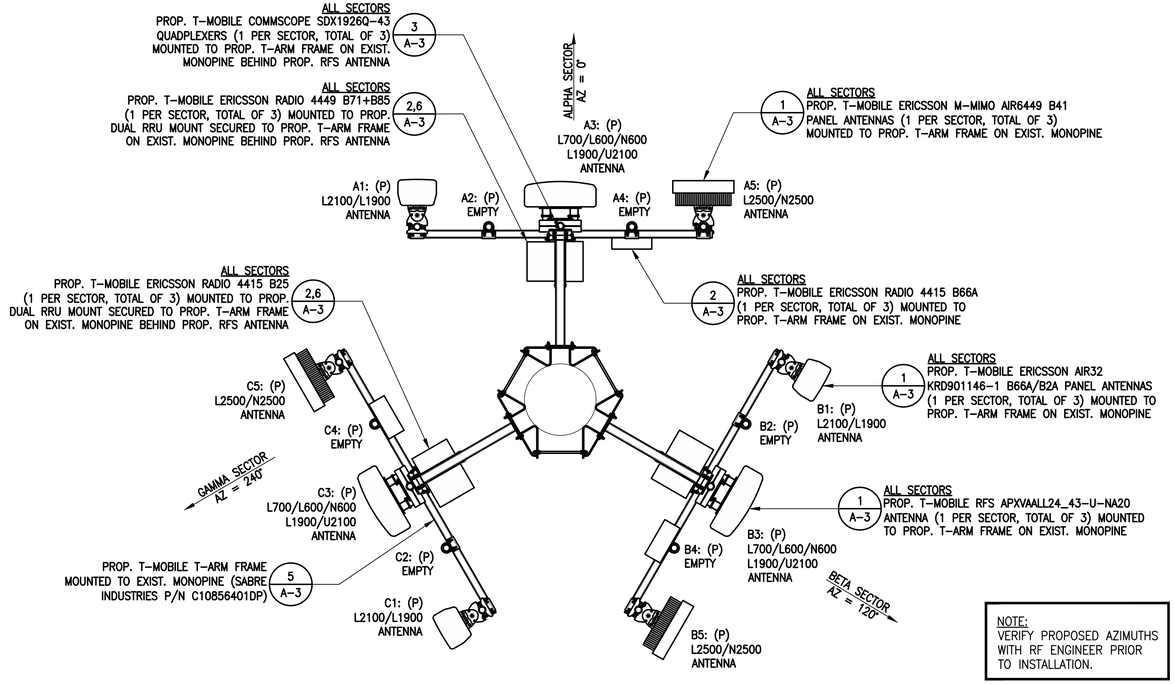


NOTE:
GROUND EQUIPMENT NOT SHOWN, FOR CLARITY.

TOWER ELEVATION 1 A-2
SCALE: 1" =5'-0"
0 5' 10' 15'



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

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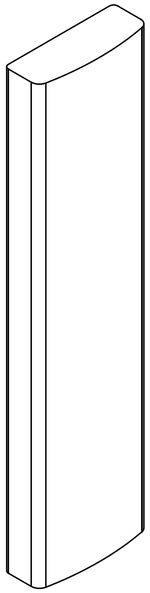
SHEET TITLE
TOWER ELEVATIONS & ANTENNA PLAN

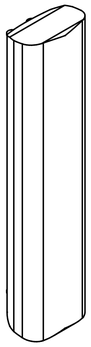
SHEET NUMBER
A-2

1815.110



RFS APXVAALL24_43-U-NA20 ANTENNA

DIMENSIONS: 95.9"H x 24.0"W x 8.7"D
WEIGHT: 128.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3



ERICSSON AIR32 KRD901146-1
B66A/B2A ANTENNA

DIMENSIONS: 56.6"H x 12.9"W x 8.7"D
WEIGHT: 132.2 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

ERICSSON M-MIMO AIR6449
B41 ANTENNA

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

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

ERICSSON RADIO 4415 B25

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

ERICSSON RADIO 4415 B66A

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

ERICSSON RADIO 4449 B71+B85

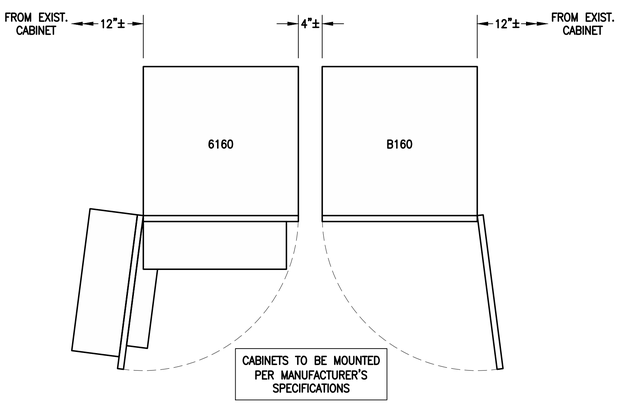
DIMENSIONS: 14.9"H x 13.2"W x 9.3"D
WEIGHT: 74.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

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

COMMSCOPE SDX1926Q-43
QUADPLEXER

DIMENSIONS: 4.2"H x 6.9"W x 2.9"D
WEIGHT: 6.2 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

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



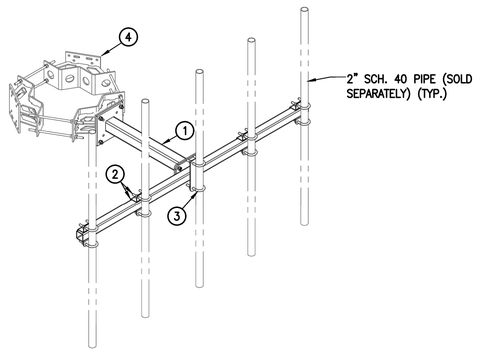
ERICSSON 6160 SITE
SUPPORT CABINET

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

ERICSSON B160
BATTERY CABINET

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

EQUIPMENT DETAIL (4 / A-3)
SCALE: N.T.S.



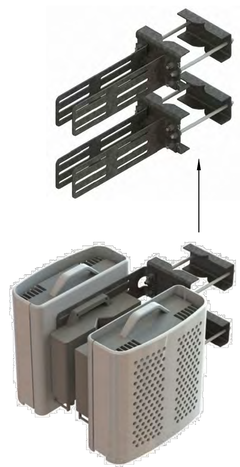
PARTS LIST
1. 8'-6" T-ARM KIT
2. PIPE MOUNT KIT (CLAMP & (2) U-BOLTS)
3. U-BOLT ASSEMBLY
4. TRI-COLLAR ASSEMBLY

NOTE:
1 SECTOR SHOWN, FOR CLARITY.

SABRE INDUSTRIES T-ARM FRAME

PART NUMBER: C10856401DP
WEIGHT (NOT INCLUDING MOUNTING PIPES): 492.0 lbs
QUANTITY: TOTAL OF 1

TYPICAL T-ARM FRAME DETAIL (5 / A-3)
SCALE: N.T.S.



COMMSCOPE RR-FA2 FAST ACCESS
DUAL RRU MOUNT KIT

DIMENSIONS: 16.4"H x 8.6"W x 18"L
WEIGHT: 36.0 lbs
QUANTITY: 1 PER SECTOR, TOTAL OF 3

RADIO MOUNT DETAIL (6 / A-3)
SCALE: N.T.S.

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CROMWELL, CT 06416

SHEET TITLE
SITE DETAILS

SHEET NUMBER
A-3

1815.110

FINAL ANTENNA CONFIGURATION

SECTOR		ANTENNA	RAD CENTER	AZIMUTH (TRUE NORTH)	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	BAND	TMA/RADIOS	SIGNAL CABLES
ALPHA	A1	ERICSSON AIR32 KRD901146-1 B66A/B2A	74'± AGL	0°	0°	–	L2100/L1900	–	(4) 1-5/8" (6x12) HCS FIBER CABLES
	A2	EMPTY PIPE	–	–	–	–	–	–	
	A3	RFS APXVAALL24_43-U-NA20	74'± AGL	0°	0°	–	L700/L600/N600	RADIO 4449 B71+B85	
						–	L1900/U2100	RADIO 4415 B66A	
								RADIO 4415 B25	
								SDX1926Q-43 QUADPLEXER	
	A4	EMPTY PIPE	–	–	–	–	–	–	
	A5	ERICSSON M-MIMO AIR6449 B41	74'± AGL	0°	0°	–	L2500/N2500	–	
BETA	B1	ERICSSON AIR32 KRD901146-1 B66A/B2A	74'± AGL	120°	0°	–	L2100/L1900	–	
	B2	EMPTY PIPE	–	–	–	–	–	–	
	B3	RFS APXVAALL24_43-U-NA20	74'± AGL	120°	0°	–	L700/L600/N600	RADIO 4449 B71+B85	
						–	L1900/U2100	RADIO 4415 B66A	
								RADIO 4415 B25	
								SDX1926Q-43 QUADPLEXER	
	B4	EMPTY PIPE	–	–	–	–	–	–	
	B5	ERICSSON M-MIMO AIR6449 B41	74'± AGL	120°	0°	–	L2500/N2500	–	
GAMMA	C1	ERICSSON AIR32 KRD901146-1 B66A/B2A	74'± AGL	240°	0°	–	L2100/L1900	–	
	C2	EMPTY PIPE	–	–	–	–	–	–	
	C3	RFS APXVAALL24_43-U-NA20	74'± AGL	240°	0°	–	L700/L600/N600	RADIO 4449 B71+B85	
						–	L1900/U2100	RADIO 4415 B66A	
								RADIO 4415 B25	
								SDX1926Q-43 QUADPLEXER	
	C4	EMPTY PIPE	–	–	–	–	–	–	
	C5	ERICSSON M-MIMO AIR6449 B41	74'± AGL	240°	0°	–	L2500/N2500	–	

CABLE NOTE: (E)(12) 1-5/8" COAX CABLES & (1) 1-¼" (9x18) HCS FIBER CABLE TO BE REMOVED. SEE FEEDLINE SCHEDULE A & B BELOW.

NOTE: RFDS REV6 – 09/25/20

FEEDLINE SCHEDULE

SCHEDULE	FEEDLINES		LOCATION
A	*EXISTING TO REMAIN:*	*(1) ½" COAX CABLE FOR GPS ANTENNA*	ROUTED PER STRUCTURAL ANALYSIS
	EXISTING TO BE REMOVED:	*(12) 1-5/8" COAX CABLES* *(1) 1-¼" (9x18) HCS FIBER CABLE*	
B	PROPOSED:	(4) 1-5/8" (6x12) HCS FIBER CABLES	

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

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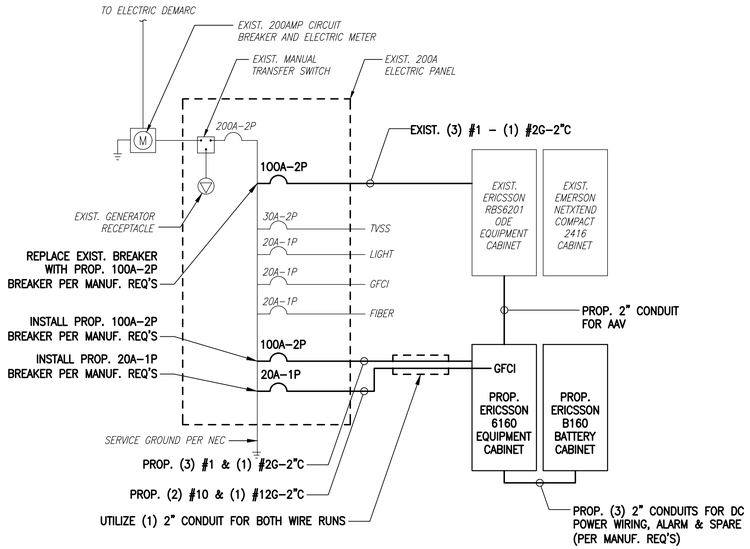
A-4

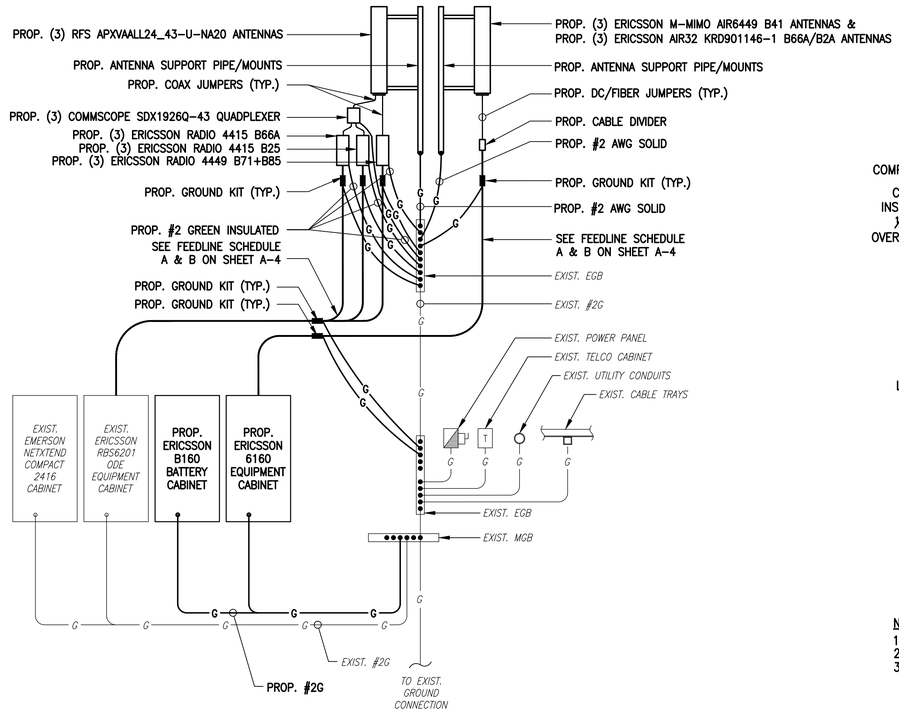
1815.110



ONE LINE DIAGRAM

SCALE: NOT TO SCALE

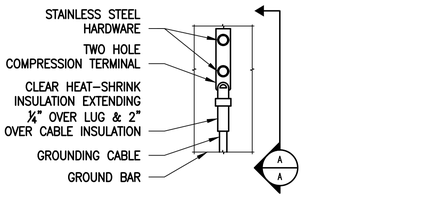
1 E-1



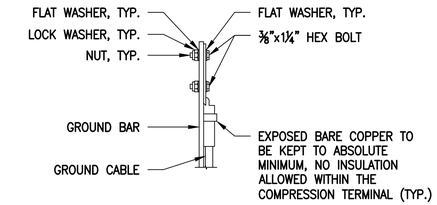
GROUNDING RISER DIAGRAM

SCALE: NOT TO SCALE

2 E-1



ELEVATION



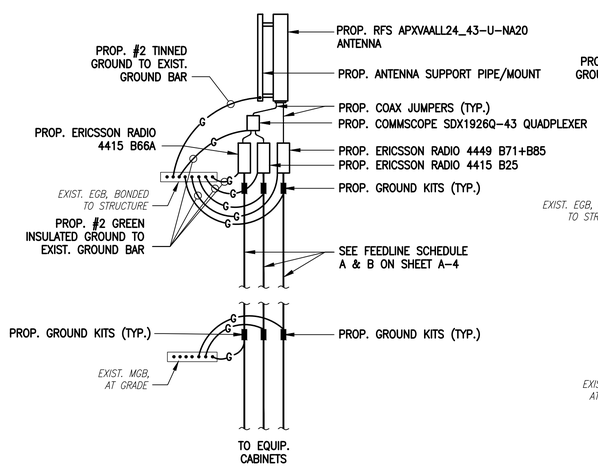
SECTION A-A

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

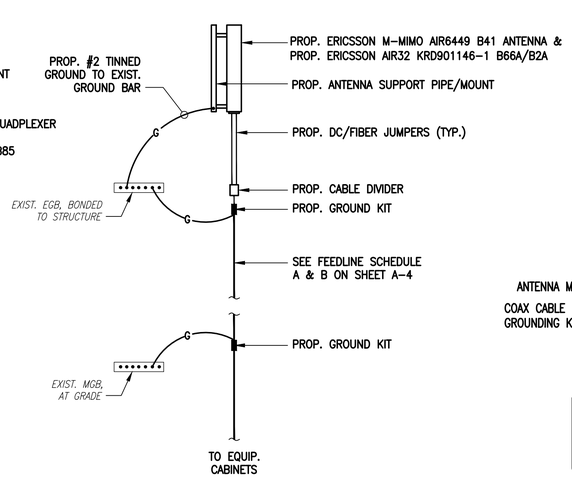
TYPICAL GROUND BAR CONNECTIONS DETAIL

SCALE: NOT TO SCALE

3 E-1



L700/L600/N600/L1900/U2100 ANTENNA

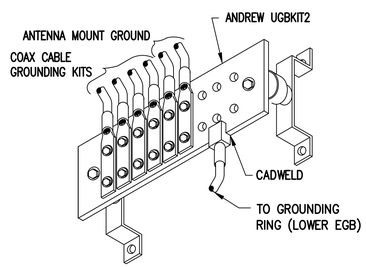


L2500/N2500 ANTENNA & L2100/L1900 ANTENNA

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 8" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
18. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
19. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
20. CONTRACTOR SHALL PROVIDE AND INSTALL OMNI DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALLS OVER EACH GROUND ROD AND BONDING POINT BETWEEN EXIST. TOWER/ MONOPOLE GROUNDING RING AND EQUIPMENT GROUNDING RING.
21. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMNS MINIMUM RESISTANCE REQUIRED.
22. CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE- TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.

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

SBA
SBA COMMUNICATIONS CORP.
134 FLANDERS ROAD, SUITE 125
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CHAPPELL ENGINEERING ASSOCIATES, LLC
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STATE OF CONNECTICUT
JAMES M. FITZGERALD
No. 25997
LICENSED PROFESSIONAL CIVIL ENGINEER
4/15/2021

CHECKED BY: JMT

APPROVED BY: JMT

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
2	04/15/21	CONSTRUCTION REVISED	CMC
1	12/22/20	ISSUED FOR CONSTRUCTION	CMC
0	11/22/20	ISSUED FOR REVIEW	JRV

SITE NUMBER:
CTHA521A

SITE ADDRESS:
160 WEST STREET
CROMWELL, CT 06416

SHEET TITLE
ELECTRIC & GROUNDING DETAILS

SHEET NUMBER
E-1

1815.110

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 76 ft TransAmerican Monopole
Customer Name: SBA Communications Corp
Customer Site Number: CT46122-A
Customer Site Name: Middletown North
Carrier Name: T-Mobile (App#: 116807, V2)
Carrier Site ID / Name: CTHA521A / Middletown
Site Location: 160 West Street
Cromwell, Connecticut
Middlesex County
Latitude: 41.606000
Longitude: -72.670388

Analysis Result:

Max Structural Usage: 66.7% [Pass]
Max Foundation Usage: 48.3% [Pass]
Additional Usage Caused by Mount Modification:+0.8%

Report Prepared By : Dipika Dhungana

Introduction

The purpose of this report is to summarize the analysis results on the 76 ft TransAmerican 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	TransAmerican Power Products, Inc., Order #TP-8949 dated July 19, 2010
Foundation Drawing	Vertical Solutions, Project #100264.02 dated February 23, 2010
Geotechnical Report	Clarence Welti Association, Inc., Project Name: Transcend Wireless Tower dated February 1, 2010
Modification Drawings	N/A
Mount Analysis	MA by TES, Job# 99373, dated 11/20/2020

Analysis Criteria

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

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed $V_u$lt = 125.0 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 97.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.181, S_1 = 0.063

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
-	75.0	3	Ericsson Air 21 B2A/B4P	(3) T-Arms	(12) 7/8" (1) 1-5/8" Fiber (6) 3/8"	T-Mobile
-		3	Ericsson Air 21 B4A/B2P			
-		6	Andrew ATM200-A20			
9	64.0	4	Andrew DB846F65ZAXY - Panel	(3) T-Arms	(18) 1 5/8" (2) 1 5/8" Fiber	Verizon
10		2	Andrew DB846H80E-SX - Panel			
11		9	Commscope SBNHH-1D65B - Panel			
12		3	Alcatel Lucent RRH2X60-AWS			
13		3	Alcatel Lucent RRH2X60-700			
14		3	Alcatel Lucent RRH2X60-PCS			
15		2	RFS DB-T1-6Z-8AB-0Z			

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	74.0	3	RFS APXVAALL24-43-U-NA20	(3) T-Arms w/ replaced new standoff, face horizontal and new support rail with end connection	(6) 7/8" (4) 1 5/8" Fiber (6) 3/8" RET	T-Mobile
2		3	Ericsson Air 32 KRD901146-1_B66A_B2A			
3		3	Ericsson AIR6449 B41			
4		3	Commscope SDX1926Q-43			
5		6	Andrew ATM200-A20			
6		3	Ericsson 4449 B71 + B85			
7		3	Ericsson 4415 B25			
8		3	Ericsson 4415 B66A			

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

Analysis Results

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

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**66.7%**	**66.5%**	**39.8%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	2800.0	52.0
Analysis Reactions	1827.0	30.9
Factored Reactions*	3780.0	70.2
% of Design Reactions	48.3%	44.1%

* 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.

No foundation drawing is available for the analysis of the existing foundation. Since the reactions calculated from the current analysis are less than those indicated on the original structural design drawing, the foundations are assumed to be adequate to resist the reactions from the current analysis.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.6160 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

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

Standard Conditions

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

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

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

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

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

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

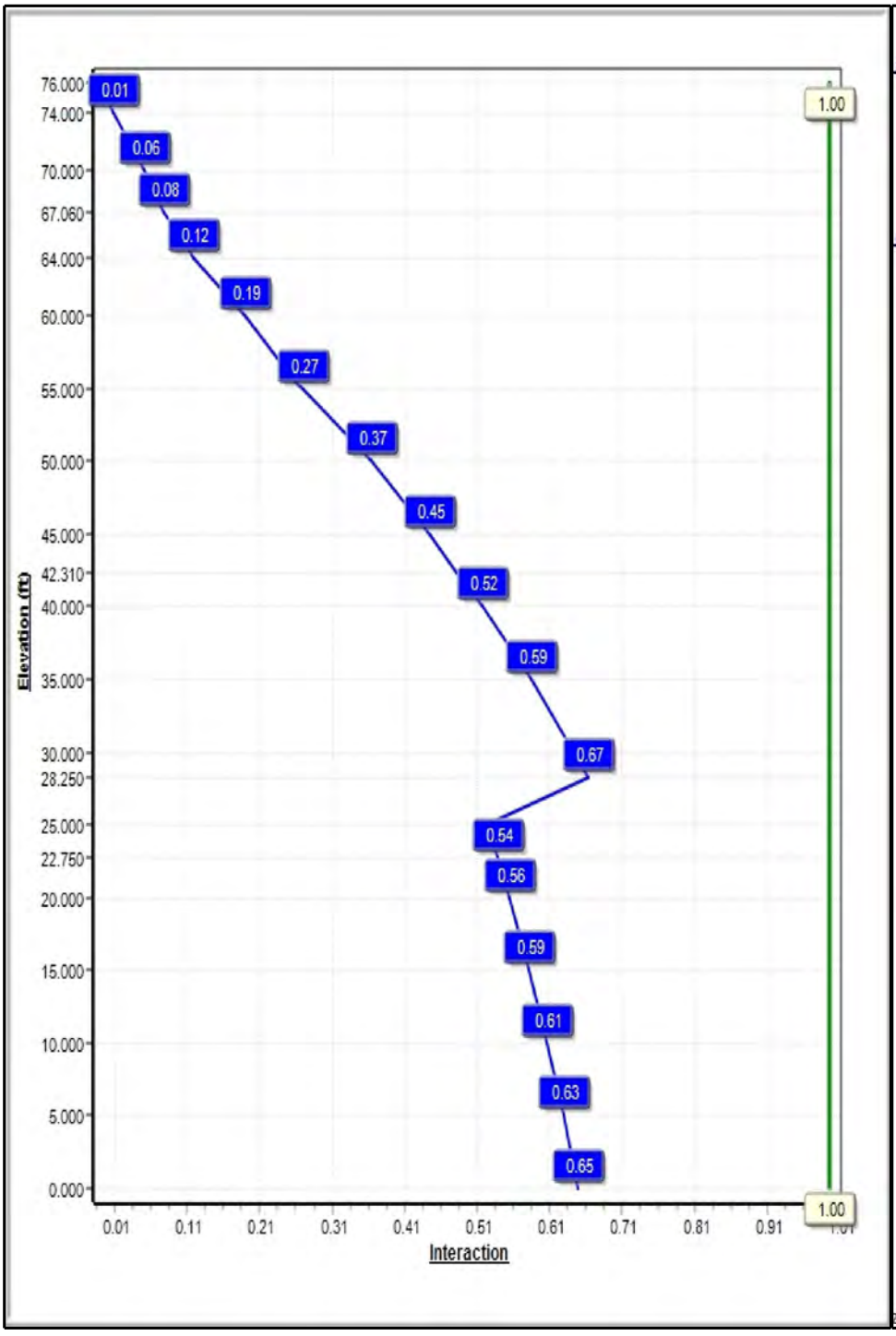
Usage Diagram - Max Ratio 66.69% at 28.3ft

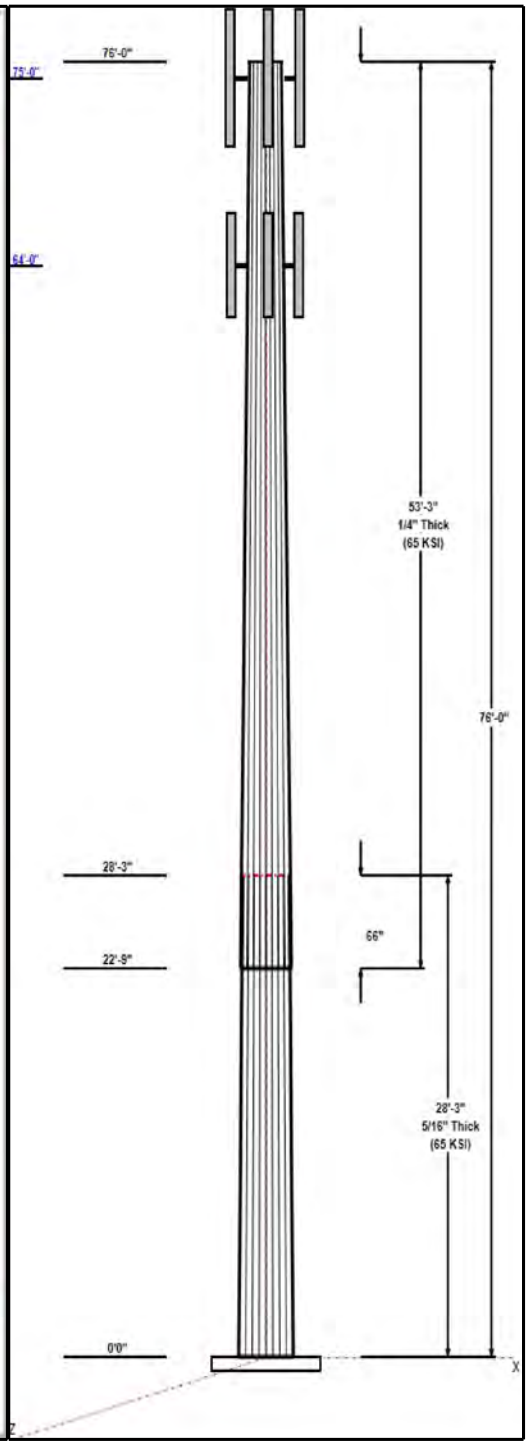
Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	11/30/2020
Site Name:	Middletown North	**Exposure:**	C	
Height:	76.00 (ft)	**Gh:**	1.1	
Base Elev:	0.000 (ft)			Page: 1

Tower Engineering Solutions

Dead Load Factor:	1.20	**Iterations:**	17
Wind Load Factor:	1.60		

Load Case : 1.2D + 1.6W 97 mph Wind





Structure: CT46122-A-SBA

Type: Tapered
Site Name: Middletown North
Height: 76.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.32787

11/30/2020

Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	28.25	37.24	46.50	0.313		0.32787	65
2	53.25	22.08	39.54	0.250	Slip	0.32787	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
75.45	75.45	1	4' Branches	---
75.00	75.00	3	T-Arms	---
75.00	75.00	3	AIR6449 B41	T-Mobile
75.00	75.00	3	RFS	T-Mobile
75.00	75.00	3	Air 32	T-Mobile
75.00	75.00	6	ATM200-A20	T-Mobile
75.00	75.00	3	Radio 4449 B71+B85	T-Mobile
75.00	75.00	3	Commscope	T-Mobile
75.00	75.00	1	(Handrail Kit w/end	T-Mobile
74.00	74.00	3	RRUS 4415 B25	T-Mobile
74.00	74.00	3	Ericsson 4415 B66A	T-Mobile
74.00	74.00	1	Antenna Branches	---
67.06	67.06	1	6' Branches	---
64.00	64.00	3	T-Arm (Round)	---
64.00	64.00	9	SBNHH-1D65B	Verizon
64.00	64.00	4	DB846F65ZAXY	Verizon
64.00	64.00	2	DB846H80E-SX	Verizon
64.00	64.00	3	RRH2X60-AWS	Verizon
64.00	64.00	3	RRH2X60-700	Verizon
64.00	64.00	3	RRH2X60-PCS	Verizon
64.00	64.00	2	DB-T1-6Z-8AB-0Z	Verizon
55.44	55.44	1	8' Branches	---
42.31	42.31	1	10' Branches	---

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	75.00	Inside	1 5/8" Fiber	T-Mobile
0.00	75.00	Inside	3/8" RET	T-Mobile
0.00	75.00	Inside	7/8" Coax	T-Mobile
0.00	64.00	Inside	1 5/8" Coax	Verizon
0.00	64.00	Inside	1 5/8" Fiber	Verizon

Anchor Bolts

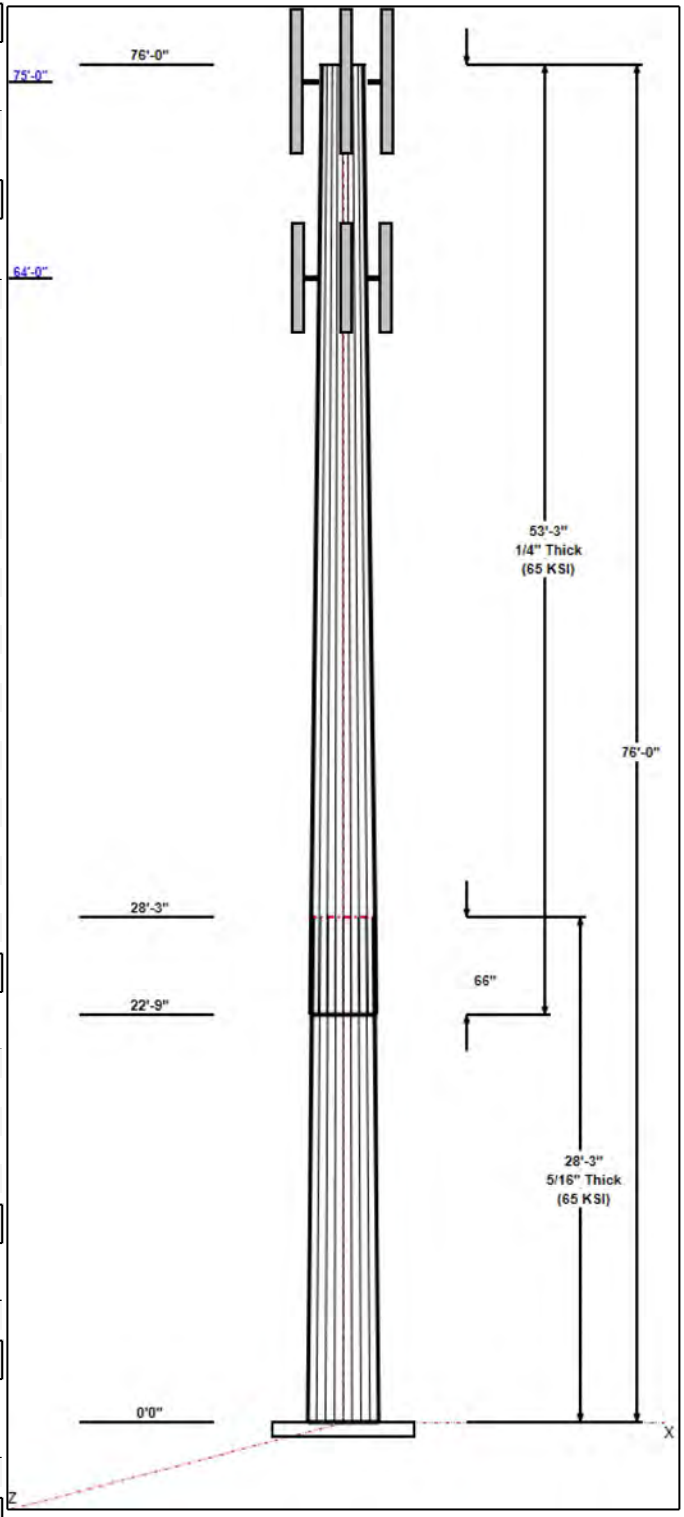
Qty	Specifications	Grade (ksi)	Arrangement
10	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.0000	60.0	60.0	Round

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 97 mph Wind	1827.0	30.9	21.3
0.9D + 1.6W 97 mph Wind	1821.7	30.9	15.9

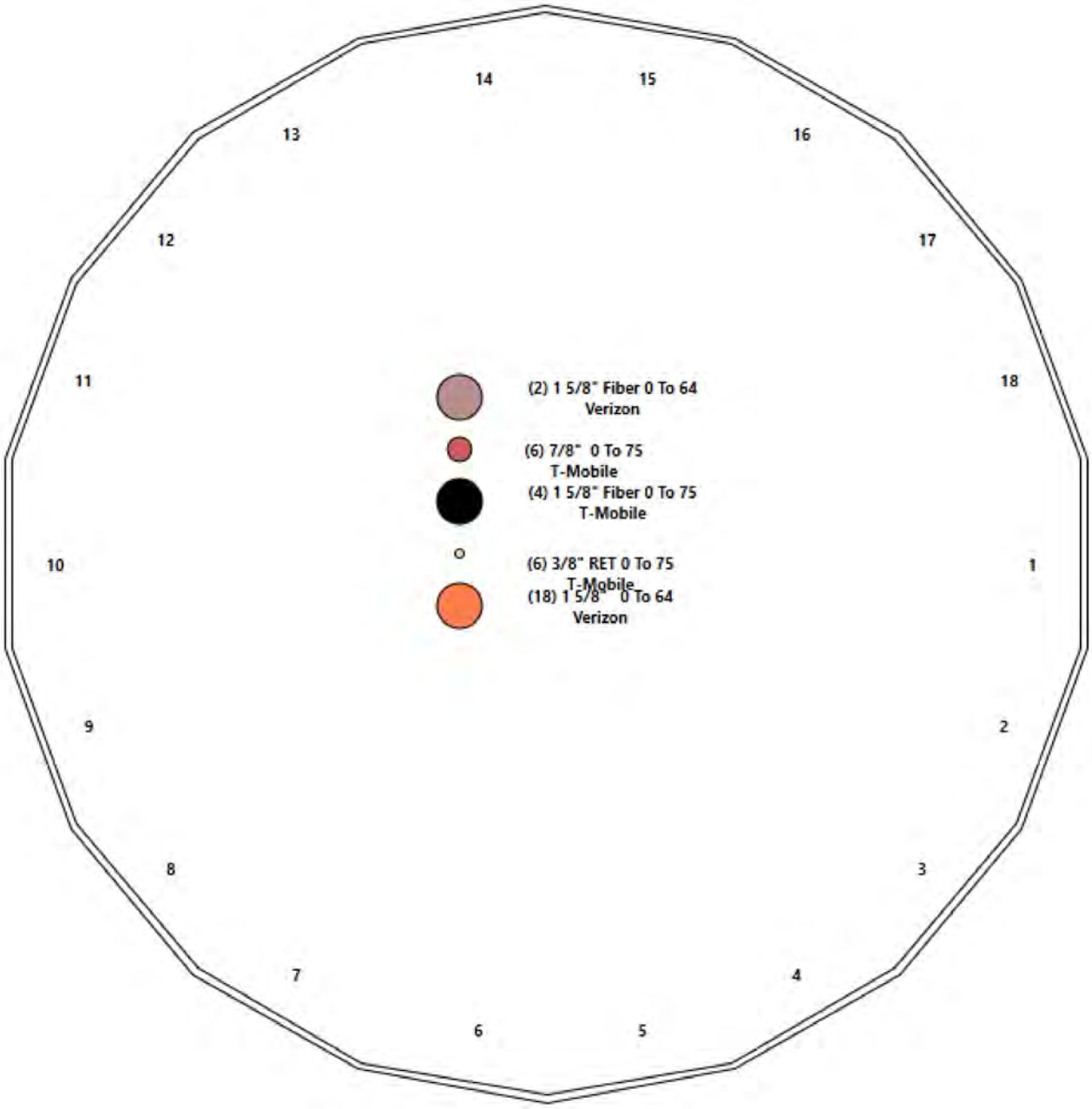


1.2D + 1.0Di + 1.0Wi 50 mph Wind	529.2	9.0	42.9
1.2D + 1.0E	86.1	1.3	21.3
0.9D + 1.0E	85.9	1.3	16.0
1.0D + 1.0W 60 mph Wind	436.2	7.4	17.8

Structure: CT46122-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Middletown North
Height: 76.00 (ft)

11/30/2020



Shaft Properties

Structure:	CT46122-A-SBA		**Code:**	EIA/TIA-222-G	11/30/2020
Site Name:	Middletown North		**Exposure:**	C	
Height:	76.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	28.250	0.3125	65		0.00	3,962
2	18	53.250	0.2500	65	Slip	66.00	4,394
					Total Shaft Weight:		**8,356**

	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	46.50	0.00	45.81	12347.18	24.83	148.80	37.24	28.25	36.62	6309.09	19.60	119.1	0.327865
2	39.54	22.75	31.18	6080.87	26.48	158.16	22.08	76.00	17.32	1043.23	14.16	88.33	0.327865

Load Summary

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	11/30/2020	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Discrete Appurtenances

				No Ice			Ice				
No.	**Elev (ft)**	**Description**	**Qty**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Weight (lb)**	**CaAa (sf)**	**CaAa Factor**	**Hor. Ecc. (ft)**	**Vert Ecc (ft)**
1	75.45	4' Branches	1	390.00	36.86	1.00	728.90	68.890	1.00	0.00	0.00
2	75.00	T-Arms	3	160.00	6.00	0.75	333.69	14.702	0.75	0.00	0.00
3	75.00	AIR6449 B41	3	103.00	5.65	0.71	273.58	6.833	0.71	0.00	0.00
4	75.00	RFS APXVAALL24-43-U-NA20	3	128.00	20.24	0.70	664.17	22.625	0.70	0.00	0.00
5	75.00	Air 32 KRD901146-1_B66A_B2A	3	132.20	6.51	0.87	370.47	7.928	0.87	0.00	0.00
6	75.00	ATM200-A20	6	0.50	0.12	0.50	7.02	0.395	1.00	0.00	0.00
7	75.00	Radio 4449 B71+B85	3	71.00	1.97	0.67	137.41	2.651	0.67	0.00	0.00
8	75.00	Commscope SDX1926Q-43	3	7.00	0.72	0.67	24.85	1.506	0.67	0.00	0.00
9	75.00	(Handrail Kit w/end connection)	1	261.72	6.75	1.00	648.11	14.957	1.00	0.00	0.00
10	74.00	RRUS 4415 B25	3	46.00	1.64	0.67	97.07	2.280	0.67	0.00	0.00
11	74.00	Ericsson 4415 B66A	3	49.60	1.86	0.67	132.23	2.580	0.67	0.00	0.00
12	74.00	Antenna Branches	1	96.00	22.43	1.00	179.26	41.883	1.00	0.00	0.00
13	67.06	6' Branches	1	400.00	83.63	1.00	743.51	55.450	1.00	0.00	0.00
14	64.00	T-Arm (Round)	3	350.00	8.00	0.75	649.17	16.548	0.75	0.00	0.00
15	64.00	SBNHH-1D65B	9	40.00	8.16	0.83	299.51	9.777	0.83	0.00	0.00
16	64.00	DB846F65ZAXY	4	21.00	7.05	0.93	273.37	8.586	0.93	0.00	0.00
17	64.00	DB846H80E-SX	2	16.00	5.01	1.12	221.54	6.528	1.12	0.00	0.00
18	64.00	RRH2X60-AWS	3	55.00	3.50	0.67	152.98	4.466	0.67	0.00	0.00
19	64.00	RRH2X60-700	3	55.00	3.50	0.67	152.98	4.466	0.67	0.00	0.00
20	64.00	RRH2X60-PCS	3	55.00	2.20	0.67	164.05	2.995	0.67	0.00	0.00
21	64.00	DB-T1-6Z-8AB-0Z	2	18.90	4.80	0.67	202.03	5.886	0.67	0.00	0.00
22	55.44	8' Branches	1	1638.00	150.70	1.00	3018.18	77.680	1.00	0.00	0.00
23	42.31	10' Branches	1	540.00	54.43	1.00	982.87	99.070	1.00	0.00	0.00
		Totals:	**65**	**7,477.92**			**20,437.09**				

Linear Appurtenances

Bottom Elev. (ft)	**Top Elev. (ft)**	**Description**	**Exposed Width**	**Exposed**
0.00	75.00	(4) 1 5/8" Fiber	0.00	Inside
0.00	75.00	(6) 3/8" RET	0.00	Inside
0.00	75.00	(6) 7/8" Coax	0.00	Inside
0.00	64.00	(18) 1 5/8" Coax	0.00	Inside
0.00	64.00	(2) 1 5/8" Fiber	0.00	Inside

Shaft Section Properties

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	11/30/2020	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 7	

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3125	46.500	45.811	12347.2	24.83	148.80	72.2	523.0	0.0
5.00		0.3125	44.861	44.185	11078.6	23.90	143.55	73.3	486.4	765.6
10.00		0.3125	43.221	42.559	9900.0	22.98	138.31	74.4	451.1	737.9
15.00		0.3125	41.582	40.933	8808.1	22.05	133.06	75.5	417.2	710.3
20.00		0.3125	39.943	39.307	7799.6	21.13	127.82	76.6	384.6	682.6
22.75	Bot - Section 2	0.3125	39.041	38.413	7279.3	20.62	124.93	77.2	367.2	363.6
25.00		0.3125	38.303	37.681	6871.2	20.20	122.57	77.6	353.3	527.7
28.25	Top - Section 1	0.2500	37.738	29.746	5281.5	25.21	150.95	0.0	0.0	744.5
30.00		0.2500	37.164	29.290	5042.7	24.80	148.66	72.2	267.2	175.8
35.00		0.2500	35.525	27.989	4400.2	23.65	142.10	73.6	244.0	487.3
40.00		0.2500	33.885	26.689	3814.8	22.49	135.54	74.9	221.7	465.1
42.31		0.2500	33.128	26.088	3562.9	21.95	132.51	75.6	211.8	207.4
45.00		0.2500	32.246	25.388	3283.8	21.33	128.98	76.3	200.6	235.6
50.00		0.2500	30.607	24.087	2804.5	20.18	122.43	77.7	180.5	420.9
55.00		0.2500	28.967	22.786	2374.2	19.02	115.87	79.0	161.4	398.8
55.44		0.2500	28.823	22.672	2338.6	18.92	115.29	79.1	159.8	34.0
60.00		0.2500	27.328	21.486	1990.4	17.86	109.31	80.4	143.5	342.6
64.00		0.2500	26.017	20.445	1715.0	16.94	104.07	81.5	129.8	285.4
65.00		0.2500	25.689	20.185	1650.3	16.71	102.76	81.7	126.5	69.1
67.06		0.2500	25.013	19.649	1522.3	16.23	100.05	82.3	119.9	139.6
70.00		0.2500	24.049	18.884	1351.4	15.55	96.20	82.6	110.7	192.7
74.00		0.2500	22.738	17.844	1140.1	14.63	90.95	82.6	98.8	250.0
75.00		0.2500	22.410	17.583	1090.9	14.40	89.64	82.6	95.9	60.3
75.45		0.2500	22.263	17.466	1069.3	14.29	89.05	82.6	94.6	26.8
76.00		0.2500	22.082	17.323	1043.2	14.16	88.33	82.6	93.1	32.6
										8356.2

Wind Loading - Shaft

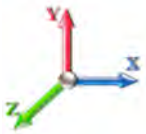
Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	11/30/2020	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 17

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	19.450	21.40	351.89	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	19.450	21.40	339.48	0.650	0.000	5.00	19.327	12.56	430.0	0.0	918.7
10.00		1.00	0.85	19.450	21.40	327.07	0.650	0.000	5.00	18.634	12.11	414.6	0.0	885.5
15.00		1.00	0.85	19.450	21.40	314.67	0.650	0.000	5.00	17.940	11.66	399.2	0.0	852.3
20.00		1.00	0.90	20.638	22.70	311.35	0.650	0.000	5.00	17.246	11.21	407.2	0.0	819.1
22.75	Bot - Section 2	1.00	0.93	21.205	23.33	308.48	0.650	0.000	2.75	9.190	5.97	222.9	0.0	436.4
25.00		1.00	0.95	21.630	23.79	305.67	0.650	0.000	2.25	7.458	4.85	184.6	0.0	633.3
28.25	Top - Section 1	1.00	0.97	22.194	24.41	301.01	0.650	0.000	3.25	10.525	6.84	267.2	0.0	893.4
30.00		1.00	0.98	22.477	24.72	302.32	0.650	0.000	1.75	5.546	3.60	142.6	0.0	210.9
35.00		1.00	1.01	23.218	25.54	293.72	0.650	0.000	5.00	15.377	10.00	408.4	0.0	584.7
40.00		1.00	1.04	23.880	26.27	284.13	0.650	0.000	5.00	14.684	9.54	401.1	0.0	558.2
42.31	Appurtenance(s)	1.00	1.06	24.164	26.58	279.42	0.650	0.000	2.31	6.550	4.26	181.1	0.0	248.9
45.00		1.00	1.07	24.479	26.93	273.76	0.650	0.000	2.69	7.440	4.84	208.4	0.0	282.7
50.00		1.00	1.09	25.029	27.53	262.74	0.650	0.000	5.00	13.296	8.64	380.7	0.0	505.1
55.00		1.00	1.12	25.536	28.09	251.17	0.650	0.000	5.00	12.603	8.19	368.2	0.0	478.5
55.44	Appurtenance(s)	1.00	1.12	25.579	28.14	250.13	0.650	0.000	0.44	1.076	0.70	31.5	0.0	40.8
60.00		1.00	1.14	26.008	28.61	239.14	0.650	0.000	4.56	10.833	7.04	322.3	0.0	411.1
64.00	Appurtenance(s)	1.00	1.15	26.364	29.00	229.21	0.650	0.000	4.00	9.028	5.87	272.3	0.0	342.4
65.00		1.00	1.16	26.450	29.09	226.69	0.650	0.000	1.00	2.188	1.42	66.2	0.0	83.0
67.06	Appurtenance(s)	1.00	1.16	26.624	29.29	221.46	0.650	0.000	2.06	4.419	2.87	134.6	0.0	167.5
70.00		1.00	1.17	26.866	29.55	213.89	0.650	0.000	2.94	6.103	3.97	187.6	0.0	231.3
74.00	Appurtenance(s)	1.00	1.19	27.182	29.90	203.41	0.650	0.000	4.00	7.918	5.15	246.2	0.0	299.9
75.00	Appurtenance(s)	1.00	1.19	27.259	29.98	200.76	0.650	0.000	1.00	1.910	1.24	59.6	0.0	72.3
75.45	Appurtenance(s)	1.00	1.19	27.293	30.02	199.57	0.650	0.000	0.45	0.851	0.55	26.6	0.0	32.2
76.00		1.00	1.19	27.335	30.07	198.10	0.650	0.000	0.55	1.032	0.67	32.3	0.0	39.1
								Totals:	**76.00**			**5,795.3**		**10,027.4**

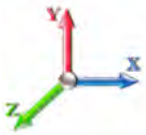
Discrete Appurtenance Forces

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	11/30/2020	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 17

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	75.45	4' Branches	1	27.293	30.022	1.00	1.00	36.86	468.00	0.000	0.000	1770.61	0.00	0.00
2	75.00	T-Arms	3	27.259	29.985	0.56	0.75	10.13	576.00	0.000	0.000	485.75	0.00	0.00
3	75.00	AIR6449 B41	3	27.259	29.985	0.57	0.80	9.63	370.80	0.000	0.000	461.89	0.00	0.00
4	75.00	RFS	3	27.259	29.985	0.56	0.80	34.00	460.80	0.000	0.000	1631.32	0.00	0.00
5	75.00	Air 32	3	27.259	29.985	0.70	0.80	13.59	475.92	0.000	0.000	652.13	0.00	0.00
6	75.00	ATM200-A20	6	27.259	29.985	0.40	0.80	0.29	3.60	0.000	0.000	13.82	0.00	0.00
7	75.00	Radio 4449 B71+B85	3	27.259	29.985	0.54	0.80	3.17	255.60	0.000	0.000	151.97	0.00	0.00
8	75.00	Commscope	3	27.259	29.985	0.54	0.80	1.16	25.20	0.000	0.000	55.54	0.00	0.00
9	75.00	(Handrail Kit w/end	1	27.259	29.985	1.00	1.00	6.75	314.06	0.000	0.000	323.83	0.00	0.00
10	74.00	Antenna Branches	1	27.182	29.900	1.00	1.00	22.43	115.20	0.000	0.000	1073.05	0.00	0.00
11	74.00	Ericsson 4415 B66A	3	27.182	29.900	0.54	0.80	2.99	178.56	0.000	0.000	143.08	0.00	0.00
12	74.00	RRUS 4415 B25	3	27.182	29.900	0.54	0.80	2.64	165.60	0.000	0.000	126.16	0.00	0.00
13	67.06	6' Branches	1	26.624	29.287	1.00	1.00	83.63	480.00	0.000	0.000	3918.78	0.00	0.00
14	64.00	T-Arm (Round)	3	26.364	29.000	0.56	0.75	13.50	1260.00	0.000	0.000	626.40	0.00	0.00
15	64.00	SBNHH-1D65B	9	26.364	29.000	0.66	0.80	48.76	432.00	0.000	0.000	2262.66	0.00	0.00
16	64.00	DB846F65ZAXY	4	26.364	29.000	0.74	0.80	20.98	100.80	0.000	0.000	973.51	0.00	0.00
17	64.00	DB846H80E-SX	2	26.364	29.000	0.90	0.80	8.98	38.40	0.000	0.000	416.58	0.00	0.00
18	64.00	RRH2X60-AWS	3	26.364	29.000	0.54	0.80	5.63	198.00	0.000	0.000	261.14	0.00	0.00
19	64.00	RRH2X60-700	3	26.364	29.000	0.54	0.80	5.63	198.00	0.000	0.000	261.14	0.00	0.00
20	64.00	RRH2X60-PCS	3	26.364	29.000	0.54	0.80	3.54	198.00	0.000	0.000	164.14	0.00	0.00
21	64.00	DB-T1-6Z-8AB-0Z	2	26.364	29.000	0.54	0.80	5.15	45.36	0.000	0.000	238.76	0.00	0.00
22	55.44	8' Branches	1	25.579	28.137	1.00	1.00	150.70	1965.60	0.000	0.000	6784.28	0.00	0.00
23	42.31	10' Branches	1	24.164	26.580	1.00	1.00	54.43	648.00	0.000	0.000	2314.82	0.00	0.00
							Totals:		**8,973.50**			**25,111.37**		

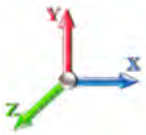
Total Applied Force Summary

Structure:	CT46122-A-SBA		**Code:**	EIA/TIA-222-G	11/30/2020
Site Name:	Middletown North		**Exposure:**	C	
Height:	76.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 10

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 17

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		430.05	1091.50	0.00	0.00
10.00		414.62	1058.30	0.00	0.00
15.00		399.18	1025.11	0.00	0.00
20.00		407.17	991.91	0.00	0.00
22.75		222.93	531.40	0.00	0.00
25.00		184.55	711.06	0.00	0.00
28.25		267.22	1005.72	0.00	0.00
30.00		142.60	271.41	0.00	0.00
35.00		408.44	757.53	0.00	0.00
40.00		401.13	730.97	0.00	0.00
42.31	(1) attachments	2495.87	976.74	0.00	0.00
45.00		208.36	375.68	0.00	0.00
50.00		380.71	677.86	0.00	0.00
55.00		368.16	651.30	0.00	0.00
55.44	(1) attachments	6815.76	2021.64	0.00	0.00
60.00		322.32	568.70	0.00	0.00
64.00	(29) attachments	5476.61	2951.23	0.00	0.00
65.00		66.19	92.41	0.00	0.00
67.06	(1) attachments	4053.37	667.01	0.00	0.00
70.00		187.57	259.10	0.00	0.00
74.00	(7) attachments	1588.52	797.13	0.00	0.00
75.00	(25) attachments	3835.83	2563.77	0.00	0.00
75.45	(1) attachments	1797.16	500.20	0.00	0.00
76.00		32.27	39.07	0.00	0.00
	Totals:	**30,906.63**	**21,316.76**	**0.00**	**0.00**

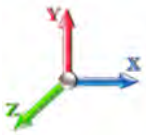
Calculated Forces

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	11/30/2020	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 11	

Load Case: 1.2D + 1.6W 97 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 17

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	-21.26	-30.95	0.00	-1826.9	0.00	1826.96	2976.77	1488.39	5655.61	2832.01	0.00	0.000	0.000	0.653
5.00	-20.06	-30.58	0.00	-1672.2	0.00	1672.23	2914.38	1457.19	5339.22	2673.58	0.11	-0.202	0.000	0.633
10.00	-18.90	-30.23	0.00	-1519.3	0.00	1519.31	2848.80	1424.40	5025.69	2516.58	0.43	-0.406	0.000	0.611
15.00	-17.77	-29.89	0.00	-1368.1	0.00	1368.15	2780.04	1390.02	4715.67	2361.34	0.97	-0.614	0.000	0.586
20.00	-16.70	-29.52	0.00	-1218.7	0.00	1218.71	2708.10	1354.05	4409.79	2208.17	1.73	-0.823	0.000	0.559
22.75	-16.11	-29.32	0.00	-1137.5	0.00	1137.54	2667.17	1333.59	4243.56	2124.93	2.24	-0.941	0.000	0.542
25.00	-15.35	-29.15	0.00	-1071.5	0.00	1071.58	2632.97	1316.49	4108.71	2057.41	2.71	-1.038	0.000	0.527
28.25	-14.29	-28.89	0.00	-976.84	0.00	976.84	1920.92	960.46	2962.45	1483.43	3.46	-1.176	0.000	0.667
30.00	-13.94	-28.78	0.00	-926.29	0.00	926.29	1904.07	952.03	2891.21	1447.76	3.91	-1.251	0.000	0.648
35.00	-13.08	-28.41	0.00	-782.38	0.00	782.38	1853.76	926.88	2688.99	1346.49	5.35	-1.492	0.000	0.589
40.00	-12.28	-28.02	0.00	-640.34	0.00	640.34	1800.28	900.14	2489.19	1246.45	7.04	-1.722	0.000	0.522
42.31	-11.33	-25.52	0.00	-575.61	0.00	575.61	1774.49	887.25	2397.88	1200.72	7.90	-1.827	0.000	0.487
45.00	-10.89	-25.33	0.00	-506.96	0.00	506.96	1743.61	871.80	2292.47	1147.94	8.97	-1.943	0.000	0.449
50.00	-10.15	-24.96	0.00	-380.31	0.00	380.31	1683.75	841.88	2099.47	1051.30	11.11	-2.135	0.000	0.369
55.00	-9.48	-24.58	0.00	-255.53	0.00	255.53	1620.72	810.36	1910.85	956.84	13.44	-2.296	0.000	0.274
55.44	-7.71	-17.69	0.00	-244.72	0.00	244.72	1615.02	807.51	1894.48	948.65	13.66	-2.310	0.000	0.263
60.00	-7.13	-17.36	0.00	-164.03	0.00	164.03	1554.50	777.25	1727.25	864.91	15.92	-2.423	0.000	0.195
64.00	-4.41	-11.76	0.00	-94.60	0.00	94.60	1499.23	749.61	1584.42	793.39	17.99	-2.497	0.000	0.122
65.00	-4.31	-11.70	0.00	-82.83	0.00	82.83	1485.09	742.54	1549.31	775.81	18.51	-2.512	0.000	0.110
67.06	-3.82	-7.62	0.00	-58.74	0.00	58.74	1455.57	727.78	1477.81	740.00	19.60	-2.537	0.000	0.082
70.00	-3.57	-7.42	0.00	-36.34	0.00	36.34	1403.00	701.50	1368.43	685.23	21.17	-2.563	0.000	0.056
74.00	-2.84	-5.80	0.00	-6.65	0.00	6.65	1325.69	662.84	1221.03	611.42	23.33	-2.581	0.000	0.013
75.00	-0.46	-1.85	0.00	-0.85	0.00	0.85	1306.36	653.18	1185.50	593.63	23.87	-2.582	0.000	0.002
75.45	-0.04	-0.03	0.00	-0.02	0.00	0.02	1297.66	648.83	1169.68	585.71	24.11	-2.582	0.000	0.000
76.00	0.00	-0.03	0.00	0.00	0.00	0.00	1287.03	643.52	1150.48	576.10	24.41	-2.582	0.000	0.000

Wind Loading - Shaft

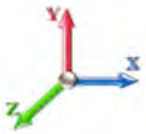
Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	11/30/2020	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 12	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 17

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	19.450	21.40	351.89	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	19.450	21.40	339.48	0.650	0.000	5.00	19.327	12.56	430.0	0.0	689.0
10.00		1.00	0.85	19.450	21.40	327.07	0.650	0.000	5.00	18.634	12.11	414.6	0.0	664.1
15.00		1.00	0.85	19.450	21.40	314.67	0.650	0.000	5.00	17.940	11.66	399.2	0.0	639.2
20.00		1.00	0.90	20.638	22.70	311.35	0.650	0.000	5.00	17.246	11.21	407.2	0.0	614.3
22.75	Bot - Section 2	1.00	0.93	21.205	23.33	308.48	0.650	0.000	2.75	9.190	5.97	222.9	0.0	327.3
25.00		1.00	0.95	21.630	23.79	305.67	0.650	0.000	2.25	7.458	4.85	184.6	0.0	475.0
28.25	Top - Section 1	1.00	0.97	22.194	24.41	301.01	0.650	0.000	3.25	10.525	6.84	267.2	0.0	670.1
30.00		1.00	0.98	22.477	24.72	302.32	0.650	0.000	1.75	5.546	3.60	142.6	0.0	158.2
35.00		1.00	1.01	23.218	25.54	293.72	0.650	0.000	5.00	15.377	10.00	408.4	0.0	438.5
40.00		1.00	1.04	23.880	26.27	284.13	0.650	0.000	5.00	14.684	9.54	401.1	0.0	418.6
42.31	Appurtenance(s)	1.00	1.06	24.164	26.58	279.42	0.650	0.000	2.31	6.550	4.26	181.1	0.0	186.7
45.00		1.00	1.07	24.479	26.93	273.76	0.650	0.000	2.69	7.440	4.84	208.4	0.0	212.0
50.00		1.00	1.09	25.029	27.53	262.74	0.650	0.000	5.00	13.296	8.64	380.7	0.0	378.8
55.00		1.00	1.12	25.536	28.09	251.17	0.650	0.000	5.00	12.603	8.19	368.2	0.0	358.9
55.44	Appurtenance(s)	1.00	1.12	25.579	28.14	250.13	0.650	0.000	0.44	1.076	0.70	31.5	0.0	30.6
60.00		1.00	1.14	26.008	28.61	239.14	0.650	0.000	4.56	10.833	7.04	322.3	0.0	308.3
64.00	Appurtenance(s)	1.00	1.15	26.364	29.00	229.21	0.650	0.000	4.00	9.028	5.87	272.3	0.0	256.8
65.00		1.00	1.16	26.450	29.09	226.69	0.650	0.000	1.00	2.188	1.42	66.2	0.0	62.2
67.06	Appurtenance(s)	1.00	1.16	26.624	29.29	221.46	0.650	0.000	2.06	4.419	2.87	134.6	0.0	125.7
70.00		1.00	1.17	26.866	29.55	213.89	0.650	0.000	2.94	6.103	3.97	187.6	0.0	173.5
74.00	Appurtenance(s)	1.00	1.19	27.182	29.90	203.41	0.650	0.000	4.00	7.918	5.15	246.2	0.0	225.0
75.00	Appurtenance(s)	1.00	1.19	27.259	29.98	200.76	0.650	0.000	1.00	1.910	1.24	59.6	0.0	54.2
75.45	Appurtenance(s)	1.00	1.19	27.293	30.02	199.57	0.650	0.000	0.45	0.851	0.55	26.6	0.0	24.2
76.00		1.00	1.19	27.335	30.07	198.10	0.650	0.000	0.55	1.032	0.67	32.3	0.0	29.3
								Totals:	**76.00**			**5,795.3**		**7,520.5**

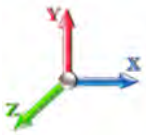
Discrete Appurtenance Forces

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	11/30/2020	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 17

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	75.45	4' Branches	1	27.293	30.022	1.00	1.00	36.86	351.00	0.000	0.000	1770.61	0.00	0.00
2	75.00	T-Arms	3	27.259	29.985	0.56	0.75	10.13	432.00	0.000	0.000	485.75	0.00	0.00
3	75.00	AIR6449 B41	3	27.259	29.985	0.57	0.80	9.63	278.10	0.000	0.000	461.89	0.00	0.00
4	75.00	RFS	3	27.259	29.985	0.56	0.80	34.00	345.60	0.000	0.000	1631.32	0.00	0.00
5	75.00	Air 32	3	27.259	29.985	0.70	0.80	13.59	356.94	0.000	0.000	652.13	0.00	0.00
6	75.00	ATM200-A20	6	27.259	29.985	0.40	0.80	0.29	2.70	0.000	0.000	13.82	0.00	0.00
7	75.00	Radio 4449 B71+B85	3	27.259	29.985	0.54	0.80	3.17	191.70	0.000	0.000	151.97	0.00	0.00
8	75.00	Commscope	3	27.259	29.985	0.54	0.80	1.16	18.90	0.000	0.000	55.54	0.00	0.00
9	75.00	(Handrail Kit w/end	1	27.259	29.985	1.00	1.00	6.75	235.55	0.000	0.000	323.83	0.00	0.00
10	74.00	Antenna Branches	1	27.182	29.900	1.00	1.00	22.43	86.40	0.000	0.000	1073.05	0.00	0.00
11	74.00	Ericsson 4415 B66A	3	27.182	29.900	0.54	0.80	2.99	133.92	0.000	0.000	143.08	0.00	0.00
12	74.00	RRUS 4415 B25	3	27.182	29.900	0.54	0.80	2.64	124.20	0.000	0.000	126.16	0.00	0.00
13	67.06	6' Branches	1	26.624	29.287	1.00	1.00	83.63	360.00	0.000	0.000	3918.78	0.00	0.00
14	64.00	T-Arm (Round)	3	26.364	29.000	0.56	0.75	13.50	945.00	0.000	0.000	626.40	0.00	0.00
15	64.00	SBNHH-1D65B	9	26.364	29.000	0.66	0.80	48.76	324.00	0.000	0.000	2262.66	0.00	0.00
16	64.00	DB846F65ZAXY	4	26.364	29.000	0.74	0.80	20.98	75.60	0.000	0.000	973.51	0.00	0.00
17	64.00	DB846H80E-SX	2	26.364	29.000	0.90	0.80	8.98	28.80	0.000	0.000	416.58	0.00	0.00
18	64.00	RRH2X60-AWS	3	26.364	29.000	0.54	0.80	5.63	148.50	0.000	0.000	261.14	0.00	0.00
19	64.00	RRH2X60-700	3	26.364	29.000	0.54	0.80	5.63	148.50	0.000	0.000	261.14	0.00	0.00
20	64.00	RRH2X60-PCS	3	26.364	29.000	0.54	0.80	3.54	148.50	0.000	0.000	164.14	0.00	0.00
21	64.00	DB-T1-6Z-8AB-0Z	2	26.364	29.000	0.54	0.80	5.15	34.02	0.000	0.000	238.76	0.00	0.00
22	55.44	8' Branches	1	25.579	28.137	1.00	1.00	150.70	1474.20	0.000	0.000	6784.28	0.00	0.00
23	42.31	10' Branches	1	24.164	26.580	1.00	1.00	54.43	486.00	0.000	0.000	2314.82	0.00	0.00
							Totals:		**6,730.13**			**25,111.37**		

Total Applied Force Summary

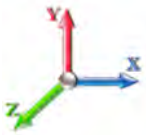
Structure:	CT46122-A-SBA		**Code:**	EIA/TIA-222-G	11/30/2020
Site Name:	Middletown North		**Exposure:**	C	
Height:	76.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 14

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 17

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		430.05	818.63	0.00	0.00
10.00		414.62	793.73	0.00	0.00
15.00		399.18	768.83	0.00	0.00
20.00		407.17	743.93	0.00	0.00
22.75		222.93	398.55	0.00	0.00
25.00		184.55	533.29	0.00	0.00
28.25		267.22	754.29	0.00	0.00
30.00		142.60	203.56	0.00	0.00
35.00		408.44	568.15	0.00	0.00
40.00		401.13	548.23	0.00	0.00
42.31	(1) attachments	2495.87	732.56	0.00	0.00
45.00		208.36	281.76	0.00	0.00
50.00		380.71	508.39	0.00	0.00
55.00		368.16	488.48	0.00	0.00
55.44	(1) attachments	6815.76	1516.23	0.00	0.00
60.00		322.32	426.53	0.00	0.00
64.00	(29) attachments	5476.61	2213.43	0.00	0.00
65.00		66.19	69.31	0.00	0.00
67.06	(1) attachments	4053.37	500.26	0.00	0.00
70.00		187.57	194.32	0.00	0.00
74.00	(7) attachments	1588.52	597.85	0.00	0.00
75.00	(25) attachments	3835.83	1922.83	0.00	0.00
75.45	(1) attachments	1797.16	375.15	0.00	0.00
76.00		32.27	29.30	0.00	0.00
	Totals:	**30,906.63**	**15,987.57**	**0.00**	**0.00**

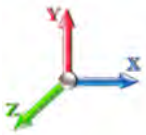
Calculated Forces

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	11/30/2020	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Load Case: 0.9D + 1.6W 97 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 17

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	-15.93	-30.94	0.00	-1821.7	0.00	1821.70	2976.77	1488.39	5655.61	2832.01	0.00	0.000	0.000	0.649
5.00	-15.01	-30.56	0.00	-1667.0	0.00	1667.02	2914.38	1457.19	5339.22	2673.58	0.11	-0.201	0.000	0.629
10.00	-14.11	-30.19	0.00	-1514.2	0.00	1514.24	2848.80	1424.40	5025.69	2516.58	0.43	-0.405	0.000	0.607
15.00	-13.23	-29.83	0.00	-1363.2	0.00	1363.29	2780.04	1390.02	4715.67	2361.34	0.97	-0.612	0.000	0.583
20.00	-12.41	-29.45	0.00	-1214.1	0.00	1214.14	2708.10	1354.05	4409.79	2208.17	1.72	-0.820	0.000	0.555
22.75	-11.96	-29.24	0.00	-1133.1	0.00	1133.15	2667.17	1333.59	4243.56	2124.93	2.23	-0.938	0.000	0.538
25.00	-11.37	-29.07	0.00	-1067.3	0.00	1067.36	2632.97	1316.49	4108.71	2057.41	2.70	-1.035	0.000	0.524
28.25	-10.57	-28.81	0.00	-972.87	0.00	972.87	1920.92	960.46	2962.45	1483.43	3.45	-1.172	0.000	0.662
30.00	-10.29	-28.69	0.00	-922.45	0.00	922.45	1904.07	952.03	2891.21	1447.76	3.90	-1.247	0.000	0.643
35.00	-9.61	-28.31	0.00	-778.99	0.00	778.99	1853.76	926.88	2688.99	1346.49	5.34	-1.487	0.000	0.585
40.00	-9.00	-27.92	0.00	-637.44	0.00	637.44	1800.28	900.14	2489.19	1246.45	7.02	-1.716	0.000	0.517
42.31	-8.29	-25.42	0.00	-572.95	0.00	572.95	1774.49	887.25	2397.88	1200.72	7.88	-1.820	0.000	0.483
45.00	-7.95	-25.22	0.00	-504.57	0.00	504.57	1743.61	871.80	2292.47	1147.94	8.94	-1.936	0.000	0.445
50.00	-7.38	-24.85	0.00	-378.46	0.00	378.46	1683.75	841.88	2099.47	1051.30	11.07	-2.127	0.000	0.365
55.00	-6.87	-24.47	0.00	-254.22	0.00	254.22	1620.72	810.36	1910.85	956.84	13.39	-2.287	0.000	0.271
55.44	-5.61	-17.61	0.00	-243.46	0.00	243.46	1615.02	807.51	1894.48	948.65	13.61	-2.300	0.000	0.261
60.00	-5.17	-17.27	0.00	-163.17	0.00	163.17	1554.50	777.25	1727.25	864.91	15.86	-2.413	0.000	0.192
64.00	-3.18	-11.71	0.00	-94.08	0.00	94.08	1499.23	749.61	1584.42	793.39	17.92	-2.487	0.000	0.121
65.00	-3.11	-11.64	0.00	-82.37	0.00	82.37	1485.09	742.54	1549.31	775.81	18.44	-2.501	0.000	0.109
67.06	-2.79	-7.57	0.00	-58.38	0.00	58.38	1455.57	727.78	1477.81	740.00	19.53	-2.526	0.000	0.081
70.00	-2.60	-7.38	0.00	-36.12	0.00	36.12	1403.00	701.50	1368.43	685.23	21.09	-2.552	0.000	0.055
74.00	-2.07	-5.76	0.00	-6.61	0.00	6.61	1325.69	662.84	1221.03	611.42	23.24	-2.570	0.000	0.012
75.00	-0.32	-1.85	0.00	-0.85	0.00	0.85	1306.36	653.18	1185.50	593.63	23.78	-2.571	0.000	0.002
75.45	-0.03	-0.03	0.00	-0.02	0.00	0.02	1297.66	648.83	1169.68	585.71	24.02	-2.571	0.000	0.000
76.00	0.00	-0.03	0.00	0.00	0.00	0.00	1287.03	643.52	1150.48	576.10	24.32	-2.571	0.000	0.000

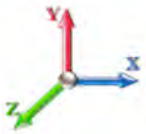
Wind Loading - Shaft

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	11/30/2020	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 16

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.656	5.00	20.707	24.85	141.3	482.5	1401.2
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.775	5.00	20.113	24.14	137.2	500.2	1385.7
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.848	5.00	19.480	23.38	132.9	502.7	1355.0
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.902	5.00	18.832	22.60	136.3	498.5	1317.6
22.75	Bot - Section 2	1.00	0.93	5.634	6.20	0.00	1.200	1.927	2.75	10.073	12.09	74.9	271.9	708.3
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.945	2.25	8.188	9.83	62.1	223.4	856.7
28.25	Top - Section 1	1.00	0.97	5.897	6.49	0.00	1.200	1.969	3.25	11.591	13.91	90.2	318.3	1211.7
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.981	1.75	6.124	7.35	48.3	170.0	380.9
35.00		1.00	1.01	6.169	6.79	0.00	1.200	2.012	5.00	17.054	20.46	138.9	472.8	1057.6
40.00		1.00	1.04	6.345	6.98	0.00	1.200	2.039	5.00	16.383	19.66	137.2	458.6	1016.8
42.31	Appurtenance(s)	1.00	1.06	6.420	7.06	0.00	1.200	2.050	2.31	7.339	8.81	62.2	208.6	457.5
45.00		1.00	1.07	6.504	7.15	0.00	1.200	2.063	2.69	8.365	10.04	71.8	238.4	521.1
50.00		1.00	1.09	6.650	7.32	0.00	1.200	2.085	5.00	15.034	18.04	132.0	426.7	931.8
55.00		1.00	1.12	6.785	7.46	0.00	1.200	2.105	5.00	14.357	17.23	128.6	409.4	887.9
55.44	Appurtenance(s)	1.00	1.12	6.796	7.48	0.00	1.200	2.106	0.44	1.230	1.48	11.0	35.9	76.7
60.00		1.00	1.14	6.910	7.60	0.00	1.200	2.123	4.56	12.447	14.94	113.5	357.0	768.1
64.00	Appurtenance(s)	1.00	1.15	7.005	7.71	0.00	1.200	2.137	4.00	10.453	12.54	96.6	301.3	643.7
65.00		1.00	1.16	7.028	7.73	0.00	1.200	2.140	1.00	2.544	3.05	23.6	74.6	157.5
67.06	Appurtenance(s)	1.00	1.16	7.074	7.78	0.00	1.200	2.147	2.06	5.156	6.19	48.1	150.4	317.9
70.00		1.00	1.17	7.138	7.85	0.00	1.200	2.156	2.94	7.159	8.59	67.5	207.9	439.2
74.00	Appurtenance(s)	1.00	1.19	7.222	7.94	0.00	1.200	2.168	4.00	9.364	11.24	89.3	270.4	570.3
75.00	Appurtenance(s)	1.00	1.19	7.243	7.97	0.00	1.200	2.171	1.00	2.272	2.73	21.7	66.8	139.1
75.45	Appurtenance(s)	1.00	1.19	7.252	7.98	0.00	1.200	2.172	0.45	1.013	1.22	9.7	29.9	62.1
76.00		1.00	1.19	7.263	7.99	0.00	1.200	2.174	0.55	1.231	1.48	11.8	36.3	75.4
								Totals:	**76.00**			**1,986.8**		**16,739.8**

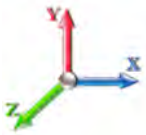
Discrete Appurtenance Forces

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	11/30/2020	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 16

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	75.45	4' Branches	1	7.252	7.977	1.00	1.00	68.89	468.00	0.000	0.000	549.54	0.00	0.00
2	75.00	T-Arms	3	7.243	7.967	0.56	0.75	24.81	977.07	0.000	0.000	197.66	0.00	0.00
3	75.00	AIR6449 B41	3	7.243	7.967	0.57	0.80	11.64	787.45	0.000	0.000	92.76	0.00	0.00
4	75.00	RFS	3	7.243	7.967	0.56	0.80	38.01	2069.32	0.000	0.000	302.83	0.00	0.00
5	75.00	Air 32	3	7.243	7.967	0.70	0.80	16.55	1190.73	0.000	0.000	131.87	0.00	0.00
6	75.00	ATM200-A20	6	7.243	7.967	0.80	0.80	1.89	33.71	0.000	0.000	15.09	0.00	0.00
7	75.00	Radio 4449 B71+B85	3	7.243	7.967	0.54	0.80	4.26	414.02	0.000	0.000	33.96	0.00	0.00
8	75.00	Commscope	3	7.243	7.967	0.54	0.80	2.42	66.45	0.000	0.000	19.29	0.00	0.00
9	75.00	(Handrail Kit w/end	1	7.243	7.967	1.00	1.00	14.96	962.18	0.000	0.000	119.16	0.00	0.00
10	74.00	Antenna Branches	1	7.222	7.945	1.00	1.00	41.88	294.46	0.000	0.000	332.74	0.00	0.00
11	74.00	Ericsson 4415 B66A	3	7.222	7.945	0.54	0.80	4.15	426.44	0.000	0.000	32.96	0.00	0.00
12	74.00	RRUS 4415 B25	3	7.222	7.945	0.54	0.80	3.67	290.60	0.000	0.000	29.13	0.00	0.00
13	67.06	6' Branches	1	7.074	7.782	1.00	1.00	155.45	1223.51	0.000	0.000	1209.64	0.00	0.00
14	64.00	T-Arm (Round)	3	7.005	7.705	0.56	0.75	27.92	1947.52	0.000	0.000	215.17	0.00	0.00
15	64.00	SBNHH-1D65B	9	7.005	7.705	0.66	0.80	58.42	2767.62	0.000	0.000	450.18	0.00	0.00
16	64.00	DB846F65ZAXY	4	7.005	7.705	0.74	0.80	25.55	1110.27	0.000	0.000	196.89	0.00	0.00
17	64.00	DB846H80E-SX	2	7.005	7.705	0.90	0.80	11.70	449.48	0.000	0.000	90.14	0.00	0.00
18	64.00	RRH2X60-AWS	3	7.005	7.705	0.54	0.80	7.18	431.63	0.000	0.000	55.34	0.00	0.00
19	64.00	RRH2X60-700	3	7.005	7.705	0.54	0.80	7.18	431.63	0.000	0.000	55.34	0.00	0.00
20	64.00	RRH2X60-PCS	3	7.005	7.705	0.54	0.80	4.82	525.16	0.000	0.000	37.11	0.00	0.00
21	64.00	DB-T1-6Z-8AB-0Z	2	7.005	7.705	0.54	0.80	6.31	411.61	0.000	0.000	48.62	0.00	0.00
22	55.44	8' Branches	1	6.796	7.476	1.00	1.00	277.68	4983.78	0.000	0.000	2075.92	0.00	0.00
23	42.31	10' Branches	1	6.420	7.062	1.00	1.00	99.07	1630.87	0.000	0.000	699.68	0.00	0.00
							Totals:		**23,893.50**			**6,991.03**		

Total Applied Force Summary

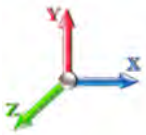
Structure:	CT46122-A-SBA		**Code:**	EIA/TIA-222-G	11/30/2020
Site Name:	Middletown North		**Exposure:**	C	
Height:	76.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 18

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 16

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		141.26	1573.99	0.00	0.00
10.00		137.20	1558.49	0.00	0.00
15.00		132.89	1527.84	0.00	0.00
20.00		136.31	1490.41	0.00	0.00
22.75		74.91	803.30	0.00	0.00
25.00		62.11	934.42	0.00	0.00
28.25		90.23	1323.97	0.00	0.00
30.00		48.27	441.37	0.00	0.00
35.00		138.87	1230.38	0.00	0.00
40.00		137.21	1189.57	0.00	0.00
42.31	(1) attachments	761.87	2168.25	0.00	0.00
45.00		71.82	614.09	0.00	0.00
50.00		131.97	1104.56	0.00	0.00
55.00		128.58	1060.73	0.00	0.00
55.44	(1) attachments	2086.96	5075.71	0.00	0.00
60.00		113.54	925.69	0.00	0.00
64.00	(29) attachments	1245.45	8856.86	0.00	0.00
65.00		23.60	166.97	0.00	0.00
67.06	(1) attachments	1257.79	1560.90	0.00	0.00
70.00		67.46	467.04	0.00	0.00
74.00	(7) attachments	484.10	1619.64	0.00	0.00
75.00	(25) attachments	934.34	6649.51	0.00	0.00
75.45	(1) attachments	559.24	530.10	0.00	0.00
76.00		11.80	75.37	0.00	0.00
	Totals:	**8,977.80**	**42,949.15**	**0.00**	**0.00**

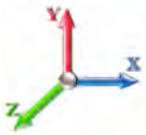
Calculated Forces

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	11/30/2020	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

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

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 16

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	-42.94	-9.00	0.00	-529.16	0.00	529.16	2976.77	1488.39	5655.61	2832.01	0.00	0.000	0.000	0.201
5.00	-41.36	-8.90	0.00	-484.16	0.00	484.16	2914.38	1457.19	5339.22	2673.58	0.03	-0.058	0.000	0.195
10.00	-39.79	-8.80	0.00	-439.66	0.00	439.66	2848.80	1424.40	5025.69	2516.58	0.13	-0.118	0.000	0.189
15.00	-38.26	-8.71	0.00	-395.66	0.00	395.66	2780.04	1390.02	4715.67	2361.34	0.28	-0.178	0.000	0.181
20.00	-36.76	-8.59	0.00	-352.13	0.00	352.13	2708.10	1354.05	4409.79	2208.17	0.50	-0.238	0.000	0.173
22.75	-35.95	-8.53	0.00	-328.50	0.00	328.50	2667.17	1333.59	4243.56	2124.93	0.65	-0.272	0.000	0.168
25.00	-35.01	-8.49	0.00	-309.30	0.00	309.30	2632.97	1316.49	4108.71	2057.41	0.78	-0.300	0.000	0.164
28.25	-33.69	-8.41	0.00	-281.71	0.00	281.71	1920.92	960.46	2962.45	1483.43	1.00	-0.340	0.000	0.208
30.00	-33.24	-8.39	0.00	-266.99	0.00	266.99	1904.07	952.03	2891.21	1447.76	1.13	-0.362	0.000	0.202
35.00	-32.00	-8.28	0.00	-225.07	0.00	225.07	1853.76	926.88	2688.99	1346.49	1.55	-0.431	0.000	0.184
40.00	-30.80	-8.15	0.00	-183.69	0.00	183.69	1800.28	900.14	2489.19	1246.45	2.04	-0.497	0.000	0.165
42.31	-28.64	-7.39	0.00	-164.86	0.00	164.86	1774.49	887.25	2397.88	1200.72	2.29	-0.527	0.000	0.154
45.00	-28.02	-7.33	0.00	-144.98	0.00	144.98	1743.61	871.80	2292.47	1147.94	2.59	-0.560	0.000	0.142
50.00	-26.91	-7.21	0.00	-108.32	0.00	108.32	1683.75	841.88	2099.47	1051.30	3.21	-0.615	0.000	0.119
55.00	-25.85	-7.08	0.00	-72.25	0.00	72.25	1620.72	810.36	1910.85	956.84	3.88	-0.661	0.000	0.092
55.44	-20.79	-4.94	0.00	-69.13	0.00	69.13	1615.02	807.51	1894.48	948.65	3.94	-0.665	0.000	0.086
60.00	-19.87	-4.83	0.00	-46.58	0.00	46.58	1554.50	777.25	1727.25	864.91	4.60	-0.697	0.000	0.067
64.00	-11.03	-3.48	0.00	-27.27	0.00	27.27	1499.23	749.61	1584.42	793.39	5.19	-0.718	0.000	0.042
65.00	-10.86	-3.45	0.00	-23.79	0.00	23.79	1485.09	742.54	1549.31	775.81	5.34	-0.722	0.000	0.038
67.06	-9.31	-2.18	0.00	-16.68	0.00	16.68	1455.57	727.78	1477.81	740.00	5.65	-0.729	0.000	0.029
70.00	-8.85	-2.10	0.00	-10.28	0.00	10.28	1403.00	701.50	1368.43	685.23	6.11	-0.737	0.000	0.021
74.00	-7.23	-1.60	0.00	-1.87	0.00	1.87	1325.69	662.84	1221.03	611.42	6.73	-0.742	0.000	0.009
75.00	-0.60	-0.58	0.00	-0.27	0.00	0.27	1306.36	653.18	1185.50	593.63	6.88	-0.742	0.000	0.001
75.45	-0.08	-0.01	0.00	-0.01	0.00	0.01	1297.66	648.83	1169.68	585.71	6.95	-0.742	0.000	0.000
76.00	0.00	-0.01	0.00	0.00	0.00	0.00	1287.03	643.52	1150.48	576.10	7.04	-0.742	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	11/30/2020	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Load Case:	1.2D + 1.0E							**Iterations**	15
Gust Response Factor	1.10				**Sds**	0.19		**Ss**	0.18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00		**Sd1**	0.10		**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.91		**SA**	0.09	**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		765.58	0.01	0.05	0.03	10.49	
10.00		737.92	0.03	0.07	0.04	14.02	
15.00		710.26	0.07	0.07	0.04	15.66	
20.00		682.59	0.13	0.07	0.03	17.08	
22.75	Bot - Section 2	363.63	0.17	0.07	0.03	9.71	
25.00		527.75	0.20	0.06	0.02	14.77	
28.25	Top - Section 1	744.50	0.26	0.05	0.02	21.88	
30.00		175.77	0.29	0.05	0.01	5.23	
35.00		487.28	0.40	0.02	0.01	14.09	
40.00		465.14	0.52	-0.02	0.01	11.55	
42.31	Appurtenance(s)	747.42	0.59	-0.05	0.01	16.60	
45.00		235.59	0.66	-0.07	0.02	4.52	
50.00		420.88	0.82	-0.11	0.06	7.04	
55.00		398.75	0.99	-0.11	0.13	9.58	
55.44	Appurtenance(s)	1672.0	1.01	-0.11	0.13	42.40	
60.00		342.59	1.18	-0.02	0.24	16.21	
64.00	Appurtenance(s)	2344.1	1.34	0.18	0.37	188.10	
65.00		69.13	1.38	0.25	0.41	6.27	
67.06	Appurtenance(s)	539.61	1.47	0.43	0.51	61.97	
70.00		192.75	1.60	0.79	0.67	30.08	
74.00	Appurtenance(s)	632.75	1.79	1.50	0.96	142.33	
75.00	Appurtenance(s)	2128.6	1.84	1.73	1.05	520.45	
75.45	Appurtenance(s)	416.83	1.86	1.84	1.09	105.72	
76.00		32.55	1.89	1.98	1.14	8.63	
	Totals:	**15,834.1**				**1,294.4**	**Total Wind:** **30,906.6**

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

Calculated Forces

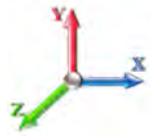
Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	11/30/2020	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 21	

Load Case:	1.2D + 1.0E							**Iterations**	15
Gust Response Factor	1.10			**Sds**	0.19			**Ss**	0.18
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.91	**SA**	0.09	**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	-21.32	-1.30	0.00	-86.13	0.00	86.13	2976.77	1488.39	5655.61	2832.01		0.00	0.00	0.038
5.00	-20.22	-1.29	0.00	-79.65	0.00	79.65	2914.38	1457.19	5339.22	2673.58		0.01	-0.01	0.037
10.00	-19.17	-1.28	0.00	-73.21	0.00	73.21	2848.80	1424.40	5025.69	2516.58		0.02	-0.02	0.036
15.00	-18.14	-1.26	0.00	-66.82	0.00	66.82	2780.04	1390.02	4715.67	2361.34		0.05	-0.03	0.035
20.00	-17.15	-1.25	0.00	-60.50	0.00	60.50	2708.10	1354.05	4409.79	2208.17		0.08	-0.04	0.034
22.75	-16.62	-1.24	0.00	-57.07	0.00	57.07	2667.17	1333.59	4243.56	2124.93		0.11	-0.05	0.033
25.00	-15.91	-1.23	0.00	-54.27	0.00	54.27	2632.97	1316.49	4108.71	2057.41		0.13	-0.05	0.032
28.25	-14.90	-1.21	0.00	-50.29	0.00	50.29	1920.92	960.46	2962.45	1483.43		0.17	-0.06	0.042
30.00	-14.63	-1.20	0.00	-48.18	0.00	48.18	1904.07	952.03	2891.21	1447.76		0.19	-0.06	0.041
35.00	-13.87	-1.19	0.00	-42.17	0.00	42.17	1853.76	926.88	2688.99	1346.49		0.26	-0.07	0.039
40.00	-13.14	-1.18	0.00	-36.21	0.00	36.21	1800.28	900.14	2489.19	1246.45		0.34	-0.09	0.036
42.31	-12.16	-1.16	0.00	-33.49	0.00	33.49	1774.49	887.25	2397.88	1200.72		0.39	-0.09	0.035
45.00	-11.79	-1.16	0.00	-30.36	0.00	30.36	1743.61	871.80	2292.47	1147.94		0.44	-0.10	0.033
50.00	-11.11	-1.15	0.00	-24.56	0.00	24.56	1683.75	841.88	2099.47	1051.30		0.55	-0.11	0.030
55.00	-10.46	-1.14	0.00	-18.79	0.00	18.79	1620.72	810.36	1910.85	956.84		0.68	-0.12	0.026
55.44	-8.44	-1.10	0.00	-18.29	0.00	18.29	1615.02	807.51	1894.48	948.65		0.69	-0.12	0.025
60.00	-7.87	-1.08	0.00	-13.28	0.00	13.28	1554.50	777.25	1727.25	864.91		0.81	-0.13	0.020
64.00	-4.92	-0.89	0.00	-8.95	0.00	8.95	1499.23	749.61	1584.42	793.39		0.92	-0.14	0.015
65.00	-4.82	-0.88	0.00	-8.06	0.00	8.06	1485.09	742.54	1549.31	775.81		0.95	-0.14	0.014
67.06	-4.16	-0.82	0.00	-6.25	0.00	6.25	1455.57	727.78	1477.81	740.00		1.01	-0.14	0.011
70.00	-3.90	-0.79	0.00	-3.85	0.00	3.85	1403.00	701.50	1368.43	685.23		1.10	-0.15	0.008
74.00	-3.10	-0.64	0.00	-0.70	0.00	0.70	1325.69	662.84	1221.03	611.42		1.23	-0.15	0.003
75.00	-0.54	-0.12	0.00	-0.06	0.00	0.06	1306.36	653.18	1185.50	593.63		1.26	-0.15	0.001
75.45	-0.04	-0.01	0.00	0.00	0.00	0.00	1297.66	648.83	1169.68	585.71		1.27	-0.15	0.000
76.00	0.00	-0.01	0.00	0.00	0.00	0.00	1287.03	643.52	1150.48	576.10		1.29	-0.15	0.000

Seismic Segment Forces (Factored)

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	11/30/2020	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 22	



Load Case:	0.9D + 1.0E						**Iterations**	15	
Gust Response Factor	1.10				**Sds**	0.19	**Ss**	0.18	
Dead Load Factor	0.90	**Seismic Load Factor**	1.00		**Sd1**	0.10	**S1**	0.06	
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.91		**SA**	0.09	**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		765.58	0.01	0.05	0.03	10.49	
10.00		737.92	0.03	0.07	0.04	14.02	
15.00		710.26	0.07	0.07	0.04	15.66	
20.00		682.59	0.13	0.07	0.03	17.08	
22.75	Bot - Section 2	363.63	0.17	0.07	0.03	9.71	
25.00		527.75	0.20	0.06	0.02	14.77	
28.25	Top - Section 1	744.50	0.26	0.05	0.02	21.88	
30.00		175.77	0.29	0.05	0.01	5.23	
35.00		487.28	0.40	0.02	0.01	14.09	
40.00		465.14	0.52	-0.02	0.01	11.55	
42.31	Appurtenance(s)	747.42	0.59	-0.05	0.01	16.60	
45.00		235.59	0.66	-0.07	0.02	4.52	
50.00		420.88	0.82	-0.11	0.06	7.04	
55.00		398.75	0.99	-0.11	0.13	9.58	
55.44	Appurtenance(s)	1672.0	1.01	-0.11	0.13	42.40	
60.00		342.59	1.18	-0.02	0.24	16.21	
64.00	Appurtenance(s)	2344.1	1.34	0.18	0.37	188.10	
65.00		69.13	1.38	0.25	0.41	6.27	
67.06	Appurtenance(s)	539.61	1.47	0.43	0.51	61.97	
70.00		192.75	1.60	0.79	0.67	30.08	
74.00	Appurtenance(s)	632.75	1.79	1.50	0.96	142.33	
75.00	Appurtenance(s)	2128.6	1.84	1.73	1.05	520.45	
75.45	Appurtenance(s)	416.83	1.86	1.84	1.09	105.72	
76.00		32.55	1.89	1.98	1.14	8.63	
	Totals:	**15,834.1**				**1,294.4**	**Total Wind:** **30,906.6**

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

Calculated Forces

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	11/30/2020	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Load Case:	0.9D + 1.0E							**Iterations**	15
Gust Response Factor	1.10			**Sds**	0.19			**Ss**	0.18
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10			**S1**	0.06
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.91	**SA**	0.09	**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	-15.99	-1.30	0.00	-85.86	0.00	85.86	2976.77	1488.39	5655.61	2832.01		0.00	0.00	0.036
5.00	-15.17	-1.29	0.00	-79.38	0.00	79.38	2914.38	1457.19	5339.22	2673.58		0.01	-0.01	0.035
10.00	-14.37	-1.28	0.00	-72.95	0.00	72.95	2848.80	1424.40	5025.69	2516.58		0.02	-0.02	0.034
15.00	-13.61	-1.26	0.00	-66.57	0.00	66.57	2780.04	1390.02	4715.67	2361.34		0.05	-0.03	0.033
20.00	-12.86	-1.25	0.00	-60.26	0.00	60.26	2708.10	1354.05	4409.79	2208.17		0.08	-0.04	0.032
22.75	-12.46	-1.24	0.00	-56.84	0.00	56.84	2667.17	1333.59	4243.56	2124.93		0.11	-0.05	0.031
25.00	-11.93	-1.22	0.00	-54.05	0.00	54.05	2632.97	1316.49	4108.71	2057.41		0.13	-0.05	0.031
28.25	-11.18	-1.20	0.00	-50.08	0.00	50.08	1920.92	960.46	2962.45	1483.43		0.17	-0.06	0.040
30.00	-10.97	-1.20	0.00	-47.98	0.00	47.98	1904.07	952.03	2891.21	1447.76		0.19	-0.06	0.039
35.00	-10.40	-1.19	0.00	-41.99	0.00	41.99	1853.76	926.88	2688.99	1346.49		0.26	-0.07	0.037
40.00	-9.85	-1.17	0.00	-36.06	0.00	36.06	1800.28	900.14	2489.19	1246.45		0.34	-0.09	0.034
42.31	-9.12	-1.16	0.00	-33.35	0.00	33.35	1774.49	887.25	2397.88	1200.72		0.39	-0.09	0.033
45.00	-8.84	-1.15	0.00	-30.23	0.00	30.23	1743.61	871.80	2292.47	1147.94		0.44	-0.10	0.031
50.00	-8.33	-1.15	0.00	-24.46	0.00	24.46	1683.75	841.88	2099.47	1051.30		0.55	-0.11	0.028
55.00	-7.84	-1.14	0.00	-18.72	0.00	18.72	1620.72	810.36	1910.85	956.84		0.67	-0.12	0.024
55.44	-6.33	-1.09	0.00	-18.22	0.00	18.22	1615.02	807.51	1894.48	948.65		0.69	-0.12	0.023
60.00	-5.90	-1.08	0.00	-13.23	0.00	13.23	1554.50	777.25	1727.25	864.91		0.81	-0.13	0.019
64.00	-3.69	-0.88	0.00	-8.92	0.00	8.92	1499.23	749.61	1584.42	793.39		0.92	-0.14	0.014
65.00	-3.62	-0.88	0.00	-8.04	0.00	8.04	1485.09	742.54	1549.31	775.81		0.95	-0.14	0.013
67.06	-3.12	-0.81	0.00	-6.23	0.00	6.23	1455.57	727.78	1477.81	740.00		1.01	-0.14	0.011
70.00	-2.92	-0.78	0.00	-3.83	0.00	3.83	1403.00	701.50	1368.43	685.23		1.10	-0.14	0.008
74.00	-2.33	-0.64	0.00	-0.70	0.00	0.70	1325.69	662.84	1221.03	611.42		1.22	-0.15	0.003
75.00	-0.40	-0.12	0.00	-0.06	0.00	0.06	1306.36	653.18	1185.50	593.63		1.25	-0.15	0.000
75.45	-0.03	-0.01	0.00	0.00	0.00	0.00	1297.66	648.83	1169.68	585.71		1.27	-0.15	0.000
76.00	0.00	-0.01	0.00	0.00	0.00	0.00	1287.03	643.52	1150.48	576.10		1.28	-0.15	0.000

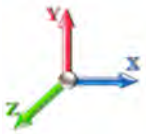
Wind Loading - Shaft

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	11/30/2020	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 16

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	217.66	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	209.99	0.650	0.000	5.00	19.327	12.56	102.8	0.0	765.6
10.00		1.00	0.85	7.442	8.19	202.31	0.650	0.000	5.00	18.634	12.11	99.1	0.0	737.9
15.00		1.00	0.85	7.442	8.19	194.64	0.650	0.000	5.00	17.940	11.66	95.5	0.0	710.3
20.00		1.00	0.90	7.896	8.69	192.59	0.650	0.000	5.00	17.246	11.21	97.4	0.0	682.6
22.75	Bot - Section 2	1.00	0.93	8.113	8.92	190.81	0.650	0.000	2.75	9.190	5.97	53.3	0.0	363.6
25.00		1.00	0.95	8.276	9.10	189.07	0.650	0.000	2.25	7.458	4.85	44.1	0.0	527.7
28.25	Top - Section 1	1.00	0.97	8.492	9.34	186.19	0.650	0.000	3.25	10.525	6.84	63.9	0.0	744.5
30.00		1.00	0.98	8.600	9.46	187.00	0.650	0.000	1.75	5.546	3.60	34.1	0.0	175.8
35.00		1.00	1.01	8.883	9.77	181.68	0.650	0.000	5.00	15.377	10.00	97.7	0.0	487.3
40.00		1.00	1.04	9.137	10.05	175.75	0.650	0.000	5.00	14.684	9.54	95.9	0.0	465.1
42.31	Appurtenance(s)	1.00	1.06	9.245	10.17	172.84	0.650	0.000	2.31	6.550	4.26	43.3	0.0	207.4
45.00		1.00	1.07	9.366	10.30	169.33	0.650	0.000	2.69	7.440	4.84	49.8	0.0	235.6
50.00		1.00	1.09	9.576	10.53	162.52	0.650	0.000	5.00	13.296	8.64	91.0	0.0	420.9
55.00		1.00	1.12	9.770	10.75	155.36	0.650	0.000	5.00	12.603	8.19	88.0	0.0	398.8
55.44	Appurtenance(s)	1.00	1.12	9.787	10.77	154.72	0.650	0.000	0.44	1.076	0.70	7.5	0.0	34.0
60.00		1.00	1.14	9.951	10.95	147.92	0.650	0.000	4.56	10.833	7.04	77.1	0.0	342.6
64.00	Appurtenance(s)	1.00	1.15	10.087	11.10	141.78	0.650	0.000	4.00	9.028	5.87	65.1	0.0	285.4
65.00		1.00	1.16	10.120	11.13	140.22	0.650	0.000	1.00	2.188	1.42	15.8	0.0	69.1
67.06	Appurtenance(s)	1.00	1.16	10.187	11.21	136.99	0.650	0.000	2.06	4.419	2.87	32.2	0.0	139.6
70.00		1.00	1.17	10.279	11.31	132.30	0.650	0.000	2.94	6.103	3.97	44.9	0.0	192.7
74.00	Appurtenance(s)	1.00	1.19	10.400	11.44	125.82	0.650	0.000	4.00	7.918	5.15	58.9	0.0	250.0
75.00	Appurtenance(s)	1.00	1.19	10.430	11.47	124.18	0.650	0.000	1.00	1.910	1.24	14.2	0.0	60.3
75.45	Appurtenance(s)	1.00	1.19	10.443	11.49	123.44	0.650	0.000	0.45	0.851	0.55	6.4	0.0	26.8
76.00		1.00	1.19	10.459	11.50	122.54	0.650	0.000	0.55	1.032	0.67	7.7	0.0	32.6
								Totals:	**76.00**			**1,385.8**		**8,356.2**

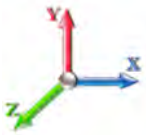
Discrete Appurtenance Forces

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	11/30/2020	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 16

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	75.45	4' Branches	1	10.443	11.487	1.00	1.00	36.86	390.00	0.000	0.000	423.41	0.00	0.00
2	75.00	T-Arms	3	10.430	11.473	0.56	0.75	10.13	480.00	0.000	0.000	116.16	0.00	0.00
3	75.00	AIR6449 B41	3	10.430	11.473	0.57	0.80	9.63	309.00	0.000	0.000	110.45	0.00	0.00
4	75.00	RFS	3	10.430	11.473	0.56	0.80	34.00	384.00	0.000	0.000	390.10	0.00	0.00
5	75.00	Air 32	3	10.430	11.473	0.70	0.80	13.59	396.60	0.000	0.000	155.94	0.00	0.00
6	75.00	ATM200-A20	6	10.430	11.473	0.40	0.80	0.29	3.00	0.000	0.000	3.30	0.00	0.00
7	75.00	Radio 4449 B71+B85	3	10.430	11.473	0.54	0.80	3.17	213.00	0.000	0.000	36.34	0.00	0.00
8	75.00	Commscope	3	10.430	11.473	0.54	0.80	1.16	21.00	0.000	0.000	13.28	0.00	0.00
9	75.00	(Handrail Kit w/end	1	10.430	11.473	1.00	1.00	6.75	261.72	0.000	0.000	77.44	0.00	0.00
10	74.00	Antenna Branches	1	10.400	11.440	1.00	1.00	22.43	96.00	0.000	0.000	256.60	0.00	0.00
11	74.00	Ericsson 4415 B66A	3	10.400	11.440	0.54	0.80	2.99	148.80	0.000	0.000	34.22	0.00	0.00
12	74.00	RRUS 4415 B25	3	10.400	11.440	0.54	0.80	2.64	138.00	0.000	0.000	30.17	0.00	0.00
13	67.06	6' Branches	1	10.187	11.205	1.00	1.00	83.63	400.00	0.000	0.000	937.11	0.00	0.00
14	64.00	T-Arm (Round)	3	10.087	11.096	0.56	0.75	13.50	1050.00	0.000	0.000	149.79	0.00	0.00
15	64.00	SBNHH-1D65B	9	10.087	11.096	0.66	0.80	48.76	360.00	0.000	0.000	541.08	0.00	0.00
16	64.00	DB846F65ZAXY	4	10.087	11.096	0.74	0.80	20.98	84.00	0.000	0.000	232.80	0.00	0.00
17	64.00	DB846H80E-SX	2	10.087	11.096	0.90	0.80	8.98	32.00	0.000	0.000	99.62	0.00	0.00
18	64.00	RRH2X60-AWS	3	10.087	11.096	0.54	0.80	5.63	165.00	0.000	0.000	62.45	0.00	0.00
19	64.00	RRH2X60-700	3	10.087	11.096	0.54	0.80	5.63	165.00	0.000	0.000	62.45	0.00	0.00
20	64.00	RRH2X60-PCS	3	10.087	11.096	0.54	0.80	3.54	165.00	0.000	0.000	39.25	0.00	0.00
21	64.00	DB-T1-6Z-8AB-0Z	2	10.087	11.096	0.54	0.80	5.15	37.80	0.000	0.000	57.09	0.00	0.00
22	55.44	8' Branches	1	9.787	10.765	1.00	1.00	150.70	1638.00	0.000	0.000	1622.34	0.00	0.00
23	42.31	10' Branches	1	9.245	10.170	1.00	1.00	54.43	540.00	0.000	0.000	553.55	0.00	0.00
							Totals:		**7,477.92**			**6,004.95**		

Total Applied Force Summary

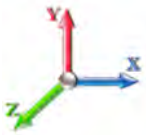
Structure:	CT46122-A-SBA		**Code:**	EIA/TIA-222-G	11/30/2020
Site Name:	Middletown North		**Exposure:**	C	
Height:	76.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 26

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 16

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		102.84	909.58	0.00	0.00
10.00		99.15	881.92	0.00	0.00
15.00		95.46	854.26	0.00	0.00
20.00		97.37	826.59	0.00	0.00
22.75		53.31	442.83	0.00	0.00
25.00		44.13	592.55	0.00	0.00
28.25		63.90	838.10	0.00	0.00
30.00		34.10	226.17	0.00	0.00
35.00		97.67	631.28	0.00	0.00
40.00		95.92	609.14	0.00	0.00
42.31	(1) attachments	596.84	813.95	0.00	0.00
45.00		49.83	313.06	0.00	0.00
50.00		91.04	564.88	0.00	0.00
55.00		88.04	542.75	0.00	0.00
55.44	(1) attachments	1629.87	1684.70	0.00	0.00
60.00		77.08	473.92	0.00	0.00
64.00	(29) attachments	1309.64	2459.36	0.00	0.00
65.00		15.83	77.01	0.00	0.00
67.06	(1) attachments	969.29	555.85	0.00	0.00
70.00		44.85	215.91	0.00	0.00
74.00	(7) attachments	379.87	664.27	0.00	0.00
75.00	(25) attachments	917.27	2136.48	0.00	0.00
75.45	(1) attachments	429.76	416.83	0.00	0.00
76.00		7.72	32.55	0.00	0.00
	Totals:	**7,390.79**	**17,763.97**	**0.00**	**0.00**

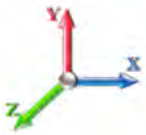
Calculated Forces

Structure:	CT46122-A-SBA	**Code:**	EIA/TIA-222-G	11/30/2020	
Site Name:	Middletown North	**Exposure:**	C		
Height:	76.00 (ft)	**Crest Height:**	0.00		
Base Elev:	0.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 16

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	-17.76	-7.40	0.00	-436.16	0.00	436.16	2976.77	1488.39	5655.61	2832.01	0.00	0.000	0.000	0.160
5.00	-16.84	-7.31	0.00	-399.17	0.00	399.17	2914.38	1457.19	5339.22	2673.58	0.03	-0.048	0.000	0.155
10.00	-15.96	-7.22	0.00	-362.62	0.00	362.62	2848.80	1424.40	5025.69	2516.58	0.10	-0.097	0.000	0.150
15.00	-15.10	-7.14	0.00	-326.51	0.00	326.51	2780.04	1390.02	4715.67	2361.34	0.23	-0.147	0.000	0.144
20.00	-14.27	-7.05	0.00	-290.82	0.00	290.82	2708.10	1354.05	4409.79	2208.17	0.41	-0.196	0.000	0.137
22.75	-13.82	-7.00	0.00	-271.44	0.00	271.44	2667.17	1333.59	4243.56	2124.93	0.53	-0.225	0.000	0.133
25.00	-13.22	-6.96	0.00	-255.69	0.00	255.69	2632.97	1316.49	4108.71	2057.41	0.65	-0.248	0.000	0.129
28.25	-12.38	-6.90	0.00	-233.08	0.00	233.08	1920.92	960.46	2962.45	1483.43	0.83	-0.281	0.000	0.164
30.00	-12.15	-6.87	0.00	-221.01	0.00	221.01	1904.07	952.03	2891.21	1447.76	0.93	-0.299	0.000	0.159
35.00	-11.52	-6.78	0.00	-186.66	0.00	186.66	1853.76	926.88	2688.99	1346.49	1.28	-0.356	0.000	0.145
40.00	-10.90	-6.69	0.00	-152.76	0.00	152.76	1800.28	900.14	2489.19	1246.45	1.68	-0.411	0.000	0.129
42.31	-10.09	-6.09	0.00	-137.31	0.00	137.31	1774.49	887.25	2397.88	1200.72	1.89	-0.436	0.000	0.120
45.00	-9.77	-6.04	0.00	-120.93	0.00	120.93	1743.61	871.80	2292.47	1147.94	2.14	-0.464	0.000	0.111
50.00	-9.20	-5.95	0.00	-90.72	0.00	90.72	1683.75	841.88	2099.47	1051.30	2.65	-0.509	0.000	0.092
55.00	-8.66	-5.86	0.00	-60.94	0.00	60.94	1620.72	810.36	1910.85	956.84	3.21	-0.548	0.000	0.069
55.44	-6.99	-4.22	0.00	-58.36	0.00	58.36	1615.02	807.51	1894.48	948.65	3.26	-0.551	0.000	0.066
60.00	-6.52	-4.14	0.00	-39.12	0.00	39.12	1554.50	777.25	1727.25	864.91	3.80	-0.578	0.000	0.049
64.00	-4.07	-2.81	0.00	-22.56	0.00	22.56	1499.23	749.61	1584.42	793.39	4.29	-0.596	0.000	0.031
65.00	-3.99	-2.79	0.00	-19.75	0.00	19.75	1485.09	742.54	1549.31	775.81	4.42	-0.599	0.000	0.028
67.06	-3.45	-1.82	0.00	-14.00	0.00	14.00	1455.57	727.78	1477.81	740.00	4.68	-0.605	0.000	0.021
70.00	-3.23	-1.77	0.00	-8.66	0.00	8.66	1403.00	701.50	1368.43	685.23	5.05	-0.612	0.000	0.015
74.00	-2.57	-1.38	0.00	-1.59	0.00	1.59	1325.69	662.84	1221.03	611.42	5.57	-0.616	0.000	0.005
75.00	-0.44	-0.44	0.00	-0.20	0.00	0.20	1306.36	653.18	1185.50	593.63	5.70	-0.616	0.000	0.001
75.45	-0.03	-0.01	0.00	0.00	0.00	0.00	1297.66	648.83	1169.68	585.71	5.76	-0.616	0.000	0.000
76.00	0.00	-0.01	0.00	0.00	0.00	0.00	1287.03	643.52	1150.48	576.10	5.83	-0.616	0.000	0.000

Final Analysis Summary

Structure:	CT46122-A-SBA		**Code:**	EIA/TIA-222-G	11/30/2020
Site Name:	Middletown North		**Exposure:**	C	
Height:	76.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 28

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 97 mph Wind	30.9	0.00	21.26	0.00	0.00	1826.96
0.9D + 1.6W 97 mph Wind	30.9	0.00	15.93	0.00	0.00	1821.70
1.2D + 1.0Di + 1.0Wi 50 mph Wind	9.0	0.00	42.94	0.00	0.00	529.16
1.2D + 1.0E	1.3	0.00	21.32	0.00	0.00	86.13
0.9D + 1.0E	1.3	0.00	15.99	0.00	0.00	85.86
1.0D + 1.0W 60 mph Wind	7.4	0.00	17.76	0.00	0.00	436.16

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 97 mph Wind	-14.29	-28.89	0.00	-976.84	0.00	-976.84	1920.92	960.46	2962.45	1483.43	28.25	0.667
0.9D + 1.6W 97 mph Wind	-10.57	-28.81	0.00	-972.87	0.00	-972.87	1920.92	960.46	2962.45	1483.43	28.25	0.662
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-33.69	-8.41	0.00	-281.71	0.00	-281.71	1920.92	960.46	2962.45	1483.43	28.25	0.208
1.2D + 1.0E	-14.90	-1.21	0.00	-50.29	0.00	-50.29	1920.92	960.46	2962.45	1483.43	28.25	0.042
0.9D + 1.0E	-11.18	-1.20	0.00	-50.08	0.00	-50.08	1920.92	960.46	2962.45	1483.43	28.25	0.040
1.0D + 1.0W 60 mph Wind	-12.38	-6.90	0.00	-233.08	0.00	-233.08	1920.92	960.46	2962.45	1483.43	28.25	0.164

Base Plate Summary

Structure:	CT46122-A-SB		**Code:**	EIA/TIA-222-G	11/30/2020
Site Name:	Middletown North		**Exposure:**	C	
Height:	76.00 (ft)		**Crest Height:**	0.00	
Base Elev:	0.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 29

Tower Engineering Solutions

Reactions	
Original Design	
Moment (kip-ft):	2800.00
Axial (kip):	27.00
Shear (kip):	52.00
Analysis (1.2D + 1.6W)	
Moment (kip-ft):	1826.96
Axial (kip):	21.26
Shear (kip):	30.95

Base Plate	
Yield (ksi):	60.00
Width (in):	60.00
Style:	Round
Polygon Sides:	0.00
Clip Length (in):	0.00
Effective Len (in):	29.11
Moment (kip-in):	625.09
Allow Stress (ksi):	81.00
Applied Stress (ksi):	32.40
Stress Ratio:	0.40

Anchor Bolts	
Bolt Circle:	54.00
Number Bolts:	10.00
Bolt Type:	2.25" 18J
Bolt Diameter (in):	2.25
Yield (ksi):	75.00
Ultimate (ksi):	100.00
Arrangement:	Radial
Cluster Dist (in):	0.00
Start Angle (deg):	0.00
Compression	
Force (kip):	166.69
Allowable (kip):	260.00
Ratio:	0.66
Tension	
Force (kip):	158.10
Allowable (kip):	260.00
Ratio:	0.63

EXHIBIT 8

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

Antenna Mount Analysis Report

Existing Monopole Tower
Customer Name: SBA Communications Corp
Customer Site Number: CT46122-A-SBA
Customer Site Name: Middletown North
Carrier Name: T-Mobile (Application #: 116807, v2)
Carrier Site ID / Name: CTHA521A / Middletown
Site Location: 160 West Street
Cromwell, Connecticut
Middlesex County
Latitude: 41.606000
Longitude: -72.670388

Analysis Result:

Max Structural Usage: 82.9% [Pass]

Report Prepared By: Saurav Devkota

NOTE: The proposed (3) Sabre C10856401 w/ (9) 2.5" Mount pipe is not currently installed on the tower. The proposed mount was assumed to be installed per the manufacturer's instructions, and it was assumed that the proposed mount can be installed properly on the existing tower. TES cannot verify that the proposed mount will fit properly and is not liable for any fit-up issues during installation.

Introduction

The purpose of this report is to summarize the analysis results on the (3) Sabre C10856401 w/ (9) 2.5" Mount pipe at 74.00' elevation to support the proposed antenna configuration. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Mount Drawings	SBA, Application #: 116807, v2 Sabre C10856401 w/ (9) 2.5" Mount pipe
Antenna Loading	SBA, Application #: 116807, v2
Modification Drawings	N/A

Analysis Criteria

Basic Wind Speed Used in the Analysis: V_{ULT} = 125.0 mph (3-Sec. Gust) / Equivalent to
V_{ASD} = 97 mph (3-Sec. Gust)
Basic Wind Speed with Ice: 50 mph (3-Sec. Gust) with 1" radial ice concurrent
Operational Wind Speed: 30 mph +0" Radial ice
Standard/Codes: ANSI/TIA/EIA 222-G / 2015 IBC / 2018 CSBC
Exposure Category: C
Structure Class: II
Topographic Category: 1
Crest Height (Ft): 0

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

Mount Information

(3) T-Arm at 74.00' elevation.

Final Antenna Configuration

3 RFS APXVAALL24-43-U-NA20
3 Ericsson Air 32 KRD901146-1_B66A_B2A
3 Ericsson AIR6449 B41
3 Commscope SDX1926Q-43
6 Andrew ATM200-A20
3 Ericsson 4449 B71 + B85
3 Ericsson 4415 B25
3 Ericsson 4415 B66A

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

Analysis Results

Our calculations have determined that under design wind load the existing mounts will be structurally adequate to support the proposed antenna configuration. The maximum structural usage is 82.9%, which occurs in the standoff. The proposed equipment must be installed as stipulated in the Final Antenna Configuration section of this report. The analysis results are void if the proposed equipment is not installed in accordance with this report.

The proposed (3) Sabre C10856401 w/ (9) 2.5" Mount pipe is not currently installed on the tower. The proposed mount was assumed to be installed per the manufacturer's instructions, and it was assumed that the proposed mount can be installed properly on the existing tower. TES cannot verify that the proposed mount will fit properly and is not liable for any fit-up issues during installation.

Attachments

1. Mount drawing
2. Antenna Placement Diagram
3. Analysis Calculations

Standard Conditions

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

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

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

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

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

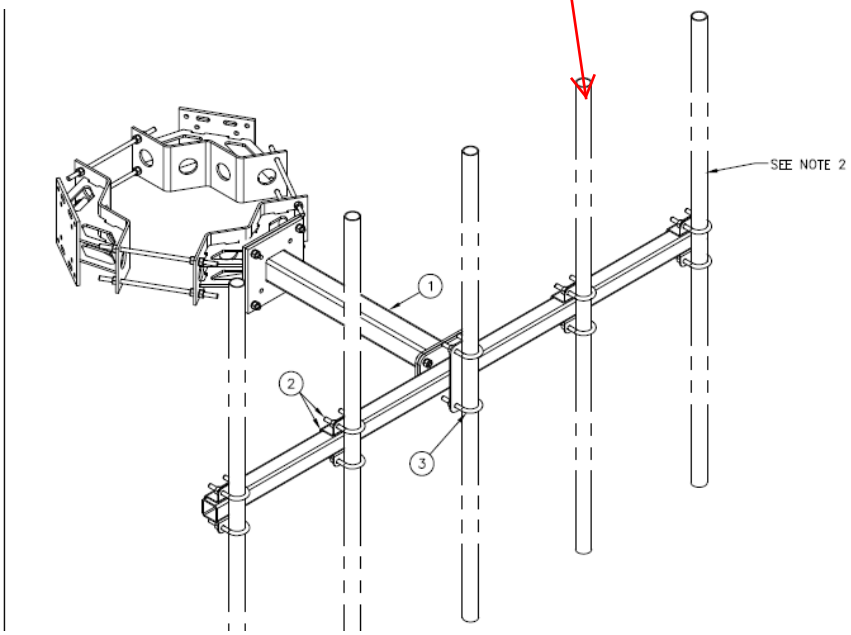
6. The modification drawings are not intended to convey means or methods. These are the responsibility of the installing contractor.

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

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

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

Install all 2.5" antenna mount pipe for the proposed loading



Structure: CT46122-A-SBA - Middletown North

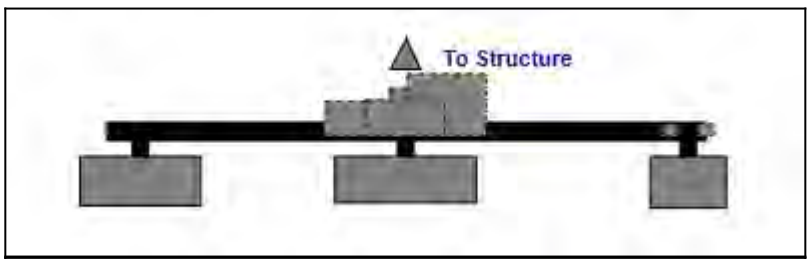
Sector: **A**

Structure Type: Monopole

Mount Elev: 74.00

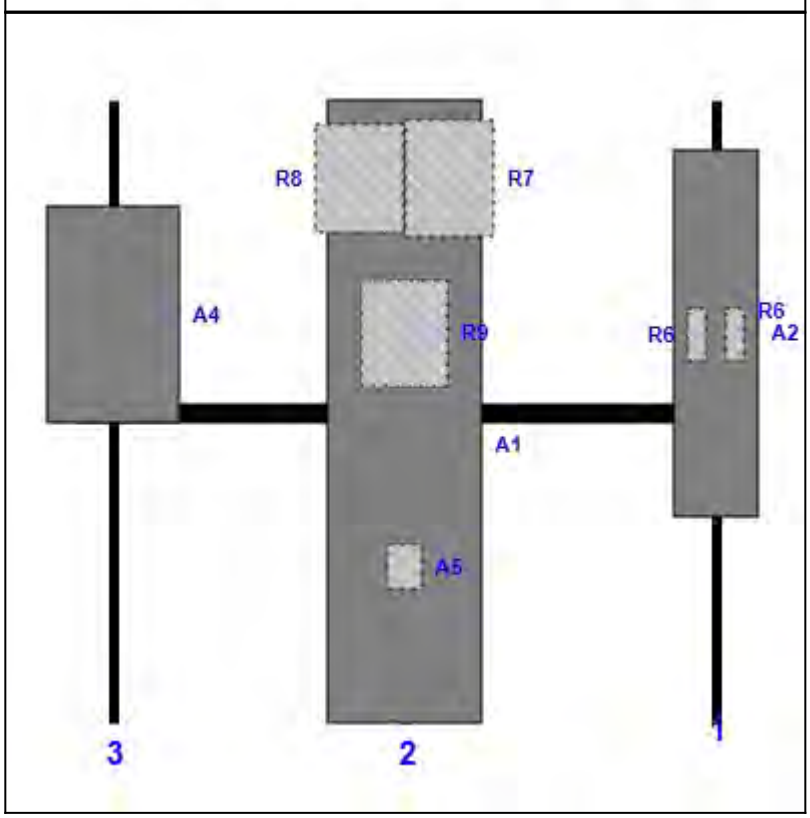
4/30/2021

Plan View



Front View

Looking Toward Structure



Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A2	Ericsson Air 32 KRD901146-1_B66A_B2A	56.60	12.90	99.00	1	a	Front	36.00			
R6	Andrew ATM200-A20	8.00	2.80	99.00	1	a	Behind	36.00	3.00		
R6	Andrew ATM200-A20	8.00	2.80	99.00	1	b	Behind	36.00	-3.00		
A1	RFS APXVAALL24-43-U-NA20	95.90	24.00	51.00	2	a	Front	48.00			
A5	Commscope SDX1926Q-43	6.90	5.50	51.00	2	a	Behind	72.00			
R7	Ericsson 4449 B71 + B85	17.90	13.40	51.00	2	a	Behind	12.00	7.00		
R8	Ericsson 4415 B25	16.50	13.40	51.00	2	a	Behind	12.00	-7.00		
R9	Ericsson 4415 B66A	16.50	13.40	51.00	2	a	Behind	36.00			
A4	Ericsson AIR6449 B41	33.10	20.50	6.00	3	a	Front	33.00			

Structure: CT46122-A-SBA - Middletown North

Sector: B

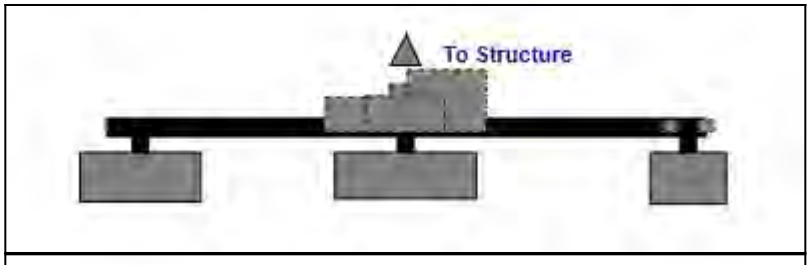
Structure Type: Monopole

Mount Elev: 74.00

4/30/2021

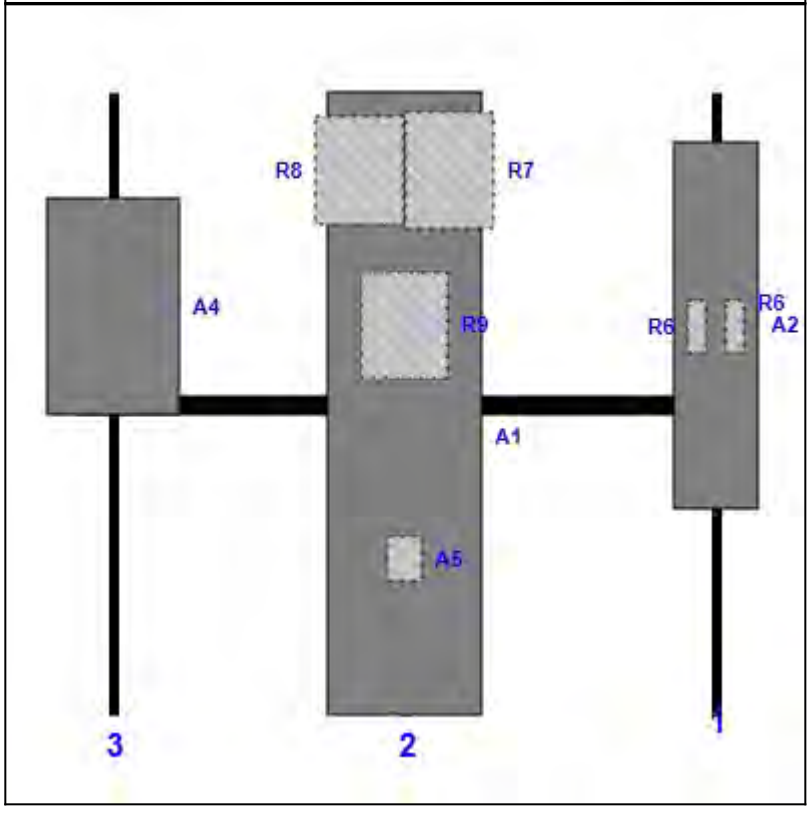
Tower Engineering Solutions

Plan View



Front View

Looking Toward Structure



Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A2	Ericsson Air 32 KRD901146-1_B66A_B2A	56.60	12.90	99.00	1	a	Front	36.00			
R6	Andrew ATM200-A20	8.00	2.80	99.00	1	a	Behind	36.00	3.00		
R6	Andrew ATM200-A20	8.00	2.80	99.00	1	b	Behind	36.00	-3.00		
A1	RFS APXVAALL24-43-U-NA20	95.90	24.00	51.00	2	a	Front	48.00			
A5	Commscope SDX1926Q-43	6.90	5.50	51.00	2	a	Behind	72.00			
R7	Ericsson 4449 B71 + B85	17.90	13.40	51.00	2	a	Behind	12.00	7.00		
R8	Ericsson 4415 B25	16.50	13.40	51.00	2	a	Behind	12.00	-7.00		
R9	Ericsson 4415 B66A	16.50	13.40	51.00	2	a	Behind	36.00			
A4	Ericsson AIR6449 B41	33.10	20.50	6.00	3	a	Front	33.00			

Structure: CT46122-A-SBA - Middletown North

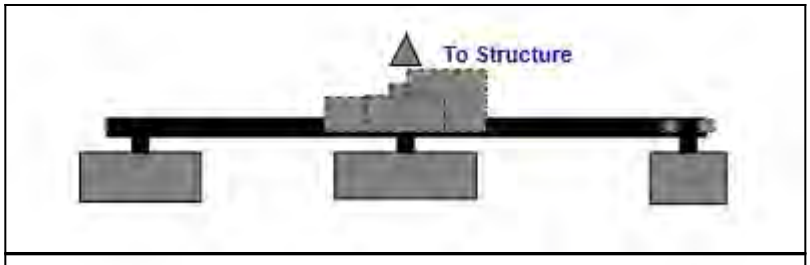
Sector: C

Structure Type: Monopole

Mount Elev: 74.00

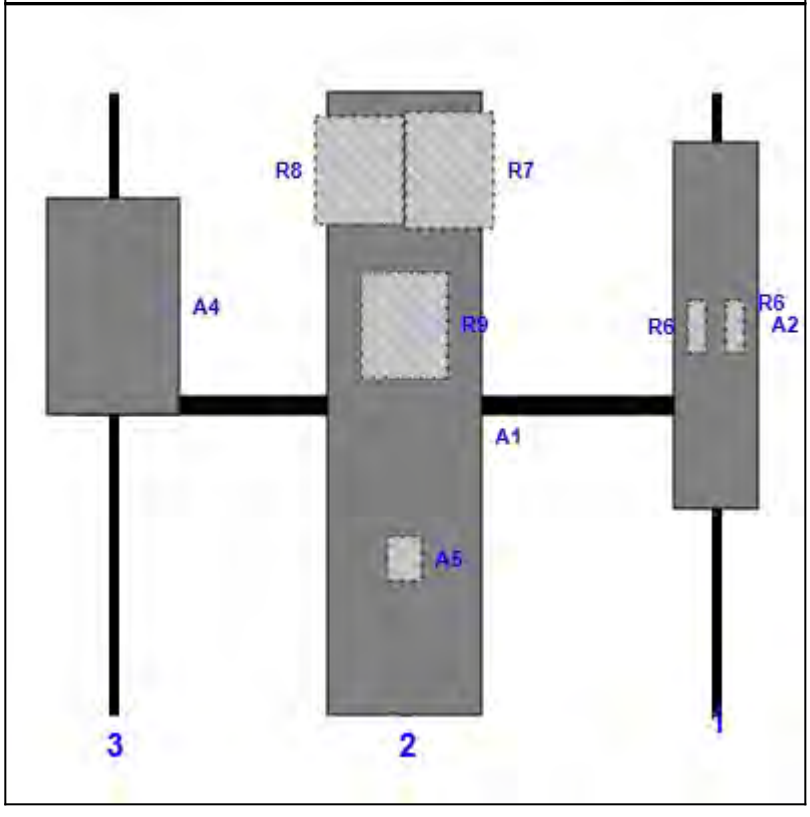
4/30/2021

Plan View

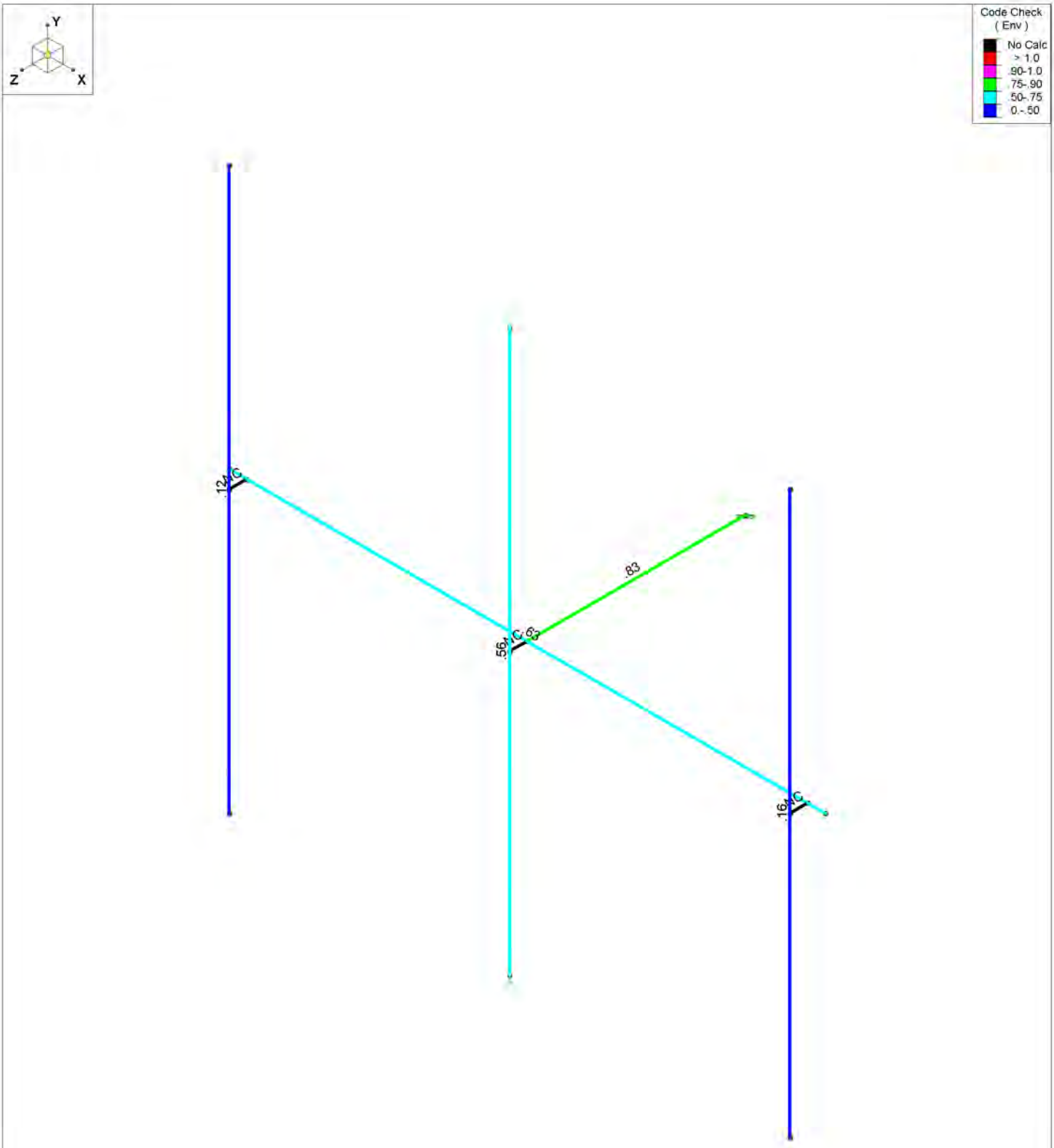


Front View

Looking Toward Structure

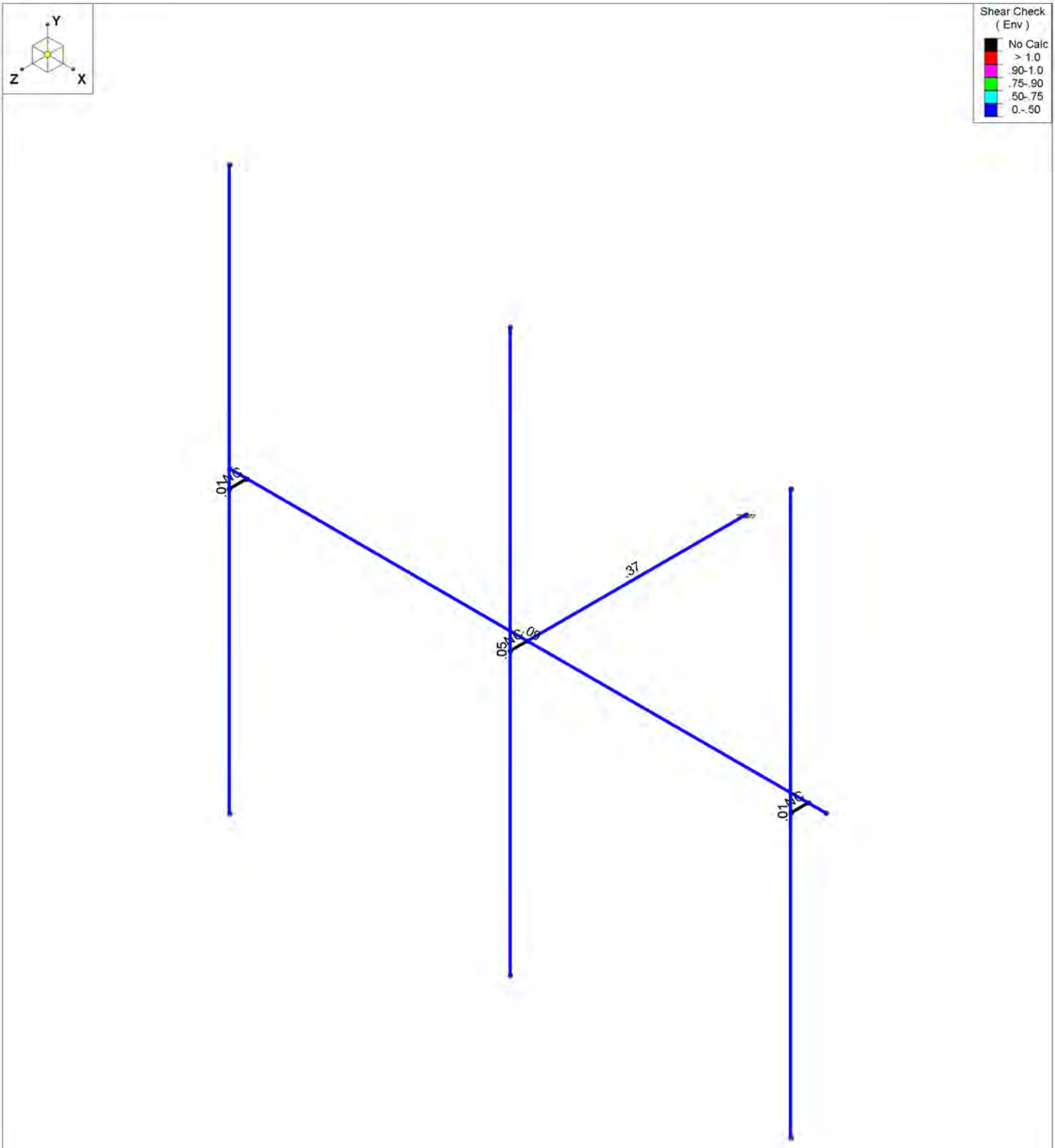


Ref #	Model	Height (in)	Width (in)	H Dist Left	Pipe #	Pipe Pos V	Pos	From Top	H Offset	Status	Validation
A2	Ericsson Air 32 KRD901146-1_B66A_B2A	56.60	12.90	99.00	1	a	Front	36.00			
R6	Andrew ATM200-A20	8.00	2.80	99.00	1	a	Behind	36.00	3.00		
R6	Andrew ATM200-A20	8.00	2.80	99.00	1	b	Behind	36.00	-3.00		
A1	RFS APXVAALL24-43-U-NA20	95.90	24.00	51.00	2	a	Front	48.00			
A5	Commscope SDX1926Q-43	6.90	5.50	51.00	2	a	Behind	72.00			
R7	Ericsson 4449 B71 + B85	17.90	13.40	51.00	2	a	Behind	12.00	7.00		
R8	Ericsson 4415 B25	16.50	13.40	51.00	2	a	Behind	12.00	-7.00		
R9	Ericsson 4415 B66A	16.50	13.40	51.00	2	a	Behind	36.00			
A4	Ericsson AIR6449 B41	33.10	20.50	6.00	3	a	Front	33.00			



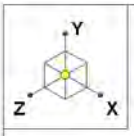
Member Code Checks Displayed (Enveloped)
Results for LC 1, 1.2D+1.6W (Front)

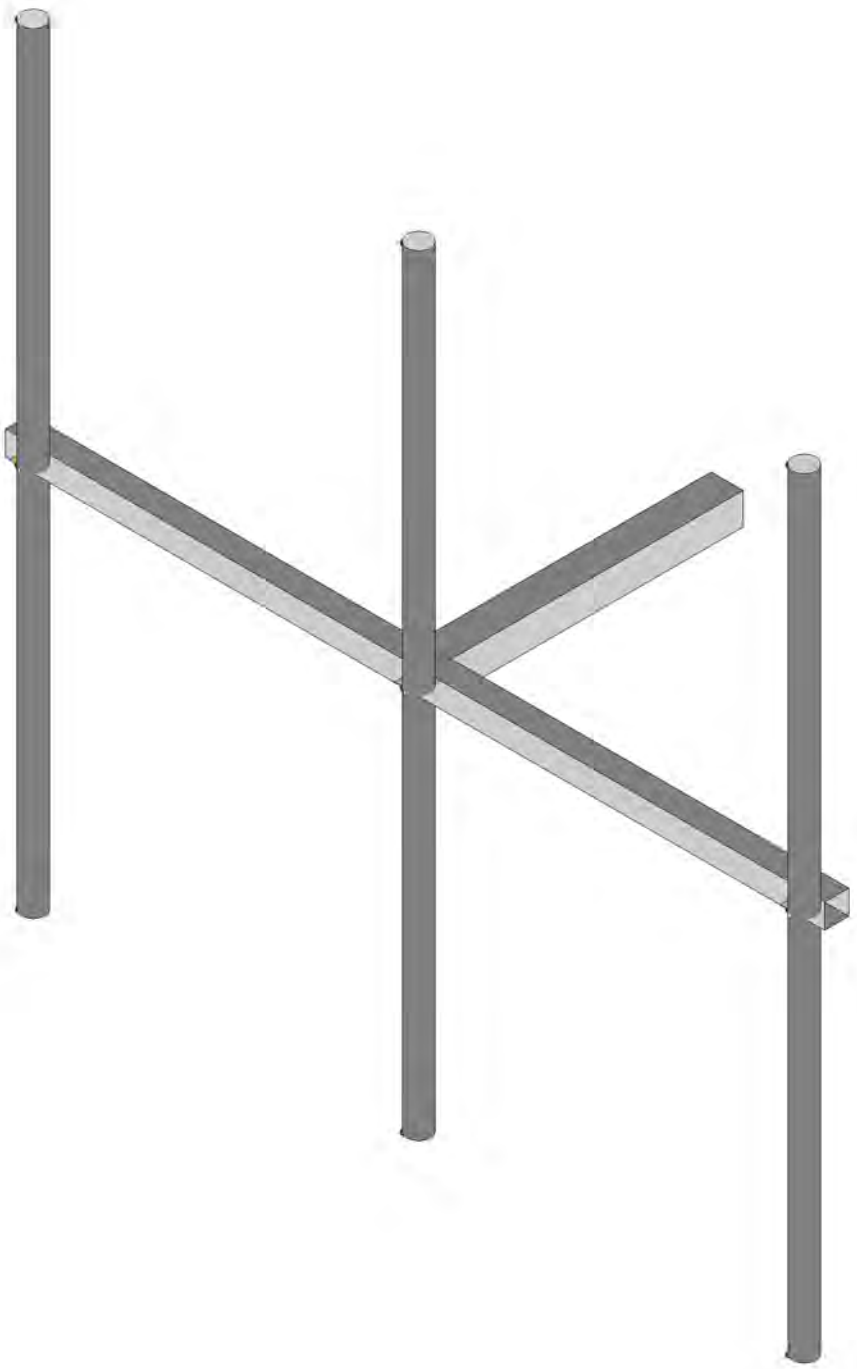
Tower Engineering Solutio...	CT46122-A-SBA_MT_LOT_Loads Only_Sector A_G	SK - 1
		Apr 30, 2021 at 5:13 PM
TES Project No. 106939		CT46122-A-SBA_106939_G_RISA_...



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

Tower Engineering Solutio...	CT46122-A-SBA_MT_LOT_Loads Only_Sector A_G	SK - 2
		Apr 30, 2021 at 5:13 PM
TES Project No. 106939		CT46122-A-SBA_106939_G_RISA_...





Tower Engineering Solutio...	CT46122-A-SBA_MT_LOT_Loads Only_Sector A_G	SK - 3
		Apr 30, 2021 at 5:13 PM
TES Project No. 106939		CT46122-A-SBA_106939_G_RISA_...

Basic Load Cases

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

Load Combinations

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

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	0	0	0	0	
2	N3	-4.25	0	3.114583	0	
3	N4	4.25	0	3.114583	0	
4	NP1	-4	4	3.364583	0	
5	NP2	-4	-4	3.364583	0	
6	NP3	0	4	3.364583	0	
7	NP4	0	-4	3.364583	0	
8	NP5	4	4	3.364583	0	
9	NP6	4	-4	3.364583	0	
10	N11	-4	0	3.114583	0	
11	N12	4	0	3.114583	0	
12	N13	0	0	3.114583	0	
13	N19	-4	0	3.364583	0	
14	N20	4	0	3.364583	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
15	N21	0	0	3.364583	0	

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Standoff Arm	HSS4X4X3	Beam	SquareTube	A500 Gr.B Rect	Typical	2.58	6.21	6.21	10
2	Face Horizontal	HSS3X3X3	Beam	SquareTube	A500 Gr.B Rect	Typical	1.89	2.46	2.46	4.03
3	Mount Pipe	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	CF	4CU5.25X0375	Beam	CU	A570 Gr.33	Typical	4.854	13.238	12.817	.228

Aluminum Section Sets

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

Hot Rolled Steel Properties

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

Cold Formed Steel Properties

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

Aluminum Properties

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

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	N3	N4			Face Horizontal	Beam	SquareTube	A500 Gr....	Typical
2	M2	N1	N13			Standoff Arm	Beam	SquareTube	A500 Gr....	Typical
3	MP3A	NP1	NP2			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
4	MP2A	NP3	NP4			PIPE_2.5	Beam	Pipe	A53 Gr.B	Default
5	MP1A	NP5	NP6			Mount Pipe	Beam	Pipe	A53 Gr.B	Typical
6	M8	N12	N20			RIGID	Beam	None	RIGID	DR1
7	M10	N13	N21			RIGID	Beam	None	RIGID	DR1
8	M12	N11	N19			RIGID	Beam	None	RIGID	DR1

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M1						Yes				None
2	M2						Yes				None
3	MP3A						Yes		-z		None
4	MP2A						Yes		-z		None
5	MP1A						Yes		-z		None
6	M8						Yes				None
7	M10						Yes				None
8	M12						Yes				None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Face Horizo...	8.5			Lbyy						Lateral
2	M2	Standoff Arm	3.115			Lbyy						Lateral
3	MP3A	Mount Pipe	8			Lbyy						Lateral
4	MP2A	PIPE_2.5	8			Lbyy						Lateral
5	MP1A	Mount Pipe	8			Lbyy						Lateral

Cold Formed Steel Design Parameters

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

Aluminum Design Parameters

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

Joint Loads and Enforced Displacements

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

Member Area Loads

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

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N1	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	1297.315	4	2734.754	5	2234.487	1	-2.042	1	4.333	4	3.339	10
2		min	-1297.315	3	922.409	2	-2234.487	2	-9.502	6	-4.325	3	-3.051	9
3	Totals:	max	1297.315	4	2734.754	5	2234.487	1						
4		min	-1297.315	3	922.409	2	-2234.487	2						

Envelope Member Section Forces

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shea...	LC	Torque...	LC	y-y Mo...	LC	z-z Mo...	LC
1	M1	1	max	0	11	0	11	0	11	0	11	0	11	0	11
2			min	0	1	-750	9	0	1	0	1	0	1	0	1
3		2	max	206.461	3	-192.662	4	412.021	2	.404	2	.731	2	1.947	9
4			min	-206.462	4	-943.817	9	-412.0...	1	-.273	1	-.732	1	.204	3
5		3	max	330.382	4	997.694	10	512.604	1	.404	2	1.859	2	4.112	10
6			min	-330.382	3	-961.455	9	-512.6...	2	-.285	6	-1.861	1	.921	4
7		4	max	330.382	4	980.056	10	461.774	1	.242	1	.824	2	2.011	10
8			min	-330.382	3	227.509	3	-461.7...	2	-.398	2	-.826	1	.177	4
9		5	max	0	11	750	10	0	11	0	11	0	11	0	11
10			min	0	1	0	1	0	1	0	1	0	1	0	1
11	M2	1	max	2234.487	1	2740.151	5	1297.3...	3	3.339	10	4.333	4	9.502	6
12			min	-2234.487	2	910.997	2	-1297....	4	-3.051	9	-4.325	3	2.042	1
13		2	max	2234.487	1	2715.129	5	1272.4...	3	3.339	10	3.333	4	7.387	6
14			min	-2234.487	2	902.174	2	-1272....	4	-3.051	9	-3.324	3	1.324	1
15		3	max	2234.487	1	2690.108	5	1247.6...	3	3.339	10	2.351	4	5.291	6
16			min	-2234.487	2	893.352	2	-1247....	4	-3.051	9	-2.343	3	.613	1
17		4	max	2234.487	1	2665.086	5	1222.8...	3	3.339	10	1.39	4	3.215	6
18			min	-2234.487	2	884.53	2	-1222....	4	-3.051	9	-1.381	3	-.091	1
19		5	max	2234.487	1	2640.065	5	1197.9...	3	3.339	10	.447	4	1.393	2
20			min	-2234.487	2	875.707	2	-1197....	4	-3.051	9	-.439	3	-.788	1
21	MP3A	1	max	0	10	1.463	9	.15	1	0	10	0	10	0	11
22			min	-.003	9	-.424	10	-2.38	6	0	9	0	9	0	1
23		2	max	198.138	7	80.885	4	158.023	1	0	10	.091	1	.052	3
24			min	74.945	9	-80.599	3	-158.5...	2	0	9	-.092	2	-.052	4
25		3	max	235.356	7	103.61	4	180.747	1	0	10	.429	1	.236	3
26			min	88.094	9	-103.323	3	-181.2...	2	0	9	-.432	2	-.237	4
27		4	max	-13.148	10	22.734	3	22.9	2	0	9	.023	1	.023	3
28			min	-37.219	8	-22.819	4	-22.74	1	0	10	-.023	2	-.023	4
29		5	max	0	10	.126	10	.726	6	0	9	0	9	0	11
30			min	-.001	9	-.436	9	-.016	1	0	10	0	10	0	1
31	MP2A	1	max	0	1	1.87	9	1.144	1	0	10	0	11	0	11

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[lb]	LC	y Shear[lb]	LC	z Shea...	LC	Torque...	LC	y-y Mo...	LC	z-z Mo...	LC
32			min	0	6	-2.046	10	-8.314	6	0	9	0	1	0	1
33		2	max	715.721	5	334.609	4	637.537	1	0	10	.639	1	.336	3
34			min	235.148	9	-334.783	3	-639.1...	2	0	9	-.642	2	-.336	4
35		3	max	890.145	5	398.36	4	719.105	1	0	10	1.995	1	1.069	3
36			min	303.736	9	-398.534	3	-720.7...	2	0	9	-2.002	2	-1.069	4
37		4	max	-89.948	1	218.616	3	506.936	2	0	9	.506	1	.219	3
38			min	-381.689	6	-218.545	4	-506.2...	1	0	10	-.507	2	-.218	4
39		5	max	0	1	.832	10	3.911	5	0	9	0	8	0	11
40			min	0	6	-.761	9	.07	2	0	10	0	1	0	1
41	MP1A	1	max	0	9	.413	9	.206	1	0	7	0	9	0	11
42			min	-.003	10	-2.482	7	-3.212	6	0	9	0	10	0	1
43		2	max	235.476	8	135.564	4	178.65	1	0	7	.179	1	.137	3
44			min	92.465	10	-136.11	3	-179.3...	2	0	9	-.18	2	-.136	4
45		3	max	307.572	8	172.333	4	209.985	1	0	7	.567	1	.446	3
46			min	106.813	10	-172.879	3	-210.6...	2	0	9	-.57	2	-.444	4
47		4	max	-13.148	9	23.241	3	23.412	2	0	9	.023	1	.024	3
48			min	-37.219	7	-22.703	4	-22.75	1	0	7	-.024	2	-.023	4
49		5	max	0	9	2.08	7	2.707	6	0	9	0	10	0	11
50			min	-.001	10	-.407	9	-.025	1	0	7	0	9	0	1
51	M8	1	max	410.95	1	582.131	5	330.385	3	.24	3	.122	4	.398	2
52			min	-410.95	2	206.782	2	-330.3...	4	-.24	4	-.122	3	-.242	1
53		2	max	410.95	1	582.131	5	330.385	3	.24	3	.102	4	.385	2
54			min	-410.95	2	206.782	2	-330.3...	4	-.24	4	-.102	3	-.256	1
55		3	max	410.95	1	582.131	5	330.385	3	.24	3	.081	4	.372	2
56			min	-410.95	2	206.782	2	-330.3...	4	-.24	4	-.081	3	-.269	1
57		4	max	410.95	1	582.131	5	330.385	3	.24	3	.06	4	.359	2
58			min	-410.95	2	206.782	2	-330.3...	4	-.24	4	-.06	3	-.282	1
59		5	max	410.95	1	582.131	5	330.385	3	.24	3	.04	4	.346	2
60			min	-410.95	2	206.782	2	-330.3...	4	-.24	4	-.04	3	-.295	1
61	M10	1	max	1259.033	1	1369.088	5	661.138	3	.346	3	.244	4	.625	6
62			min	-1259.033	2	417.075	2	-661.1...	4	-.345	4	-.244	3	-.273	1
63		2	max	1259.033	1	1369.088	5	661.138	3	.346	3	.203	4	.565	2
64			min	-1259.033	2	417.075	2	-661.1...	4	-.345	4	-.203	3	-.299	1
65		3	max	1259.033	1	1369.088	5	661.138	3	.346	3	.162	4	.539	2
66			min	-1259.033	2	417.075	2	-661.1...	4	-.345	4	-.162	3	-.326	1
67		4	max	1259.033	1	1369.088	5	661.138	3	.346	3	.121	4	.513	2
68			min	-1259.033	2	417.075	2	-661.1...	4	-.345	4	-.121	3	-.353	1
69		5	max	1259.033	1	1369.088	5	661.138	3	.346	3	.079	4	.486	2
70			min	-1259.033	2	417.075	2	-661.1...	4	-.345	4	-.079	3	-.38	1
71	M12	1	max	361.191	1	472.312	5	206.462	3	.145	3	.076	4	.404	2
72			min	-361.206	2	171.197	2	-206.4...	4	-.146	4	-.076	3	-.273	1
73		2	max	361.191	1	472.312	5	206.462	3	.145	3	.063	4	.393	2
74			min	-361.206	2	171.197	2	-206.4...	4	-.146	4	-.063	3	-.284	1
75		3	max	361.191	1	472.312	5	206.462	3	.145	3	.051	4	.382	2
76			min	-361.206	2	171.197	2	-206.4...	4	-.146	4	-.051	3	-.295	1
77		4	max	361.191	1	472.312	5	206.462	3	.145	3	.038	4	.372	2
78			min	-361.206	2	171.197	2	-206.4...	4	-.146	4	-.038	3	-.306	1
79		5	max	361.191	1	472.312	5	206.462	3	.145	3	.025	4	.361	2
80			min	-361.206	2	171.197	2	-206.4...	4	-.146	4	-.025	3	-.317	1

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Ch...	Loc[ft]	Dir	...	phi*P...	phi*P...	phi*M...	phi*M.....		Eqn
1	M1	HSS3X3X3	.632	4.25	10	.094	4.25	z	2	45703...	.78246	6.796	6.796	...	H1-1b
2	M2	HSS4X4X3	.829	0	8	.372	0	y	10	10272...	106812	12.662	12.662	...	H1-1b
3	MP3A	PIPE_2.5	.121	4	2	.012	4		2	30038...	50715	3.596	3.596	...	H1-1b
4	MP2A	PIPE_2.5	.562	4	2	.047	4		2	30038...	50715	3.596	3.596	...	H1-1b
5	MP1A	PIPE_2.5	.160	4	2	.014	4		2	30038...	50715	3.596	3.596	...	H1-1b

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

Memb...	Shape	Code Check	Loc[.....	She...	Loc.....	...	phi*P...	phi*T...	phi*M...	phi*M...	Cb	Cm...	Cm...	Eqn
No Data to Print ...														

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

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

EXHIBIT 9

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTHA521A

SBA Cromwell Monopine
160 West Street
Cromwell, Connecticut 06416

December 31, 2020

EBI Project Number: 6220006447

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**47.83%**

December 31, 2020

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

Emissions Analysis for Site: CTHA521A - SBA Cromwell Monopine

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **160 West Street** in **Cromwell, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 160 West Street in Cromwell, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

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

4) 4 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

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

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

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

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

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

11) The antennas used in this modeling are the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector A, the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector B, the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6449 for the 2500 MHz / 2500 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

12) The antenna mounting height centerline of the proposed antennas is 74 feet above ground level (AGL).

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

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd
Height (AGL):	74 feet	Height (AGL):	74 feet	Height (AGL):	74 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	8,728.31	ERP (W):	8,728.31	ERP (W):	8,728.31
Antenna A1 MPE %:	**5.73%**	Antenna B1 MPE %:	**5.73%**	Antenna C1 MPE %:	**5.73%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz / 1900 MHz / 2100 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 16.45 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd / 15.45 dBd / 16.45 dBd
Height (AGL):	74 feet	Height (AGL):	74 feet	Height (AGL):	74 feet
Channel Count:	9	Channel Count:	9	Channel Count:	9
Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts	Total TX Power (W):	380 Watts
ERP (W):	11,010.27	ERP (W):	11,010.27	ERP (W):	11,010.27
Antenna A2 MPE %:	**10.99%**	Antenna B2 MPE %:	**10.99%**	Antenna C2 MPE %:	**10.99%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449	Make / Model:	Ericsson AIR 6449
Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz
Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd	Gain:	22.05 dBd / 22.05 dBd
Height (AGL):	74 feet	Height (AGL):	74 feet	Height (AGL):	74 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	38,477.89	ERP (W):	38,477.89	ERP (W):	38,477.89
Antenna A3 MPE %:	**25.26%**	Antenna B3 MPE %:	**25.26%**	Antenna C3 MPE %:	**25.26%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	41.98%
Verizon	5.85%
Site Total MPE % :	47.83%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	41.98%
T-Mobile Sector B Total:	41.98%
T-Mobile Sector C Total:	41.98%
Site Total MPE % :	47.83%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 1900 MHz LTE	2	2056.61	74.0	27.00	1900 MHz LTE	1000	2.70%
T-Mobile 2100 MHz LTE	2	2307.55	74.0	30.30	2100 MHz LTE	1000	3.03%
T-Mobile 600 MHz LTE	2	591.73	74.0	7.77	600 MHz LTE	400	1.94%
T-Mobile 600 MHz NR	1	1577.94	74.0	10.36	600 MHz NR	400	2.59%
T-Mobile 700 MHz LTE	2	695.22	74.0	9.13	700 MHz LTE	467	1.95%
T-Mobile 1900 MHz LTE	2	2104.51	74.0	27.63	1900 MHz LTE	1000	2.76%
T-Mobile 2100 MHz UMTS	2	1324.71	74.0	17.39	2100 MHz UMTS	1000	1.74%
T-Mobile 2500 MHz LTE	1	19238.94	74.0	126.31	2500 MHz LTE	1000	12.63%
T-Mobile 2500 MHz NR	1	19238.94	74.0	126.31	2500 MHz NR	1000	12.63%
						Total:	**41.98%**

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

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	41.98%
Sector B:	41.98%
Sector C:	41.98%
T-Mobile Maximum MPE % (Sector A):	41.98%
Site Total:	47.83%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **47.83%** 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.

EXHIBIT 10

EXHIBIT 11

EXHIBIT 12