



Northeast Site Solutions
Victoria Masse
420 Main Street #2, Sturbridge, MA 01566
860-306-2326
victoria@northeastsitesolutions.com

May 5, 2021

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
7 Hoskins Road, Bloomfield CT 06801
Latitude: 41.89284000
Longitude: -72.76550600
T-Mobile Site#: CTHA142G_L600

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antenna at the 140-foot level of the existing 185-foot self-support tower located at 7 Hoskins Road, Bloomfield CT. The self-support tower is owned by CL&P d/b/a Eversource. The property which holds the utility easement is owned by CL&P d/b/a Eversource. T-Mobile now intends to replace three (3) existing antenna with three (3) new 600/700 MHz **5G** antenna. The new antenna would be installed at the 140-foot level of the tower. T-Mobile also intends to make the following modifications.

Planned Modifications:

Remove:

- (3) 1-5/8" Coax
- (1) IBR 1300 (**never installed, removed from Structural**)
- (1) Mini-Squid D-Box (**never installed, removed from Structural**)

Remove and Replace:

- (3) LNX-6515DS-T4M Antenna (**Remove**) - (3) RFS APXVAALL24 - 600/700 MHz **5G** Antenna (**Replace**)
- (3) RRUS11 B12 (**Remove**) - (3) Radio 4449 B71 + B85 (**Replace**)
- (3) RRUS11 B12 (**Remove**) - (3) Radio 2217 B66A (**Replace**)

Install New:

- (3) Hybrid

Existing to Remain:

- (6) RFSAPXV18-206516S-CA20 - 2100 MHz Antenna
- (3) Radio 2217 B66A
- (3) Hybrid Line



This facility was approved by the CT Siting Council. Per the attached Petition No. 1112 – Dated August 28, 2014. Approval for Cellco to replace the existing 180-foot supporting tower with a 185-foot self-supporting tower. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16- SOj-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-SOj-73, a copy of this letter is being sent to Suzette DeBeatham-Brown, Mayor, Town of Bloomfield and Jose Giner, Zoning Enforcement Director and Robert E. Smith, Town Manager, as well as the tower owner and property owner.

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 modifications 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 modifications 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 telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Victoria Masse
Mobile: 860-306-2326
Fax: 413-521-0558
Office: 420 Main Street, Unit 2, Sturbridge MA 01566
Email: victoria@northeastsitesolutions.com



NSS **NORTHEAST**
SITE SOLUTIONS
Turnkey Wireless Development

Attachments

cc: Honorable Suzette DeBeatham-Brown, Mayor, Town of Bloomfield (*email only as sbrown@bloomfieldct.org*)

Robert E. Smith, Town Manager, Town of Bloomfield (*email only as pschenk@bloomfield.org*)

Jose Giner, Land Use Director, Town of Bloomfield (*email only as jginer@bloomfieldct.org*)

Eversource - as tower owner & property owner (*email only as christopher.gelinas@eversource.com*)

Exhibit A

Petition No. 1112
Cellco Partnership d/b/a Verizon Wireless
Bloomfield, Connecticut
Staff Report
August 28, 2014

On July 28, 2014, the Connecticut Siting Council (Council) received a petition from Cellco Partnership d/b/a Verizon Wireless (Cellco) for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the replacement and extension of an existing telecommunications facility owned by The Connecticut Light and Power Company (CL&P) located west of St. Andrews Road in Bloomfield. Cellco sent notice to abutting property owners and the Towns of Bloomfield and Simsbury on July 28, 2014. No written comments were received from either Town or any of the abutters.

A field review of the proposed project was conducted on August 18, 2014. The following people attended the field review: Council member Daniel Lynch, Jr., Council staff member Robert Mercier, Cellco representative Attorney Kenneth Baldwin, CL&P representatives John Morissette and Steve Florio, and Simsbury Police Lieutenant Fred Sifodaskalakis.

The site is located on a 40-acre parcel owned by CL&P and is accessed from a separate parcel at 5-7 St. Andrews Road. The existing tower was approved in 1993 in Docket 158. A paved access drive ascends west to the site, generally along an existing CL&P transmission corridor, to a ridge top at 412 feet above mean sea level. The existing tower and fenced compound is adjacent to the east side of the transmission corridor.

Existing tower users include CL&P with multiple whip antennas and dish antennas, AT&T with an antenna array at 158 feet, Cellco with an antenna array at 150 feet and the Towns of Simsbury and Bloomfield both of which utilize the tower for emergency communications. Cellco seeks to upgrade their antennas to support LTE services but the current tower is at structural capacity and cannot be economically reinforced to accommodate the new equipment. Cellco would be responsible for construction of the new tower, transferring equipment to the new tower, and the removal of the existing tower. CL&P would own the new tower.

Cellco proposes to replace the existing 180-foot self-supporting lattice tower with a 185-foot self-supporting lattice tower. The proposed tower would be five feet higher to compensate for a five foot elevation loss between the proposed tower site and the existing tower site. Antennas for all carriers/users, including Cellco, would be mounted approximately five feet higher on the new tower to maintain the existing antenna height above ground level.

The new tower would be constructed adjacent to Cellco's existing equipment shelter, approximately 75 feet southwest of the existing tower and partially within the existing compound. The existing compound would be expanded by 2,150 square feet to the south and west to accommodate the new tower and associated ice bridge. A level spreader would be installed on the west side of the compound to control any runoff coming from the compound area.

Approximately 17 trees with a diameter of 6 inches or greater would be removed to expand the compound. Some tree trimming may be necessary along the access drive to facilitate heavy equipment required to deliver materials to the site. The nearest wetland is 140 feet north of the construction area. A vernal pool is located approximately 260 feet north of the new compound fence. Cellco would implement best management practices from March 1 to September 15 to reduce impacts to vernal pool obligate species.

The new tower would maintain the existing aircraft hazard lighting elevations and pattern as the tower is approximately 4.5 miles south from Runway 6 at Bradley International Airport. The site is in a remote area surrounded by extensive woodland with no nearby structures. The proposed tower would have no effect on existing views.

Staff recommends approval with the following conditions:

- Unless otherwise approved by the Council, the existing tower shall be removed within 180 days of the installation and operation of the new lattice tower;
- The Council shall be notified in writing when the existing tower is removed and the new tower is operational;
- Submit a final structural report depicting final tower loading; and
- Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by the Petitioner shall be removed within 60 days of the date the antenna ceased to function.



Existing tower from CL&P right-of-way, view west.



South side of compound - proposed tower location by white dome. Compound would be expanded to the left (west).



Northwest corner of compound. Compound would be expanded towards rocks in photo.

Exhibit B



Town of Bloomfield, CT

Property Listing Report

Map Block Lot

637-1117

Building # 1

PID

8110

Account

R93240

Property Information

Property Location	7 HOSKINS RD
Owner	CONN LIGHT & POWER CO
Co-Owner	ATTN: PROPERTY TAX DEPT
Mailing Address	P O BOX 270 HARTFORD CT 06141
Land Use	201 Comm Land
Land Class	C
Zoning Code	R-80
Census Tract	0000

Site Index	4
Acreage	38.33
Utilities	
Lot Setting/Desc	
Fire District	C
Book / Page	

Primary Construction Details

Year Built	1962
Building Desc.	Vacant with OutBldg
Building Style	UNKNOWN
Building Grade	
Stories	
Occupancy	
Exterior Walls	
Exterior Walls 2	NA
Roof Style	
Roof Cover	
Interior Walls	
Interior Walls 2	NA
Interior Floors 1	
Interior Floors 2	

Heating Fuel	
Heating Type	
AC Type	
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	NA
Bsmt Fin Area	0
Rec Rm Area	0
Bsmt Gar	0
Fireplaces	0

(*Industrial / Commercial Details)

Building Use	Vacant
Building Condition	A
Sprinkler %	NA
Heat / AC	NA
Frame Type	NA
Baths / Plumbing	NA
Ceiling / Wall	NA
Rooms / Prtns	NA
Wall Height	NA
First Floor Use	NA
Foundation	POURED CONC.

Photo



Sketch





Town of Bloomfield, CT

Property Listing Report

Map Block Lot **637-1117**

Building # **1** PID **8110** Account **R93240**

Valuation Summary (Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	0	0
Extras	0	0
Improvements		
Outbuildings	883200	618240
Land	540800	275180
Total	1424000	893420

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area		0

Outbuilding and Extra Features

Type	Description
Cell Shed	480 S.F.
Cell Shed	120 S.F.
Cell Tower	4 UNITS

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
CONN LIGHT & POWER CO	0292/0097		0

Town of Bloomfield, Connecticut - Assessment Parcel Map

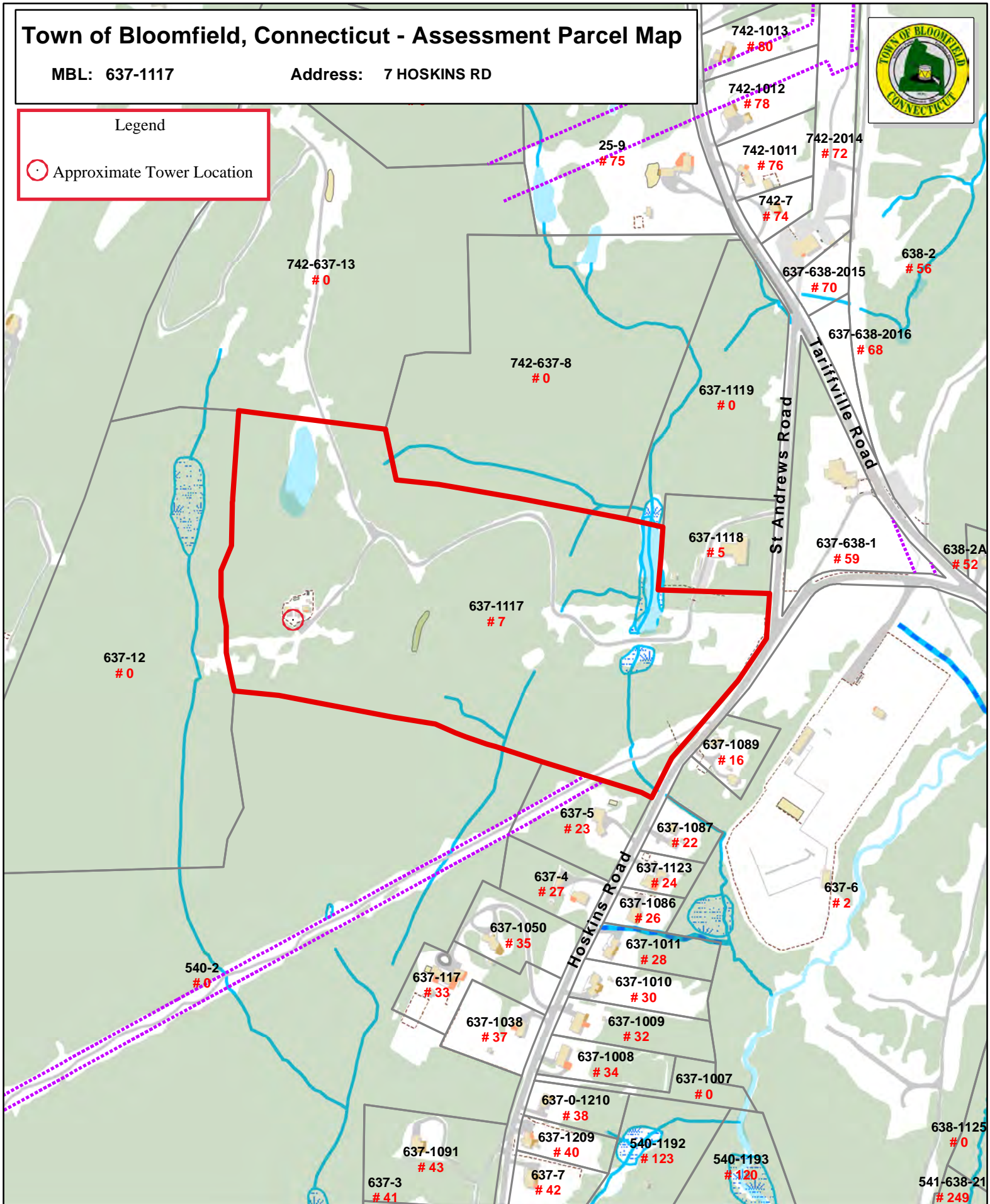
MBL: 637-1117

Address: 7 HOSKINS RD



Legend

Approximate Tower Location



Approximate Scale:

1 inch = 450 feet

Disclaimer:

This map is for informational purposes only.
All information is subject to verification by any user.
The Town of Bloomfield and its mapping contractors
assume no legal responsibility for the information contained herein.

Map Produced October 2019

Parcels labeled by Unique ID

Exhibit C

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MODIFICATION OF EXISTING WIRELESS FACILITY BY



T-MOBILE NORTHEAST LLC

PROJECT TITLE: L600

SITE NUMBER: CTHA142G

SITE NAME: EVERSOURCE

SITE ADDRESS: 7 HOSKINS ROAD

BLOOMFIELD, CT 06002

(RF CONFIGURATION: 67D07B_1QP+10P)

APPLICANT:

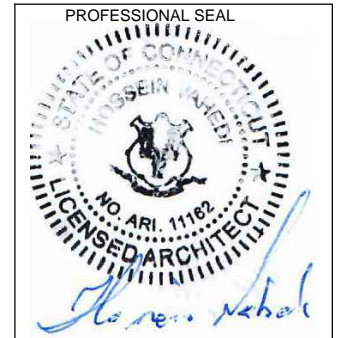
T-MOBILE NORTHEAST LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 860-692-7100

PROJECT MANAGER

NORTHEAST SITE SOLUTIONS
Tuesday Wilson Development
 420 MAIN STREET, BLDG 4
 STURBRIDGE, MA 01566
 203-275-6669

CONSULTANT:

FORESITE LLC
 Architects . Engineers . Surveyors
 462 WALNUT STREET
 NEWTON, MA 02460
 617-212-3123



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PROJECT NOTES:

1. THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS IS 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 THE 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 PLACES THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.
3. DEVELOPMENT AND USE OF THE SITE WILL CONFORM TO ALL APPLICABLE CODES, ORDINANCES AND SPECIFICATIONS.

REFER TO STRUCTURAL ANALYSIS REPORT TITLED "STRUCTURAL ANALYSIS REPORT - SELF SUPPORT TOWER" SITE ID: CTHA142G, REV. 4, DATED APRIL 1, 2021 AND "MOUNT STRUCTURAL ANALYSIS REPORT, REV. 2" DATED MARCH 1, 2021 PREPARED BY EFI GLOBAL, INC.

CODE COMPLIANCE:

- ALL WORK SHALL COMPLY WITH THE CURRENT NATIONAL AND CONNECTICUT STATE BUILDING AND LIFE SAFETY CODES. SUPPLEMENTS AND AMENDMENTS INCLUDING BUT NOT LIMITED TO THE LATEST EDITION OF:
- CONNECTICUT STATE BUILDING CODE (CSBC).
 - ANSI/TIA-222-G STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.
 - NATIONAL ELECTRICAL CODE (NEC) FOR POWER AND GROUNDING REQUIREMENTS.
 - OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
 - NFPA - NATIONAL FIRE PROTECTION ASSOCIATION.
- 811 Connecticut - Call Before You Dig**
 811 or 1-800-922-4455
Advance Notice:
 Minimum of 2 working days in advance, no more than 30 days in advance

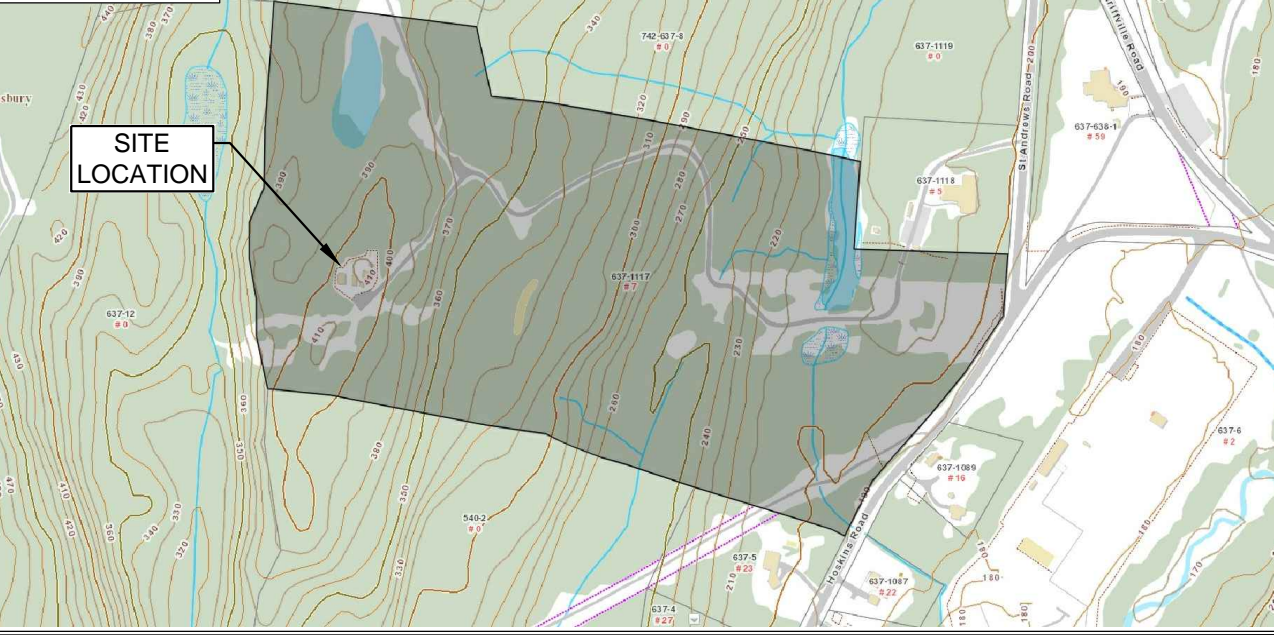
APPROVALS:

FSA CM	DATE
RF ENGINEER	DATE
FOPS	DATE
T-MOBILE ENGINEERING AND DEVELOPMENT	DATE
	DATE
	DATE

SITE IMAGE:



SITE MAP :



PROJECT SCOPE:

UPGRADE OF EXISTING WIRELESS FACILITY AS FOLLOWS:
 UPGRADE EXISTING 6102 CABINET INTERNALLY.
 REPLACE (3) OF (9) EXISTING ANTENNAS ON TOWER.
 REPLACE (3) OF (6) REMOTE RADIO UNITS AT ANTENNAS.
 REMOVE (3) 1-5/8" COAX, REMOVE (1) 1-1/4" HYBRID, ADD (3) 6X12 HCS, FOR THE FINAL COUNT OF (6) 6X12 HCS CABLES.

PROJECT INFORMATION:

ADDRESS: 7 HOSKINS ROAD
 BLOOMFIELD, CT 06002
 PARCEL ID: 637-1117
 ZONING DISTRICT: R-80
 COORDINATES: 41°53'34.24" N, 72°45'55.81" W
 AVERAGE GROUND ELEV.: 410± (AMSL)

PROJECT TEAM:

APPLICANT: T-MOBILE NORTHEAST, LLC.
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 860-692-7100
 PROPERTY OWNER: CONN LIGHT & POWER CO
 PO BOX 270
 HARTFORD, CT 06141
 PROJECT MANAGER: NORTHEAST SITE SOLUTIONS
 420 MAIN STREET, BLDG 4
 STURBRIDGE, MA 01566
 SHELDON FREINCLE
 SHELDON@NORTHEASTSITESOLUTIONS.COM
 201-776-8521
 CONSULTANTS: FORESITE LLC
 462 WALNUT ST, SUITE 1
 NEWTON, MA 02460
 SAEED MOSSAVAT
 SMOSSAVAT@FORESITELLC.COM
 617-212-3123

SHEET INDEX:

- T-1: TITLE SHEET
- N-1: GENERAL NOTES
- A-1: SITE PLAN
- A-2: ELEVATION AND ANTENNA PLANS
- A-3: ANTENNA AND EQUIPMENT SPECIFICATIONS
- E-1: ELECTRICAL DETAILS

REV	DESCRIPTION	DATE
A	PRELIMINARY	11/24/20
B	REVISED PER COMMENTS	02/02/21
0	FINAL ISSUED	02/02/21
1	SA REFERENCE UPDATE	04/29/21

SITE NUMBER: CTHA142G
 SITE NAME: EVERSOURCE
 SITE ADDRESS: 7 HOSKINS ROAD
 BLOOMFIELD, CT 06002

SHEET TITLE:
 T-1: TITLE SHEET

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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 HAS 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 CLIENT'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK.
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 CONSTRUCTION DOCUMENTS.
6. 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.
7. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS DURING CONSTRUCTION.
8. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT SECTIONS OF THE BASIC STATE BUILDING CODE, LATEST EDITION, AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJEC
9. THE CONTRACTOR SHALL NOTIFY THE CLIENT'S REPRESENTATIVE IN WRITING 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 CLIENT'S REPRESENTATIVE.
10. THE WORK SHALL CONFORM TO THE CODES AND STANDARDS OF THE FOLLOWING AGENCIES AS FURTHER CITED HEREIN:
 - A. ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS, AS PUBLISHED IN "COMPILATION OF ASTM STANDARDS BUILDING CODES" OR LATEST EDITION.
 - B. AWS: AMERICAN WELDING SOCIETY INC. AS PUBLISHED IN "STANDARD D1.1-08, STRUCTURAL WELDING CODE" OR LATEST EDITION.
 - C. AISC: AMERICAN INSTITUTE FOR STEEL CONSTRUCTION AS PUBLISHED IN "CODE FOR STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"; "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" (LATEST EDITION).
11. BOLTING:
 - A. BOLTS SHALL BE CONFORMING TO ASTM A325 HIGH STRENGTH, HOT DIP GALVANIZED WITH ASTM A153 HEAVY HEX TYPE NUTS.
 - B. BOLTS SHALL BE 3/4"Ø MINIMUM (UNLESS OTHERWISE NOTED)
 - C. ALL CONNECTIONS SHALL BE 2 BOLTS MINIMUM.
12. FABRICATION:
 - A. FABRICATION OF STEEL SHALL CONFORM TO THE AISC AND AWS STANDARDS AND CODES (LATEST EDITION).
 - B. ALL STRUCTURAL STEEL SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 (LATEST EDITION), UNLESS OTHERWISE NOTED.
13. ERECTION OF STEEL:
 - A. PROVIDE ALL ERECTION EQUIPMENT, BRACING, PLANKING, FIELD BOLTS, NUTS, WASHERS, DRIFT PINS, AND SIMILAR MATERIALS WHICH DO NOT FORM A PART OF THE COMPLETED CONSTRUCTION BUT ARE NECESSARY FOR ITS PROPER ERECTION.
 - B. ERECT AND ANCHOR ALL STRUCTURAL STEEL IN ACCORDANCE WITH AISC REFERENCE STANDARDS. ALL WORK SHALL BE ACCURATELY SET TO ESTABLISHED LINES AND ELEVATIONS AND RIGIDLY FASTENED IN PLACE WITH SUITABLE ATTACHMENTS TO THE CONSTRUCTION OF THE BUILDING.
 - C. TEMPORARY BRACING, GUYING AND SUPPORT SHALL BE PROVIDED TO KEEP THE STRUCTURE SAFE AND ALIGNED AT ALL TIMES DURING CONSTRUCTION, AND TO PREVENT DANGER TO PERSONS AND PROPERTY. CHECK ALL TEMPORARY LOADS AND STAY WITHIN SAFE CAPACITY OF ALL BUILDING COMPONENTS.
14. ANTENNA INSTALLATION:
 - A. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND CLIENT'S REPRESENTATIVE SPECIFICATIONS.
 - B. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.


- C. INSTALL COAXIAL / FIBER CABLES AND TERMINATIONS BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS.
15. ANTENNA AND COAXIAL / FIBER CABLE GROUNDING:
 - A. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH ANDREWS CONNECTOR/SPLICE WEATHERPROOFING KIT TYPE #221213 OR EQUAL.
 - B. ALL COAXIAL / FIBER CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL / FIBER CABLE (NOT WITHIN BENDS).
16. RELATED WORK, FURNISH THE FOLLOWING WORK AS SPECIFIED UNDER CONSTRUCTION DOCUMENTS, BUT COORDINATE WITH OTHER TRADES PRIOR TO BID:
 - A. FLASHING OF OPENING INTO OUTSIDE WALLS
 - B. SEALING AND CAULKING ALL OPENINGS
 - C. PAINTING
 - D. CUTTING AND PATCHING
17. REQUIREMENTS OF REGULATORY AGENCIES:
 - A. FURNISH U.L. LISTED EQUIPMENT WHERE SUCH LABEL IS AVAILABLE. INSTALL IN CONFORMANCE WITH U.L. STANDARDS WHERE APPLICABLE.
 - B. INSTALL ANTENNA, ANTENNA CABLES, GROUNDING SYSTEM IN ACCORDANCE WITH DRAWINGS AND SPECIFICATION IN EFFECT AT PROJECT LOCATION AND RECOMMENDATIONS OF STATE AND LOCAL BUILDING CODES, AND SPECIAL CODES HAVING JURISDICTION OVER SPECIFIC PORTIONS OF WORK. THIS WORK INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:
 - C. TIA-EIA - 222 (LATEST EDITION). STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.
 - D. FAA - FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR AC 70/7460-IH, OBSTRUCTION MARKING AND LIGHTING.
 - E. FCC - FEDERAL COMMUNICATIONS COMMISSION RULES AND REGULATIONS FORM 715, OBSTRUCTION MARKING AND LIGHTING SPECIFICATION FOR ANTENNA STRUCTURES AND FORM 715A, HIGH INTENSITY OBSTRUCTION LIGHTING SPECIFICATIONS FOR ANTENNA STRUCTURES.
 - F. AISC - AMERICAN INSTITUTE OF STEEL CONSTRUCTION SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 BOLTS (LATEST EDITION).
 - G. NEC - NATIONAL ELECTRICAL CODE - ON TOWER LIGHTING KITS.
 - H. UL - UNDERWRITER'S LABORATORIES APPROVED ELECTRICAL PRODUCTS.
 - I. IN ALL CASES, PART 77 OF THE FAA RULES AND PARTS 17 AND 22 OF THE FCC RULES ARE APPLICABLE AND IN THE EVENT OF CONFLICT, SUPERSEDE ANY OTHER STANDARDS OR SPECIFICATIONS.
 - J. 2018 LIFE SAFETY CODE NFPA - 101.


APPLICANT:

T-MOBILE NORTHEAST LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 860-692-7100

PROJECT MANAGER

 420 MAIN STREET, BLDG 4
 STURBRIDGE, MA 01566
 203-275-6669

CONSULTANT:

 Architects . Engineers . Surveyors
 462 WALNUT STREET
 NEWTON, MA 02460
 617-212-3123

PROFESSIONAL SEAL


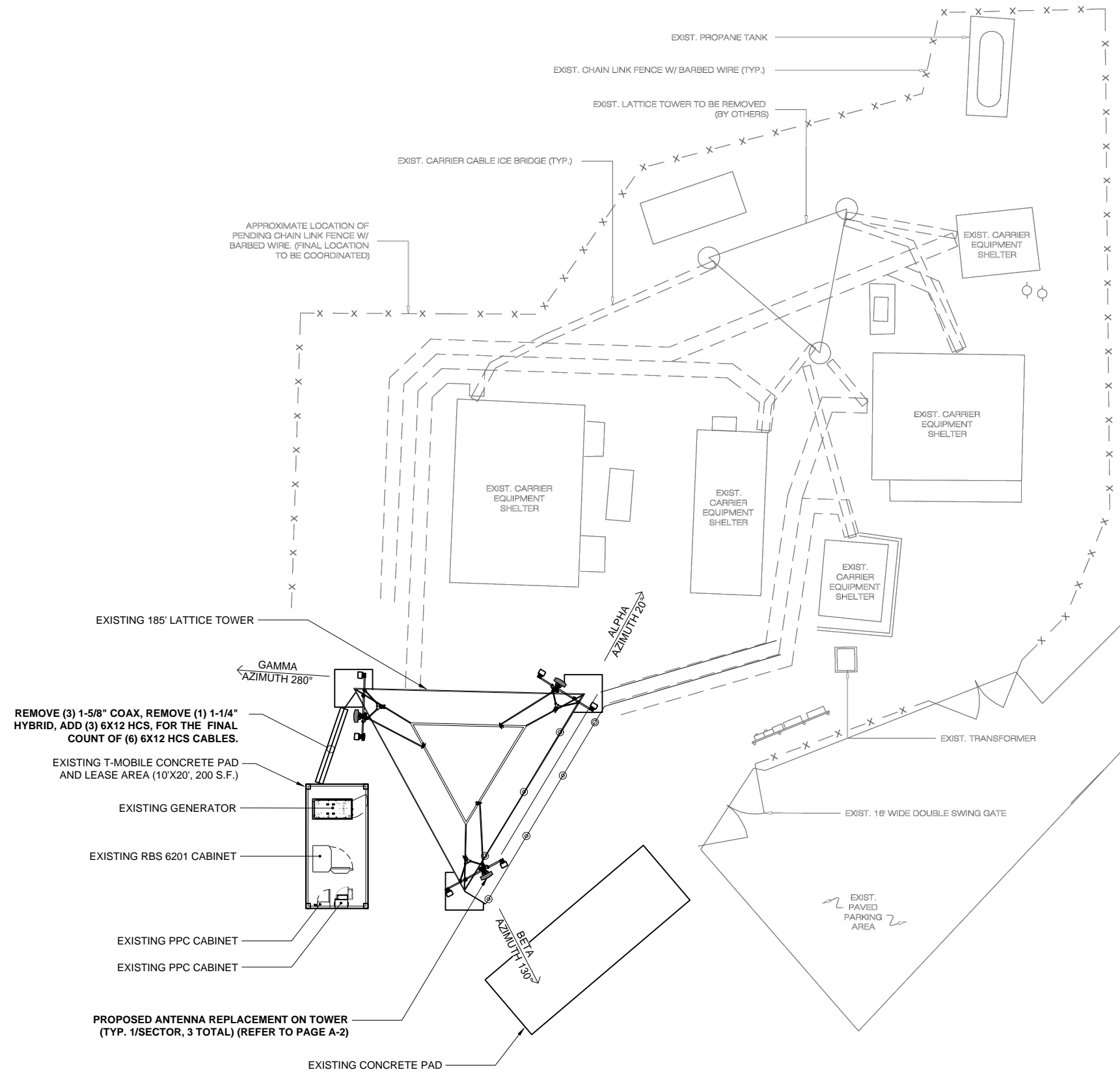
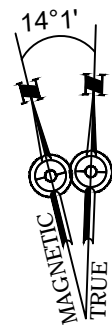
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SITE NUMBER: CTHA142G
 SITE NAME: EVERSOURCE
 SITE ADDRESS: 7 HOSKINS ROAD
 BLOOMFIELD, CT 06002

SHEET TITLE:
 N-1: GENERAL NOTES

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REMOVE (3) 1-5/8" COAX, REMOVE (1) 1-1/4" HYBRID, ADD (3) 6X12 HCS, FOR THE FINAL COUNT OF (6) 6X12 HCS CABLES.

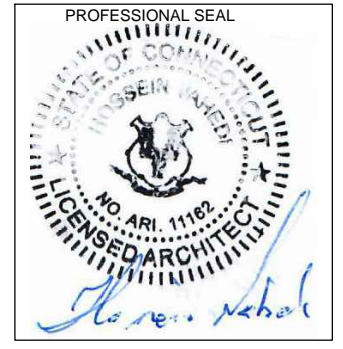
SITE PLAN
SCALE: 1"=20'

1
A-1

APPLICANT:
T-Mobile
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

PROJECT MANAGER
NORTHEAST SITE SOLUTIONS
Turning Vision Development
www.northeastitesolutions.com
420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
203-275-6669

CONSULTANT:
FORESITE LLC
Architects . Engineers . Surveyors
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617-212-3123



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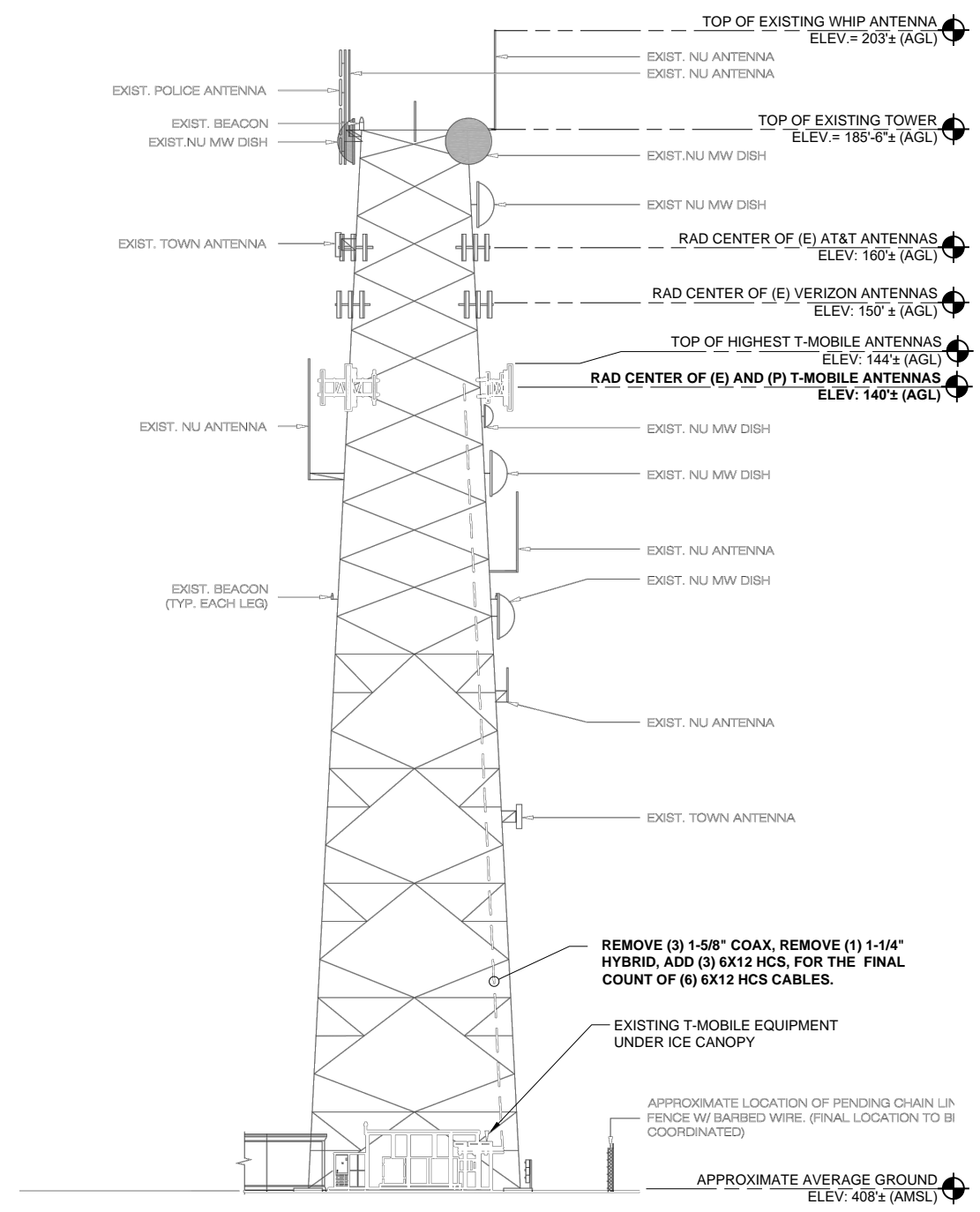
REV	DESCRIPTION	DATE
A	PRELIMINARY	11/24/20
B	REVISED PER COMMENTS	02/02/21
0	FINAL ISSUED	02/02/21
1	SA REFERENCE UPDATE	04/29/21

SITE NUMBER: CTHA142G
SITE NAME: EVERSOURCE
SITE ADDRESS: 7 HOSKINS ROAD
BLOOMFIELD, CT 06002

SHEET TITLE:
A-1: SITE PLAN

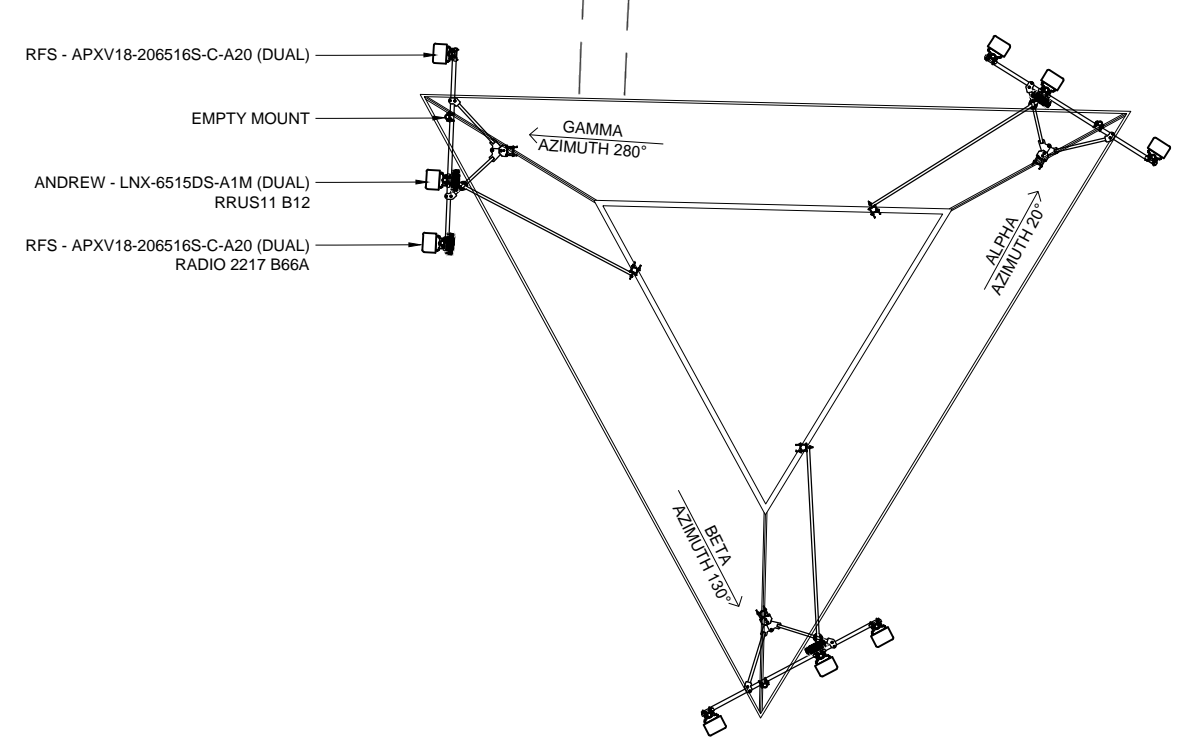
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ELEVATION NOTES:
 ABOVE MEAN SEA LEVEL ELEVATIONS (AMSL) SHOWN ARE APPROXIMATIONS ONLY AND OBTAINED FROM GOOGLE EARTH APP AND NOT THE RESULT OF A SURVEY.



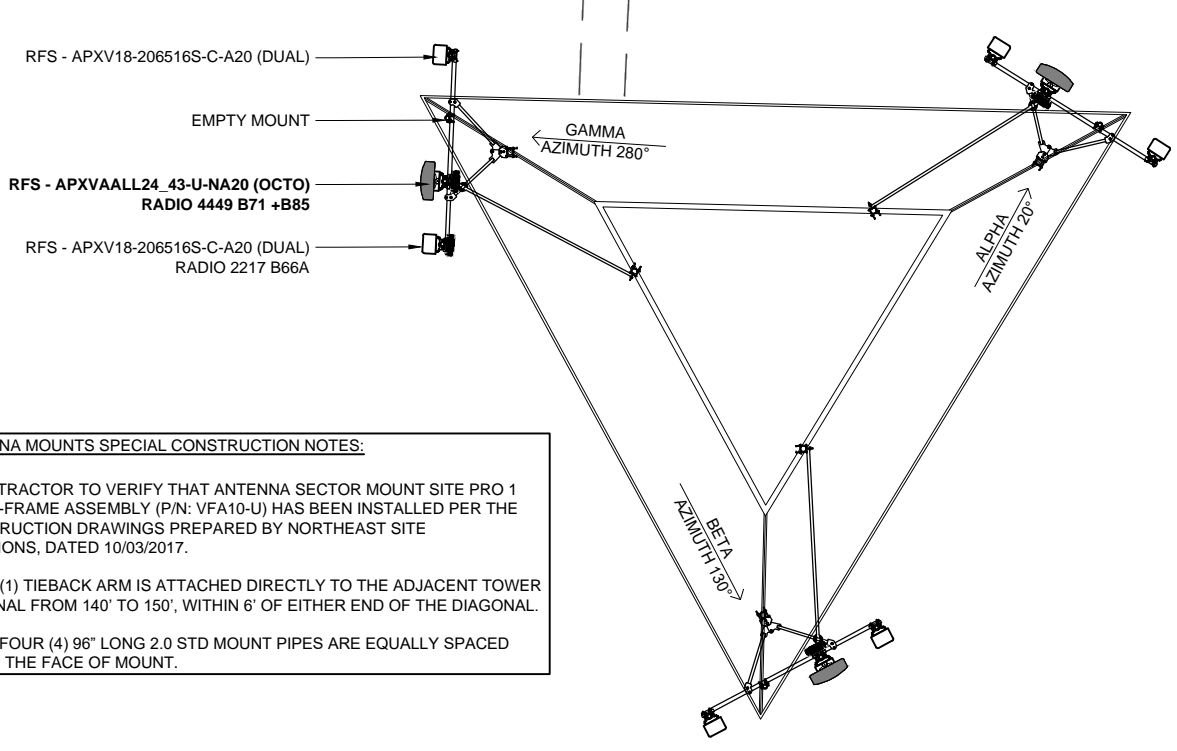
ELEVATION
 SCALE: 1/16" = 1'-0"
 1
 A-2

TYPICAL ALL SECTORS



EXISTING ANTENNA PLAN
 N.T.S.
 2
 A-2

TYPICAL ALL SECTORS



ANTENNA MOUNTS SPECIAL CONSTRUCTION NOTES:

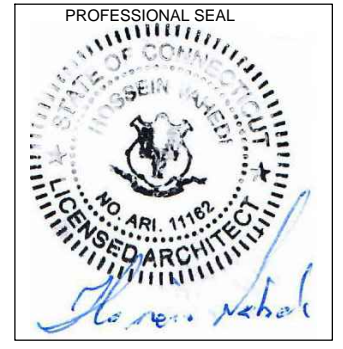
- 1- CONTRACTOR TO VERIFY THAT ANTENNA SECTOR MOUNT SITE PRO 1 10'-6" V-FRAME ASSEMBLY (P/N: VFA10-U) HAS BEEN INSTALLED PER THE CONSTRUCTION DRAWINGS PREPARED BY NORTHEAST SITE SOLUTIONS, DATED 10/03/2017.
- 2- THE (1) TIEBACK ARM IS ATTACHED DIRECTLY TO THE ADJACENT TOWER DIAGONAL FROM 140' TO 150', WITHIN 6' OF EITHER END OF THE DIAGONAL.
- 3- THE FOUR (4) 96" LONG 2.0 STD MOUNT PIPES ARE EQUALLY SPACED ALONG THE FACE OF MOUNT.

FINAL ANTENNA PLAN
 N.T.S.
 3
 A-2

APPLICANT:
T-Mobile
T-MOBILE NORTHEAST LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 860-692-7100

PROJECT MANAGER
NORTHEAST SITE SOLUTIONS
Turning Vision Development
 420 MAIN STREET, BLDG 4
 STURBRIDGE, MA 01566
 203-275-6669

CONSULTANT:
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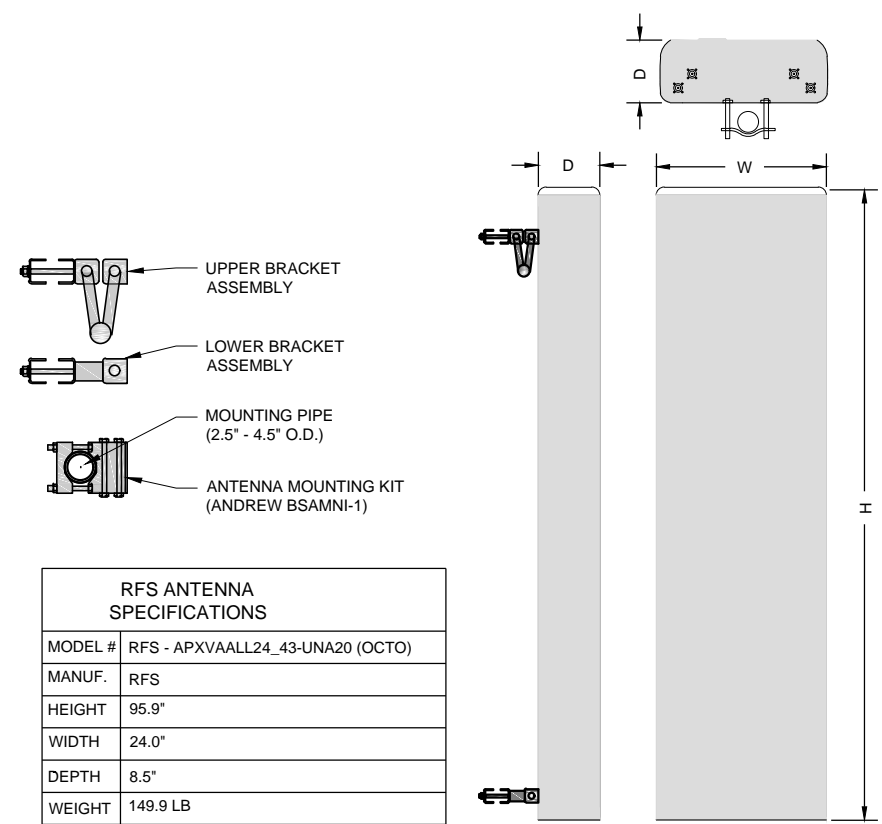
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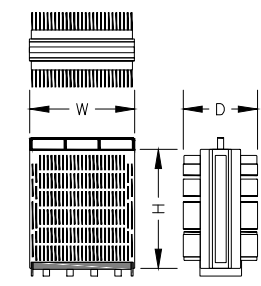
SHEET TITLE:
 A-2: ELEVATION AND ANTENNA PLANS

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RFS ANTENNA SPECIFICATIONS	
MODEL #	RFS - APXVAALL24_43-UNA20 (OCTO)
MANUF.	RFS
HEIGHT	95.9"
WIDTH	24.0"
DEPTH	8.5"
WEIGHT	149.9 LB

RFS ANTENNA
N.T.S 1
A-3



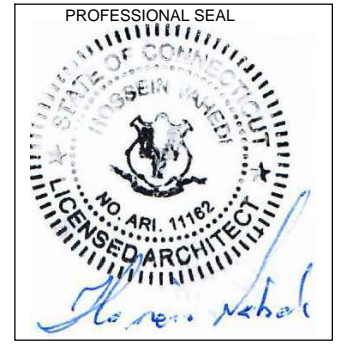
REMOTE RADIO UNIT SPECIFICATIONS	
MODEL #	RADIO 4449 B71+B85
MANUF.	ERICSSON
HEIGHT	14.9"
WIDTH	13.2"
DEPTH	10.4"
WEIGHT	74 LB

REMOTE RADIO UNIT
N.T.S 2
A-3

APPLICANT:
T-Mobile
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

PROJECT MANAGER
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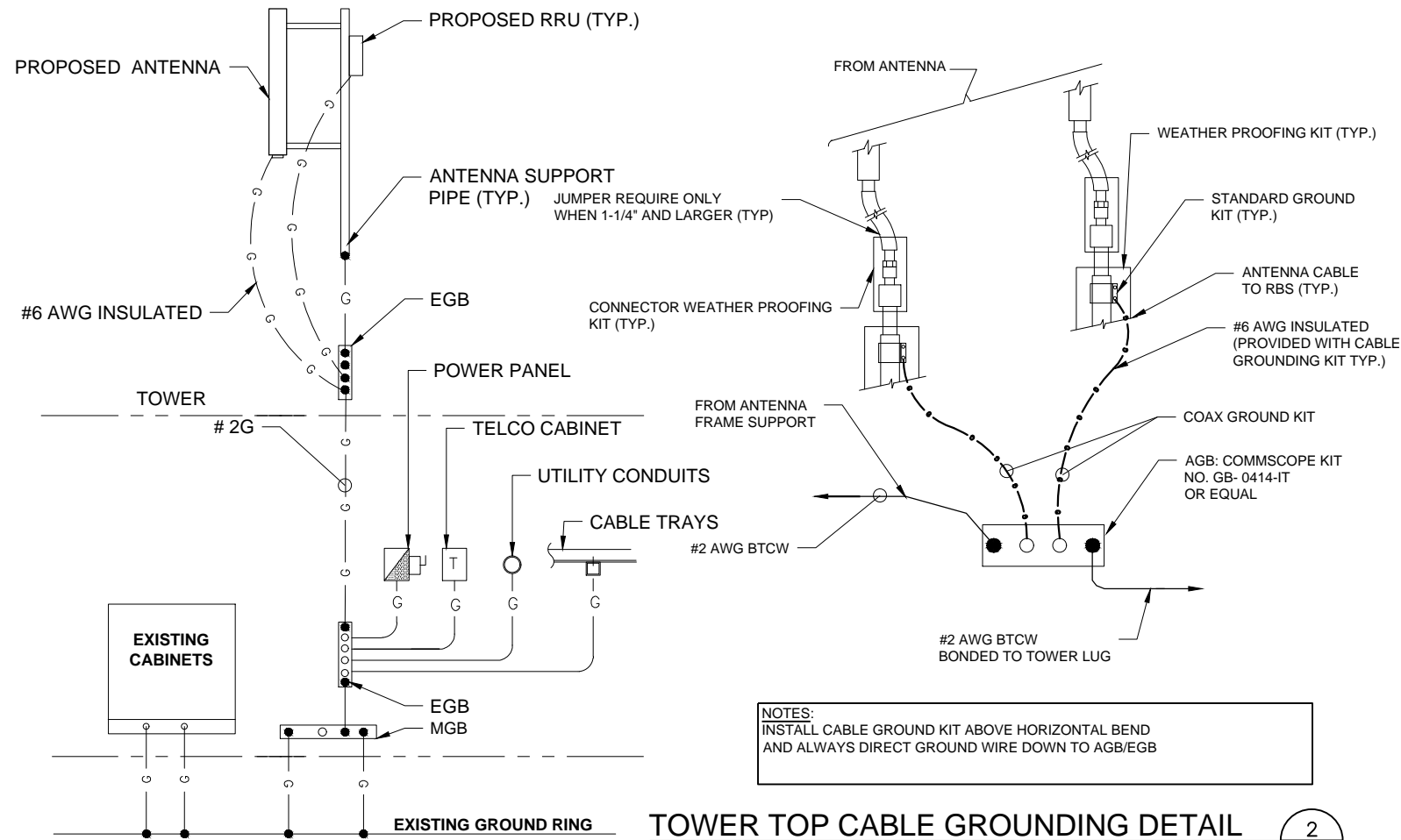
SITE NUMBER: CTHA142G
SITE NAME: EVERSOURCE
SITE ADDRESS: 7 HOSKINS ROAD
BLOOMFIELD, CT 06002

SHEET TITLE:
A-3: ANTENNA AND EQUIPMENT SPECS

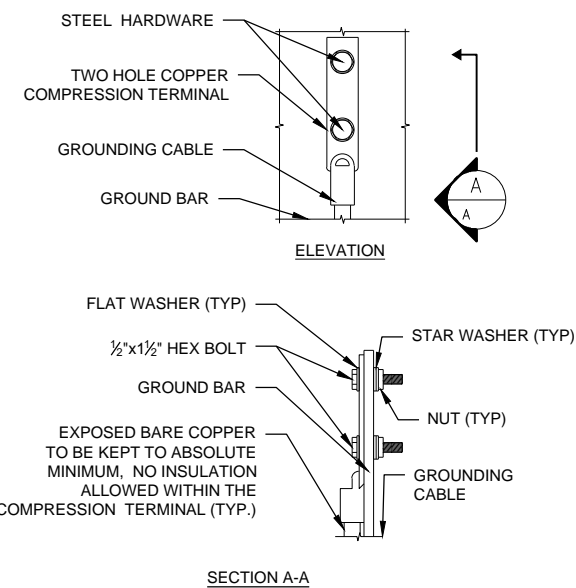
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ELECTRICAL & GROUNDING NOTES

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 PRODUCED 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 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. RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLING BETWEEN ELECTRICAL ROOM AND PROPOSED CELL SITE ARE PEDESTAL 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 PROPOSED CELL SITE TELECOM CABINET AND RBS CABINET AS INDICATED ON DRAWING A-1. PROVIDE FULL LENGTH PULL ROPE INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NAME 3R ENCLOSURE.
11. GROUNDING SHALL COMPLY WITH NEC ART. 250.
12. GROUNDING COAX CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
13. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSTALLATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE GROUND.
14. ALL GROUND CONNECTION TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
15. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AS RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY BOND ANY METER OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
16. CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PROCEDURES (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND); (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGB GROUND IN RBS UNIT).
17. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
18. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTION.
19. BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
20. BOND ANTENNA EGB'S AND MGB TO WATER MAIN.
21. TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
22. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.



GROUNDING RISER DIAGRAM
SCALE: N.T.S.



- NOTES:
1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

TYPICAL GROUND BAR CONNECTIONS DETAIL
SCALE: N.T.S.

APPLICANT:
T-Mobile
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

PROJECT MANAGER
NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
420 MAIN STREET, BLDG 4
STURBRIDGE, MA 01566
203-275-6669

CONSULTANT:
FORESITE LLC
Architects . Engineers . Surveyors
462 WALNUT STREET
NEWTON, MA 02460
617-212-3123

PROFESSIONAL SEAL
STATE OF CONNECTICUT
REGISTERED PROFESSIONAL ARCHITECT
NO. ARI. 11162
L. FORESITE

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SITE NAME: EVERSOURCE
SITE ADDRESS: 7 HOSKINS ROAD
BLOOMFIELD, CT 06002

SHEET TITLE:
E-1: GROUNDING DETAIL

Exhibit D

**STRUCTURAL ANALYSIS REPORT – REV. 4
SELF-SUPPORT TOWER**



Prepared For:



**T-Mobile Northeast, LLC
35 Griffin Road South
Bloomfield, CT 06002**



Structure Rating:

Tower:	Pass (66.4%)
Base Foundation:	Pass (75.8%)

Sincerely,
EFI Global, Inc.
License No: PEC0001245

4/1/2021



Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

**Site ID: CTHA142G
Site Name: Eversource
7 Hoskins Road
Bloomfield, CT 06002**

CONTENTS

1.0 - SUBJECT AND REFERENCES

1.1 - STRUCTURE

2.0 - EXISTING AND PROPOSED APPURTENANCES

3.0 - CODES AND LOADING

4.0 - STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING
STRUCTURES

5.0 - ANALYSIS AND ASSUMPTIONS

6.0 - RESULTS AND CONCLUSION

APPENDICES

A - SOFTWARE OUTPUT

1.0 SUBJECT AND REFERENCES

The purpose of this analysis is to evaluate the structural capacity of a 185 ft. tall self-support tower located at 7 Hoskins Road, Bloomfield, CT 06002 for the additions and alterations proposed by T-Mobile.

The structural analysis is based on the following documentation provided to EFI Global, Inc. (EFI):

- RFDS provided by T-Mobile, dated 09/17/2020.
- Mount Analysis Report – Rev. 2 prepared by EFI Global, Inc., dated 3/1/2021.
- Construction Drawings prepared by Black&Veatch Corp., dated 09/25/2020.
- Structural Analysis Report prepared by Black&Veatch Corp., dated 08/10/2020.
- Construction Drawings prepared by Northeast Site Solutions, dated 01/29/2019.
- Construction Drawings prepared by Northeast Site Solutions, dated 10/03/2017.

1.1 STRUCTURE

The subject structure is a 3-sided 185 feet tall self-support tower formed by (15) fifteen sections which are braced with angle diagonals. The tower tapers from 37 feet wide at the base to 18.5 feet wide at the top. Please refer to the software output in Appendix A for tower geometry, member sizes, and other details.

2.0 EXISTING AND PROPOSED APPURTENANCES

The analysis is based on the following existing and proposed appurtenances:

Existing Configuration of T-Mobile Appurtenances:

Rad Center (ft.)	Antennas & Equipment	Coax	Mounts
140	(6) RFS APXV18-206516S-CA20 (3) Andrew LNX-6515DS-A1M (1) IBR 1300 (3) RRUS11 B12 (3) Radio 2217 B66A	(3) 1-5/8 Coax (1) 1-1/4 Hybrid (3) 6x12 Hybrid	Valmont/Site Pro 1 10'-6" V-Frame (P/N: VFA10-U)

Proposed & Final Configuration of T-Mobile Appurtenances:

Rad Center (ft.)	Antennas & Equipment	Coax	Mounts
140	(6) RFS APXV18-206516S-CA20 (3) RFS APXVAALL24_43-UNA20 (3) Radio 2217 B66A* (3) Radio 4449 B71 + B85*	(6) 6x12 Hybrids	Valmont/Site Pro 1 10'-6" V-Frame (P/N: VFA10-U)

*To be mounted behind antennas.

Appurtenances by Others:

Rad Center (ft.)	Antennas & Equipment	Coax	Mounts
185	(1) DS9A09F36D-N (20'x3" Omni) (1) BA8080-67 (16' 8 Bay Di-Pole) (1) CO-41A (1) ANT450F-6 (1) TTA TX/RX 432F-83W-01-T	(2) 1-5/8 Coax (1) 1/2 Coax (3) 7/8 Coax	-
183	(3) DS7C09P36D-D (1) DS2C03F36D-D (2) PADX8-59A	(4) EW-63 (3) 1-5/8 Coax (1) 1/2 Coax (2) 7/8 Coax	(3) VFA10-HD-S Heavy Duty V-Frame (3) Pipe Mount
181	(1) DB411-B	(1) 7/8 Coax	-
177	(1) PA4-57A	(1) EW-90	(1) Pipe Mount
172	(1) PADX8-59A	(2) EW-63	(1) Pipe Mount
171	(1) PADX8-59A	(2) EW-63	(1) Pipe Mount
168	(1) PR-900	(1) 7/8 Coax	(1) Pipe Mount
165	(1) ANT150F6	(1) 7/8 Coax	(1) Side Arm Mount
160	(3) Powerwave 7770.00 (2) CCI OPA-65R-LCUU-H8 (1) CCI OPA-65R-LCUU-H6 (4) Kathrein 800-10966 (2) Kathrein 800-10965 (3) RRUS-32 (3) RRUS-E2 (3) RRUS 4478 B14 (3) RRUS 8843 B2/B66A (3) RRUS 4449 B5/B12 (3) TT08-19DB111-001 (3) DC6-48-60-18-8F (3) DC6-48-60-18-8C-EV	(6) 2-1/4 Coax (3) 5/16 Coax (12) 5/8 Coax	(3) 12' Sector Mounts
150	(3) BXA-70063/6CF (6) BXA-171063/12CF (6) LPA-80080/4CF (3) RRH2x40-700 (3) RRH2x40-AWS (1) DB-T1-6Z-8AB-OZ Distribution Box	(6) 1-5/8 Coax (2) 1-1/4 Coax	(3) 12' Sector Mounts
135	(1) PADX6-59A	(4) EW-63	(2) Pipe Mounts

Appurtenances by Others (Continued):

Rad Center (ft.)	Antennas & Equipment	Coax	Mounts
125	(1) ANT150F-6 (1) 531-70HD 12' Dipole (1) PADX8-59A	(2) 7/8 Coax (2) EW-63	(2) Side Arm Mounts (1) Pipe Mount
109	(1) 531-70HD 12' Dipole	(1) 7/8 Coax	(1) Side Arm Mount
108	(1) CO-41A	(1) 7/8 Coax	(1) Side Arm Mount
100	(1) PADX8-59A	(2) EW-63	(1) Pipe Mount
98	(1) SC3-W100XGT1C	(1) 3/8 Coax	(1) Pipe Mount
91	(1) SC3-W100XGT1C	(1) 3/8 Coax	(1) Pipe Mount
87	(1) ANT150F-2	(1) 7/8 Coax	(1) Side Arm Mount
85	(1) 531-70HD 12' Dipole	(1) 7/8 Coax	(1) Side Arm Mount
66	(1) WB2619	(1) 1/4	(1) Side Arm Mount

3.0 CODES AND LOADING

This analysis has been performed in accordance with the 2018 Connecticut State Building Code and TIA-222-H Standard, based upon an ultimate wind speed of 125 mph (Risk Category II) as required for the Appendix N. The following loading criteria were used in compliance with the standard for Bloomfield, CT:

- Ultimate wind speed 125 mph without ice (V)
- Nominal wind speed 50 mph concurrent with design ice thickness of 1.5" (V_i and t_i)
- Exposure Category B, Risk Category III
- Topographic Category 5, $K_{zt} = 1.38$
- TIA-222-H Annex S.

The following load combinations were used with wind blowing at 0°, 30°, 60° and 90°, measured from a line normal to the face of the tower:

- $1.2 D + 1.0 W_o$
- $0.9 D + 1.0 W_o$
- $1.2 D + 1.0 D_i + 1.0 W_i + 1.0 T_i$

D: Dead load of structures and appurtenances

D_i : Weight of ice due to factored ice thickness (based upon t_i)

T_i : Load effects due to temperature

W_o : Wind load without ice (based upon V)

W_i : Wind load with ice (based upon V_i)

4.0 STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES

The analysis is based on the information provided to EFI and is assumed to be current and correct. Unless otherwise noted, the structure and the foundation system are assumed to be in good condition, free of defects and can achieve theoretical strength.

It is assumed that the structure has been maintained and shall be maintained during its service. The superstructure and the foundation system are assumed to be designed with proper engineering practice and fabricated, constructed and erected in accordance with the design documents. EFI will accept no liability which may arise due to any existing deficiency in design, material, fabrication, erection, construction, etc. or lack of maintenance.

The analysis does not include a qualification of the mounts attached on the structure or their connections. The analysis is performed to verify the capacity of the main structural members, which is the current practice in the tower industry.

The analysis results presented in this report are only applicable for the previously mentioned existing and proposed additions and alterations. Any deviation of the proposed equipment and placement, etc., will require EFI to generate an additional structural analysis.

5.0 ANALYSIS AND ASSUMPTIONS

The tower was analyzed by utilizing tnxTower, a non-linear, three-dimensional, finite element-analysis software package, a product of Tower Numerics, Inc. Software output for this analysis is provided in Appendix A of this report.

All reported tower member and component capacities are provided in accordance with TIA-222-H, Section 15.5.

6.0 **RESULTS AND CONCLUSION**

Based on a comprehensive structural analysis per *ANSI/TIA-222-H*, the existing tower has **adequate** structural capacity for the proposed changes by T-Mobile. For the code specified load combinations and as a maximum, the tower diagonals between 140' and 160' are stressed to **66.4%** of its structural capacity. The tower legs and anchor rods are stressed to **49.7%** and **36.5%** of their structural capacity, respectively. Additionally, maximum deflections, tilt, and twist are within code specified allowable ranges (See following page and Appendix A for details.)

The existing foundation has adequate structural capacity for the proposed changes by T-Mobile. For the code specified load combinations and as a maximum, the existing foundation is stressed to **75.8%** of its structural capacity.

Therefore, the proposed additions and alterations by T-Mobile **can** be implemented as intended, with the conditions outlined in this report.

Should you have any questions about this report, please contact EFI at telecom@efiglobal.com.

Maximum Tower Deflections - Service Wind

Section No.	Elevation <i>ft</i>	Horz. Deflection <i>in</i>	Gov. Load Comb.	Tilt $^{\circ}$	Twist $^{\circ}$	Check*
T1	185 - 180	1.707	47	0.0658	0.0119	OK
T2	180 - 160	1.637	47	0.0658	0.0117	OK
T3	160 - 140	1.349	47	0.0649	0.0106	OK
T4	140 - 120	1.065	47	0.0611	0.0095	OK
T5	120 - 100	0.796	47	0.0532	0.0083	OK
T6	100 - 93.33	0.558	47	0.0453	0.0069	OK
T7	93.33 - 80	0.490	47	0.0419	0.0067	OK
T8	80 - 73.33	0.374	47	0.0352	0.0057	OK
T9	73.33 - 60	0.318	47	0.0325	0.0052	OK
T10	60 - 53.33	0.221	47	0.0270	0.0042	OK
T11	53.33 - 40	0.176	47	0.0236	0.0037	OK
T12	40 - 33.33	0.108	47	0.0167	0.0026	OK
T13	33.33 - 20	0.075	47	0.0138	0.0021	OK
T14	20 - 13.33	0.034	43	0.0080	0.0013	OK
T15	13.33 - 0	0.017	43	0.0054	0.0008	OK

* Limit State Deformation (TIA-222-H Section 2.8.2)

1) Maximum Rotation (Tilt or Twist) = 4 Degrees

2) Maximum Deflection = 0.03 * Height above Base

Critical Deflections and Radius of Curvature - Service Wind

Elevation <i>ft</i>	Appurtenance	Tilt $^{\circ}$	Twist $^{\circ}$	Diameter <i>(ft)</i>	Frequency <i>(GHz)</i>	Decibel Points	Deformation Limit (θ)*	Deformation Limit Exceeded?
183.00	PADX8-59A	0.0658	0.0118	8.00	10	10 dB	0.664	No
177.00	PA4-57A	0.0658	0.0115	4.00	10	10 dB	1.328	No
172.00	PADX8-59A	0.0657	0.0113	8.00	10	10 dB	0.664	No
171.00	PADX8-59A	0.0656	0.0112	8.00	10	10 dB	0.664	No
168.00	PR-900	0.0655	0.0111	3.18	10	10 dB	1.670	No
135.00	PADX6-59A	0.0593	0.0092	6.00	10	10 dB	0.885	No
125.00	PADX8-59A	0.0552	0.0086	8.00	10	10 dB	0.664	No
100.00	PADX8-59A	0.0453	0.0069	8.00	10	10 dB	0.664	No
98.00	SCX-W100AB	0.0443	0.0068	3.29	10	10 dB	1.614	No
91.00	SCX-W100AB	0.0407	0.0065	3.29	10	10 dB	1.614	No

* Limit per TIA-222-H Annex D

Maximum Tower Deflections - Design Wind

Section No.	Elevation <i>ft</i>	Horz. Deflection <i>in</i>	Gov. Load Comb.	Tilt °	Twist °	Combined Max	Check*
T1	185 - 180	7.038	18	0.2711	0.0490	0.2755	OK
T2	180 - 160	6.748	18	0.2712	0.0481	0.2754	OK
T3	160 - 140	5.564	18	0.2675	0.0439	0.2711	OK
T4	140 - 120	4.394	18	0.2516	0.0391	0.2546	OK
T5	120 - 100	3.285	18	0.2193	0.0341	0.2219	OK
T6	100 - 93.33	2.302	18	0.1868	0.0285	0.1890	OK
T7	93.33 - 80	2.019	18	0.1731	0.0275	0.1753	OK
T8	80 - 73.33	1.540	18	0.1452	0.0236	0.1471	OK
T9	73.33 - 60	1.309	18	0.1340	0.0217	0.1357	OK
T10	60 - 53.33	0.911	18	0.1114	0.0173	0.1127	OK
T11	53.33 - 40	0.725	18	0.0973	0.0153	0.0985	OK
T12	40 - 33.33	0.444	18	0.0688	0.0109	0.0697	OK
T13	33.33 - 20	0.312	11	0.0570	0.0087	0.0577	OK
T14	20 - 13.33	0.141	10	0.0330	0.0052	0.0334	OK
T15	13.33 - 0	0.071	10	0.0220	0.0035	0.0223	OK

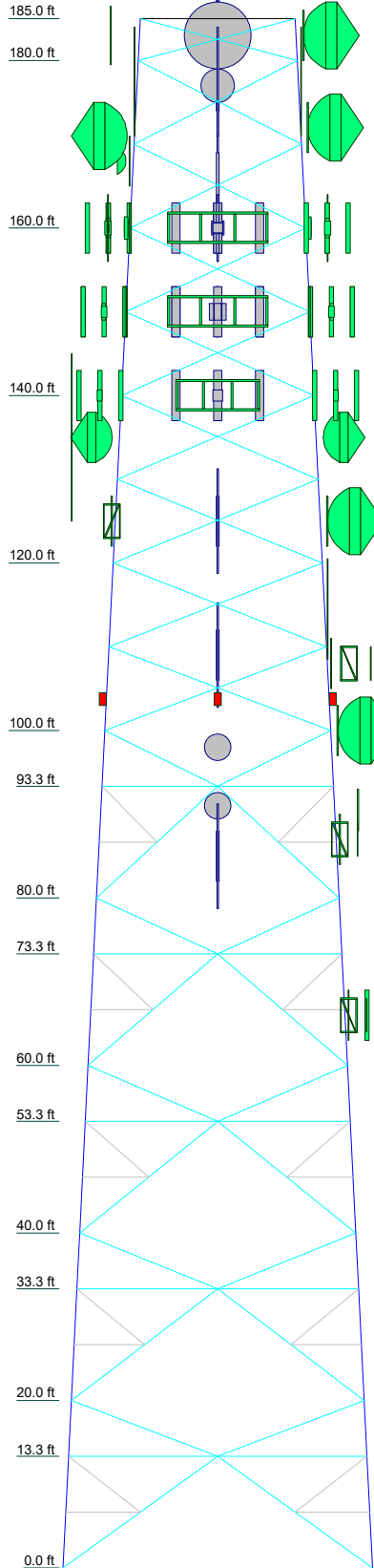
* Up to 0.5 degrees is considered acceptable.

Critical Deflections and Radius of Curvature - Design Wind

Elevation <i>ft</i>	Appurtenance	Gov. Load Comb.	Deflection <i>in</i>	Tilt °	Twist °	Radius of Curvature <i>ft</i>
185.00	Flash Beacon Lighting	18	7.038	0.2711	0.0490	89056
183.00	PADX8-59A	18	6.922	0.2712	0.0487	89056
182.00	22' Horiz. 4"x4"x1/4"	18	6.864	0.2712	0.0485	89056
181.00	DB411-B	18	6.806	0.2712	0.0483	89056
177.00	PA4-57A	18	6.572	0.2711	0.0475	88195
172.00	PADX8-59A	18	6.278	0.2706	0.0465	148873
171.00	PADX8-59A	18	6.218	0.2705	0.0463	173860
168.00	PR-900	18	6.040	0.2699	0.0457	349641
165.00	ANT150F6	18	5.862	0.2692	0.0451	Inf
160.00	7770.00 w/ Mount Pipe	18	5.564	0.2675	0.0439	203504
150.00	BXA-70063-6CF-2 w/ Mount Pipe	18	4.974	0.2617	0.0415	116776
140.00	(2) APXV18-206516S-C-A20 w/ Mount Pipe	18	4.394	0.2516	0.0391	83571
135.00	PADX6-59A	18	4.109	0.2444	0.0379	66080
125.00	PADX8-59A	18	3.553	0.2277	0.0355	44588
109.00	531-70 Dipole Antenna	18	2.724	0.2023	0.0306	28660
108.00	CO-41A	18	2.675	0.2007	0.0303	28017
103.00	Beacon Side Markers	18	2.439	0.1924	0.0290	25007
100.00	PADX8-59A	18	2.302	0.1868	0.0285	21460
98.00	SCX-W100AB	18	2.214	0.1829	0.0282	18031
91.00	SCX-W100AB	18	1.929	0.1680	0.0270	15919
87.00	ANT150F2	18	1.783	0.1593	0.0259	30895
85.00	531-70 Dipole Antenna	18	1.714	0.1551	0.0252	61538
66.00	2" Square Panel Antenna	18	1.083	0.1222	0.0193	42030

APPENDIX A
SOFTWARE OUTPUT

DESIGNED APPURTENANCE LOADING

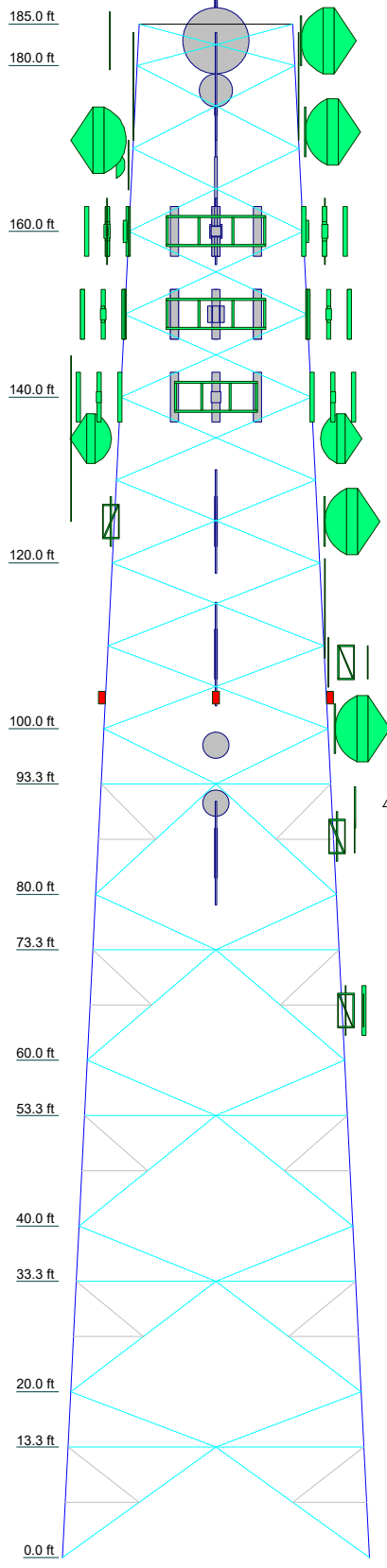


TYPE	ELEVATION	TYPE	ELEVATION
Flash Beacon Lighting	185	OPA-65R-LCUU-H8 w/ Mount Pipe	160
CO-41A	185	7770.00 w/ Mount Pipe	160
DS9A09F36D-N	185	7770.00 w/ Mount Pipe	160
TTA TX/RX 432F-83W-01-T	185	(2) LPA-80080/4CF w/ Mount Pipe	150
ANT450F6	185	(2) LPA-80080/4CF w/ Mount Pipe	150
BA8080-67	185	(2) LPA-80080/4CF w/ Mount Pipe	150
6' x 4" Mount Pipe	185	RRH2x40-AWS	150
DS2C09P36D-D	183	RRH2x40-AWS	150
DS7C09F36U-D	183	RRH2x40-AWS	150
DS7C09F36U-D	183	RRH2x40 700	150
DS7C09F36U-D	183	RRH2x40 700	150
Site Pro 1 VFA10-HD-S 10' Heavy Duty V-Frame	183	RRH2x40 700	150
(4) 7x2 1/2" Pipe Mount	183	DB-T1-6Z-8AB-0Z	150
6' x 4" Mount Pipe	183	Sector Mount [SM 502-3]	150
6' x 4" Mount Pipe	183	6' x 3" Mount Pipe	150
8' Horizontal x2" Mount Pipe	183	6' x 3" Mount Pipe	150
8' Horizontal x2" Mount Pipe	183	6' x 3" Mount Pipe	150
PADX8-59A	183	BXA-70063-6CF-2 w/ Mount Pipe	150
PADX8-59A	183	BXA-70063-6CF-2 w/ Mount Pipe	150
22' Horiz. 4"x4"x1/4"	182	(2) BXA-171063/12CF w/ Mount Pipe	150
22' Horiz. 4"x4"x1/4"	182	(2) BXA-171063/12CF w/ Mount Pipe	150
22' Horiz. 4"x4"x1/4"	182	(2) BXA-171063/12CF w/ Mount Pipe	150
DB411-B	181	RADIO 2212 B66A	140
8' Horizontal x2" Mount Pipe	177	RADIO 2212 B66A	140
6' x 4" Mount Pipe	177	RADIO 2212 B66A	140
PA4-57A	177	RADIO 4449 B71/B85	140
6' x 4" Mount Pipe	172	RADIO 4449 B71/B85	140
8' Horizontal x2" Mount Pipe	172	RADIO 4449 B71/B85	140
PADX8-59A	172	Valmont/Site Pro 1 VFA10-U	140
22' Horiz. 4"x4"x1/4"	171	(2) APXV18-206516S-C-A20 w/ Mount Pipe	140
22' Horiz. 4"x4"x1/4"	171	(2) APXV18-206516S-C-A20 w/ Mount Pipe	140
(2) 13' x 2" Mount Pipe	171	(2) APXV18-206516S-C-A20 w/ Mount Pipe	140
(2) 13' x 2" Mount Pipe	171	(2) APXV18-206516S-C-A20 w/ Mount Pipe	140
22' Horiz. 4"x4"x1/4"	171	APXVAALL24_43-U-NA20 w/ Mount Pipe	140
PADX8-59A	171	APXVAALL24_43-U-NA20 w/ Mount Pipe	140
(2) 13' x 2" Mount Pipe	168	APXVAALL24_43-U-NA20 w/ Mount Pipe	140
PR-900	168	APXVAALL24_43-U-NA20 w/ Mount Pipe	140
ANT150F6	165	APXVAALL24_43-U-NA20 w/ Mount Pipe	140
8' x 3" Mount Pipe	165	Pipe Mount [PM 601-1]	135
Side Arm Mount [SO 602-1]	165	Pipe Mount [PM 601-1]	135
(2) 80010966 w/ Mount Pipe	160	PADX6-59A	135
(2) 80010965 w/ Mount Pipe	160	PADX6-59A	135
(2) 80010966 w/ Mount Pipe	160	Side Arm Mount [SO 602-1]	125
RRUS 4478 B14	160	6' x 3" Mount Pipe	125
RRUS 4478 B14	160	12.5' x 2.375" Mount Pipe	125
RRUS 4478 B14	160	6' x 4" Mount Pipe	125
RRUS 8843 B2/B66A	160	531-70 Dipole Antenna	125
RRUS 8843 B2/B66A	160	Side Arm Mount [SO 602-1]	125
RRUS 32	160	6' x 3" Mount Pipe	125
RRUS 32	160	4' x 2" Pipe Mount	125
RRUS 32	160	8' Horizontal x2" Mount Pipe	125
RRUS 4449 B5/B12	160	ANT150F6	125
RRUS 4449 B5/B12	160	PADX8-59A	125
RRUS 4449 B5/B12	160	531-70 Dipole Antenna	109
RRUS E2 B29	160	Side Arm Mount [SO 602-1]	109
RRUS E2 B29	160	6' x 3" Mount Pipe	109
RRUS E2 B29	160	4' x 2" Pipe Mount	109
TT08-19DB111-001	160	12.5' x 2.375" Mount Pipe	109
TT08-19DB111-001	160	CO-41A	108
TT08-19DB111-001	160	Side Arm Mount [SO 602-1]	108
DC6-48-60-18-8F	160	6' x 3" Mount Pipe	108
DC6-48-60-18-8F	160	4' x 2" Pipe Mount	108
DC6-48-60-18-8F	160	Beacon Side Markers	103
DC6-48-60-18-8C-EV	160	Beacon Side Markers	103
DC6-48-60-18-8C-EV	160	Beacon Side Markers	103
DC6-48-60-18-8C-EV	160	6' x 4" Mount Pipe	100
Sector Mount [SM 502-3]	160	8' Horizontal x2" Mount Pipe	100
8' x 2" Mount Pipe	160	PADX8-59A	100
8' x 2" Mount Pipe	160	Pipe Mount [PM 601-1]	98
8' x 2" Mount Pipe	160	SCX-W100AB	98
6' x 3" Mount Pipe	160	Pipe Mount [PM 601-1]	91
6' x 3" Mount Pipe	160	SCX-W100AB	91
6' x 3" Mount Pipe	160	6' x 3" Mount Pipe	87
7770.00 w/ Mount Pipe	160	4' x 2" Pipe Mount	87
OPA-65R-LCUU-H8 w/ Mount Pipe	160	ANT150F2	87
OPA-65R-LCUU-H6 w/ Mount Pipe	160	Side Arm Mount [SO 601-1]	87

Section	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	P12x.5	L6x6x1/2	P10x.5	L6x6x3/8	P10x.365	L6x6x3/8	P8x.5	P8x.322	P8x.28						
Leg Grade															
Diagonals															
Diagonal Grade															
Top Gribs															
Horizontals	L5x5x5/16	N.A.	L5x5x5/16	N.A.	L5x5x5/16	N.A.	L4x4x5/16	N.A.	N.A.						
Red. Horizontals	L3 1/2x4x5/16	N.A.	L3x3x5/16	N.A.	L3x3x5/16	N.A.	L3x3x1/4	N.A.	N.A.						
Red. Diagonals	L3 1/2x4x5/16	N.A.	L3x3x5/16	N.A.	L3x3x5/16	N.A.	L3x3x1/4	N.A.	N.A.						
Red. Hips	L3 1/2x3 1/2x1/4	N.A.	L3 1/2x3 1/2x1/4	N.A.	L3 1/2x3 1/2x1/4	N.A.	L3x3x1/4	N.A.	N.A.						
Face Width (ft)	35.67	35.67	33.67	33	31.67	31	29.67	29	27.67	27	25	23	21	19	18.5
# Panels @ (ft)	1 @ 13.33	1 @ 6.67	1 @ 13.33	1 @ 6.67	1 @ 13.33	1 @ 6.67	1 @ 13.33	1 @ 6.67	1 @ 13.33	1 @ 6.67	1 @ 13.33	1 @ 6.67	8 @ 10	8 @ 10	1 @ 5
Weight (K)	63.1	3.7	7.0	2.8	5.5	2.4	5.1	2.4	4.5	2.0	6.1	4.6	4.3	3.1	1.6

EFI Global, Inc. 1117 Perimeter Center West, Suite E500 Atlanta, GA 30338 Phone: (470) 990-6593 FAX:		Job: CTHA142G Project: 049.00933 - 2075086
Client: T-Mobile Code: TIA-222-H Path:	Drawn by: Evan.Martin Date: 03/01/21	App'd: Scale: NTS Dwg No. E-1

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15
Legs			P6x28		P8x322			P8x5		P10x365		P10x5		P12x5	
Leg Grade															
Diagonals															
Diagonal Grade															
Top Girts															
Horizontals															
Red. Horizontals															
Red. Diagonals															
Red. Hips															
Face Width (ft)	37	21	23	25	27	29	31	33	35	37	39	41	43	45	47
# Panels @ (ft)	1 @ 5	1 @ 5	1 @ 5	1 @ 5	1 @ 5	1 @ 5	1 @ 5	1 @ 5	1 @ 5	1 @ 5	1 @ 5	1 @ 5	1 @ 5	1 @ 5	1 @ 5
Weight (K)	63.1	3.1	4.3	4.6	6.1	2.0	4.5	2.4	5.1	2.4	5.5	2.8	7.0	3.7	7.8



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L3 1/2x3 1/2x1/4	C	L5x5x5/16
B	L6x6x3/8		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

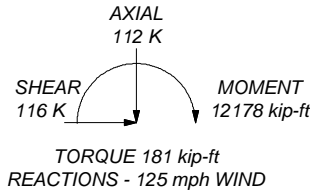
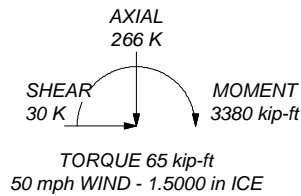
1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 5 with Crest Height of 385.00 ft
8. TOWER RATING: 66.4%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:

DOWN: 417 K
SHEAR: 67 K

UPLIFT: -335 K
SHEAR: 58 K



EFI Global, Inc.			Job: CTHA142G		
1117 Perimeter Center West, Suite E500			Project: 049.00933 - 2075086		
Atlanta, GA 30338			Client: T-Mobile	Drawn by: Evan.Martin	App'd:
Phone: (470) 990-6593			Code: TIA-222-H	Date: 03/01/21	Scale: NTS
FAX:			Path:		Dwg No. E-1

tnxTower EFI Global, Inc. 1117 Perimeter Center West, Suite E500 Atlanta, GA 30338 Phone: (470) 990-6593 FAX:	Job CTHA142G	Page 1 of 52
	Project 049.00933 - 2075086	Date 13:41:45 03/01/21
	Client T-Mobile	Designed by Evan.Martin

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 185.00 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 18.50 ft at the top and 37.00 ft at the base.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

Tower is located in Hartford County, Connecticut.

Tower base elevation above sea level: 418.00 ft.

Basic wind speed of 125 mph.

Risk Category II.

Exposure Category B.

Crest Height: 385.00 ft.

Rigorous Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Feature: Continuous Ridge.

Slope Distance L: 2732.00 ft.

Distance from Crest x: 1072.00 ft.

Horizontal Distance Downwind: No.

Nominal ice thickness of 1.5000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Tower analysis based on target reliabilities in accordance with Annex S.

Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.

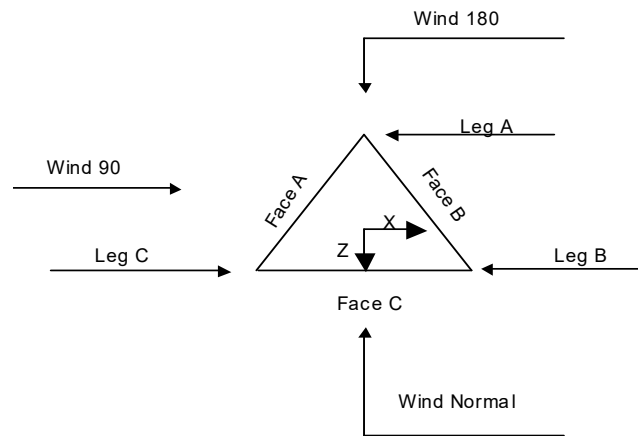
Stress ratio used in tower member design is 1.05.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

<ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification Use Code Stress Ratios Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile √ Include Bolts In Member Capacity Leg Bolts Are At Top Of Section √ Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric 	<ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area √ Use Clear Spans For KL/r Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination √ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs 	<ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules √ Calculate Redundant Bracing Forces Ignore Redundant Members in FEA √ SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque √ Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <li style="text-align: center;">Poles Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
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tnxTower EFI Global, Inc. 1117 Perimeter Center West, Suite E500 Atlanta, GA 30338 Phone: (470) 990-6593 FAX:	Job CTHA142G	Page 2 of 52
	Project 049.00933 - 2075086	Date 13:41:45 03/01/21
	Client T-Mobile	Designed by Evan.Martin



Triangular Tower

Tower Section Geometry

<i>Tower Section</i>	<i>Tower Elevation</i>	<i>Assembly Database</i>	<i>Description</i>	<i>Section Width</i>	<i>Number of Sections</i>	<i>Section Length</i>
	<i>ft</i>			<i>ft</i>		<i>ft</i>
T1	185.00-180.00			18.50	1	5.00
T2	180.00-160.00			19.00	1	20.00
T3	160.00-140.00			21.00	1	20.00
T4	140.00-120.00			23.00	1	20.00
T5	120.00-100.00			25.00	1	20.00
T6	100.00-93.33			27.00	1	6.67
T7	93.33-80.00			27.67	1	13.33
T8	80.00-73.33			29.00	1	6.67
T9	73.33-60.00			29.67	1	13.33
T10	60.00-53.33			31.00	1	6.67
T11	53.33-40.00			31.67	1	13.33
T12	40.00-33.33			33.00	1	6.67
T13	33.33-20.00			33.67	1	13.33
T14	20.00-13.33			35.00	1	6.67
T15	13.33-0.00			35.67	1	13.33

Tower Section Geometry (cont'd)

tnxTower EFI Global, Inc. 1117 Perimeter Center West, Suite E500 Atlanta, GA 30338 Phone: (470) 990-6593 FAX:	Job	CTHA142G	Page	3 of 52
	Project	049.00933 - 2075086	Date	13:41:45 03/01/21
	Client	T-Mobile	Designed by	Evan.Martin

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	185.00-180.00	5.00	X Brace	No	No	0.0000	0.0000
T2	180.00-160.00	10.00	X Brace	No	No	0.0000	0.0000
T3	160.00-140.00	10.00	X Brace	No	No	0.0000	0.0000
T4	140.00-120.00	10.00	X Brace	No	No	0.0000	0.0000
T5	120.00-100.00	10.00	X Brace	No	No	0.0000	0.0000
T6	100.00-93.33	6.67	Diamond	No	Yes	0.0000	0.0000
T7	93.33-80.00	13.33	K1 Down	No	Yes	0.0000	0.0000
T8	80.00-73.33	6.67	Diamond	No	Yes	0.0000	0.0000
T9	73.33-60.00	13.33	K1 Down	No	Yes	0.0000	0.0000
T10	60.00-53.33	6.67	Diamond	No	Yes	0.0000	0.0000
T11	53.33-40.00	13.33	K1 Down	No	Yes	0.0000	0.0000
T12	40.00-33.33	6.67	Diamond	No	Yes	0.0000	0.0000
T13	33.33-20.00	13.33	K1 Down	No	Yes	0.0000	0.0000
T14	20.00-13.33	6.67	Diamond	No	Yes	0.0000	0.0000
T15	13.33-0.00	13.33	K1 Down	No	Yes	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 185.00-180.00	Pipe	P6x.28	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)
T2 180.00-160.00	Pipe	P6x.28	A572-50 (50 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)
T3 160.00-140.00	Pipe	P6x.28	A572-50 (50 ksi)	Equal Angle	L5x5x5/16	A36 (36 ksi)
T4 140.00-120.00	Pipe	P6x.28	A572-50 (50 ksi)	Equal Angle	L5x5x5/16	A36 (36 ksi)
T5 120.00-100.00	Pipe	P8x.322	A572-50 (50 ksi)	Equal Angle	L5x5x3/8	A36 (36 ksi)
T6 100.00-93.33	Pipe	P8x.322	A572-50 (50 ksi)	Equal Angle	L6x6x3/8	A36 (36 ksi)
T7 93.33-80.00	Pipe	P8x.322	A572-50 (50 ksi)	Single Angle	L4x6x1/2	A36 (36 ksi)
T8 80.00-73.33	Pipe	P8x.5	A572-50 (50 ksi)	Equal Angle	L6x6x3/8	A36 (36 ksi)
T9 73.33-60.00	Pipe	P8x.5	A572-50 (50 ksi)	Equal Angle	L6x6x3/8	A36 (36 ksi)
T10 60.00-53.33	Pipe	P10x.365	A572-50 (50 ksi)	Equal Angle	L6x6x3/8	A36 (36 ksi)
T11 53.33-40.00	Pipe	P10x.365	A572-50 (50 ksi)	Equal Angle	L6x6x3/8	A36 (36 ksi)
T12 40.00-33.33	Pipe	P10x.5	A572-50 (50 ksi)	Equal Angle	L6x6x3/8	A36 (36 ksi)
T13 33.33-20.00	Pipe	P10x.5	A572-50 (50 ksi)	Equal Angle	L6x6x1/2	A36 (36 ksi)
T14 20.00-13.33	Pipe	P12x.5	A572-50 (50 ksi)	Equal Angle	L6x6x1/2	A36 (36 ksi)
T15 13.33-0.00	Pipe	P12x.5	A572-50 (50 ksi)	Equal Angle	L6x6x1/2	A36 (36 ksi)

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Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 185.00-180.00	Equal Angle	L5x5x5/16	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T6 100.00-93.33	None	Flat Bar		A36 (36 ksi)	Solid Round	Dummy 0 Number	A36 (36 ksi)
T7 93.33-80.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L4x4x5/16	A36 (36 ksi)
T8 80.00-73.33	None	Flat Bar		A36 (36 ksi)	Solid Round	Dummy 0 Number	A36 (36 ksi)
T9 73.33-60.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L4x4x5/16	A36 (36 ksi)
T10 60.00-53.33	None	Flat Bar		A36 (36 ksi)	Solid Round	Dummy 0 Number	A36 (36 ksi)
T11 53.33-40.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L5x5x5/16	A36 (36 ksi)
T12 40.00-33.33	None	Flat Bar		A36 (36 ksi)	Solid Round	Dummy 0 Number	A36 (36 ksi)
T13 33.33-20.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L5x5x5/16	A36 (36 ksi)
T14 20.00-13.33	None	Flat Bar		A36 (36 ksi)	Solid Round	Dummy 0 Number	A36 (36 ksi)
T15 13.33-0.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L5x5x5/16	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Redundant Bracing Grade	Redundant Type	Redundant Size	K Factor
T7 93.33-80.00	A36 (36 ksi)	Horizontal (1) Diagonal (1) Hip (1)	Equal Angle L3x3x1/4 L3x3x1/4 L3x3x1/4	1 1 1
T9 73.33-60.00	A36 (36 ksi)	Horizontal (1) Diagonal (1) Hip (1)	Equal Angle L3x3x1/4 L3x3x1/4 L3x3x1/4	1 1 1
T11 53.33-40.00	A36 (36 ksi)	Horizontal (1) Diagonal (1) Hip (1)	Equal Angle L3x3x5/16 L3x3x5/16 L3 1/2x3 1/2x1/4	1 1 1
T13 33.33-20.00	A36 (36 ksi)	Horizontal (1) Diagonal (1) Hip (1)	Equal Angle L3x3x5/16 L3x3x5/16 L3 1/2x3 1/2x1/4	1 1 1

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Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T10 60.00-53.33	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 53.33-40.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 40.00-33.33	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 33.33-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 20.00-13.33	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T15 13.33-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 185.00-180.00	Flange	1.2500	6	0.7500	1	0.7500	1	0.6250	0	0.6250	0	0.5000	0	0.6250	1
T2 180.00-160.00	Flange	1.2500	6	0.7500	1	0.6250	0	0.6250	0	0.6250	0	0.5000	0	0.6250	1
T3 160.00-140.00	Flange	1.2500	6	0.7500	1	0.6250	0	0.6250	0	0.6250	0	0.5000	0	0.6250	1
T4 140.00-120.00	Flange	1.2500	8	0.6250	2	0.6250	0	0.6250	0	0.6250	0	0.5000	0	0.6250	1
T5 120.00-100.00	Flange	1.5000	8	0.7500	2	0.6250	0	0.6250	0	0.6250	0	0.5000	0	0.6250	1
T6 100.00-93.33	Flange	0.0000	0	1.0000	2	0.6250	0	0.6250	0	0.6250	0	0.5000	0	0.6250	1
T7 93.33-80.00	Flange	1.5000	8	1.0000	2	0.6250	0	0.6250	0	0.6250	0	1.0000	2	0.6250	1
T8 80.00-73.33	Flange	0.0000	0	0.8750	2	0.6250	0	0.6250	0	0.6250	0	0.5000	0	0.6250	1
T9 73.33-60.00	Flange	1.5000	8	0.8750	2	0.6250	0	0.6250	0	0.6250	0	0.8750	2	0.6250	1
T10 60.00-53.33	Flange	0.0000	0	0.8750	2	0.6250	0	0.6250	0	0.6250	0	0.5000	0	0.6250	1
T11 53.33-40.00	Flange	1.5000	8	0.8750	2	0.6250	0	0.6250	0	0.6250	0	0.8750	2	0.6250	1
T12 40.00-33.33	Flange	0.0000	0	1.0000	2	0.6250	0	0.6250	0	0.6250	0	0.0000	0	0.6250	1
T13 33.33-20.00	Flange	1.5000	8	1.0000	2	0.6250	0	0.6250	0	0.6250	0	1.0000	2	0.6250	1
T14 20.00-13.33	Flange	0.0000	0	1.0000	2	0.6250	0	0.6250	0	0.6250	0	0.0000	0	0.6250	1
T15 13.33-0.00	Flange	0.0000	0	1.0000	2	0.6250	0	0.6250	0	0.6250	0	1.0000	2	0.6250	1
		F1554-105		A325X		A325N		A325N		A325N		A325X		A325N	

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Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf

LDF12-50(2-1/4") (12)	C	No	No	Ar (CaAa)	160.00 - 6.00	0.0000	0.44	6	6	0.5000 2.3500	2.3500		1.22
LDF4.5-50(5/8") + (3)ATCB-B01 -005(5/16) (6)	C	No	No	Ar (CaAa)	160.00 - 6.00	0.0000	0.44	15	12	0.8650	0.8650		0.15
LDF7-50A(1-5/8") + (2) LDF6-50A(1-1/4) **	A	No	No	Ar (CaAa)	150.00 - 6.00	0.0000	-0.45	8	8	0.5000 1.9800	1.9800		0.82
LDF7-50A(1-5/8)	B	No	No	Ar (CaAa)	185.00 - 6.00	0.0000	-0.38	3	3	0.5000 1.9800	1.9800		0.82
LDF5-50A(7/8)	C	No	No	Ar (CaAa)	185.00 - 6.00	0.0000	-0.4	3	3	0.5000 1.0300	1.0300		0.33
LDF5-50A(7/8)	C	No	No	Ar (CaAa)	181.00 - 6.00	0.0000	-0.38	1	1	0.5000 1.0300	1.0300		0.33
LDF4-50A(1/2)	B	No	No	Ar (CaAa)	185.00 - 6.00	0.0000	-0.37	1	1	0.5000 0.6250	0.6250		0.15
LCF78-50J(7/8")	B	No	No	Ar (CaAa)	183.00 - 6.00	0.0000	-0.47	2	2	0.5000 1.1000	1.1000		0.53
LDF7-50A(1-5/8)	B	No	No	Ar (CaAa)	183.00 - 6.00	0.0000	-0.48	3	3	0.5000 1.9800	1.9800		0.82
LDF4-50A(1/2)	B	No	No	Ar (CaAa)	183.00 - 6.00	0.0000	-0.48	1	1	0.5000 0.6250	0.6250		0.15
EW63(ELLIP TICAL)	B	No	No	Ar (CaAa)	183.00 - 6.00	0.0000	-0.45	4	4	0.5000 2.0100	2.0100		0.51
EW90(ELLIP TICAL)	B	No	No	Ar (CaAa)	177.00 - 6.00	0.0000	-0.43	1	1	0.5000 1.2800	1.2800		0.32
EW63(ELLIP TICAL)	B	No	No	Ar (CaAa)	172.00 - 171.00	0.0000	-0.43	2	2	0.5000 2.0100	2.0100		0.51
EW63(ELLIP TICAL)	B	No	No	Ar (CaAa)	171.00 - 6.00	0.0000	-0.43	4	2	0.5000 2.0100	2.0100		0.51
LDF5-50A(7/8)	C	No	No	Ar (CaAa)	168.00 - 165.00	0.0000	-0.43	1	1	0.5000 1.0300	1.0300		0.33
LDF5-50A(7/8)	C	No	No	Ar (CaAa)	165.00 - 6.00	0.0000	-0.43	2	1	0.5000 1.0300	1.0300		0.33
EW63(ELLIP TICAL)	B	No	No	Ar (CaAa)	135.00 - 125.00	0.0000	-0.4	4	2	0.5000 2.0100	2.0100		0.51
EW63(ELLIP TICAL)	B	No	No	Ar (CaAa)	125.00 - 6.00	0.0000	-0.4	6	2	0.5000 2.0100	2.0100		0.51
LDF5-50A(7/8)	B	No	No	Ar (CaAa)	125.00 - 6.00	0.0000	-0.465	2	2	0.5000 1.0300	1.0300		0.33
LDF5-50A(7/8)	B	No	No	Ar (CaAa)	109.00 - 108.00	0.0000	-0.41	1	1	0.5000 1.0300	1.0300		0.33
LDF5-50A(7/8)	B	No	No	Ar (CaAa)	108.00 - 6.00	0.0000	-0.41	2	1	0.5000 1.0300	1.0300		0.33
LDF2-50A(3/8)	C	No	No	Ar (CaAa)	185.00 - 103.00	0.0000	-0.4	1	1	0.4400	0.4400		0.08
LDF2-50A(3/8)	C	No	No	Ar (CaAa)	103.00 - 6.00	0.0000	-0.4	2	1	0.4400	0.4400		0.08
EW63(ELLIP	C	No	No	Ar (CaAa)	100.00 -	0.0000	-0.45	2	1	0.5000	2.0100		0.51

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Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
TICAL)					6.00					2.0100			
LMR-400(3/8")	B	No	No	Ar (CaAa)	98.00 - 91.00	0.0000	-0.36	1	1	0.4050	0.4050		0.07
LMR-400(3/8")	B	No	No	Ar (CaAa)	91.00 - 6.00	0.0000	-0.36	2	2	0.4050	0.4050		0.07
LDF5-50A(7/8)	B	No	No	Ar (CaAa)	87.00 - 85.00	0.0000	-0.39	1	1	0.5000	1.0300		0.33
LDF5-50A(7/8)	B	No	No	Ar (CaAa)	85.00 - 6.00	0.0000	-0.39	2	1	0.5000	1.0300		0.33
CAT5e(1/4")	A	No	No	Ar (CaAa)	66.00 - 6.00	0.0000	-0.31	1	1	0.2600	0.2600		0.04
140* TMO													
HCS 6X12 4AWG(1-5/8")	A	No	No	Ar (CaAa)	140.00 - 0.00	0.0000	0.4	6	6	0.5000	1.6600		2.40

Feedline Ladder (Af)	B	No	No	Af (CaAa)	185.00 - 0.00	0.0000	-0.44	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	C	No	No	Af (CaAa)	185.00 - 0.00	0.0000	-0.44	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	C	No	No	Af (CaAa)	160.00 - 0.00	0.0000	0.44	1	1	3.0000	3.0000		8.40
Feedline Ladder (Af)	A	No	No	Af (CaAa)	160.00 - 0.00	0.0000	-0.44	1	1	3.0000	3.0000		8.40
Safety Line 3/8"	A	No	No	Ar (CaAa)	185.00 - 0.00	0.0000	0.5	1	1	0.3750	0.3750		0.22

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C _{AA} ft ² /ft	Weight plf
*								
**								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
T1	185.00-180.00	A	0.000	0.000	0.188	0.000	0.00
		B	0.000	0.000	10.824	0.000	0.07
		C	0.000	0.000	4.368	0.000	0.05
T2	180.00-160.00	A	0.000	0.000	0.750	0.000	0.00
		B	0.000	0.000	68.162	0.000	0.36
		C	0.000	0.000	20.459	0.000	0.20

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Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
T3	160.00-140.00	A	0.000	0.000	26.590	0.000	0.24
		B	0.000	0.000	75.380	0.000	0.38
		C	0.000	0.000	87.390	0.000	0.57
T4	140.00-120.00	A	0.000	0.000	62.350	0.000	0.59
		B	0.000	0.000	90.480	0.000	0.42
		C	0.000	0.000	87.390	0.000	0.57
T5	120.00-100.00	A	0.000	0.000	62.350	0.000	0.59
		B	0.000	0.000	105.346	0.000	0.46
		C	0.000	0.000	87.522	0.000	0.57
T6	100.00-93.33	A	0.000	0.000	20.794	0.000	0.20
		B	0.000	0.000	36.120	0.000	0.16
		C	0.000	0.000	32.119	0.000	0.20
T7	93.33-80.00	A	0.000	0.000	41.556	0.000	0.39
		B	0.000	0.000	74.024	0.000	0.32
		C	0.000	0.000	64.191	0.000	0.39
T8	80.00-73.33	A	0.000	0.000	20.794	0.000	0.20
		B	0.000	0.000	37.846	0.000	0.16
		C	0.000	0.000	32.119	0.000	0.20
T9	73.33-60.00	A	0.000	0.000	41.712	0.000	0.39
		B	0.000	0.000	75.634	0.000	0.32
		C	0.000	0.000	64.191	0.000	0.39
T10	60.00-53.33	A	0.000	0.000	20.967	0.000	0.20
		B	0.000	0.000	37.846	0.000	0.16
		C	0.000	0.000	32.119	0.000	0.20
T11	53.33-40.00	A	0.000	0.000	41.903	0.000	0.39
		B	0.000	0.000	75.634	0.000	0.32
		C	0.000	0.000	64.191	0.000	0.39
T12	40.00-33.33	A	0.000	0.000	20.967	0.000	0.20
		B	0.000	0.000	37.846	0.000	0.16
		C	0.000	0.000	32.119	0.000	0.20
T13	33.33-20.00	A	0.000	0.000	41.903	0.000	0.39
		B	0.000	0.000	75.634	0.000	0.32
		C	0.000	0.000	64.191	0.000	0.39
T14	20.00-13.33	A	0.000	0.000	20.967	0.000	0.20
		B	0.000	0.000	37.846	0.000	0.16
		C	0.000	0.000	32.119	0.000	0.20
T15	13.33-0.00	A	0.000	0.000	32.243	0.000	0.36
		B	0.000	0.000	44.590	0.000	0.23
		C	0.000	0.000	41.298	0.000	0.32

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
T1	185.00-180.00	A	1.635	0.000	0.000	1.822	0.000	0.02
		B		0.000	0.000	26.699	0.000	0.37
		C		0.000	0.000	11.746	0.000	0.18
T2	180.00-160.00	A	1.626	0.000	0.000	7.256	0.000	0.08
		B		0.000	0.000	167.850	0.000	2.24
		C		0.000	0.000	59.400	0.000	0.88
T3	160.00-140.00	A	1.612	0.000	0.000	52.587	0.000	0.88
		B		0.000	0.000	180.917	0.000	2.43
		C		0.000	0.000	199.983	0.000	2.95
T4	140.00-120.00	A	1.594	0.000	0.000	122.245	0.000	2.01
		B		0.000	0.000	209.102	0.000	2.83
		C		0.000	0.000	199.255	0.000	2.92
T5	120.00-100.00	A	1.574	0.000	0.000	121.826	0.000	1.99

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Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
		B		0.000	0.000	242.613	0.000	3.27
		C		0.000	0.000	199.459	0.000	2.89
T6	100.00-93.33	A	1.557	0.000	0.000	40.519	0.000	0.66
		B		0.000	0.000	85.834	0.000	1.14
		C		0.000	0.000	77.041	0.000	1.08
T7	93.33-80.00	A	1.543	0.000	0.000	80.789	0.000	1.31
		B		0.000	0.000	181.224	0.000	2.35
		C		0.000	0.000	153.485	0.000	2.13
T8	80.00-73.33	A	1.527	0.000	0.000	40.318	0.000	0.65
		B		0.000	0.000	94.230	0.000	1.20
		C		0.000	0.000	76.527	0.000	1.06
T9	73.33-60.00	A	1.509	0.000	0.000	82.298	0.000	1.31
		B		0.000	0.000	187.292	0.000	2.37
		C		0.000	0.000	152.311	0.000	2.08
T10	60.00-53.33	A	1.488	0.000	0.000	42.210	0.000	0.66
		B		0.000	0.000	93.115	0.000	1.17
		C		0.000	0.000	75.845	0.000	1.03
T11	53.33-40.00	A	1.462	0.000	0.000	83.945	0.000	1.30
		B		0.000	0.000	184.648	0.000	2.30
		C		0.000	0.000	150.694	0.000	2.02
T12	40.00-33.33	A	1.431	0.000	0.000	41.748	0.000	0.64
		B		0.000	0.000	91.495	0.000	1.13
		C		0.000	0.000	74.855	0.000	0.99
T13	33.33-20.00	A	1.389	0.000	0.000	82.759	0.000	1.25
		B		0.000	0.000	180.495	0.000	2.19
		C		0.000	0.000	148.156	0.000	1.93
T14	20.00-13.33	A	1.328	0.000	0.000	40.921	0.000	0.61
		B		0.000	0.000	88.601	0.000	1.05
		C		0.000	0.000	73.086	0.000	0.93
T15	13.33-0.00	A	1.214	0.000	0.000	61.687	0.000	0.93
		B		0.000	0.000	98.314	0.000	1.16
		C		0.000	0.000	87.088	0.000	1.14

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
T1	185.00-180.00	4.2162	-12.1601	7.6093	-16.8738
T2	180.00-160.00	8.5828	-30.6952	13.9435	-36.1853
T3	160.00-140.00	-16.6270	-17.0984	-15.0700	-20.9252
T4	140.00-120.00	-18.4285	-24.1857	-16.9717	-28.3032
T5	120.00-100.00	-17.8613	-27.7459	-16.5964	-33.1925
T6	100.00-93.33	-16.9054	-27.6556	-14.2347	-32.6068
T7	93.33-80.00	-17.2231	-29.3183	-13.8668	-34.0812
T8	80.00-73.33	-17.2321	-30.3595	-14.2754	-37.0324
T9	73.33-60.00	-16.4347	-28.9642	-14.2159	-35.2067
T10	60.00-53.33	-17.6827	-30.7631	-15.9154	-37.2828
T11	53.33-40.00	-16.4211	-28.7565	-15.1745	-35.3107
T12	40.00-33.33	-18.3560	-31.9535	-16.8640	-38.7260
T13	33.33-20.00	-16.9715	-29.7399	-16.0651	-36.4381
T14	20.00-13.33	-18.6214	-32.3582	-17.7280	-39.2082
T15	13.33-0.00	-11.9625	-21.6633	-12.8664	-27.4385

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	Client T-Mobile	Designed by Evan.Martin

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T1	6	LDF7-50A(1-5/8)	180.00 - 185.00	0.6000	0.5665
T1	7	LDF5-50A(7/8)	180.00 - 185.00	0.6000	0.5665
T1	8	LDF5-50A(7/8)	180.00 - 181.00	0.6000	0.5665
T1	9	LDF4-50A(1/2)	180.00 - 185.00	0.6000	0.5665
T1	10	LCF78-50J(7/8")	180.00 - 183.00	1.0000	1.0000
T1	11	LDF7-50A(1-5/8)	180.00 - 183.00	0.6000	0.5665
T1	12	LDF4-50A(1/2)	180.00 - 183.00	0.6000	0.5665
T1	13	EW63(ELLIPTICAL)	180.00 - 183.00	0.6000	0.5665
T1	24	LDF2-50A(3/8)	180.00 - 185.00	0.6000	0.5665
T1	37	Feedline Ladder (Af)	180.00 - 185.00	0.6000	0.5665
T1	38	Feedline Ladder (Af)	180.00 - 185.00	0.6000	0.5665
T1	41	Safety Line 3/8	180.00 - 185.00	0.6000	0.5665
T2	6	LDF7-50A(1-5/8)	160.00 - 180.00	0.6000	0.6000
T2	7	LDF5-50A(7/8)	160.00 - 180.00	0.6000	0.6000
T2	8	LDF5-50A(7/8)	160.00 - 180.00	0.6000	0.6000
T2	9	LDF4-50A(1/2)	160.00 - 180.00	0.6000	0.6000
T2	10	LCF78-50J(7/8")	160.00 - 180.00	1.0000	1.0000
T2	11	LDF7-50A(1-5/8)	160.00 - 180.00	0.6000	0.6000
T2	12	LDF4-50A(1/2)	160.00 - 180.00	0.6000	0.6000
T2	13	EW63(ELLIPTICAL)	160.00 - 180.00	0.6000	0.6000
T2	14	EW90(ELLIPTICAL)	160.00 - 177.00	0.6000	0.6000
T2	15	EW63(ELLIPTICAL)	171.00 - 172.00	0.6000	0.6000
T2	16	EW63(ELLIPTICAL)	160.00 - 171.00	0.6000	0.6000
T2	17	LDF5-50A(7/8)	165.00 - 168.00	0.6000	0.6000
T2	18	LDF5-50A(7/8)	160.00 - 165.00	0.6000	0.6000
T2	24	LDF2-50A(3/8)	160.00 - 180.00	0.6000	0.6000
T2	37	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000
T2	38	Feedline Ladder (Af)	160.00 - 180.00	0.6000	0.6000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T2	41	Safety Line 3/8	160.00 - 180.00	0.6000	0.6000
T3	2	LDF12-50(2-1/4")	140.00 - 160.00	0.6000	0.6000
T3	3	(12) LDF4.5-50(5/8") + (3)ATCB-B01-005(5/16)	140.00 - 160.00	0.6000	0.6000
T3	4	(6) LDF7-50A(1-5/8") + (2) LDF6-50A(1-1/4)	140.00 - 150.00	0.6000	0.6000
T3	6	LDF7-50A(1-5/8)	140.00 - 160.00	0.6000	0.6000
T3	7	LDF5-50A(7/8)	140.00 - 160.00	0.6000	0.6000
T3	8	LDF5-50A(7/8)	140.00 - 160.00	0.6000	0.6000
T3	9	LDF4-50A(1/2)	140.00 - 160.00	0.6000	0.6000
T3	10	LCF78-50J(7/8")	140.00 - 160.00	1.0000	1.0000
T3	11	LDF7-50A(1-5/8)	140.00 - 160.00	0.6000	0.6000
T3	12	LDF4-50A(1/2)	140.00 - 160.00	0.6000	0.6000
T3	13	EW63(ELLIPTICAL)	140.00 - 160.00	0.6000	0.6000
T3	14	EW90(ELLIPTICAL)	140.00 - 160.00	0.6000	0.6000
T3	16	EW63(ELLIPTICAL)	140.00 - 160.00	0.6000	0.6000
T3	18	LDF5-50A(7/8)	140.00 - 160.00	0.6000	0.6000
T3	24	LDF2-50A(3/8)	140.00 - 160.00	0.6000	0.6000
T3	37	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	38	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	39	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	40	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.6000
T3	41	Safety Line 3/8	140.00 - 160.00	0.6000	0.6000
T4	2	LDF12-50(2-1/4")	120.00 - 140.00	0.6000	0.6000
T4	3	(12) LDF4.5-50(5/8") + (3)ATCB-B01-005(5/16)	120.00 - 140.00	0.6000	0.6000
T4	4	(6) LDF7-50A(1-5/8") + (2) LDF6-50A(1-1/4)	120.00 - 140.00	0.6000	0.6000
T4	6	LDF7-50A(1-5/8)	120.00 - 140.00	0.6000	0.6000
T4	7	LDF5-50A(7/8)	120.00 - 140.00	0.6000	0.6000
T4	8	LDF5-50A(7/8)	120.00 - 140.00	0.6000	0.6000
T4	9	LDF4-50A(1/2)	120.00 - 140.00	0.6000	0.6000
T4	10	LCF78-50J(7/8")	120.00 - 140.00	1.0000	1.0000
T4	11	LDF7-50A(1-5/8)	120.00 - 140.00	0.6000	0.6000
T4	12	LDF4-50A(1/2)	120.00 - 140.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T4	13	EW63(ELLIPTICAL)	120.00 - 140.00	0.6000	0.6000
T4	14	EW90(ELLIPTICAL)	120.00 - 140.00	0.6000	0.6000
T4	16	EW63(ELLIPTICAL)	120.00 - 140.00	0.6000	0.6000
T4	18	LDF5-50A(7/8)	120.00 - 140.00	0.6000	0.6000
T4	19	EW63(ELLIPTICAL)	125.00 - 135.00	0.6000	0.6000
T4	20	EW63(ELLIPTICAL)	120.00 - 125.00	0.6000	0.6000
T4	21	LDF5-50A(7/8)	120.00 - 125.00	0.6000	0.6000
T4	24	LDF2-50A(3/8)	120.00 - 140.00	0.6000	0.6000
T4	34	HCS 6X12 4AWG(1-5/8")	120.00 - 140.00	0.6000	0.6000
T4	37	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	38	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	39	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	40	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T4	41	Safety Line 3/8	120.00 - 140.00	0.6000	0.6000
T5	2	LDF12-50(2-1/4")	100.00 - 120.00	0.6000	0.6000
T5	3	(12) LDF4.5-50(5/8") + (3)ATCB-B01-005(5/16)	100.00 - 120.00	0.6000	0.6000
T5	4	(6) LDF7-50A(1-5/8") + (2) LDF6-50A(1-1/4)	100.00 - 120.00	0.6000	0.6000
T5	6	LDF7-50A(1-5/8)	100.00 - 120.00	0.6000	0.6000
T5	7	LDF5-50A(7/8)	100.00 - 120.00	0.6000	0.6000
T5	8	LDF5-50A(7/8)	100.00 - 120.00	0.6000	0.6000
T5	9	LDF4-50A(1/2)	100.00 - 120.00	0.6000	0.6000
T5	10	LCF78-50J(7/8")	100.00 - 120.00	1.0000	1.0000
T5	11	LDF7-50A(1-5/8)	100.00 - 120.00	0.6000	0.6000
T5	12	LDF4-50A(1/2)	100.00 - 120.00	0.6000	0.6000
T5	13	EW63(ELLIPTICAL)	100.00 - 120.00	0.6000	0.6000
T5	14	EW90(ELLIPTICAL)	100.00 - 120.00	0.6000	0.6000
T5	16	EW63(ELLIPTICAL)	100.00 - 120.00	0.6000	0.6000
T5	18	LDF5-50A(7/8)	100.00 - 120.00	0.6000	0.6000
T5	20	EW63(ELLIPTICAL)	100.00 - 120.00	0.6000	0.6000
T5	21	LDF5-50A(7/8)	100.00 - 120.00	0.6000	0.6000
T5	22	LDF5-50A(7/8)	108.00 - 109.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T5	23	LDF5-50A(7/8)	100.00 - 108.00	0.6000	0.6000
T5	24	LDF2-50A(3/8)	103.00 - 120.00	0.6000	0.6000
T5	25	LDF2-50A(3/8)	100.00 - 103.00	0.6000	0.6000
T5	34	HCS 6X12 4AWG(1-5/8")	100.00 - 120.00	0.6000	0.6000
T5	37	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	38	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	39	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	40	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T5	41	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T6	2	LDF12-50(2-1/4")	93.33 - 100.00	0.6000	0.6000
T6	3	(12) LDF4.5-50(5/8") + (3)ATCB-B01-005(5/16)	93.33 - 100.00	0.6000	0.6000
T6	4	(6) LDF7-50A(1-5/8") + (2) LDF6-50A(1-1/4)	93.33 - 100.00	0.6000	0.6000
T6	6	LDF7-50A(1-5/8)	93.33 - 100.00	0.6000	0.6000
T6	7	LDF5-50A(7/8)	93.33 - 100.00	0.6000	0.6000
T6	8	LDF5-50A(7/8)	93.33 - 100.00	0.6000	0.6000
T6	9	LDF4-50A(1/2)	93.33 - 100.00	0.6000	0.6000
T6	10	LCF78-50J(7/8")	93.33 - 100.00	1.0000	1.0000
T6	11	LDF7-50A(1-5/8)	93.33 - 100.00	0.6000	0.6000
T6	12	LDF4-50A(1/2)	93.33 - 100.00	0.6000	0.6000
T6	13	EW63(ELLIPTICAL)	93.33 - 100.00	0.6000	0.6000
T6	14	EW90(ELLIPTICAL)	93.33 - 100.00	0.6000	0.6000
T6	16	EW63(ELLIPTICAL)	93.33 - 100.00	0.6000	0.6000
T6	18	LDF5-50A(7/8)	93.33 - 100.00	0.6000	0.6000
T6	20	EW63(ELLIPTICAL)	93.33 - 100.00	0.6000	0.6000
T6	21	LDF5-50A(7/8)	93.33 - 100.00	0.6000	0.6000
T6	23	LDF5-50A(7/8)	93.33 - 100.00	0.6000	0.6000
T6	25	LDF2-50A(3/8)	93.33 - 100.00	0.6000	0.6000
T6	26	EW63(ELLIPTICAL)	93.33 - 100.00	0.6000	0.6000
T6	27	LMR-400(3/8")	93.33 - 98.00	0.6000	0.6000
T6	34	HCS 6X12 4AWG(1-5/8")	93.33 - 100.00	0.6000	0.6000
T6	37	Feedline Ladder (Af)	93.33 - 100.00	0.6000	0.6000
T6	38	Feedline Ladder (Af)	93.33 - 100.00	0.6000	0.6000
T6	39	Feedline Ladder (Af)	93.33 - 100.00	0.6000	0.6000
T6	40	Feedline Ladder (Af)	93.33 - 100.00	0.6000	0.6000
T6	41	Safety Line 3/8	93.33 - 100.00	0.6000	0.6000
T7	2	LDF12-50(2-1/4")	80.00 - 93.33	0.6000	0.6000
T7	3	(12) LDF4.5-50(5/8") + (3)ATCB-B01-005(5/16)	80.00 - 93.33	0.6000	0.6000
T7	4	(6) LDF7-50A(1-5/8") + (2) LDF6-50A(1-1/4)	80.00 - 93.33	0.6000	0.6000
T7	6	LDF7-50A(1-5/8)	80.00 - 93.33	0.6000	0.6000
T7	7	LDF5-50A(7/8)	80.00 - 93.33	0.6000	0.6000
T7	8	LDF5-50A(7/8)	80.00 - 93.33	0.6000	0.6000
T7	9	LDF4-50A(1/2)	80.00 - 93.33	0.6000	0.6000
T7	10	LCF78-50J(7/8")	80.00 - 93.33	1.0000	1.0000
T7	11	LDF7-50A(1-5/8)	80.00 - 93.33	0.6000	0.6000
T7	12	LDF4-50A(1/2)	80.00 - 93.33	0.6000	0.6000
T7	13	EW63(ELLIPTICAL)	80.00 - 93.33	0.6000	0.6000
T7	14	EW90(ELLIPTICAL)	80.00 - 93.33	0.6000	0.6000
T7	16	EW63(ELLIPTICAL)	80.00 - 93.33	0.6000	0.6000
T7	18	LDF5-50A(7/8)	80.00 - 93.33	0.6000	0.6000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T7	20	EW63(ELLIPTICAL)	80.00 - 93.33	0.6000	0.6000
T7	21	LDF5-50A(7/8)	80.00 - 93.33	0.6000	0.6000
T7	23	LDF5-50A(7/8)	80.00 - 93.33	0.6000	0.6000
T7	25	LDF2-50A(3/8)	80.00 - 93.33	0.6000	0.6000
T7	26	EW63(ELLIPTICAL)	80.00 - 93.33	0.6000	0.6000
T7	27	LMR-400(3/8")	91.00 - 93.33	0.6000	0.6000
T7	28	LMR-400(3/8")	80.00 - 91.00	0.6000	0.6000
T7	29	LDF5-50A(7/8)	85.00 - 87.00	0.6000	0.6000
T7	30	LDF5-50A(7/8)	80.00 - 85.00	0.6000	0.6000
T7	34	HCS 6X12 4AWG(1-5/8")	80.00 - 93.33	0.6000	0.6000
T7	37	Feedline Ladder (Af)	80.00 - 93.33	0.6000	0.6000
T7	38	Feedline Ladder (Af)	80.00 - 93.33	0.6000	0.6000
T7	39	Feedline Ladder (Af)	80.00 - 93.33	0.6000	0.6000
T7	40	Feedline Ladder (Af)	80.00 - 93.33	0.6000	0.6000
T7	41	Safety Line 3/8	80.00 - 93.33	0.6000	0.6000
T8	2	LDF12-50(2-1/4")	73.33 - 80.00	0.6000	0.6000
T8	3	(12) LDF4.5-50(5/8") + (3)ATCB-B01-005(5/16)	73.33 - 80.00	0.6000	0.6000
T8	4	(6) LDF7-50A(1-5/8") + (2) LDF6-50A(1-1/4)	73.33 - 80.00	0.6000	0.6000
T8	6	LDF7-50A(1-5/8)	73.33 - 80.00	0.6000	0.6000
T8	7	LDF5-50A(7/8)	73.33 - 80.00	0.6000	0.6000
T8	8	LDF5-50A(7/8)	73.33 - 80.00	0.6000	0.6000
T8	9	LDF4-50A(1/2)	73.33 - 80.00	0.6000	0.6000
T8	10	LCF78-50J(7/8")	73.33 - 80.00	1.0000	1.0000
T8	11	LDF7-50A(1-5/8)	73.33 - 80.00	0.6000	0.6000
T8	12	LDF4-50A(1/2)	73.33 - 80.00	0.6000	0.6000
T8	13	EW63(ELLIPTICAL)	73.33 - 80.00	0.6000	0.6000
T8	14	EW90(ELLIPTICAL)	73.33 - 80.00	0.6000	0.6000
T8	16	EW63(ELLIPTICAL)	73.33 - 80.00	0.6000	0.6000
T8	18	LDF5-50A(7/8)	73.33 - 80.00	0.6000	0.6000
T8	20	EW63(ELLIPTICAL)	73.33 - 80.00	0.6000	0.6000
T8	21	LDF5-50A(7/8)	73.33 - 80.00	0.6000	0.6000
T8	23	LDF5-50A(7/8)	73.33 - 80.00	0.6000	0.6000
T8	25	LDF2-50A(3/8)	73.33 - 80.00	0.6000	0.6000
T8	26	EW63(ELLIPTICAL)	73.33 - 80.00	0.6000	0.6000
T8	28	LMR-400(3/8")	73.33 - 80.00	0.6000	0.6000
T8	30	LDF5-50A(7/8)	73.33 - 80.00	0.6000	0.6000
T8	34	HCS 6X12 4AWG(1-5/8")	73.33 - 80.00	0.6000	0.6000
T8	37	Feedline Ladder (Af)	73.33 - 80.00	0.6000	0.6000
T8	38	Feedline Ladder (Af)	73.33 - 80.00	0.6000	0.6000
T8	39	Feedline Ladder (Af)	73.33 - 80.00	0.6000	0.6000
T8	40	Feedline Ladder (Af)	73.33 - 80.00	0.6000	0.6000
T8	41	Safety Line 3/8	73.33 - 80.00	0.6000	0.6000
T9	2	LDF12-50(2-1/4")	60.00 - 73.33	0.6000	0.6000
T9	3	(12) LDF4.5-50(5/8") + (3)ATCB-B01-005(5/16)	60.00 - 73.33	0.6000	0.6000
T9	4	(6) LDF7-50A(1-5/8") + (2) LDF6-50A(1-1/4)	60.00 - 73.33	0.6000	0.6000
T9	6	LDF7-50A(1-5/8)	60.00 - 73.33	0.6000	0.6000
T9	7	LDF5-50A(7/8)	60.00 - 73.33	0.6000	0.6000
T9	8	LDF5-50A(7/8)	60.00 - 73.33	0.6000	0.6000
T9	9	LDF4-50A(1/2)	60.00 - 73.33	0.6000	0.6000
T9	10	LCF78-50J(7/8")	60.00 - 73.33	1.0000	1.0000
T9	11	LDF7-50A(1-5/8)	60.00 - 73.33	0.6000	0.6000
T9	12	LDF4-50A(1/2)	60.00 - 73.33	0.6000	0.6000
T9	13	EW63(ELLIPTICAL)	60.00 - 73.33	0.6000	0.6000
T9	14	EW90(ELLIPTICAL)	60.00 - 73.33	0.6000	0.6000
T9	16	EW63(ELLIPTICAL)	60.00 - 73.33	0.6000	0.6000
T9	18	LDF5-50A(7/8)	60.00 - 73.33	0.6000	0.6000
T9	20	EW63(ELLIPTICAL)	60.00 - 73.33	0.6000	0.6000
T9	21	LDF5-50A(7/8)	60.00 - 73.33	0.6000	0.6000

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Client	T-Mobile	Designed by	Evan.Martin

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T9	23	LDF5-50A(7/8)	60.00 - 73.33	0.6000	0.6000
T9	25	LDF2-50A(3/8)	60.00 - 73.33	0.6000	0.6000
T9	26	EW63(ELLIPTICAL)	60.00 - 73.33	0.6000	0.6000
T9	28	LMR-400(3/8")	60.00 - 73.33	0.6000	0.6000
T9	30	LDF5-50A(7/8)	60.00 - 73.33	0.6000	0.6000
T9	31	CAT5e(1/4)	60.00 - 66.00	0.6000	0.6000
T9	34	HCS 6X12 4AWG(1-5/8")	60.00 - 73.33	0.6000	0.6000
T9	37	Feedline Ladder (Af)	60.00 - 73.33	0.6000	0.6000
T9	38	Feedline Ladder (Af)	60.00 - 73.33	0.6000	0.6000
T9	39	Feedline Ladder (Af)	60.00 - 73.33	0.6000	0.6000
T9	40	Feedline Ladder (Af)	60.00 - 73.33	0.6000	0.6000
T9	41	Safety Line 3/8	60.00 - 73.33	0.6000	0.6000
T10	2	LDF12-50(2-1/4")	53.33 - 60.00	0.6000	0.6000
T10	3	(12) LDF4.5-50(5/8") + (3)ATCB-B01-005(5/16)	53.33 - 60.00	0.6000	0.6000
T10	4	(6) LDF7-50A(1-5/8") + (2) LDF6-50A(1-1/4)	53.33 - 60.00	0.6000	0.6000
T10	6	LDF7-50A(1-5/8)	53.33 - 60.00	0.6000	0.6000
T10	7	LDF5-50A(7/8)	53.33 - 60.00	0.6000	0.6000
T10	8	LDF5-50A(7/8)	53.33 - 60.00	0.6000	0.6000
T10	9	LDF4-50A(1/2)	53.33 - 60.00	0.6000	0.6000
T10	10	LCF78-50J(7/8")	53.33 - 60.00	1.0000	1.0000
T10	11	LDF7-50A(1-5/8)	53.33 - 60.00	0.6000	0.6000
T10	12	LDF4-50A(1/2)	53.33 - 60.00	0.6000	0.6000
T10	13	EW63(ELLIPTICAL)	53.33 - 60.00	0.6000	0.6000
T10	14	EW90(ELLIPTICAL)	53.33 - 60.00	0.6000	0.6000
T10	16	EW63(ELLIPTICAL)	53.33 - 60.00	0.6000	0.6000
T10	18	LDF5-50A(7/8)	53.33 - 60.00	0.6000	0.6000
T10	20	EW63(ELLIPTICAL)	53.33 - 60.00	0.6000	0.6000
T10	21	LDF5-50A(7/8)	53.33 - 60.00	0.6000	0.6000
T10	23	LDF5-50A(7/8)	53.33 - 60.00	0.6000	0.6000
T10	25	LDF2-50A(3/8)	53.33 - 60.00	0.6000	0.6000
T10	26	EW63(ELLIPTICAL)	53.33 - 60.00	0.6000	0.6000
T10	28	LMR-400(3/8")	53.33 - 60.00	0.6000	0.6000
T10	30	LDF5-50A(7/8)	53.33 - 60.00	0.6000	0.6000
T10	31	CAT5e(1/4)	53.33 - 60.00	0.6000	0.6000
T10	34	HCS 6X12 4AWG(1-5/8")	53.33 - 60.00	0.6000	0.6000
T10	37	Feedline Ladder (Af)	53.33 - 60.00	0.6000	0.6000
T10	38	Feedline Ladder (Af)	53.33 - 60.00	0.6000	0.6000
T10	39	Feedline Ladder (Af)	53.33 - 60.00	0.6000	0.6000
T10	40	Feedline Ladder (Af)	53.33 - 60.00	0.6000	0.6000
T10	41	Safety Line 3/8	53.33 - 60.00	0.6000	0.6000
T11	2	LDF12-50(2-1/4")	40.00 - 53.33	0.6000	0.6000
T11	3	(12) LDF4.5-50(5/8") + (3)ATCB-B01-005(5/16)	40.00 - 53.33	0.6000	0.6000
T11	4	(6) LDF7-50A(1-5/8") + (2) LDF6-50A(1-1/4)	40.00 - 53.33	0.6000	0.6000
T11	6	LDF7-50A(1-5/8)	40.00 - 53.33	0.6000	0.6000
T11	7	LDF5-50A(7/8)	40.00 - 53.33	0.6000	0.6000
T11	8	LDF5-50A(7/8)	40.00 - 53.33	0.6000	0.6000
T11	9	LDF4-50A(1/2)	40.00 - 53.33	0.6000	0.6000
T11	10	LCF78-50J(7/8")	40.00 - 53.33	1.0000	1.0000
T11	11	LDF7-50A(1-5/8)	40.00 - 53.33	0.6000	0.6000
T11	12	LDF4-50A(1/2)	40.00 - 53.33	0.6000	0.6000
T11	13	EW63(ELLIPTICAL)	40.00 - 53.33	0.6000	0.6000
T11	14	EW90(ELLIPTICAL)	40.00 - 53.33	0.6000	0.6000
T11	16	EW63(ELLIPTICAL)	40.00 - 53.33	0.6000	0.6000
T11	18	LDF5-50A(7/8)	40.00 - 53.33	0.6000	0.6000
T11	20	EW63(ELLIPTICAL)	40.00 - 53.33	0.6000	0.6000
T11	21	LDF5-50A(7/8)	40.00 - 53.33	0.6000	0.6000
T11	23	LDF5-50A(7/8)	40.00 - 53.33	0.6000	0.6000
T11	25	LDF2-50A(3/8)	40.00 - 53.33	0.6000	0.6000

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	Client	T-Mobile	Designed by	Evan.Martin

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T11	26	EW63(ELLIPTICAL)	40.00 - 53.33	0.6000	0.6000
T11	28	LMR-400(3/8")	40.00 - 53.33	0.6000	0.6000
T11	30	LDF5-50A(7/8)	40.00 - 53.33	0.6000	0.6000
T11	31	CAT5e(1/4)	40.00 - 53.33	0.6000	0.6000
T11	34	HCS 6X12 4AWG(1-5/8")	40.00 - 53.33	0.6000	0.6000
T11	37	Feedline Ladder (Af)	40.00 - 53.33	0.6000	0.6000
T11	38	Feedline Ladder (Af)	40.00 - 53.33	0.6000	0.6000
T11	39	Feedline Ladder (Af)	40.00 - 53.33	0.6000	0.6000
T11	40	Feedline Ladder (Af)	40.00 - 53.33	0.6000	0.6000
T11	41	Safety Line 3/8	40.00 - 53.33	0.6000	0.6000
T12	2	LDF12-50(2-1/4")	33.33 - 40.00	0.6000	0.6000
T12	3	(12) LDF4.5-50(5/8") + (3)ATCB-B01-005(5/16)	33.33 - 40.00	0.6000	0.6000
T12	4	(6) LDF7-50A(1-5/8") + (2) LDF6-50A(1-1/4)	33.33 - 40.00	0.6000	0.6000
T12	6	LDF7-50A(1-5/8)	33.33 - 40.00	0.6000	0.6000
T12	7	LDF5-50A(7/8)	33.33 - 40.00	0.6000	0.6000
T12	8	LDF5-50A(7/8)	33.33 - 40.00	0.6000	0.6000
T12	9	LDF4-50A(1/2)	33.33 - 40.00	0.6000	0.6000
T12	10	LCF78-50J(7/8")	33.33 - 40.00	1.0000	1.0000
T12	11	LDF7-50A(1-5/8)	33.33 - 40.00	0.6000	0.6000
T12	12	LDF4-50A(1/2)	33.33 - 40.00	0.6000	0.6000
T12	13	EW63(ELLIPTICAL)	33.33 - 40.00	0.6000	0.6000
T12	14	EW90(ELLIPTICAL)	33.33 - 40.00	0.6000	0.6000
T12	16	EW63(ELLIPTICAL)	33.33 - 40.00	0.6000	0.6000
T12	18	LDF5-50A(7/8)	33.33 - 40.00	0.6000	0.6000
T12	20	EW63(ELLIPTICAL)	33.33 - 40.00	0.6000	0.6000
T12	21	LDF5-50A(7/8)	33.33 - 40.00	0.6000	0.6000
T12	23	LDF5-50A(7/8)	33.33 - 40.00	0.6000	0.6000
T12	25	LDF2-50A(3/8)	33.33 - 40.00	0.6000	0.6000
T12	26	EW63(ELLIPTICAL)	33.33 - 40.00	0.6000	0.6000
T12	28	LMR-400(3/8")	33.33 - 40.00	0.6000	0.6000
T12	30	LDF5-50A(7/8)	33.33 - 40.00	0.6000	0.6000
T12	31	CAT5e(1/4)	33.33 - 40.00	0.6000	0.6000
T12	34	HCS 6X12 4AWG(1-5/8")	33.33 - 40.00	0.6000	0.6000
T12	37	Feedline Ladder (Af)	33.33 - 40.00	0.6000	0.6000
T12	38	Feedline Ladder (Af)	33.33 - 40.00	0.6000	0.6000
T12	39	Feedline Ladder (Af)	33.33 - 40.00	0.6000	0.6000
T12	40	Feedline Ladder (Af)	33.33 - 40.00	0.6000	0.6000
T12	41	Safety Line 3/8	33.33 - 40.00	0.6000	0.6000
T13	2	LDF12-50(2-1/4")	20.00 - 33.33	0.6000	0.6000
T13	3	(12) LDF4.5-50(5/8") + (3)ATCB-B01-005(5/16)	20.00 - 33.33	0.6000	0.6000
T13	4	(6) LDF7-50A(1-5/8") + (2) LDF6-50A(1-1/4)	20.00 - 33.33	0.6000	0.6000
T13	6	LDF7-50A(1-5/8)	20.00 - 33.33	0.6000	0.6000
T13	7	LDF5-50A(7/8)	20.00 - 33.33	0.6000	0.6000
T13	8	LDF5-50A(7/8)	20.00 - 33.33	0.6000	0.6000
T13	9	LDF4-50A(1/2)	20.00 - 33.33	0.6000	0.6000
T13	10	LCF78-50J(7/8")	20.00 - 33.33	1.0000	1.0000
T13	11	LDF7-50A(1-5/8)	20.00 - 33.33	0.6000	0.6000
T13	12	LDF4-50A(1/2)	20.00 - 33.33	0.6000	0.6000
T13	13	EW63(ELLIPTICAL)	20.00 - 33.33	0.6000	0.6000
T13	14	EW90(ELLIPTICAL)	20.00 - 33.33	0.6000	0.6000
T13	16	EW63(ELLIPTICAL)	20.00 - 33.33	0.6000	0.6000
T13	18	LDF5-50A(7/8)	20.00 - 33.33	0.6000	0.6000
T13	20	EW63(ELLIPTICAL)	20.00 - 33.33	0.6000	0.6000
T13	21	LDF5-50A(7/8)	20.00 - 33.33	0.6000	0.6000
T13	23	LDF5-50A(7/8)	20.00 - 33.33	0.6000	0.6000
T13	25	LDF2-50A(3/8)	20.00 - 33.33	0.6000	0.6000
T13	26	EW63(ELLIPTICAL)	20.00 - 33.33	0.6000	0.6000
T13	28	LMR-400(3/8")	20.00 - 33.33	0.6000	0.6000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T13	30	LDF5-50A(7/8)	20.00 - 33.33	0.6000	0.6000
T13	31	CAT5e(1/4)	20.00 - 33.33	0.6000	0.6000
T13	34	HCS 6X12 4AWG(1-5/8")	20.00 - 33.33	0.6000	0.6000
T13	37	Feedline Ladder (Af)	20.00 - 33.33	0.6000	0.6000
T13	38	Feedline Ladder (Af)	20.00 - 33.33	0.6000	0.6000
T13	39	Feedline Ladder (Af)	20.00 - 33.33	0.6000	0.6000
T13	40	Feedline Ladder (Af)	20.00 - 33.33	0.6000	0.6000
T13	41	Safety Line 3/8	20.00 - 33.33	0.6000	0.6000
T14	2	LDF12-50(2-1/4")	13.33 - 20.00	0.6000	0.6000
T14	3	(12) LDF4.5-50(5/8") + (3)ATCB-B01-005(5/16)	13.33 - 20.00	0.6000	0.6000
T14	4	(6) LDF7-50A(1-5/8") + (2) LDF6-50A(1-1/4)	13.33 - 20.00	0.6000	0.6000
T14	6	LDF7-50A(1-5/8)	13.33 - 20.00	0.6000	0.6000
T14	7	LDF5-50A(7/8)	13.33 - 20.00	0.6000	0.6000
T14	8	LDF5-50A(7/8)	13.33 - 20.00	0.6000	0.6000
T14	9	LDF4-50A(1/2)	13.33 - 20.00	0.6000	0.6000
T14	10	LCF78-50J(7/8")	13.33 - 20.00	1.0000	1.0000
T14	11	LDF7-50A(1-5/8)	13.33 - 20.00	0.6000	0.6000
T14	12	LDF4-50A(1/2)	13.33 - 20.00	0.6000	0.6000
T14	13	EW63(ELLIPTICAL)	13.33 - 20.00	0.6000	0.6000
T14	14	EW90(ELLIPTICAL)	13.33 - 20.00	0.6000	0.6000
T14	16	EW63(ELLIPTICAL)	13.33 - 20.00	0.6000	0.6000
T14	18	LDF5-50A(7/8)	13.33 - 20.00	0.6000	0.6000
T14	20	EW63(ELLIPTICAL)	13.33 - 20.00	0.6000	0.6000
T14	21	LDF5-50A(7/8)	13.33 - 20.00	0.6000	0.6000
T14	23	LDF5-50A(7/8)	13.33 - 20.00	0.6000	0.6000
T14	25	LDF2-50A(3/8)	13.33 - 20.00	0.6000	0.6000
T14	26	EW63(ELLIPTICAL)	13.33 - 20.00	0.6000	0.6000
T14	28	LMR-400(3/8")	13.33 - 20.00	0.6000	0.6000
T14	30	LDF5-50A(7/8)	13.33 - 20.00	0.6000	0.6000
T14	31	CAT5e(1/4)	13.33 - 20.00	0.6000	0.6000
T14	34	HCS 6X12 4AWG(1-5/8")	13.33 - 20.00	0.6000	0.6000
T14	37	Feedline Ladder (Af)	13.33 - 20.00	0.6000	0.6000
T14	38	Feedline Ladder (Af)	13.33 - 20.00	0.6000	0.6000
T14	39	Feedline Ladder (Af)	13.33 - 20.00	0.6000	0.6000
T14	40	Feedline Ladder (Af)	13.33 - 20.00	0.6000	0.6000
T14	41	Safety Line 3/8	13.33 - 20.00	0.6000	0.6000
T15	2	LDF12-50(2-1/4")	6.00 - 13.33	0.6000	0.6000
T15	3	(12) LDF4.5-50(5/8") + (3)ATCB-B01-005(5/16)	6.00 - 13.33	0.6000	0.6000
T15	4	(6) LDF7-50A(1-5/8") + (2) LDF6-50A(1-1/4)	6.00 - 13.33	0.6000	0.6000
T15	6	LDF7-50A(1-5/8)	6.00 - 13.33	0.6000	0.6000
T15	7	LDF5-50A(7/8)	6.00 - 13.33	0.6000	0.6000
T15	8	LDF5-50A(7/8)	6.00 - 13.33	0.6000	0.6000
T15	9	LDF4-50A(1/2)	6.00 - 13.33	0.6000	0.6000
T15	10	LCF78-50J(7/8")	6.00 - 13.33	1.0000	1.0000
T15	11	LDF7-50A(1-5/8)	6.00 - 13.33	0.6000	0.6000
T15	12	LDF4-50A(1/2)	6.00 - 13.33	0.6000	0.6000
T15	13	EW63(ELLIPTICAL)	6.00 - 13.33	0.6000	0.6000
T15	14	EW90(ELLIPTICAL)	6.00 - 13.33	0.6000	0.6000
T15	16	EW63(ELLIPTICAL)	6.00 - 13.33	0.6000	0.6000
T15	18	LDF5-50A(7/8)	6.00 - 13.33	0.6000	0.6000
T15	20	EW63(ELLIPTICAL)	6.00 - 13.33	0.6000	0.6000
T15	21	LDF5-50A(7/8)	6.00 - 13.33	0.6000	0.6000
T15	23	LDF5-50A(7/8)	6.00 - 13.33	0.6000	0.6000
T15	25	LDF2-50A(3/8)	6.00 - 13.33	0.6000	0.6000
T15	26	EW63(ELLIPTICAL)	6.00 - 13.33	0.6000	0.6000
T15	28	LMR-400(3/8")	6.00 - 13.33	0.6000	0.6000
T15	30	LDF5-50A(7/8)	6.00 - 13.33	0.6000	0.6000
T15	31	CAT5e(1/4)	6.00 - 13.33	0.6000	0.6000

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	Client T-Mobile	Designed by Evan.Martin

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T15	34	HCS 6X12 4AWG(1-5/8")	0.00 - 13.33	0.6000	0.6000
T15	37	Feedline Ladder (Af)	0.00 - 13.33	0.6000	0.6000
T15	38	Feedline Ladder (Af)	0.00 - 13.33	0.6000	0.6000
T15	39	Feedline Ladder (Af)	0.00 - 13.33	0.6000	0.6000
T15	40	Feedline Ladder (Af)	0.00 - 13.33	0.6000	0.6000
T15	41	Safety Line 3/8	0.00 - 13.33	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	

Flash Beacon Lighting	A	From Leg	0.00	0.0000	185.00	No Ice	2.70	2.70	0.05
			0.00			1/2" Ice	3.10	3.10	0.07
			5.00			1" Ice	3.50	3.50	0.09
						2" Ice	4.30	4.30	0.13

CO-41A	A	From Leg	0.00	0.0000	185.00	No Ice	3.15	3.15	0.01
			0.00			1/2" Ice	4.38	4.38	0.04
			4.00			1" Ice	5.63	5.63	0.07
						2" Ice	7.77	7.77	0.15
DS9A09F36D-N	C	From Leg	0.00	0.0000	185.00	No Ice	5.75	5.75	0.05
			0.00			1/2" Ice	7.71	7.71	0.09
			10.00			1" Ice	9.68	9.68	0.14
						2" Ice	13.67	13.67	0.29
TTA TX/RX 432F-83W-01-T	C	From Leg	0.00	0.0000	185.00	No Ice	1.40	0.82	0.01
			0.00			1/2" Ice	1.55	0.94	0.02
			0.00			1" Ice	1.70	1.06	0.04
						2" Ice	2.04	1.34	0.07
ANT450F6	C	From Leg	0.00	0.0000	185.00	No Ice	1.86	1.86	0.02
			0.00			1/2" Ice	2.68	2.68	0.04
			2.00			1" Ice	3.30	3.30	0.05
						2" Ice	4.28	4.28	0.11
BA8080-67	A	From Leg	0.00	0.0000	185.00	No Ice	4.10	4.10	0.04
			0.00			1/2" Ice	5.78	5.78	0.07
			8.00			1" Ice	7.46	7.46	0.12
						2" Ice	10.89	10.89	0.23
6' x 4" Mount Pipe	A	From Leg	1.00	0.0000	185.00	No Ice	1.70	1.70	0.04
			0.00			1/2" Ice	2.46	2.46	0.06
			2.00			1" Ice	2.83	2.83	0.08
						2" Ice	3.61	3.61	0.13

DS2C09P36D-D	C	From Leg	4.00	0.0000	183.00	No Ice	7.29	7.29	0.07
			0.00			1/2" Ice	9.75	9.75	0.12
			9.30			1" Ice	12.23	12.23	0.19
						2" Ice	17.24	17.24	0.37
DS7C09F36U-D	C	From Leg	4.00	0.0000	183.00	No Ice	4.35	4.35	0.04
			0.00			1/2" Ice	5.83	5.83	0.07
			7.00			1" Ice	7.33	7.33	0.11
						2" Ice	10.38	10.38	0.22

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	Client	T-Mobile	Designed by	Evan.Martin

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAAA Front ft ²	CAAA Side ft ²	Weight K
DS7C09F36U-D	C	From Leg	4.00 0.00 -7.00	0.0000	183.00	No Ice 4.35 1/2" Ice 5.83 1" Ice 7.33 2" Ice 10.38	4.35 5.83 7.33 10.38	0.04 0.07 0.11 0.22
DS7C09F36U-D	C	From Leg	4.00 0.00 -7.00	0.0000	183.00	No Ice 4.35 1/2" Ice 5.83 1" Ice 7.33 2" Ice 10.38	4.35 5.83 7.33 10.38	0.04 0.07 0.11 0.22
Site Pro 1 VFA10-HD-S 10' Heavy Duty V-Frame	C	None		0.0000	183.00	No Ice 11.30 1/2" Ice 17.30 1" Ice 22.60 2" Ice 33.20	11.30 17.30 22.60 33.20	0.55 0.65 0.80 1.10
(4) 7'x2 1/2" Pipe Mount	C	From Leg	4.00 0.00 0.00	0.0000	183.00	No Ice 2.01 1/2" Ice 2.59 1" Ice 3.02 2" Ice 3.90	2.01 2.59 3.02 3.90	0.04 0.06 0.07 0.13
*								
6' x 4" Mount Pipe	A	From Leg	1.00 0.00 0.00	0.0000	183.00	No Ice 1.70 1/2" Ice 2.46 1" Ice 2.83 2" Ice 3.61	1.70 2.46 2.83 3.61	0.04 0.06 0.08 0.13
6' x 4" Mount Pipe	B	From Leg	1.00 0.00 0.00	0.0000	183.00	No Ice 1.70 1/2" Ice 2.46 1" Ice 2.83 2" Ice 3.61	1.70 2.46 2.83 3.61	0.04 0.06 0.08 0.13
*								
8' Horizontal x2" Mount Pipe	A	From Leg	0.50 0.00 0.00	0.0000	183.00	No Ice 1.90 1/2" Ice 2.45 1" Ice 3.01 2" Ice 4.15	0.05 0.08 0.11 0.21	0.03 0.05 0.07 0.14
8' Horizontal x2" Mount Pipe	B	From Leg	0.50 0.00 0.00	0.0000	183.00	No Ice 1.90 1/2" Ice 2.45 1" Ice 3.01 2" Ice 4.15	0.05 0.08 0.11 0.21	0.03 0.05 0.07 0.14

22' Horiz. 4"x4"x1/4"	A	From Leg	0.00 0.00 0.00	0.0000	182.00	No Ice 8.00 1/2" Ice 9.36 1" Ice 10.73 2" Ice 13.47	0.13 0.18 0.24 0.37	0.24 0.31 0.40 0.62
22' Horiz. 4"x4"x1/4"	B	From Leg	0.00 0.00 0.00	0.0000	182.00	No Ice 8.00 1/2" Ice 9.36 1" Ice 10.73 2" Ice 13.47	0.13 0.18 0.24 0.37	0.24 0.31 0.40 0.62
22' Horiz. 4"x4"x1/4"	C	From Leg	0.00 0.00 0.00	0.0000	182.00	No Ice 8.00 1/2" Ice 9.36 1" Ice 10.73 2" Ice 13.47	0.13 0.18 0.24 0.37	0.24 0.31 0.40 0.62

DB411-B	C	From Leg	0.00 0.00 -5.00	0.0000	181.00	No Ice 1.50 1/2" Ice 2.70 1" Ice 3.90 2" Ice 6.30	1.50 2.70 3.90 6.30	0.03 0.03 0.04 0.06

6' x 4" Mount Pipe	A	From Leg	1.00 0.00 0.00	0.0000	177.00	No Ice 1.71 1/2" Ice 2.46 1" Ice 2.83 2" Ice 3.61	1.71 2.46 2.83 3.61	0.04 0.06 0.08 0.13

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft ²	ft ²	K
8' Horizontal x2" Mount Pipe	A	From Leg	0.50	0.00	0.0000	177.00	No Ice 1.90	0.05	0.03
			0.00				1/2" Ice 2.45	0.08	0.05
			0.00				1" Ice 3.01	0.11	0.07
							2" Ice 4.15	0.21	0.14

6' x 4" Mount Pipe	B	From Leg	1.00	0.00	0.0000	172.00	No Ice 1.71	1.71	0.04
			0.00				1/2" Ice 2.46	2.46	0.06
			0.00				1" Ice 2.83	2.83	0.08
							2" Ice 3.61	3.61	0.13
8' Horizontal x2" Mount Pipe	B	From Leg	0.50	0.00	0.0000	172.00	No Ice 1.90	0.05	0.03
			0.00				1/2" Ice 2.45	0.08	0.05
			0.00				1" Ice 3.01	0.11	0.07
							2" Ice 4.15	0.21	0.14

(2) 13' x 2" Mount Pipe	A	From Leg	0.00	0.00	0.0000	171.00	No Ice 3.09	3.09	0.05
			0.00				1/2" Ice 4.42	4.42	0.07
			6.50				1" Ice 5.76	5.76	0.10
							2" Ice 8.50	8.50	0.19
(2) 13' x 2" Mount Pipe	B	From Leg	0.00	0.00	0.0000	171.00	No Ice 3.09	3.09	0.05
			0.00				1/2" Ice 4.42	4.42	0.07
			6.50				1" Ice 5.76	5.76	0.10
							2" Ice 8.50	8.50	0.19
(2) 13' x 2" Mount Pipe	C	From Leg	0.00	0.00	0.0000	171.00	No Ice 3.09	3.09	0.05
			0.00				1/2" Ice 4.42	4.42	0.07
			6.50				1" Ice 5.76	5.76	0.10
							2" Ice 8.50	8.50	0.19
22' Horiz. 4"x4"x1/4"	A	From Leg	0.00	0.00	0.0000	171.00	No Ice 8.00	0.13	0.24
			0.00				1/2" Ice 9.36	0.18	0.31
			0.00				1" Ice 10.73	0.24	0.40
							2" Ice 13.47	0.37	0.62
22' Horiz. 4"x4"x1/4"	B	From Leg	0.00	0.00	0.0000	171.00	No Ice 8.00	0.13	0.24
			0.00				1/2" Ice 9.36	0.18	0.31
			0.00				1" Ice 10.73	0.24	0.40
							2" Ice 13.47	0.37	0.62
22' Horiz. 4"x4"x1/4"	C	From Leg	0.00	0.00	0.0000	171.00	No Ice 8.00	0.13	0.24
			0.00				1/2" Ice 9.36	0.18	0.31
			0.00				1" Ice 10.73	0.24	0.40
							2" Ice 13.47	0.37	0.62

6' x 2" Mount Pipe	C	From Leg	0.50	0.00	0.0000	168.00	No Ice 1.43	1.43	0.02
			0.00				1/2" Ice 1.92	1.92	0.03
			0.00				1" Ice 2.29	2.29	0.05
							2" Ice 3.06	3.06	0.09

ANT150F6	A	From Leg	6.00	0.00	0.0000	165.00	No Ice 4.80	4.80	0.03
			0.00				1/2" Ice 6.83	6.83	0.07
			10.00				1" Ice 8.87	8.87	0.11
							2" Ice 13.01	13.01	0.25
8' x 3" Mount Pipe	A	From Leg	0.50	0.00	0.0000	165.00	No Ice 2.40	2.40	0.04
			0.00				1/2" Ice 3.19	3.19	0.06
			0.00				1" Ice 3.67	3.67	0.08
							2" Ice 4.68	4.68	0.14
Side Arm Mount [SO 602-1]	A	From Leg	0.50	0.00	0.0000	165.00	No Ice 2.58	10.83	0.15
			0.00				1/2" Ice 3.39	13.16	0.22
			0.00				1" Ice 4.18	15.84	0.31
							2" Ice 5.70	22.98	0.55

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Vert					

7770.00 w/ Mount Pipe	A	From Leg	3.00	0.0000	160.00	No Ice	5.75	4.25	0.06
			0.00			1/2" Ice	6.18	5.01	0.10
			0.00			1" Ice	6.61	5.71	0.16
						2" Ice	7.49	7.16	0.29
7770.00 w/ Mount Pipe	B	From Leg	3.00	0.0000	160.00	No Ice	5.75	4.25	0.06
			0.00			1/2" Ice	6.18	5.01	0.10
			0.00			1" Ice	6.61	5.71	0.16
						2" Ice	7.49	7.16	0.29
7770.00 w/ Mount Pipe	C	From Leg	3.00	0.0000	160.00	No Ice	5.75	4.25	0.06
			0.00			1/2" Ice	6.18	5.01	0.10
			0.00			1" Ice	6.61	5.71	0.16
						2" Ice	7.49	7.16	0.29
OPA-65R-LCUU-H8 w/ Mount Pipe	A	From Leg	3.00	0.0000	160.00	No Ice	11.93	8.06	0.10
			0.00			1/2" Ice	12.88	8.96	0.19
			0.00			1" Ice	13.84	9.89	0.29
						2" Ice	15.82	11.78	0.54
OPA-65R-LCUU-H6 w/ Mount Pipe	B	From Leg	3.00	0.0000	160.00	No Ice	9.19	6.21	0.11
			0.00			1/2" Ice	9.94	6.93	0.18
			0.00			1" Ice	10.71	7.66	0.26
						2" Ice	12.30	9.17	0.45
OPA-65R-LCUU-H8 w/ Mount Pipe	C	From Leg	3.00	0.0000	160.00	No Ice	11.93	8.06	0.10
			0.00			1/2" Ice	12.88	8.96	0.19
			0.00			1" Ice	13.84	9.89	0.29
						2" Ice	15.82	11.78	0.54
(2) 80010966 w/ Mount Pipe	A	From Leg	3.00	0.0000	160.00	No Ice	14.61	6.84	0.16
			0.00			1/2" Ice	15.47	7.63	0.27
			0.00			1" Ice	16.35	8.42	0.39
						2" Ice	18.14	10.06	0.68
(2) 80010965 w/ Mount Pipe	B	From Leg	3.00	0.0000	160.00	No Ice	12.26	5.79	0.14
			0.00			1/2" Ice	13.03	6.47	0.23
			0.00			1" Ice	13.80	7.17	0.33
						2" Ice	15.41	8.60	0.57
(2) 80010966 w/ Mount Pipe	C	From Leg	3.00	0.0000	160.00	No Ice	14.61	6.84	0.16
			0.00			1/2" Ice	15.47	7.63	0.27
			0.00			1" Ice	16.35	8.42	0.39
						2" Ice	18.14	10.06	0.68
RRUS 4478 B14	A	From Leg	3.00	0.0000	160.00	No Ice	1.84	1.06	0.06
			0.00			1/2" Ice	2.01	1.20	0.08
			0.00			1" Ice	2.19	1.34	0.09
						2" Ice	2.57	1.66	0.14
RRUS 4478 B14	B	From Leg	3.00	0.0000	160.00	No Ice	1.84	1.06	0.06
			0.00			1/2" Ice	2.01	1.20	0.08
			0.00			1" Ice	2.19	1.34	0.09
						2" Ice	2.57	1.66	0.14
RRUS 4478 B14	C	From Leg	3.00	0.0000	160.00	No Ice	1.84	1.06	0.06
			0.00			1/2" Ice	2.01	1.20	0.08
			0.00			1" Ice	2.19	1.34	0.09
						2" Ice	2.57	1.66	0.14
RRUS 8843 B2/B66A	A	From Leg	3.00	0.0000	160.00	No Ice	1.64	1.35	0.07
			0.00			1/2" Ice	1.80	1.50	0.09
			0.00			1" Ice	1.97	1.65	0.11
						2" Ice	2.32	1.99	0.16
RRUS 8843 B2/B66A	B	From Leg	3.00	0.0000	160.00	No Ice	1.64	1.35	0.07
			0.00			1/2" Ice	1.80	1.50	0.09
			0.00			1" Ice	1.97	1.65	0.11
						2" Ice	2.32	1.99	0.16

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Lateral					
RRUS 8843 B2/B66A	C	From Leg	3.00	0.0000	160.00	No Ice	1.64	1.35	0.07
			0.00			1/2" Ice	1.80	1.50	0.09
			0.00			1" Ice	1.97	1.65	0.11
						2" Ice	2.32	1.99	0.16
RRUS 32	A	From Leg	3.00	0.0000	160.00	No Ice	2.86	1.78	0.06
			0.00			1/2" Ice	3.08	1.97	0.08
			0.00			1" Ice	3.32	2.17	0.10
						2" Ice	3.81	2.58	0.16
RRUS 32	B	From Leg	3.00	0.0000	160.00	No Ice	2.86	1.78	0.06
			0.00			1/2" Ice	3.08	1.97	0.08
			0.00			1" Ice	3.32	2.17	0.10
						2" Ice	3.81	2.58	0.16
RRUS 32	C	From Leg	3.00	0.0000	160.00	No Ice	2.86	1.78	0.06
			0.00			1/2" Ice	3.08	1.97	0.08
			0.00			1" Ice	3.32	2.17	0.10
						2" Ice	3.81	2.58	0.16
RRUS 4449 B5/B12	A	From Leg	3.00	0.0000	160.00	No Ice	1.97	1.41	0.07
			0.00			1/2" Ice	2.14	1.56	0.09
			0.00			1" Ice	2.33	1.73	0.11
						2" Ice	2.72	2.07	0.16
RRUS 4449 B5/B12	B	From Leg	3.00	0.0000	160.00	No Ice	1.97	1.41	0.07
			0.00			1/2" Ice	2.14	1.56	0.09
			0.00			1" Ice	2.33	1.73	0.11
						2" Ice	2.72	2.07	0.16
RRUS 4449 B5/B12	C	From Leg	3.00	0.0000	160.00	No Ice	1.97	1.41	0.07
			0.00			1/2" Ice	2.14	1.56	0.09
			0.00			1" Ice	2.33	1.73	0.11
						2" Ice	2.72	2.07	0.16
RRUS E2 B29	A	From Leg	3.00	0.0000	160.00	No Ice	3.15	1.29	0.06
			0.00			1/2" Ice	3.36	1.44	0.08
			0.00			1" Ice	3.59	1.60	0.11
						2" Ice	4.07	1.95	0.17
RRUS E2 B29	B	From Leg	3.00	0.0000	160.00	No Ice	3.15	1.29	0.06
			0.00			1/2" Ice	3.36	1.44	0.08
			0.00			1" Ice	3.59	1.60	0.11
						2" Ice	4.07	1.95	0.17
RRUS E2 B29	C	From Leg	3.00	0.0000	160.00	No Ice	3.15	1.29	0.06
			0.00			1/2" Ice	3.36	1.44	0.08
			0.00			1" Ice	3.59	1.60	0.11
						2" Ice	4.07	1.95	0.17
TT08-19DB111-001	A	From Leg	3.00	0.0000	160.00	No Ice	0.79	0.64	0.02
			0.00			1/2" Ice	0.91	0.75	0.03
			0.00			1" Ice	1.04	0.87	0.04
						2" Ice	1.32	1.13	0.06
TT08-19DB111-001	B	From Leg	3.00	0.0000	160.00	No Ice	0.79	0.64	0.02
			0.00			1/2" Ice	0.91	0.75	0.03
			0.00			1" Ice	1.04	0.87	0.04
						2" Ice	1.32	1.13	0.06
TT08-19DB111-001	C	From Leg	3.00	0.0000	160.00	No Ice	0.79	0.64	0.02
			0.00			1/2" Ice	0.91	0.75	0.03
			0.00			1" Ice	1.04	0.87	0.04
						2" Ice	1.32	1.13	0.06
DC6-48-60-18-8F	A	From Leg	0.50	0.0000	160.00	No Ice	0.79	0.79	0.02
			0.00			1/2" Ice	1.27	1.27	0.03
			0.00			1" Ice	1.45	1.45	0.05
						2" Ice	1.83	1.83	0.09
DC6-48-60-18-8F	B	From Leg	0.50	0.0000	160.00	No Ice	0.79	0.79	0.02

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
			Horz Lateral ft	Vert ft						
				0.00			1/2" Ice	1.27	1.27	0.03
				0.00			1" Ice	1.45	1.45	0.05
							2" Ice	1.83	1.83	0.09
DC6-48-60-18-8F	C	From Leg	0.50	0.0000	160.00		No Ice	0.79	0.79	0.02
			0.00				1/2" Ice	1.27	1.27	0.03
			0.00				1" Ice	1.45	1.45	0.05
							2" Ice	1.83	1.83	0.09
DC6-48-60-18-8C-EV	A	From Leg	0.50	0.0000	160.00		No Ice	2.74	2.74	0.03
			0.00				1/2" Ice	2.96	2.96	0.05
			0.00				1" Ice	3.20	3.20	0.08
							2" Ice	3.68	3.68	0.15
DC6-48-60-18-8C-EV	B	From Leg	0.50	0.0000	160.00		No Ice	2.74	2.74	0.03
			0.00				1/2" Ice	2.96	2.96	0.05
			0.00				1" Ice	3.20	3.20	0.08
							2" Ice	3.68	3.68	0.15
DC6-48-60-18-8C-EV	C	From Leg	0.50	0.0000	160.00		No Ice	2.74	2.74	0.03
			0.00				1/2" Ice	2.96	2.96	0.05
			0.00				1" Ice	3.20	3.20	0.08
							2" Ice	3.68	3.68	0.15
Sector Mount [SM 502-3]	A	None		0.0000	160.00		No Ice	29.82	29.82	1.67
							1/2" Ice	42.21	42.21	2.27
							1" Ice	54.43	54.43	3.05
							2" Ice	78.49	78.49	5.18
8' x 2" Mount Pipe	A	From Leg	3.00	0.0000	160.00		No Ice	1.90	1.90	0.03
			0.00				1/2" Ice	2.73	2.73	0.04
			0.00				1" Ice	3.40	3.40	0.06
							2" Ice	4.40	4.40	0.12
8' x 2" Mount Pipe	B	From Leg	3.00	0.0000	160.00		No Ice	1.90	1.90	0.03
			0.00				1/2" Ice	2.73	2.73	0.04
			0.00				1" Ice	3.40	3.40	0.06
							2" Ice	4.40	4.40	0.12
8' x 2" Mount Pipe	C	From Leg	3.00	0.0000	160.00		No Ice	1.90	1.90	0.03
			0.00				1/2" Ice	2.73	2.73	0.04
			0.00				1" Ice	3.40	3.40	0.06
							2" Ice	4.40	4.40	0.12
6' x 3" Mount Pipe	A	From Leg	0.00	0.0000	160.00		No Ice	1.77	1.77	0.03
			0.00				1/2" Ice	2.13	2.13	0.04
			0.00				1" Ice	2.50	2.50	0.06
							2" Ice	3.27	3.27	0.11
6' x 3" Mount Pipe	B	From Leg	0.00	0.0000	160.00		No Ice	1.77	1.77	0.03
			0.00				1/2" Ice	2.13	2.13	0.04
			0.00				1" Ice	2.50	2.50	0.06
							2" Ice	3.27	3.27	0.11
6' x 3" Mount Pipe	C	From Leg	0.00	0.0000	160.00		No Ice	1.77	1.77	0.03
			0.00				1/2" Ice	2.13	2.13	0.04
			0.00				1" Ice	2.50	2.50	0.06
							2" Ice	3.27	3.27	0.11

BXA-70063-6CF-2 w/ Mount Pipe	A	From Leg	3.00	0.0000	150.00		No Ice	7.81	5.80	0.04
			0.00				1/2" Ice	8.36	6.95	0.10
			0.00				1" Ice	8.87	7.82	0.17
							2" Ice	9.93	9.60	0.34
BXA-70063-6CF-2 w/ Mount Pipe	B	From Leg	3.00	0.0000	150.00		No Ice	7.81	5.80	0.04
			0.00				1/2" Ice	8.36	6.95	0.10
			0.00				1" Ice	8.87	7.82	0.17
							2" Ice	9.93	9.60	0.34
BXA-70063-6CF-2 w/ Mount Pipe	C	From Leg	3.00	0.0000	150.00		No Ice	7.81	5.80	0.04

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	Client		T-Mobile		Designed by		Evan.Martin	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Vert					
Pipe			0.00			1/2" Ice	8.36	6.95	0.10
			0.00			1" Ice	8.87	7.82	0.17
						2" Ice	9.93	9.60	0.34
(2) BXA-171063/12CF w/ Mount Pipe	A	From Leg	3.00	0.0000	150.00	No Ice	5.03	5.29	0.04
			0.00			1/2" Ice	5.58	6.46	0.09
			0.00			1" Ice	6.10	7.35	0.14
						2" Ice	7.17	9.15	0.27
(2) BXA-171063/12CF w/ Mount Pipe	B	From Leg	3.00	0.0000	150.00	No Ice	5.03	5.29	0.04
			0.00			1/2" Ice	5.58	6.46	0.09
			0.00			1" Ice	6.10	7.35	0.14
						2" Ice	7.17	9.15	0.27
(2) BXA-171063/12CF w/ Mount Pipe	C	From Leg	3.00	0.0000	150.00	No Ice	5.03	5.29	0.04
			0.00			1/2" Ice	5.58	6.46	0.09
			0.00			1" Ice	6.10	7.35	0.14
						2" Ice	7.17	9.15	0.27
(2) LPA-80080/4CF w/ Mount Pipe	A	From Leg	3.00	0.0000	150.00	No Ice	2.86	6.57	0.03
			0.00			1/2" Ice	3.22	7.19	0.08
			0.00			1" Ice	3.59	7.84	0.13
						2" Ice	4.34	9.17	0.25
(2) LPA-80080/4CF w/ Mount Pipe	B	From Leg	3.00	0.0000	150.00	No Ice	2.86	6.57	0.03
			0.00			1/2" Ice	3.22	7.19	0.08
			0.00			1" Ice	3.59	7.84	0.13
						2" Ice	4.34	9.17	0.25
(2) LPA-80080/4CF w/ Mount Pipe	C	From Leg	3.00	0.0000	150.00	No Ice	2.86	6.57	0.03
			0.00			1/2" Ice	3.22	7.19	0.08
			0.00			1" Ice	3.59	7.84	0.13
						2" Ice	4.34	9.17	0.25
RRH2x40-AWS	A	From Leg	3.00	0.0000	150.00	No Ice	2.16	1.42	0.04
			0.00			1/2" Ice	2.36	1.59	0.06
			0.00			1" Ice	2.57	1.77	0.08
						2" Ice	3.00	2.14	0.13
RRH2x40-AWS	B	From Leg	3.00	0.0000	150.00	No Ice	2.16	1.42	0.04
			0.00			1/2" Ice	2.36	1.59	0.06
			0.00			1" Ice	2.57	1.77	0.08
						2" Ice	3.00	2.14	0.13
RRH2x40-AWS	C	From Leg	3.00	0.0000	150.00	No Ice	2.16	1.42	0.04
			0.00			1/2" Ice	2.36	1.59	0.06
			0.00			1" Ice	2.57	1.77	0.08
						2" Ice	3.00	2.14	0.13
RRH2x40 700	A	From Leg	3.00	0.0000	150.00	No Ice	1.96	1.03	0.05
			0.00			1/2" Ice	2.14	1.17	0.07
			0.00			1" Ice	2.32	1.31	0.09
						2" Ice	2.70	1.62	0.13
RRH2x40 700	B	From Leg	3.00	0.0000	150.00	No Ice	1.96	1.03	0.05
			0.00			1/2" Ice	2.14	1.17	0.07
			0.00			1" Ice	2.32	1.31	0.09
						2" Ice	2.70	1.62	0.13
RRH2x40 700	C	From Leg	3.00	0.0000	150.00	No Ice	1.96	1.03	0.05
			0.00			1/2" Ice	2.14	1.17	0.07
			0.00			1" Ice	2.32	1.31	0.09
						2" Ice	2.70	1.62	0.13
DB-T1-6Z-8AB-0Z	A	From Leg	3.00	0.0000	150.00	No Ice	4.80	2.00	0.04
			0.00			1/2" Ice	5.07	2.19	0.08
			0.00			1" Ice	5.35	2.39	0.12
						2" Ice	5.93	2.81	0.21
Sector Mount [SM 502-3]	A	None		0.0000	150.00	No Ice	29.82	29.82	1.67
						1/2" Ice	42.21	42.21	2.27

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Lateral					
						1" Ice	54.43	54.43	3.05
						2" Ice	78.49	78.49	5.18
6' x 3" Mount Pipe	A	From Leg	0.00	0.0000	150.00	No Ice	1.77	1.77	0.03
			0.00			1/2" Ice	2.13	2.13	0.04
			0.00			1" Ice	2.50	2.50	0.06
						2" Ice	3.27	3.27	0.11
6' x 3" Mount Pipe	B	From Leg	0.00	0.0000	150.00	No Ice	1.77	1.77	0.03
			0.00			1/2" Ice	2.13	2.13	0.04
			0.00			1" Ice	2.50	2.50	0.06
						2" Ice	3.27	3.27	0.11
6' x 3" Mount Pipe	C	From Leg	0.00	0.0000	150.00	No Ice	1.77	1.77	0.03
			0.00			1/2" Ice	2.13	2.13	0.04
			0.00			1" Ice	2.50	2.50	0.06
						2" Ice	3.27	3.27	0.11
**									
*** 140 T-Mobile ***									
(2) APXV18-206516S-C-A20 w/ Mount Pipe	A	From Leg	3.00	0.0000	140.00	No Ice	2.55	2.15	0.04
			0.00			1/2" Ice	2.96	2.55	0.07
			0.00			1" Ice	3.38	2.96	0.11
						2" Ice	4.26	3.83	0.21
(2) APXV18-206516S-C-A20 w/ Mount Pipe	B	From Leg	3.00	0.0000	140.00	No Ice	2.55	2.15	0.04
			0.00			1/2" Ice	2.96	2.55	0.07
			0.00			1" Ice	3.38	2.96	0.11
						2" Ice	4.26	3.83	0.21
(2) APXV18-206516S-C-A20 w/ Mount Pipe	C	From Leg	3.00	0.0000	140.00	No Ice	2.55	2.15	0.04
			0.00			1/2" Ice	2.96	2.55	0.07
			0.00			1" Ice	3.38	2.96	0.11
						2" Ice	4.26	3.83	0.21
APXVAALL24_43-U-NA20 w/ Mount Pipe	A	From Leg	3.00	0.0000	140.00	No Ice	14.69	6.87	0.18
			0.00			1/2" Ice	15.46	7.55	0.31
			0.00			1" Ice	16.23	8.25	0.45
						2" Ice	17.82	9.67	0.78
APXVAALL24_43-U-NA20 w/ Mount Pipe	B	From Leg	3.00	0.0000	140.00	No Ice	14.69	6.87	0.18
			0.00			1/2" Ice	15.46	7.55	0.31
			0.00			1" Ice	16.23	8.25	0.45
						2" Ice	17.82	9.67	0.78
APXVAALL24_43-U-NA20 w/ Mount Pipe	C	From Leg	3.00	0.0000	140.00	No Ice	14.69	6.87	0.18
			0.00			1/2" Ice	15.46	7.55	0.31
			0.00			1" Ice	16.23	8.25	0.45
						2" Ice	17.82	9.67	0.78
RADIO 2212 B66A	A	From Leg	3.00	0.0000	140.00	No Ice	1.86	0.87	0.04
			0.00			1/2" Ice	2.03	1.00	0.06
			0.00			1" Ice	2.20	1.14	0.07
						2" Ice	2.58	1.44	0.12
RADIO 2212 B66A	B	From Leg	3.00	0.0000	140.00	No Ice	1.86	0.87	0.04
			0.00			1/2" Ice	2.03	1.00	0.06
			0.00			1" Ice	2.20	1.14	0.07
						2" Ice	2.58	1.44	0.12
RADIO 2212 B66A	C	From Leg	3.00	0.0000	140.00	No Ice	1.86	0.87	0.04
			0.00			1/2" Ice	2.03	1.00	0.06
			0.00			1" Ice	2.20	1.14	0.07
						2" Ice	2.58	1.44	0.12
RADIO 4449 B71/B85	A	From Leg	3.00	0.0000	140.00	No Ice	1.97	1.59	0.07
			0.00			1/2" Ice	2.15	1.75	0.09
			0.00			1" Ice	2.33	1.92	0.12
						2" Ice	2.72	2.28	0.17
RADIO 4449 B71/B85	B	From Leg	3.00	0.0000	140.00	No Ice	1.97	1.59	0.07

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	CAAA Front ft ²	CAAA Side ft ²	Weight K
			Horz Lateral ft	Vert ft					
			0.00			1/2" Ice	2.15	1.75	0.09
			0.00			1" Ice	2.33	1.92	0.12
						2" Ice	2.72	2.28	0.17
RADIO 4449 B71/B85	C	From Leg	3.00	0.0000	140.00	No Ice	1.97	1.59	0.07
			0.00			1/2" Ice	2.15	1.75	0.09
			0.00			1" Ice	2.33	1.92	0.12
						2" Ice	2.72	2.28	0.17
Valmont/Site Pro 1 VFA10-U	A	None		0.0000	140.00	No Ice	27.52	27.52	1.39
						1/2" Ice	39.45	39.45	1.85
						1" Ice	51.21	51.21	2.31
						2" Ice	74.73	74.73	3.23

Pipe Mount [PM 601-1]	B	From Leg	1.00	0.0000	135.00	No Ice	1.32	1.32	0.07
			0.00			1/2" Ice	1.58	1.58	0.08
			0.00			1" Ice	1.84	1.84	0.09
						2" Ice	2.40	2.40	0.13
Pipe Mount [PM 601-1]	C	From Leg	1.00	0.0000	135.00	No Ice	1.32	1.32	0.07
			0.00			1/2" Ice	1.58	1.58	0.08
			0.00			1" Ice	1.84	1.84	0.09
						2" Ice	2.40	2.40	0.13

531-70 Dipole Antenna	A	From Leg	6.00	0.0000	125.00	No Ice	1.58	5.98	0.04
			0.00			1/2" Ice	2.68	10.20	0.05
			0.00			1" Ice	3.80	14.40	0.06
						2" Ice	6.04	22.90	0.09
Side Arm Mount [SO 602-1]	A	From Leg	0.50	0.0000	125.00	No Ice	2.58	10.83	0.15
			0.00			1/2" Ice	3.39	13.16	0.22
			0.00			1" Ice	4.18	15.84	0.31
						2" Ice	5.70	22.98	0.55
6' x 3" Mount Pipe	A	From Leg	0.50	0.0000	125.00	No Ice	1.77	1.77	0.03
			0.00			1/2" Ice	2.13	2.13	0.04
			0.00			1" Ice	2.50	2.50	0.06
						2" Ice	3.27	3.27	0.11
4' x 2" Pipe Mount	A	From Leg	0.50	0.0000	125.00	No Ice	0.79	0.79	0.03
			0.00			1/2" Ice	1.03	1.03	0.04
			0.00			1" Ice	1.28	1.28	0.04
						2" Ice	1.81	1.81	0.07
12.5' x 2.375" Mount Pipe	A	From Leg	6.00	0.0000	125.00	No Ice	2.97	2.97	0.04
			0.00			1/2" Ice	4.25	4.25	0.06
			0.00			1" Ice	5.54	5.54	0.09
						2" Ice	8.05	8.05	0.17
*									
6' x 4" Mount Pipe	B	From Leg	1.00	0.0000	125.00	No Ice	1.76	1.76	0.04
			0.00			1/2" Ice	2.46	2.46	0.06
			0.00			1" Ice	2.83	2.83	0.08
						2" Ice	3.61	3.61	0.13
8' Horizontal x2" Mount Pipe	B	From Leg	0.50	0.0000	125.00	No Ice	1.90	0.05	0.03
			0.00			1/2" Ice	2.45	0.08	0.05
			0.00			1" Ice	3.01	0.11	0.07
						2" Ice	4.15	0.21	0.14
*									
ANT150F6	C	From Leg	6.00	0.0000	125.00	No Ice	4.80	4.80	0.03
			0.00			1/2" Ice	6.83	6.83	0.07
			10.00			1" Ice	8.87	8.87	0.11
						2" Ice	13.01	13.01	0.25
Side Arm Mount [SO 602-1]	C	From Leg	0.50	0.0000	125.00	No Ice	2.58	10.83	0.15
			0.00			1/2" Ice	3.39	13.16	0.22

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral Vert					
			0.00			1" Ice	4.18	15.84	0.31
						2" Ice	5.70	22.98	0.55
6' x 3" Mount Pipe	C	From Leg	0.50	0.0000	125.00	No Ice	1.77	1.77	0.03
			0.00			1/2" Ice	2.13	2.13	0.04
			0.00			1" Ice	2.50	2.50	0.06
						2" Ice	3.27	3.27	0.11

531-70 Dipole Antenna	A	From Leg	6.00	0.0000	109.00	No Ice	1.58	5.98	0.04
			0.00			1/2" Ice	2.68	10.20	0.05
			2.00			1" Ice	3.80	14.40	0.06
						2" Ice	6.04	22.90	0.09
Side Arm Mount [SO 602-1]	A	From Leg	0.50	0.0000	109.00	No Ice	2.58	10.83	0.15
			0.00			1/2" Ice	3.39	13.16	0.22
			0.00			1" Ice	4.18	15.84	0.31
						2" Ice	5.70	22.98	0.55
6' x 3" Mount Pipe	A	From Leg	0.50	0.0000	109.00	No Ice	1.77	1.77	0.03
			0.00			1/2" Ice	2.13	2.13	0.04
			0.00			1" Ice	2.50	2.50	0.06
						2" Ice	3.27	3.27	0.11
4' x 2" Pipe Mount	A	From Leg	6.00	0.0000	109.00	No Ice	0.79	0.79	0.03
			0.00			1/2" Ice	1.03	1.03	0.04
			0.00			1" Ice	1.28	1.28	0.04
						2" Ice	1.81	1.81	0.07
12.5' x 2.375" Mount Pipe	A	From Leg	6.00	0.0000	109.00	No Ice	2.97	2.97	0.04
			0.00			1/2" Ice	4.25	4.25	0.06
			0.00			1" Ice	5.54	5.54	0.09
						2" Ice	8.05	8.05	0.17

CO-41A	B	From Leg	0.00	0.0000	108.00	No Ice	3.15	3.15	0.01
			0.00			1/2" Ice	4.38	4.38	0.04
			6.50			1" Ice	5.63	5.63	0.07
						2" Ice	7.77	7.77	0.15
Side Arm Mount [SO 602-1]	B	From Leg	3.00	0.0000	108.00	No Ice	2.58	10.83	0.15
			0.00			1/2" Ice	3.39	13.16	0.22
			0.00			1" Ice	4.18	15.84	0.31
						2" Ice	5.70	22.98	0.55
6' x 3" Mount Pipe	B	From Leg	0.50	0.0000	108.00	No Ice	1.77	1.77	0.03
			0.00			1/2" Ice	2.13	2.13	0.04
			0.00			1" Ice	2.50	2.50	0.06
						2" Ice	3.27	3.27	0.11
4' x 2" Pipe Mount	B	From Leg	6.00	0.0000	108.00	No Ice	0.79	0.79	0.03
			0.00			1/2" Ice	1.03	1.03	0.04
			0.00			1" Ice	1.28	1.28	0.04
						2" Ice	1.81	1.81	0.07

Beacon Side Markers	A	From Leg	0.50	0.0000	103.00	No Ice	0.93	0.93	0.02
			0.00			1/2" Ice	1.07	1.07	0.03
			0.00			1" Ice	1.21	1.21	0.03
						2" Ice	1.49	1.49	0.04
Beacon Side Markers	B	From Leg	0.50	0.0000	103.00	No Ice	0.93	0.93	0.02
			0.00			1/2" Ice	1.07	1.07	0.03
			0.00			1" Ice	1.21	1.21	0.03
						2" Ice	1.49	1.49	0.04
Beacon Side Markers	C	From Leg	0.50	0.0000	103.00	No Ice	0.93	0.93	0.02
			0.00			1/2" Ice	1.07	1.07	0.03
			0.00			1" Ice	1.21	1.21	0.03
						2" Ice	1.49	1.49	0.04

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Vert					

6' x 4" Mount Pipe	B	From Leg	1.00	0.0000	100.00	No Ice	1.80	1.80	0.04
			0.00			1/2" Ice	2.46	2.46	0.06
			0.00			1" Ice	2.83	2.83	0.08
						2" Ice	3.61	3.61	0.13
8' Horizontal x2" Mount Pipe	B	From Leg	0.50	0.0000	100.00	No Ice	1.90	0.05	0.03
			0.00			1/2" Ice	2.45	0.08	0.05
			0.00			1" Ice	3.01	0.11	0.07
						2" Ice	4.15	0.21	0.14
*									
Pipe Mount [PM 601-1]	A	From Leg	1.00	0.0000	98.00	No Ice	1.32	1.32	0.07
			0.00			1/2" Ice	1.58	1.58	0.08
			0.00			1" Ice	1.84	1.84	0.09
						2" Ice	2.40	2.40	0.13
**									
Pipe Mount [PM 601-1]	A	From Leg	1.00	0.0000	91.00	No Ice	1.32	1.32	0.07
			0.00			1/2" Ice	1.58	1.58	0.08
			0.00			1" Ice	1.84	1.84	0.09
						2" Ice	2.40	2.40	0.13
*									
ANT150F2	B	From Leg	3.00	0.0000	87.00	No Ice	1.23	1.23	0.01
			0.00			1/2" Ice	1.53	1.53	0.02
			3.50			1" Ice	1.84	1.84	0.04
						2" Ice	2.49	2.49	0.07
Side Arm Mount [SO 601-1]	B	From Leg	0.50	0.0000	87.00	No Ice	1.04	5.32	0.16
			0.00			1/2" Ice	1.41	6.43	0.20
			0.00			1" Ice	1.78	7.67	0.24
						2" Ice	2.52	10.67	0.36
6' x 3" Mount Pipe	B	From Leg	0.50	0.0000	87.00	No Ice	1.77	1.77	0.03
			0.00			1/2" Ice	2.13	2.13	0.04
			0.00			1" Ice	2.50	2.50	0.06
						2" Ice	3.27	3.27	0.11
4' x 2" Pipe Mount	B	From Leg	3.00	0.0000	87.00	No Ice	0.79	0.79	0.03
			0.00			1/2" Ice	1.03	1.03	0.04
			0.00			1" Ice	1.28	1.28	0.04
						2" Ice	1.81	1.81	0.07

531-70 Dipole Antenna	A	From Leg	6.00	0.0000	85.00	No Ice	1.58	5.98	0.04
			0.00			1/2" Ice	2.68	10.20	0.05
			2.00			1" Ice	3.80	14.40	0.06
						2" Ice	6.04	22.90	0.09
Side Arm Mount [SO 602-1]	A	From Leg	0.50	0.0000	85.00	No Ice	2.58	10.83	0.15
			0.00			1/2" Ice	3.39	13.16	0.22
			0.00			1" Ice	4.18	15.84	0.31
						2" Ice	5.70	22.98	0.55
6' x 3" Mount Pipe	A	From Leg	0.50	0.0000	85.00	No Ice	1.77	1.77	0.03
			0.00			1/2" Ice	2.13	2.13	0.04
			0.00			1" Ice	2.50	2.50	0.06
						2" Ice	3.27	3.27	0.11
4' x 2" Pipe Mount	A	From Leg	6.00	0.0000	85.00	No Ice	0.79	0.79	0.03
			0.00			1/2" Ice	1.03	1.03	0.04
			0.00			1" Ice	1.28	1.28	0.04
						2" Ice	1.81	1.81	0.07
12.5' x 2.375" Mount Pipe	A	From Leg	6.00	0.0000	85.00	No Ice	2.97	2.97	0.04
			0.00			1/2" Ice	4.25	4.25	0.06
			0.00			1" Ice	5.54	5.54	0.09
						2" Ice	8.05	8.05	0.17

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAAA Front ft ²	CAAA Side ft ²	Weight K

2" Square Panel Antenna	B	From Leg	3.00 0.00 0.00	0.0000	66.00	No Ice 4.80 1/2" Ice 5.07 1" Ice 5.35 2" Ice 5.93	1.63 1.80 1.99 2.37	0.01 0.04 0.08 0.02
Side Arm Mount [SO 601-1]	B	From Leg	0.50 0.00 0.00	0.0000	66.00	No Ice 1.04 1/2" Ice 1.41 1" Ice 1.78 2" Ice 2.52	5.32 6.43 7.67 10.67	0.16 0.20 0.24 0.36
6' x 3" Mount Pipe	B	From Leg	0.50 0.00 0.00	0.0000	66.00	No Ice 1.77 1/2" Ice 2.13 1" Ice 2.50 2" Ice 3.27	1.77 2.13 2.50 3.27	0.03 0.04 0.06 0.11
4' x 2" Pipe Mount	B	From Leg	3.00 0.00 0.00	0.0000	66.00	No Ice 0.79 1/2" Ice 1.03 1" Ice 1.28 2" Ice 1.81	0.79 1.03 1.28 1.81	0.03 0.04 0.04 0.07
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Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K

PADX8-59A	A	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	68.1000		183.00	8.00	No Ice 50.30 1/2" Ice 51.29 1" Ice 52.28 2" Ice 54.27	0.29 0.55 0.81 1.34
PADX8-59A	B	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	29.2000		183.00	8.00	No Ice 50.30 1/2" Ice 51.29 1" Ice 52.28 2" Ice 54.27	0.29 0.55 0.81 1.34
PADX8-59A	B	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	-7.0000		172.00	8.00	No Ice 50.30 1/2" Ice 51.29 1" Ice 52.28 2" Ice 54.27	0.29 0.55 0.81 1.34
PADX8-59A	C	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		171.00	8.00	No Ice 50.30 1/2" Ice 51.29 1" Ice 52.28	0.29 0.55 0.81

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Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K
PA4-57A	A	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	65.8000		177.00	4.00	2" Ice 54.27 No Ice 12.60 1/2" Ice 13.09 1" Ice 13.58 2" Ice 14.56	1.34 0.05 0.12 0.18 0.32
PR-900	C	Grid	From Leg	1.00 0.00 0.00	-30.0000		168.00	3.18	No Ice 7.92 1/2" Ice 8.30 1" Ice 8.76 2" Ice 9.60	0.04 0.08 0.12 0.20
PADX6-59A	B	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		135.00	6.00	No Ice 28.27 1/2" Ice 29.07 1" Ice 29.86 2" Ice 31.44	0.19 0.33 0.48 0.78
PADX6-59A	C	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		135.00	6.00	No Ice 28.27 1/2" Ice 29.07 1" Ice 29.86 2" Ice 31.44	0.19 0.33 0.48 0.78
PADX8-59A	B	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	-18.4000		125.00	8.00	No Ice 50.30 1/2" Ice 51.29 1" Ice 52.28 2" Ice 54.27	0.29 0.55 0.81 1.34
PADX8-59A	B	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	-18.4000		100.00	8.00	No Ice 50.30 1/2" Ice 51.29 1" Ice 52.28 2" Ice 54.27	0.29 0.55 0.81 1.34
SCX-W100AB	A	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	-20.0000		98.00	3.29	No Ice 8.51 1/2" Ice 8.95 1" Ice 9.38 2" Ice 10.26	0.04 0.09 0.13 0.22
SCX-W100AB	A	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	-35.0000		91.00	3.29	No Ice 8.51 1/2" Ice 8.95 1" Ice 9.38 2" Ice 10.26	0.04 0.09 0.13 0.22
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Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice

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Comb. No.	Description
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	185 - 180	Leg	Max Tension	23	0.45	0.00	-0.00
			Max. Compression	27	-4.59	0.07	-0.03
			Max. Mx	22	-0.48	1.73	-0.13
			Max. My	20	-1.64	-0.02	1.88
			Max. Vy	22	1.10	-1.27	-0.13
			Max. Vx	20	1.13	-0.02	-1.18
		Diagonal	Max Tension	22	1.84	0.00	0.00
			Max. Compression	18	-1.96	0.00	0.00
			Max. Mx	33	-0.60	0.23	-0.03
			Max. My	28	0.75	0.22	0.03
			Max. Vy	34	0.12	0.23	-0.03
			Max. Vx	27	0.01	0.00	0.00
		Top Girt	Max Tension	19	0.13	0.00	0.00
			Max. Compression	37	-0.69	0.00	0.00
			Max. Mx	26	-0.60	-1.30	0.00
			Max. My	36	-0.59	0.00	0.04
			Max. Vy	26	0.28	0.00	0.00
			Max. Vx	36	-0.01	0.00	0.00

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft			
T2	180 - 160	Leg	Max Tension	23	9.46	-0.88	-0.21			
			Max. Compression	18	-15.81	0.41	-0.32			
			Max. Mx	22	2.53	-1.27	-0.13			
			Max. My	20	-2.98	-0.04	-1.32			
			Max. Vy	19	-1.24	0.94	-0.05			
			Max. Vx	18	-1.33	-0.56	0.81			
		Diagonal	Max Tension	16	6.19	0.00	0.00			
			Max. Compression	18	-6.48	0.00	0.00			
			Max. Mx	27	0.77	0.34	-0.04			
			Max. My	35	0.19	0.32	-0.05			
			Max. Vy	28	0.15	0.34	-0.04			
			Max. Vx	35	-0.01	0.00	0.00			
			T3	160 - 140	Leg	Max Tension	23	32.17	-0.15	0.05
						Max. Compression	18	-47.91	0.49	-0.00
Max. Mx	6	27.50				-0.59	0.05			
Max. My	24	-9.18				-0.11	0.75			
Max. Vy	6	-2.26				-0.40	0.30			
Max. Vx	8	2.25				-0.02	0.66			
Diagonal	Max Tension	16			12.50	0.00	0.00			
	Max. Compression	16			-12.43	0.00	0.00			
	Max. Mx	37			2.32	0.52	0.07			
	Max. My	35			0.37	0.50	-0.07			
	Max. Vy	37			0.21	0.52	0.07			
	Max. Vx	35			-0.01	0.00	0.00			
	T4	140 - 120			Leg	Max Tension	23	64.74	-1.43	0.09
						Max. Compression	18	-90.18	0.94	0.07
Max. Mx			18	-89.48		1.49	0.21			
Max. My			20	-13.30		-0.15	-2.32			
Max. Vy			6	-1.28		-0.59	0.05			
Max. Vx			24	1.35		-0.11	0.75			
Diagonal			Max Tension	16	16.30	0.00	0.00			
			Max. Compression	16	-16.21	0.00	0.00			
			Max. Mx	27	4.01	0.60	0.07			
			Max. My	36	-1.56	0.57	-0.08			
			Max. Vy	37	0.23	0.60	-0.08			
			Max. Vx	36	-0.01	0.00	0.00			
			T5	120 - 100	Leg	Max Tension	23	104.72	-0.80	-0.10
						Max. Compression	18	-137.71	-0.49	-0.20
Max. Mx	18	-112.45				1.72	-0.17			
Max. My	20	-17.23				-0.59	-3.67			
Max. Vy	18	0.74				1.72	-0.17			
Max. Vx	20	0.84				-0.59	-3.67			
Diagonal	Max Tension	16			19.21	0.00	0.00			
	Max. Compression	16			-18.64	0.00	0.00			
	Max. Mx	27			2.19	0.75	0.09			
	Max. My	29			-3.37	0.68	0.11			
	Max. Vy	38			0.27	0.73	-0.09			
	Max. Vx	29			0.01	0.00	0.00			
	T6	100 - 93.33			Leg	Max Tension	23	128.11	-0.49	-0.16
						Max. Compression	18	-164.71	1.16	-0.14
Max. Mx			28	-79.72		-1.39	0.47			
Max. My			20	-18.17		-0.59	-3.67			
Max. Vy			10	-0.40		1.20	0.16			
Max. Vx			20	-0.70		-0.59	-3.67			
Diagonal			Max Tension	16	20.77	0.00	0.00			
			Max. Compression	18	-21.35	0.00	0.00			
			Max. Mx	38	5.31	-0.96	0.00			
			Max. My	35	1.35	0.00	0.03			
			Max. Vy	38	-0.26	0.00	0.00			
			Max. Vx	35	0.01	0.00	0.00			
			T7	93.33 - 80	Leg	Max Tension	23	126.63	-0.96	-0.15

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T8	80 - 73.33	Diagonal	Max. Compression	18	-164.53	-4.53	-0.28	
			Max. Mx	18	-164.53	-4.53	-0.28	
			Max. My	20	-20.10	-0.94	-2.98	
			Max. Vy	18	1.59	4.30	0.12	
			Max. Vx	20	0.99	-0.94	-2.98	
			Max Tension	17	26.22	0.21	-0.10	
			Max. Compression	16	-27.82	0.00	0.00	
			Max. Mx	37	4.31	0.30	0.18	
			Max. My	37	4.02	0.30	0.18	
			Max. Vy	37	0.16	0.30	0.18	
			Max. Vx	37	0.02	0.30	0.18	
			Max Tension	18	2.86	0.00	0.00	
		Horizontal	Max. Compression	18	-2.86	0.27	0.04	
			Max. Mx	37	1.22	0.59	0.05	
			Max. My	22	-1.53	0.28	0.06	
			Max. Vy	37	-0.21	0.59	0.05	
			Max. Vx	37	0.01	0.00	0.00	
			Max Tension	18	2.85	0.00	0.00	
			Redund Horz 1 Bracing	Max. Compression	18	-2.85	0.00	0.00
				Max. Mx	26	0.90	-0.10	0.00
				Max. My	36	0.31	0.00	0.00
				Max. Vy	26	0.06	0.00	0.00
				Max. Vx	36	0.00	0.00	0.00
				Max Tension	18	1.93	0.00	0.00
		Redund Diag 1 Bracing	Max. Compression	18	-1.93	0.00	0.00	
			Max. Mx	38	0.99	-0.13	0.00	
			Max. My	35	0.39	0.00	0.01	
			Max. Vy	38	0.06	0.00	0.00	
			Max. Vx	35	-0.00	0.00	0.00	
			Max Tension	1	0.00	0.00	0.00	
		Redund Hip 1 Bracing	Max. Compression	37	-0.06	0.00	0.00	
			Max. Mx	26	-0.06	-0.10	0.00	
			Max. My	20	-0.04	0.00	-0.00	
			Max. Vy	26	0.06	0.00	0.00	
			Max. Vx	20	0.00	0.00	0.00	
			Max Tension	23	172.50	2.77	-0.27	
		Leg	Max. Compression	18	-217.81	2.78	-0.15	
			Max. Mx	18	-217.39	-4.53	-0.28	
			Max. My	20	-22.88	-0.94	-2.98	
			Max. Vy	18	-1.20	2.78	-0.15	
			Max. Vx	20	-0.45	-0.94	-2.98	
			Max Tension	16	23.11	0.00	0.00	
Max. Compression	17		-22.48	0.00	0.00			
Max. Mx	38		6.56	-1.08	0.00			
Max. My	35		1.68	0.00	0.03			
Max. Vy	38		0.27	0.00	0.00			
Max. Vx	35		-0.01	0.00	0.00			
Max Tension	23		171.17	-2.26	-0.10			
Diagonal	Max. Compression		18	-218.08	-5.63	-0.17		
	Max. Mx		18	-218.08	-5.63	-0.17		
	Max. My		20	-24.51	-1.30	-4.87		
	Max. Vy		18	1.62	3.93	0.26		
	Max. Vx		20	1.30	-1.30	-4.87		
	Max Tension		17	28.21	0.00	0.00		
	Max. Compression	16	-29.12	0.00	0.00			
	Max. Mx	4	12.62	0.36	-0.13			
	Max. My	38	2.65	0.31	0.19			
	Max. Vy	37	0.17	0.31	0.19			

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T10	60 - 53.33	Horizontal	Max. Vx	28	0.02	0.31	-0.19	
			Max Tension	18	3.78	0.00	0.00	
			Max. Compression	18	-3.78	0.29	0.04	
			Max. Mx	37	1.50	0.66	0.04	
			Max. My	20	-3.25	0.30	0.04	
			Max. Vy	37	-0.22	0.66	0.04	
			Max. Vx	37	0.01	0.00	0.00	
			Max Tension	18	3.78	0.00	0.00	
			Redund Horiz 1 Bracing	Max. Compression	18	-3.78	0.00	0.00
				Max. Mx	26	0.97	-0.12	0.00
				Max. My	36	0.28	0.00	0.00
				Max. Vy	26	0.06	0.00	0.00
		Max. Vx		36	-0.00	0.00	0.00	
		Max Tension		18	2.48	0.00	0.00	
		Redund Diag 1 Bracing	Max. Compression	18	-2.48	0.00	0.00	
			Max. Mx	38	1.19	-0.14	0.00	
			Max. My	35	0.60	0.00	0.01	
			Max. Vy	38	0.06	0.00	0.00	
			Max. Vx	35	-0.00	0.00	0.00	
			Max Tension	1	0.00	0.00	0.00	
		Redund Hip 1 Bracing	Max. Compression	37	-0.06	0.00	0.00	
			Max. Mx	26	-0.06	-0.12	0.00	
			Max. My	20	-0.03	0.00	-0.00	
			Max. Vy	26	0.06	0.00	0.00	
Max. Vx	20		0.00	0.00	0.00			
Max Tension	23		216.43	3.19	-0.17			
T11	53.33 - 40	Leg	Max. Compression	18	-270.09	4.19	-0.26	
			Max. Mx	18	-269.70	-5.63	-0.17	
			Max. My	20	-26.77	-1.30	-4.87	
			Max. Vy	18	-1.59	4.19	-0.26	
			Max. Vx	20	-0.58	-1.30	-4.87	
			Max Tension	23	214.61	-3.45	-0.19	
		Diagonal	Max. Compression	16	24.59	0.00	0.00	
			Max. Compression	16	-24.47	0.00	0.00	
			Max. Mx	38	6.79	-1.20	0.00	
			Max. My	36	4.98	0.00	0.04	
			Max. Vy	38	0.29	0.00	0.00	
			Max. Vx	36	-0.01	0.00	0.00	
T11	53.33 - 40	Leg	Max Tension	23	214.61	-3.45	-0.19	
			Max. Compression	18	-269.85	-8.69	-0.27	
			Max. Mx	27	-133.74	-8.75	0.02	
			Max. My	20	-28.36	-1.59	-4.58	
			Max. Vy	18	2.52	7.36	0.47	
			Max. Vx	20	1.38	-1.59	-4.58	
		Diagonal	Max Tension	17	30.03	0.00	0.00	
			Max. Compression	16	-31.73	0.00	0.00	
			Max. Mx	22	23.82	0.44	0.13	
			Max. My	38	2.44	0.36	0.20	
			Max. Vy	37	0.18	0.36	0.20	
			Max. Vx	38	0.02	0.36	0.20	
Horizontal	Max Tension	18	4.68	0.00	0.00			
	Max. Compression	18	-4.68	0.44	0.07			
	Max. Mx	37	1.76	0.89	0.08			
	Max. My	20	-4.01	0.46	0.09			
	Max. Vy	37	-0.28	0.89	0.08			
	Max. Vx	37	0.01	0.00	0.00			
Redund Horiz 1 Bracing	Max Tension	18	4.68	0.00	0.00			
	Max. Compression	18	-4.68	0.00	0.00			

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	30	1.96	-0.14	0.00
			Max. My	29	0.66	0.00	0.00
			Max. Vy	30	0.07	0.00	0.00
			Max. Vx	29	0.00	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	18	2.99	0.00	0.00
			Max. Compression	18	-2.99	0.00	0.00
			Max. Mx	38	1.37	-0.17	0.00
			Max. My	35	0.44	0.00	0.01
			Max. Vy	38	0.07	0.00	0.00
			Max. Vx	35	-0.00	0.00	0.00
		Redund Hip 1 Bracing	Max Tension	1	0.00	0.00	0.00
			Max. Compression	37	-0.07	0.00	0.00
			Max. Mx	26	-0.06	-0.15	0.00
			Max. My	20	-0.04	0.00	-0.00
			Max. Vy	26	0.07	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
T12	40 - 33.33	Leg	Max Tension	23	261.80	5.53	-0.19
			Max. Compression	18	-324.81	6.46	-0.41
			Max. Mx	27	-153.74	-8.75	0.02
			Max. My	20	-31.09	-1.59	-4.58
			Max. Vy	18	-2.37	6.46	-0.41
			Max. Vx	20	-0.37	-1.59	-4.58
		Diagonal	Max Tension	16	26.00	0.00	0.00
			Max. Compression	17	-25.53	0.00	0.00
			Max. Mx	38	6.62	-1.32	0.00
			Max. My	35	1.22	0.00	0.04
			Max. Vy	38	-0.30	0.00	0.00
			Max. Vx	35	0.01	0.00	0.00
T13	33.33 - 20	Leg	Max Tension	23	259.80	-5.35	-0.28
			Max. Compression	18	-324.78	-11.95	-0.21
			Max. Mx	18	-324.78	-11.95	-0.21
			Max. My	20	-33.08	-2.50	-8.11
			Max. Vy	18	3.10	8.07	0.47
			Max. Vx	20	1.87	-2.50	-8.11
		Diagonal	Max Tension	17	31.65	0.00	0.00
			Max. Compression	16	-33.25	0.00	0.00
			Max. Mx	22	24.64	0.53	0.16
			Max. My	35	-1.91	0.40	0.23
			Max. Vy	37	0.22	0.45	0.23
			Max. Vx	35	0.03	0.40	0.23
		Horizontal	Max Tension	18	5.63	0.00	0.00
			Max. Compression	18	-5.63	0.48	0.06
			Max. Mx	37	2.06	1.04	0.07
			Max. My	20	-4.82	0.48	0.07
			Max. Vy	37	-0.29	1.04	0.07
			Max. Vx	37	0.01	0.00	0.00
		Redund Horz 1 Bracing	Max Tension	18	5.63	0.00	0.00
			Max. Compression	18	-5.63	0.00	0.00
			Max. Mx	26	1.19	-0.15	0.00
			Max. My	35	2.62	0.00	0.00
			Max. Vy	26	0.07	0.00	0.00
			Max. Vx	35	-0.00	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	18	3.51	0.00	0.00
			Max. Compression	18	-3.51	0.00	0.00
			Max. Mx	38	1.58	-0.18	0.00
			Max. My	35	1.23	0.00	0.01
			Max. Vy	38	0.07	0.00	0.00

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T14	20 - 13.33	Redund Hip 1 Bracing	Max. Vx	35	0.00	0.00	0.00	
			Max Tension	1	0.00	0.00	0.00	
			Max. Compression	37	-0.07	0.00	0.00	
		Leg	Max. Mx	26	-0.07	-0.16	0.00	
			Max. My	20	-0.04	0.00	-0.00	
			Max. Vy	26	0.08	0.00	0.00	
			Max Tension	23	306.16	7.08	-0.17	
			Max. Compression	18	-379.65	8.12	-0.39	
			Max. Mx	18	-379.04	-11.95	-0.21	
			Max. My	20	-36.07	-2.50	-8.11	
			Max. Vy	18	-3.12	8.12	-0.39	
			Max. Vx	20	-0.77	-2.50	-8.11	
			Diagonal	Max Tension	16	27.23	0.00	0.00
Max. Compression	17	-27.03		0.00	0.00			
Max. Mx	27	7.59		-1.66	0.00			
Max. My	35	3.21		0.00	0.05			
Max. Vy	27	0.35		0.00	0.00			
T15	13.33 - 0	Leg	Max. Vx	35	-0.01	0.00	0.00	
			Max Tension	23	304.50	-6.49	-0.27	
			Max. Compression	18	-380.78	-0.00	0.00	
			Max. Mx	18	-380.18	8.98	0.72	
			Max. My	20	-38.00	1.48	4.71	
		Diagonal	Max. Vy	18	1.46	8.98	0.72	
			Max. Vx	20	-1.48	0.70	-4.11	
			Max Tension	17	32.80	0.00	0.00	
			Max. Compression	16	-34.51	0.00	0.00	
			Max. Mx	4	14.80	0.52	-0.16	
		Horizontal	Max. My	30	-5.58	0.40	-0.25	
			Max. Vy	37	0.22	0.46	0.24	
			Max. Vx	30	0.03	0.40	-0.25	
			Max Tension	18	6.60	0.00	0.00	
			Max. Compression	18	-6.60	0.55	0.06	
			Max. Mx	37	-2.24	0.93	0.07	
			Max. My	22	-3.50	0.57	0.08	
			Max. Vy	37	0.28	0.93	0.07	
			Max. Vx	37	-0.01	0.00	0.00	
			Redund Horz 1 Bracing	Max Tension	18	6.60	0.00	0.00
				Max. Compression	18	-6.60	0.00	0.00
Max. Mx	34	2.78		-0.19	0.00			
Max. My	36	1.62		0.00	0.01			
Max. Vy	34	-0.09		0.00	0.00			
Redund Diag 1 Bracing	Max. Vx	36	0.00	0.00	0.00			
	Max Tension	18	4.02	0.00	0.00			
	Max. Compression	18	-4.02	0.00	0.00			
	Max. Mx	27	1.92	-0.23	0.00			
	Max. My	35	0.74	0.00	0.01			
Redund Hip 1 Bracing	Max. Vy	27	-0.08	0.00	0.00			
	Max. Vx	35	0.00	0.00	0.00			
	Max Tension	1	0.00	0.00	0.00			
	Max. Compression	37	-0.08	0.00	0.00			
	Max. Mx	26	-0.07	-0.16	0.00			
	Max. Vy	26	0.07	0.00	0.00			

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Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	417.45	56.60	-35.03
	Max. H _x	18	417.45	56.60	-35.03
	Max. H _z	5	-278.85	-38.07	31.05
	Min. Vert	7	-319.24	-46.43	29.30
	Min. H _x	7	-319.24	-46.43	29.30
	Min. H _z	18	417.45	56.60	-35.03
Leg B	Max. Vert	10	413.08	-57.40	-34.65
	Max. H _x	23	-335.40	49.18	29.99
	Max. H _z	25	-290.70	40.98	30.42
	Min. Vert	23	-335.40	49.18	29.99
	Min. H _x	10	413.08	-57.40	-34.65
	Min. H _z	10	413.08	-57.40	-34.65
Leg A	Max. Vert	2	412.33	-0.99	66.22
	Max. H _x	21	30.84	15.43	2.82
	Max. H _z	2	412.33	-0.99	66.22
	Min. Vert	15	-312.21	1.18	-54.62
	Min. H _x	8	38.78	-15.22	3.45
	Min. H _z	15	-312.21	1.18	-54.62

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	93.70	-0.00	0.00	-36.24	26.59	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	112.44	-0.91	-114.01	-12011.37	153.10	-68.18
0.9 Dead+1.0 Wind 0 deg - No Ice	84.33	-0.91	-114.01	-11995.23	144.94	-68.16
1.2 Dead+1.0 Wind 30 deg - No Ice	112.44	53.20	-92.99	-9957.90	-5611.92	-105.33
0.9 Dead+1.0 Wind 30 deg - No Ice	84.33	53.20	-92.99	-9942.43	-5617.32	-105.31
1.2 Dead+1.0 Wind 60 deg - No Ice	112.44	90.16	-51.85	-5612.14	-9615.96	-140.90
0.9 Dead+1.0 Wind 60 deg - No Ice	84.33	90.16	-51.85	-5598.66	-9619.51	-140.88
1.2 Dead+1.0 Wind 90 deg - No Ice	112.44	108.37	0.09	-41.46	-11501.81	-175.19
0.9 Dead+1.0 Wind 90 deg - No Ice	84.33	108.37	0.09	-30.55	-11504.51	-175.17
1.2 Dead+1.0 Wind 120 deg - No Ice	112.44	100.38	57.42	5942.49	-10466.29	-86.65
0.9 Dead+1.0 Wind 120 deg - No Ice	84.33	100.38	57.42	5950.68	-10469.50	-86.64
1.2 Dead+1.0 Wind 150 deg - No Ice	112.44	54.98	93.76	9736.41	-5716.58	44.18
0.9 Dead+1.0 Wind 150 deg - No Ice	84.33	54.98	93.76	9742.86	-5721.96	44.18
1.2 Dead+1.0 Wind 180 deg - No Ice	112.44	-0.48	103.78	10899.09	107.57	72.91
0.9 Dead+1.0 Wind 180 deg - No Ice	84.33	-0.48	103.78	10904.98	99.53	72.90
1.2 Dead+1.0 Wind 210 deg - No Ice	112.44	-54.80	92.26	9745.87	5903.52	106.77

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Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
No Ice						
0.9 Dead+1.0 Wind 210 deg - No Ice	84.33	-54.80	92.26	9752.27	5892.82	106.73
1.2 Dead+1.0 Wind 240 deg - No Ice	112.44	-99.76	56.15	5889.12	10658.87	137.31
0.9 Dead+1.0 Wind 240 deg - No Ice	84.33	-99.76	56.15	5897.30	10645.99	137.28
1.2 Dead+1.0 Wind 270 deg - No Ice	112.44	-110.14	-0.37	-98.23	11840.92	180.50
0.9 Dead+1.0 Wind 270 deg - No Ice	84.33	-110.14	-0.37	-87.31	11827.49	180.47
1.2 Dead+1.0 Wind 300 deg - No Ice	112.44	-94.54	-54.12	-5804.35	10119.40	90.77
0.9 Dead+1.0 Wind 300 deg - No Ice	84.33	-94.54	-54.12	-5790.80	10106.76	90.75
1.2 Dead+1.0 Wind 330 deg - No Ice	112.44	-56.25	-95.82	-10120.95	5972.30	-33.63
0.9 Dead+1.0 Wind 330 deg - No Ice	84.33	-56.25	-95.82	-10105.45	5961.59	-33.63
1.2 Dead+1.0 Ice+1.0 Temp	265.50	0.00	0.00	-233.05	117.38	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	265.50	-0.12	-29.68	-3377.27	132.70	-19.69
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	265.50	14.26	-24.64	-2876.10	-1407.79	-36.86
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	265.50	24.44	-14.00	-1742.37	-2508.78	-57.67
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	265.50	28.82	-0.05	-242.58	-2966.45	-64.71
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	265.50	25.94	14.76	1321.11	-2620.34	-41.58
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	265.50	14.55	24.74	2375.64	-1420.99	-3.90
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	265.50	-0.07	28.12	2751.27	128.13	20.52
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	265.50	-14.52	24.49	2383.89	1678.91	36.89
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	265.50	-25.89	14.57	1319.21	2893.73	56.50
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	265.50	-29.10	-0.07	-243.85	3244.37	65.00
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	265.50	-25.12	-14.31	-1759.50	2801.99	42.24
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	265.50	-14.72	-25.14	-2902.05	1680.68	5.43
Dead+Wind 0 deg - Service	93.70	-0.22	-27.65	-2937.97	55.97	-16.53
Dead+Wind 30 deg - Service	93.70	12.90	-22.55	-2440.04	-1341.71	-25.55
Dead+Wind 60 deg - Service	93.70	21.87	-12.57	-1386.36	-2312.58	-34.15
Dead+Wind 90 deg - Service	93.70	26.28	0.02	-35.71	-2769.78	-42.48
Dead+Wind 120 deg - Service	93.70	24.35	13.93	1415.04	-2518.70	-21.01
Dead+Wind 150 deg - Service	93.70	13.33	22.74	2334.87	-1367.18	10.70
Dead+Wind 180 deg - Service	93.70	-0.12	25.17	2616.79	44.92	17.67
Dead+Wind 210 deg - Service	93.70	-13.29	22.38	2337.14	1450.22	25.90
Dead+Wind 240 deg - Service	93.70	-24.19	13.62	1402.11	2603.14	33.30
Dead+Wind 270 deg - Service	93.70	-26.71	-0.09	-49.47	2889.75	43.76
Dead+Wind 300 deg - Service	93.70	-22.93	-13.13	-1432.97	2472.38	21.99
Dead+Wind 330 deg - Service	93.70	-13.64	-23.24	-2479.62	1466.83	-8.15

Solution Summary

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-93.70	0.00	0.00	93.70	-0.00	0.000%
2	-0.91	-112.44	-114.01	0.91	112.44	114.01	0.001%
3	-0.91	-84.33	-114.01	0.91	84.33	114.01	0.000%
4	53.20	-112.44	-92.99	-53.20	112.44	92.99	0.000%
5	53.20	-84.33	-92.99	-53.20	84.33	92.99	0.000%
6	90.17	-112.44	-51.85	-90.16	112.44	51.85	0.002%
7	90.17	-84.33	-51.85	-90.16	84.33	51.85	0.002%
8	108.37	-112.44	0.09	-108.37	112.44	-0.09	0.000%
9	108.37	-84.33	0.09	-108.37	84.33	-0.09	0.000%
10	100.38	-112.44	57.42	-100.38	112.44	-57.42	0.001%
11	100.38	-84.33	57.42	-100.38	84.33	-57.42	0.000%
12	54.98	-112.44	93.76	-54.98	112.44	-93.76	0.000%
13	54.98	-84.33	93.76	-54.98	84.33	-93.76	0.000%
14	-0.48	-112.44	103.78	0.48	112.44	-103.78	0.000%
15	-0.48	-84.33	103.78	0.48	84.33	-103.78	0.000%
16	-54.80	-112.44	92.26	54.80	112.44	-92.26	0.000%
17	-54.80	-84.33	92.26	54.80	84.33	-92.26	0.000%
18	-99.76	-112.44	56.15	99.76	112.44	-56.15	0.001%
19	-99.76	-84.33	56.15	99.76	84.33	-56.15	0.000%
20	-110.14	-112.44	-0.37	110.14	112.44	0.37	0.000%
21	-110.14	-84.33	-0.37	110.14	84.33	0.37	0.001%
22	-94.54	-112.44	-54.12	94.54	112.44	54.12	0.002%
23	-94.54	-84.33	-54.12	94.54	84.33	54.12	0.002%
24	-56.25	-112.44	-95.82	56.25	112.44	95.82	0.000%
25	-56.25	-84.33	-95.82	56.25	84.33	95.82	0.000%
26	0.00	-265.50	0.00	-0.00	265.50	-0.00	0.000%
27	-0.12	-265.50	-29.68	0.12	265.50	29.68	0.000%
28	14.26	-265.50	-24.64	-14.26	265.50	24.64	0.000%
29	24.44	-265.50	-14.00	-24.44	265.50	14.00	0.000%
30	28.82	-265.50	-0.05	-28.82	265.50	0.05	0.000%
31	25.94	-265.50	14.76	-25.94	265.50	-14.76	0.000%
32	14.55	-265.50	24.74	-14.55	265.50	-24.74	0.000%
33	-0.07	-265.50	28.12	0.07	265.50	-28.12	0.000%
34	-14.52	-265.50	24.49	14.52	265.50	-24.49	0.000%
35	-25.89	-265.50	14.57	25.89	265.50	-14.57	0.000%
36	-29.10	-265.50	-0.07	29.10	265.50	0.07	0.000%
37	-25.12	-265.50	-14.31	25.12	265.50	14.31	0.000%
38	-14.72	-265.50	-25.14	14.72	265.50	25.14	0.000%
39	-0.22	-93.70	-27.65	0.22	93.70	27.65	0.000%
40	12.90	-93.70	-22.55	-12.90	93.70	22.55	0.000%
41	21.87	-93.70	-12.57	-21.87	93.70	12.57	0.000%
42	26.28	-93.70	0.02	-26.28	93.70	-0.02	0.000%
43	24.35	-93.70	13.93	-24.35	93.70	-13.93	0.000%
44	13.33	-93.70	22.74	-13.33	93.70	-22.74	0.000%
45	-0.12	-93.70	25.17	0.12	93.70	-25.17	0.000%
46	-13.29	-93.70	22.38	13.29	93.70	-22.38	0.000%
47	-24.19	-93.70	13.62	24.19	93.70	-13.62	0.000%
48	-26.71	-93.70	-0.09	26.71	93.70	0.09	0.000%
49	-22.93	-93.70	-13.13	22.93	93.70	13.13	0.000%
50	-13.64	-93.70	-23.24	13.64	93.70	23.24	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
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1	Yes	6	0.00000001	0.00000001
2	Yes	6	0.00000001	0.00007984
3	Yes	6	0.00000001	0.00005977
4	Yes	6	0.00000001	0.00008065
5	Yes	6	0.00000001	0.00006068
6	Yes	6	0.00000001	0.00008157
7	Yes	6	0.00000001	0.00006162
8	Yes	6	0.00000001	0.00008081
9	Yes	6	0.00000001	0.00006093
10	Yes	6	0.00000001	0.00007936
11	Yes	6	0.00000001	0.00005949
12	Yes	6	0.00000001	0.00007992
13	Yes	6	0.00000001	0.00006011
14	Yes	6	0.00000001	0.00008086
15	Yes	6	0.00000001	0.00006100
16	Yes	6	0.00000001	0.00008056
17	Yes	6	0.00000001	0.00006065
18	Yes	6	0.00000001	0.00008005
19	Yes	6	0.00000001	0.00006008
20	Yes	6	0.00000001	0.00008113
21	Yes	6	0.00000001	0.00006173
22	Yes	6	0.00000001	0.00008119
23	Yes	6	0.00000001	0.00006118
24	Yes	6	0.00000001	0.00008025
25	Yes	6	0.00000001	0.00006032
26	Yes	6	0.00000001	0.00001289
27	Yes	6	0.00000001	0.00013026
28	Yes	6	0.00000001	0.00012663
29	Yes	6	0.00000001	0.00012251
30	Yes	6	0.00000001	0.00011907
31	Yes	6	0.00000001	0.00011583
32	Yes	6	0.00000001	0.00011077
33	Yes	6	0.00000001	0.00011088
34	Yes	6	0.00000001	0.00011658
35	Yes	6	0.00000001	0.00012421
36	Yes	6	0.00000001	0.00012706
37	Yes	6	0.00000001	0.00012852
38	Yes	6	0.00000001	0.00012953
39	Yes	6	0.00000001	0.00005989
40	Yes	6	0.00000001	0.00005970
41	Yes	6	0.00000001	0.00005945
42	Yes	6	0.00000001	0.00005944
43	Yes	6	0.00000001	0.00005933
44	Yes	6	0.00000001	0.00005862
45	Yes	6	0.00000001	0.00005866
46	Yes	6	0.00000001	0.00005939
47	Yes	6	0.00000001	0.00006011
48	Yes	6	0.00000001	0.00006017
49	Yes	6	0.00000001	0.00005999
50	Yes	6	0.00000001	0.00005963

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °	Check*
T1	185 - 180	1.707	47	0.0658	0.0119	OK
T2	180 - 160	1.637	47	0.0658	0.0117	OK
T3	160 - 140	1.349	47	0.0649	0.0106	OK
T4	140 - 120	1.065	47	0.0611	0.0095	OK

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °	Check*
T5	120 - 100	0.796	47	0.0532	0.0083	OK
T6	100 - 93.33	0.558	47	0.0453	0.0069	OK
T7	93.33 - 80	0.490	47	0.0419	0.0067	OK
T8	80 - 73.33	0.374	47	0.0352	0.0057	OK
T9	73.33 - 60	0.318	47	0.0325	0.0052	OK
T10	60 - 53.33	0.221	47	0.0270	0.0042	OK
T11	53.33 - 40	0.176	47	0.0236	0.0037	OK
T12	40 - 33.33	0.108	47	0.0167	0.0026	OK
T13	33.33 - 20	0.075	47	0.0138	0.0021	OK
T14	20 - 13.33	0.034	43	0.0080	0.0013	OK
T15	13.33 - 0	0.017	43	0.0054	0.0008	OK

- * Limit State Deformation (TIA-222-H Section 2.8.2)
1) Maximum Rotation (Tilt or Twist) = 4 Degrees
2) Maximum Deflection = 0.03 * Height above Base

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
185.00	Flash Beacon Lighting	47	1.707	0.0658	0.0119	366079
183.00	PADX8-59A	47	1.679	0.0658	0.0118	366079
182.00	22' Horiz. 4"x4"x1/4"	47	1.665	0.0658	0.0117	366079
181.00	DB411-B	47	1.651	0.0658	0.0117	366079
177.00	PA4-57A	47	1.594	0.0658	0.0115	362025
172.00	PADX8-59A	47	1.522	0.0657	0.0113	606999
171.00	PADX8-59A	47	1.508	0.0656	0.0112	706957
168.00	PR-900	47	1.465	0.0655	0.0111	Inf
165.00	ANT150F6	47	1.422	0.0653	0.0109	Inf
160.00	7770.00 w/ Mount Pipe	47	1.349	0.0649	0.0106	839418
150.00	BXA-70063-6CF-2 w/ Mount Pipe	47	1.206	0.0635	0.0101	473263
140.00	(2) APXV18-206516S-C-A20 w/ Mount Pipe	47	1.065	0.0611	0.0095	336034
135.00	PADX6-59A	47	0.996	0.0593	0.0092	267310
125.00	PADX8-59A	47	0.861	0.0552	0.0086	182291
109.00	531-70 Dipole Antenna	47	0.660	0.0490	0.0074	117567
108.00	CO-41A	47	0.649	0.0486	0.0074	114947
103.00	Beacon Side Markers	47	0.591	0.0466	0.0070	102695
100.00	PADX8-59A	47	0.558	0.0453	0.0069	88343
98.00	SCX-W100AB	47	0.537	0.0443	0.0068	74441
91.00	SCX-W100AB	47	0.468	0.0407	0.0065	66044
87.00	ANT150F2	47	0.433	0.0386	0.0063	128022
85.00	531-70 Dipole Antenna	47	0.416	0.0376	0.0061	254504
66.00	2" Square Panel Antenna	47	0.263	0.0296	0.0047	172955

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	185 - 180	7.038	18	0.2711	0.0490
T2	180 - 160	6.748	18	0.2712	0.0481
T3	160 - 140	5.564	18	0.2675	0.0439

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T4	140 - 120	4.394	18	0.2516	0.0391
T5	120 - 100	3.285	18	0.2193	0.0341
T6	100 - 93.33	2.302	18	0.1868	0.0285
T7	93.33 - 80	2.019	18	0.1731	0.0275
T8	80 - 73.33	1.540	18	0.1452	0.0236
T9	73.33 - 60	1.309	18	0.1340	0.0217
T10	60 - 53.33	0.911	18	0.1114	0.0173
T11	53.33 - 40	0.725	18	0.0973	0.0153
T12	40 - 33.33	0.444	18	0.0688	0.0109
T13	33.33 - 20	0.312	11	0.0570	0.0087
T14	20 - 13.33	0.141	10	0.0330	0.0052
T15	13.33 - 0	0.071	10	0.0220	0.0035

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
185.00	Flash Beacon Lighting	18	7.038	0.2711	0.0490	89056
183.00	PADX8-59A	18	6.922	0.2712	0.0487	89056
182.00	22' Horiz. 4"x4"x1/4"	18	6.864	0.2712	0.0485	89056
181.00	DB411-B	18	6.806	0.2712	0.0483	89056
177.00	PA4-57A	18	6.572	0.2711	0.0475	88195
172.00	PADX8-59A	18	6.278	0.2706	0.0465	148873
171.00	PADX8-59A	18	6.218	0.2705	0.0463	173860
168.00	PR-900	18	6.040	0.2699	0.0457	349641
165.00	ANT150F6	18	5.862	0.2692	0.0451	Inf
160.00	7770.00 w/ Mount Pipe	18	5.564	0.2675	0.0439	203504
150.00	BXA-70063-6CF-2 w/ Mount Pipe	18	4.974	0.2617	0.0415	116776
140.00	(2) APXV18-206516S-C-A20 w/ Mount Pipe	18	4.394	0.2516	0.0391	83571
135.00	PADX6-59A	18	4.109	0.2444	0.0379	66080
125.00	PADX8-59A	18	3.553	0.2277	0.0355	44588
109.00	531-70 Dipole Antenna	18	2.724	0.2023	0.0306	28660
108.00	CO-41A	18	2.675	0.2007	0.0303	28017
103.00	Beacon Side Markers	18	2.439	0.1924	0.0290	25007
100.00	PADX8-59A	18	2.302	0.1868	0.0285	21460
98.00	SCX-W100AB	18	2.214	0.1829	0.0282	18031
91.00	SCX-W100AB	18	1.929	0.1680	0.0270	15919
87.00	ANT150F2	18	1.783	0.1593	0.0259	30895
85.00	531-70 Dipole Antenna	18	1.714	0.1551	0.0252	61538
66.00	2" Square Panel Antenna	18	1.083	0.1222	0.0193	42030

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T1	185	Leg	A325N>1'	1.2500	6	0.26	76.32	0.003	1.05	Bolt Tension
		Diagonal	A325X	0.7500	1	1.84	14.36	0.128	1.05	Member Bearing

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Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T2	180	Top Girt Leg	A325X A325N>1'	0.7500 1.2500	1 6	0.69 1.58	24.85 76.32	0.028 0.021	1.05 1.05	Bolt Shear Bolt Tension
T3	160	Diagonal Leg	A325X A325N>1'	0.7500 1.2500	1 6	6.19 5.25	14.36 76.32	0.431 0.069	1.05 1.05	Member Bearing Bolt Tension
T4	140	Diagonal Leg	A325X A325N>1'	0.7500 1.2500	1 8	12.50 8.09	17.94 76.32	0.697 0.106	1.05 1.05	Member Bearing Bolt Tension
T5	120	Diagonal Leg	A325X A325N>1'	0.6250 1.5000	2 8	8.15 13.09	17.26 110.66	0.472 0.118	1.05 1.05	Bolt Shear Bolt Tension
T6	100	Diagonal	A325X	0.7500	2	9.61	24.85	0.387	1.05	Bolt Shear
T7	93.33	Diagonal Leg	A325X A325N>1'	1.0000 1.5000	2 8	10.38 15.78	30.99 110.66	0.335 0.143	1.05 1.05	Member Bearing Bolt Tension
T8	80	Diagonal	A325X	1.0000	2	13.11	41.33	0.317	1.05	Member Bearing
T9	73.33	Horizontal Leg	A325X A325N>1'	1.0000 1.5000	2 8	1.43 21.36	17.76 110.66	0.080 0.193	1.05 1.05	Member Block Shear Member Bearing Bolt Tension
T10	60	Diagonal	A325X	0.8750	2	14.10	28.71	0.491	1.05	Member Bearing
T11	53.33	Horizontal Leg	A325X A325N>1'	0.8750 1.5000	2 8	1.89 26.79	16.74 110.66	0.113 0.242	1.05 1.05	Member Block Shear Member Bearing Bolt Tension
T12	40	Diagonal	A325X	0.8750	2	15.02	28.71	0.523	1.05	Member Bearing
T13	33.33	Horizontal Leg	A325X A325N>1'	0.8750 1.5000	2 8	2.34 32.42	20.14 110.66	0.116 0.293	1.05 1.05	Member Block Shear Member Bearing Bolt Tension
T14	20	Diagonal	A325X	1.0000	2	15.82	41.33	0.383	1.05	Member Bearing
T15	13.33	Horizontal Diagonal Horizontal	A325X A325X A325X	1.0000 1.0000 1.0000	2 2 2	2.82 13.62 16.40 3.30	21.16 41.33 41.33 21.16	0.133 0.329 0.397 0.156	1.05 1.05 1.05 1.05	Member Block Shear Member Bearing Member Bearing Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	185 - 180	P6x.28	5.01	5.01	26.8 K=1.00	5.5813	-4.59	238.34	0.019 ¹
T2	180 - 160	P6x.28	20.03	10.02	53.5	5.5813	-15.81	203.69	0.078 ¹

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T3	160 - 140	P6x.28	20.03	10.02	K=1.00 53.5	5.5813	-47.91	203.69	0.235 ¹
T4	140 - 120	P6x.28	20.03	10.02	K=1.00 53.5	5.5813	-90.18	203.69	0.443 ¹
T5	120 - 100	P8x.322	20.03	10.02	K=1.00 40.9	8.3993	-137.71	334.42	0.412 ¹
T6	100 - 93.33	P8x.322	6.68	6.68	K=1.00 27.3	8.3993	-164.71	357.93	0.460 ¹
T7	93.33 - 80	P8x.322	13.35	6.68	K=1.00 27.3	8.3993	-164.53	357.96	0.460 ¹
T8	80 - 73.33	P8x.5	6.68	6.68	K=1.00 27.9	12.7627	-217.81	542.64	0.401 ¹
T9	73.33 - 60	P8x.5	13.35	6.68	K=1.00 27.8	12.7627	-218.08	542.69	0.402 ¹
T10	60 - 53.33	P10x.365	6.68	6.68	K=1.00 21.8	11.9083	-270.09	517.53	0.522 ¹
T11	53.33 - 40	P10x.365	13.35	6.68	K=1.00 21.8	11.9083	-269.85	517.56	0.521 ¹
T12	40 - 33.33	P10x.5	6.68	6.68	K=1.00 22.1	16.1007	-324.81	699.12	0.465 ¹
T13	33.33 - 20	P10x.5	13.35	6.68	K=1.00 22.1	16.1007	-324.78	699.16	0.465 ¹
T14	20 - 13.33	P12x.5	6.68	6.68	K=1.00 18.5	19.2423	-379.65	844.51	0.450 ¹
T15	13.33 - 0	P12x.5	13.35	6.68	K=1.00 18.5	19.2423	-380.78	844.54	0.451 ¹

¹ P_u / φP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	185 - 180	L3 1/2x3 1/2x1/4	19.41	9.40	162.5	1.6900	-1.96	18.31	0.107 ¹
T2	180 - 160	L4x4x1/4	22.81	11.23	K=1.00 169.5	1.9400	-6.48	19.32	0.335 ¹
T3	160 - 140	L5x5x5/16	24.62	12.14	K=1.00 146.5	3.0300	-12.43	40.39	0.308 ¹
T4	140 - 120	L5x5x5/16	26.46	12.98	K=1.00 148.0	3.0300	-16.21	39.59	0.409 ¹
T5	120 - 100	L5x5x3/8	28.33	13.81	K=0.94 156.1	3.6100	-18.64	42.39	0.440 ¹
T6	100 - 93.33	L6x6x3/8	15.06	14.07	K=0.93 133.5	4.3600	-21.35	70.03	0.305 ¹
T7	93.33 - 80	L4x6x1/2	19.70	9.56	K=0.94 129.1	4.7500	-27.82	81.62	0.341 ¹
T8	80 - 73.33	L6x6x3/8	15.96	15.05	K=0.98 139.5	4.3600	-22.48	64.12	0.351 ¹
T9	73.33 - 60	L6x6x3/8	20.45	19.45	K=0.92 122.6	4.3600	-29.12	82.44	0.353 ¹
T10	60 - 53.33	L6x6x3/8	16.88	15.96	K=0.99 145.2	4.3600	-24.47	59.19	0.413 ¹
T11	53.33 - 40	L6x6x3/8	21.22	20.12	K=0.90 125.2	4.3600	-31.73	79.46	0.399 ¹

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Section No.	Elevation ft	Size	L ft	L _u ft	KL/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T12	40 - 33.33	L6x6x3/8	17.80	16.73	K=0.97 150.0	4.3600	-25.53	55.49	0.460 ¹
T13	33.33 - 20	L6x6x1/2	22.00	20.86	K=0.89 128.9	5.7500	-33.25	98.97	0.336 ¹
T14	20 - 13.33	L6x6x1/2	18.73	17.67	K=0.96 156.7	5.7500	-27.03	67.03	0.403 ¹
T15	13.33 - 0	L6x6x1/2	22.81	21.57	K=0.87 131.8 K=0.95	5.7500	-34.51	94.78	0.364 ¹

¹ P_u / φP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	KL/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T7	93.33 - 80	L4x4x5/16	27.67	13.18	181.0	2.4000	-2.86	20.97	0.136 ¹
T9	73.33 - 60	L4x4x5/16	29.67	14.22	K=0.90 192.9	2.4000	-3.78	18.46	0.205 ¹
T11	53.33 - 40	L5x5x5/16	31.67	15.13	K=0.89 167.8	3.0300	-4.68	30.82	0.152 ¹
T13	33.33 - 20	L5x5x5/16	33.67	16.10	K=0.92 176.7	3.0300	-5.63	27.79	0.203 ¹
T15	13.33 - 0	L5x5x5/16	35.67	17.01	K=0.91 185.1 K=0.90	3.0300	-6.60	25.31	0.261 ¹

¹ P_u / φP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	KL/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	185 - 180	L5x5x5/16	18.50	17.68	213.4 K=1.00	3.0300	-0.69	19.04	0.036 ¹
KL/R > 200 (C) - 6									

¹ P_u / φP_n controls

Redundant Horizontal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	KL/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T7	93.33 - 80	L3x3x1/4	6.92	6.56	132.9	1.4400	-2.85	23.32	0.122 ¹

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T9	73.33 - 60	L3x3x1/4	7.42	7.06	K=1.00 143.1	1.4400	-3.78	20.14	0.188 ¹
T11	53.33 - 40	L3x3x5/16	7.92	7.47	K=1.00 152.2	1.7800	-4.68	22.00	0.213 ¹
T13	33.33 - 20	L3x3x5/16	8.42	7.97	K=1.00 162.4	1.7800	-5.63	19.32	0.291 ¹
T15	13.33 - 0	L3 1/2x4x5/16	8.92	8.39	K=1.00 137.9	2.2500	-6.60	33.89	0.195 ¹
					K=1.00				

¹ P_u / φP_n controls

Redundant Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T7	93.33 - 80	L3x3x1/4	9.37	8.86	179.6	1.4400	-1.93	12.78	0.151 ¹
T9	73.33 - 60	L3x3x1/4	9.73	9.24	K=1.00 187.2	1.4400	-2.48	11.76	0.211 ¹
T11	53.33 - 40	L3x3x5/16	10.10	9.50	K=1.00 193.6	1.7800	-2.99	13.59	0.220 ¹
T13	33.33 - 20	L3x3x5/16	10.48	9.90	K=1.00 201.7	1.7800	-3.51	12.52	0.280 ¹
T15	13.33 - 0	L3 1/2x4x5/16	10.87	10.20	K=1.00 167.6	2.2500	-4.02	22.92	0.176 ¹
					K=1.00				

¹ P_u / φP_n controls

Redundant Hip (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T7	93.33 - 80	L3x3x1/4	6.92	6.92	140.2	1.4400	-0.06	20.96	0.003 ¹
T9	73.33 - 60	L3x3x1/4	7.42	7.42	K=1.00 150.4	1.4400	-0.06	18.23	0.004 ¹
T11	53.33 - 40	L3 1/2x3 1/2x1/4	7.92	7.92	K=1.00 136.9	1.6900	-0.07	25.81	0.003 ¹
T13	33.33 - 20	L3 1/2x3 1/2x1/4	8.42	8.42	K=1.00 145.5	1.6900	-0.07	22.83	0.003 ¹
T15	13.33 - 0	L3 1/2x3 1/2x1/4	8.92	8.92	K=1.00 154.2	1.6900	-0.07	20.34	0.004* ¹
					K=1.00				

* DL controls

¹ P_u / φP_n controls

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Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	185 - 180	P6x.28	5.01	5.01	26.8	5.5813	0.45	251.16	0.002 ¹
T2	180 - 160	P6x.28	20.03	10.02	53.5	5.5813	9.46	251.16	0.038 ¹
T3	160 - 140	P6x.28	20.03	10.02	53.5	5.5813	31.48	251.16	0.125 ¹
T4	140 - 120	P6x.28	20.03	10.02	53.5	5.5813	64.74	251.16	0.258 ¹
T5	120 - 100	P8x.322	20.03	10.02	40.9	8.3993	104.72	377.97	0.277 ¹
T6	100 - 93.33	P8x.322	6.68	6.68	27.3	8.3993	128.11	377.97	0.339 ¹
T7	93.33 - 80	P8x.322	13.35	6.68	27.3	8.3993	126.63	377.97	0.335 ¹
T8	80 - 73.33	P8x.5	6.68	6.68	27.9	12.7627	172.50	574.32	0.300 ¹
T9	73.33 - 60	P8x.5	13.35	6.68	27.8	12.7627	171.17	574.32	0.298 ¹
T10	60 - 53.33	P10x.365	6.68	6.68	21.8	11.9083	216.43	535.87	0.404 ¹
T11	53.33 - 40	P10x.365	13.35	6.68	21.8	11.9083	214.61	535.87	0.400 ¹
T12	40 - 33.33	P10x.5	6.68	6.68	22.1	16.1007	261.80	724.53	0.361 ¹
T13	33.33 - 20	P10x.5	13.35	6.68	22.1	16.1007	259.80	724.53	0.359 ¹
T14	20 - 13.33	P12x.5	6.68	6.68	18.5	19.2423	306.16	865.90	0.354 ¹
T15	13.33 - 0	P12x.5	13.35	6.68	18.5	19.2423	304.50	865.90	0.352 ¹

¹ P_u / φP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	185 - 180	L3 1/2x3 1/2x1/4	19.41	9.40	105.1	1.1034	1.84	48.00	0.038 ¹
T2	180 - 160	L4x4x1/4	22.81	11.23	109.2	1.2909	6.19	56.16	0.110 ¹
T3	160 - 140	L5x5x5/16	24.62	12.14	93.9	2.0674	12.50	89.93	0.139 ¹
T4	140 - 120	L5x5x5/16	26.46	12.98	100.9	2.0967	16.30	91.21	0.179 ¹
T5	120 - 100	L5x5x3/8	28.33	13.81	108.0	2.4614	19.21	107.07	0.179 ¹
T6	100 - 93.33	L6x6x3/8	15.06	14.07	93.6	2.9536	20.77	128.48	0.162 ¹
T7	93.33 - 80	L4x6x1/2	19.70	9.56	120.7	3.1406	26.22	136.62	0.192 ¹
T8	80 - 73.33	L6x6x3/8	15.96	15.05	99.4	2.9887	23.11	130.01	0.178 ¹
T9	73.33 - 60	L6x6x3/8	20.45	19.45	127.5	2.9887	28.21	130.01	0.217 ¹
T10	60 - 53.33	L6x6x3/8	16.88	15.96	105.2	2.9887	24.59	130.01	0.189 ¹
T11	53.33 - 40	L6x6x3/8	21.22	20.12	131.7	2.9887	30.03	130.01	0.231 ¹
T12	40 - 33.33	L6x6x3/8	17.80	16.73	110.5	2.9536	26.00	128.48	0.202 ¹
T13	33.33 - 20	L6x6x1/2	22.00	20.86	138.3	3.8906	31.65	169.24	0.187 ¹
T14	20 - 13.33	L6x6x1/2	18.73	17.67	117.7	3.8906	27.23	169.24	0.161 ¹
T15	13.33 - 0	L6x6x1/2	22.81	21.57	142.9	3.8906	32.80	169.24	0.194 ¹

¹ P_u / φP_n controls

Horizontal Design Data (Tension)

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	Client	T-Mobile	Designed by	Evan.Martin

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T7	93.33 - 80	L4x4x5/16	27.67	13.18	195.6	1.5363	2.86	66.83	0.043 ¹
T9	73.33 - 60	L4x4x5/16	29.67	14.22	210.1	1.5656	3.78	68.10	0.056 ¹
T11	53.33 - 40	L5x5x5/16	31.67	15.13	176.4	2.0381	4.68	88.66	0.053 ¹
T13	33.33 - 20	L5x5x5/16	33.67	16.10	187.9	2.0088	5.63	87.38	0.064 ¹
T15	13.33 - 0	L5x5x5/16	35.67	17.01	198.4	2.0088	6.60	87.38	0.076 ¹

¹ P_u / φP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	185 - 180	L5x5x5/16	18.50	17.68	137.2	2.0674	0.13	89.93	0.001 ¹

¹ P_u / φP_n controls

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T7	93.33 - 80	L3x3x1/4	6.92	6.56	84.6	1.4400	2.85	46.66	0.061 ¹
T9	73.33 - 60	L3x3x1/4	7.42	7.06	91.1	1.4400	3.78	46.66	0.081 ¹
T11	53.33 - 40	L3x3x5/16	7.92	7.47	97.2	1.7800	4.68	57.67	0.081 ¹
T13	33.33 - 20	L3x3x5/16	8.42	7.97	103.7	1.7800	5.63	57.67	0.098 ¹
T15	13.33 - 0	L3 1/2x4x5/16	8.92	8.39	94.1	2.2500	6.60	72.90	0.091 ¹

¹ P_u / φP_n controls

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T7	93.33 - 80	L3x3x1/4	9.37	8.86	114.3	1.4400	1.93	46.66	0.041 ¹
T9	73.33 - 60	L3x3x1/4	9.73	9.24	119.2	1.4400	2.48	46.66	0.053 ¹
T11	53.33 - 40	L3x3x5/16	10.10	9.50	123.7	1.7800	2.99	57.67	0.052 ¹
T13	33.33 - 20	L3x3x5/16	10.48	9.90	128.8	1.7800	3.51	57.67	0.061 ¹
T15	13.33 - 0	L3 1/2x4x5/16	10.87	10.20	114.4	2.2500	4.02	72.90	0.055 ¹

¹ P_u / φP_n controls

<p>tnxTower</p> <p>EFI Global, Inc. 1117 Perimeter Center West, Suite E500 Atlanta, GA 30338 Phone: (470) 990-6593 FAX:</p>	<p>Job</p> <p>CTHA142G</p>	<p>Page</p> <p>51 of 52</p>
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	<p>Client</p> <p>T-Mobile</p>	<p>Designed by</p> <p>Evan.Martin</p>

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	185 - 180	Leg	P6x.28	3	-4.59	250.26	1.8	Pass
T2	180 - 160	Leg	P6x.28	13	-15.81	213.87	7.4	Pass
T3	160 - 140	Leg	P6x.28	28	-47.91	213.87	22.4	Pass
T4	140 - 120	Leg	P6x.28	43	-90.18	213.87	42.2	Pass
T5	120 - 100	Leg	P8x.322	58	-137.71	351.14	39.2	Pass
T6	100 - 93.33	Leg	P8x.322	73	-164.71	375.83	43.8	Pass
T7	93.33 - 80	Leg	P8x.322	85	-164.53	375.86	43.8	Pass
T8	80 - 73.33	Leg	P8x.5	109	-217.81	569.77	38.2	Pass
T9	73.33 - 60	Leg	P8x.5	121	-218.08	569.82	38.3	Pass
T10	60 - 53.33	Leg	P10x.365	145	-270.09	543.41	49.7	Pass
T11	53.33 - 40	Leg	P10x.365	157	-269.85	543.44	49.7	Pass
T12	40 - 33.33	Leg	P10x.5	181	-324.81	734.07	44.2	Pass
T13	33.33 - 20	Leg	P10x.5	193	-324.78	734.11	44.2	Pass
T14	20 - 13.33	Leg	P12x.5	217	-379.65	886.74	42.8	Pass
T15	13.33 - 0	Leg	P12x.5	229	-380.78	886.77	42.9	Pass
T1	185 - 180	Diagonal	L3 1/2x3 1/2x1/4	12	-1.96	19.22	10.2	Pass
T2	180 - 160	Diagonal	L4x4x1/4	21	-6.48	20.29	31.9	Pass
T3	160 - 140	Diagonal	L5x5x5/16	36	-12.43	42.41	29.3	Pass
T4	140 - 120	Diagonal	L5x5x5/16	51	-16.21	41.57	39.0	Pass
T5	120 - 100	Diagonal	L5x5x3/8	66	-18.64	44.51	41.9	Pass
T6	100 - 93.33	Diagonal	L6x6x3/8	83	-21.35	73.53	29.0	Pass
T7	93.33 - 80	Diagonal	L4x6x1/2	104	-27.82	85.70	32.5	Pass
T8	80 - 73.33	Diagonal	L6x6x3/8	119	-22.48	67.33	33.4	Pass
T9	73.33 - 60	Diagonal	L6x6x3/8	140	-29.12	86.57	33.6	Pass
T10	60 - 53.33	Diagonal	L6x6x3/8	155	-24.47	62.15	39.4	Pass
T11	53.33 - 40	Diagonal	L6x6x3/8	176	-31.73	83.43	38.0	Pass
T12	40 - 33.33	Diagonal	L6x6x3/8	191	-25.53	58.26	43.8	Pass
T13	33.33 - 20	Diagonal	L6x6x1/2	212	-33.25	103.92	32.0	Pass
T14	20 - 13.33	Diagonal	L6x6x1/2	227	-27.03	70.38	38.4	Pass
T15	13.33 - 0	Diagonal	L6x6x1/2	248	-34.51	99.52	34.7	Pass
T7	93.33 - 80	Horizontal	L4x4x5/16	76	-2.86	22.01	13.0	Pass
T9	73.33 - 60	Horizontal	L4x4x5/16	118	-3.78	19.38	19.5	Pass
T11	53.33 - 40	Horizontal	L5x5x5/16	148	-4.68	32.36	14.5	Pass
T13	33.33 - 20	Horizontal	L5x5x5/16	190	-5.63	29.18	19.3	Pass
T15	13.33 - 0	Horizontal	L5x5x5/16	226	-6.60	26.58	24.8	Pass
T1	185 - 180	Top Girt	L5x5x5/16	6	-0.69	19.99	3.4	Pass
T7	93.33 - 80	Redund Horz 1 Bracing	L3x3x1/4	89	-2.85	24.49	11.7	Pass
T9	73.33 - 60	Redund Horz 1 Bracing	L3x3x1/4	141	-3.78	21.14	17.9	Pass
T11	53.33 - 40	Redund Horz 1 Bracing	L3x3x5/16	161	-4.68	23.10	20.3	Pass
T13	33.33 - 20	Redund Horz 1 Bracing	L3x3x5/16	197	-5.63	20.29	27.8	Pass
T15	13.33 - 0	Redund Horz 1 Bracing	L3 1/2x4x5/16	249	-6.60	35.58	18.6	Pass
T7	93.33 - 80	Redund Diag 1	L3x3x1/4	106	-1.93	13.42	14.4	Pass

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	Client	T-Mobile	Designed by	Evan.Martin

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T9	73.33 - 60	Bracing Redund Diag 1	L3x3x1/4	126	-2.48	12.35	20.1	Pass
T11	53.33 - 40	Bracing Redund Diag 1	L3x3x5/16	162	-2.99	14.27	20.9	Pass
T13	33.33 - 20	Bracing Redund Diag 1	L3x3x5/16	214	-3.51	13.15	26.7	Pass
T15	13.33 - 0	Bracing Redund Diag 1	L3 1/2x4x5/16	234	-4.02	24.06	16.7	Pass
T7	93.33 - 80	Bracing Redund Hip 1	L3x3x1/4	100	-0.06	22.01	0.4	Pass
T9	73.33 - 60	Bracing Redund Hip 1	L3x3x1/4	143	-0.06	19.14	0.4	Pass
T11	53.33 - 40	Bracing Redund Hip 1	L3 1/2x3 1/2x1/4	172	-0.07	27.10	0.4	Pass
T13	33.33 - 20	Bracing Redund Hip 1	L3 1/2x3 1/2x1/4	215	-0.07	23.98	0.4	Pass
T15	13.33 - 0	Bracing Redund Hip 1	L3 1/2x3 1/2x1/4	244	-0.07	20.34	0.4	Pass
						Summary		
						Leg (T10)	49.7	Pass
						Diagonal (T3)	66.4	Pass
						Horizontal (T15)	24.8	Pass
						Top Girt (T1)	3.4	Pass
						Redund Horz 1 Bracing (T13)	27.8	Pass
						Redund Diag 1 Bracing (T13)	26.7	Pass
						Redund Hip 1 Bracing (T15)	0.4	Pass
						Bolt Checks	66.4	Pass
						RATING =	66.4	Pass

Project Information	
BU #	
Site Name	CTHA142G
Order #	

Tower Information	
Tower Type	Self Support
TIA-222 Rev	H

Apply TIA-222-H Section 15.5

Applied Loads		
	Comp.	Uplift
Axial (k)	417.00	335.00
Shear (k)	67.00	58.00

Anchor Rod Data	
Quantity:	6
Diameter (in):	1.75
<u>Material Grade:</u>	F1554-105
Grout Considered:	No
l_{ar} (in):	1
Eta Factor, η :	0.5
Thread Type:	N-Included
Configuration:	Symmetrical

Fy=105 ksi Fu=125 ksi
Not Considered, $l_{ar} \leq 1(d)$

Anchor Rod Results	
Axial, Pu_c (kips)	69.50
Shear, Vu (kips)	11.17
Moment, Mu (kip-in)	-
Axial Cap., ϕPn_c (kips)	199.50
Shear Cap., ϕVn (kips)	59.85
Moment Cap., ϕMn (kip-in)	-
Stress Rating	36.5%

Pass

SST Unit Base Foundation

BU #:
 Site Name: CTHA142G
 App. Number:

TIA-222 Revision:

Top & Bot. Pad Rein. Different?:	<input type="checkbox"/>
Tower Centroid Offset?:	<input checked="" type="checkbox"/>
Block Foundation?:	<input type="checkbox"/>

Superstructure Analysis Reactions		
Global Moment, M :	12178	ft-kips
Global Axial, P :	112	kips
Global Shear, V :	116	kips
Leg Compression, P_{comp} :	417	kips
Leg Comp. Shear, V_{u,comp} :	67	kips
Leg Uplift, P_{uplift} :	335	kips
Leg Uplift. Shear, V_{u,uplift} :	58	kips
Tower Height, H :	185	ft
Base Face Width, BW :	37	ft
BP Dist. Above Fdn, bp_{dist} :	0	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	902.29	116.00	12.2%	Pass
<i>Bearing Pressure (ksf)</i>	15.00	2.23	14.1%	Pass
<i>Overturing (kip*ft)</i>	33659.47	13863.53	41.2%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	3551.07	402.00	10.8%	Pass
<i>Pier Flexure (Tension) (kip*ft)</i>	2072.32	348.00	16.0%	Pass
<i>Pier Compression (kip)</i>	9560.40	447.54	4.5%	Pass
<i>Pad Flexure (kip*ft)</i>	1077.27	786.49	69.5%	Pass
<i>Pad Shear - 1-way (kips)</i>	614.00	128.11	19.9%	Pass
<i>Pad Shear - Comp 2-way (ksi)</i>	0.164	0.131	75.8%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	394.28	241.20	58.3%	Pass
<i>Pad Shear - Tension 2-way (ksi)</i>	0.164	0.112	65.1%	Pass
<i>Flexural 2-way (Tension) (kip*ft)</i>	394.28	208.80	50.4%	Pass

*Rating per TIA-222-H Section 15.5

Soil Rating*:	41.2%
Structural Rating*:	75.8%

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, dpier :	6.0	ft
Ext. Above Grade, E :	0.50	ft
Pier Rebar Size, Sc :	7	
Pier Rebar Quantity, mc :	34	
Pier Tie/Spiral Size, St :	3	
Pier Tie/Spiral Quantity, mt :	6	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

Pad Properties		
Depth, D :	7.00	ft
Pad Width, W :	45.50	ft
Pad Thickness, T :	1.50	ft
Pad Rebar Size (Bottom), Sp :	7	
Pad Rebar Quantity (Bottom), mp :	30	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, Fy :	60	ksi
Concrete Compressive Strength, F'c :	3	ksi
Dry Concrete Density, δc :	150	pcf

Soil Properties		
Total Soil Unit Weight, γ :	100	pcf
Ultimate Gross Bearing, Qult :	20.000	ksf
Cohesion, Cu :	0.500	ksf
Friction Angle, φ :		degrees
SPT Blow Count, N_{blows} :		
Base Friction, μ :		
Neglected Depth, N :	3.3	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, gw :	N/A	ft

-- Toggle between Gross and Net

(Add) APPENDIX N MUNICIPALITY – SPECIFIC STRUCTURAL DESIGN PARAMETERS

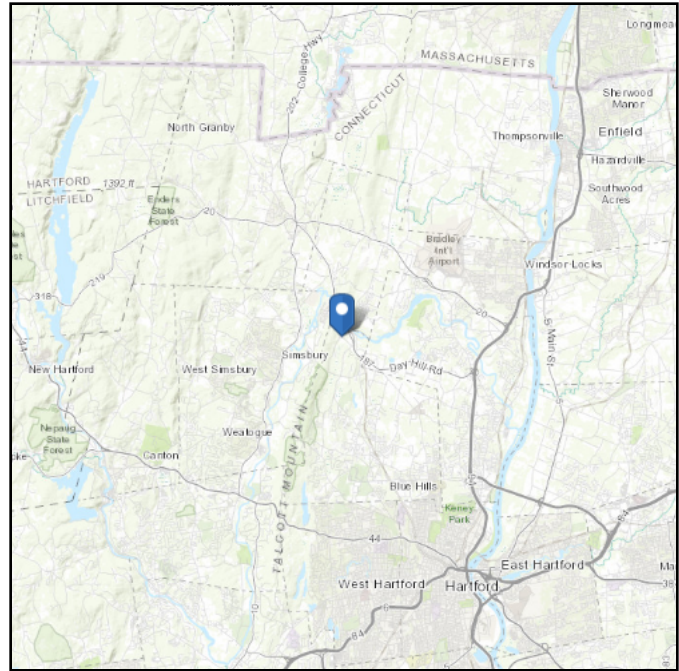
(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS												
Municipality	Ground Snow Load (psf)	MCE Spectral Acceleration s (%g)		Ultimate Design Wind Speeds, V_{ult} (mph)			Nominal Design Wind Speeds, V_{asd} (mph)			Wind-Borne Debris Regions ¹		Hurricane-Prone Regions
		S_s	S_1	Risk Cat. I	Risk Cat. II	Risk Cat III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV	Risk Cat. II & III except Occup I-2	Risk Cat III Occup I-2 & Risk Cat. IV	
		Andover	30	0.176	0.063	120	130	140	93	101	108	
Ansonia	30	0.195	0.064	115	125	135	89	97	105			Yes
Ashford	35	0.173	0.063	120	130	140	93	101	108			Yes
Avon	35	0.181	0.064	110	120	130	85	93	101			Yes
Barkhamsted	40	0.177	0.065	110	120	125	85	93	97			Yes
Beacon Falls	30	0.192	0.064	115	125	135	89	97	105			Yes
Berlin	30	0.183	0.063	115	125	135	89	97	105			Yes
Bethany	30	0.189	0.063	115	125	135	89	97	105			Yes
Bethel	30	0.215	0.066	110	120	125	85	93	97			Yes
Bethlehem	35	0.190	0.065	110	120	125	85	93	97			Yes
Bloomfield	35	0.180	0.064	115	125	130	89	97	101			Yes
Bolton	30	0.177	0.063	115	125	135	89	97	105			Yes
Bozrah	30	0.170	0.061	120	135	145	93	105	112		Type A	Yes
Branford	30	0.180	0.061	120	130	140	93	101	108		Type B	Yes
Bridgeport	30	0.209	0.064	115	125	135	89	97	105		Type B	Yes
Bridgewater	35	0.201	0.066	110	120	125	85	93	97			Yes
Bristol	35	0.185	0.064	110	120	130	85	93	101			Yes
Brookfield	35	0.208	0.066	110	120	125	85	93	97			Yes
Brooklyn	35	0.171	0.062	120	130	140	93	101	108			Yes
Burlington	35	0.182	0.064	110	120	130	85	93	101			Yes
Canaan	40	0.173	0.065	105	115	120	81	89	93			
Canterbury	35	0.171	0.061	120	130	140	93	101	108		Type A	Yes
Canton	35	0.180	0.064	110	120	130	85	93	101			Yes
Chaplin	35	0.173	0.062	120	130	140	93	101	108			Yes
Cheshire	30	0.186	0.063	115	125	135	89	97	105			Yes
Chester	30	0.172	0.060	120	130	140	93	101	108		Type A	Yes
Clinton	30	0.169	0.059	120	135	140	93	105	108	Type B	Type A	Yes
Colchester	30	0.174	0.061	120	130	140	93	101	108			Yes
Colebrook	40	0.174	0.065	105	115	125	81	89	97			
Columbia	30	0.175	0.062	120	130	140	93	101	108			Yes
Cornwall	40	0.180	0.065	105	115	120	81	89	93			
Coventry	30	0.176	0.063	120	130	140	93	101	108			Yes
Cromwell	30	0.181	0.063	115	125	135	89	97	105			Yes
Danbury	30	0.217	0.067	110	120	125	85	93	97			Yes
Darien	30	0.242	0.068	110	120	130	85	93	101			Yes
Deep River	30	0.170	0.060	120	130	140	93	101	108		Type A	Yes
Derby	30	0.195	0.064	115	125	135	89	97	105			Yes
Durham	30	0.179	0.062	115	130	140	89	101	108			Yes
Eastford	40	0.172	0.063	120	130	140	93	101	108			Yes
East Granby	35	0.177	0.065	110	120	130	85	93	101			Yes
East Haddam	30	0.172	0.061	120	130	140	93	101	108			Yes

ASCE 7 Hazards Report

Address:
7 Hoskins Rd
Bloomfield, Connecticut
06002

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 181 ft (NAVD 88)
Latitude: 41.893192
Longitude: -72.757615



Ice

Results:

Ice Thickness: 1.50 in.
Concurrent Temperature: 5 F
Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Thu Mar 25 2021

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

Exhibit E

Date: 3/1/2021

To: T-Mobile Northeast, LLC
35 Griffin Road South
Bloomfield, CT 06002

Subject: Mount Structural Analysis Report - Rev. 2

T-Mobile Designation: **Site Name:** Eversource
Site Number: CTHA142G

EFI Designation: **Project Number:** 049.00933 - 2075086

Site Data: **7 Hoskins Road, Bloomfield, CT 06002**
Latitude 41° 53' 33.5", Longitude -72° 45' 56.5"

EFI Global, Inc. is pleased to submit this "Mount Structural Analysis Report - Rev. 2" to determine the structural capacity of the antenna mounts utilized by T-Mobile at the above referenced site.

The purpose of the analysis is to determine acceptability of the mount stress level for the changes proposed by T-Mobile. Under the following load case we have determined the mounts to have:

Existing + Proposed Equipment **Adequate Capacity (89.4%)**
Note: See Analysis Criteria for loading configuration

The analysis has been performed in accordance with the TIA-222-H Standard and 2018 Connecticut State Building Code (2015 IBC).

We at *EFI Global, Inc.* appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects, please give us a call.

Sincerely,
EFI Global, Inc.
License No: PEC0001245

3/1/2021



Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

1) ANALYSIS CRITERIA

The analysis was performed for the existing and proposed appurtenances as specified in the loading information referenced below, and per the following loading criteria of Table 1.

Table 1 – Loading and Analysis Criteria

Rad Center	140'
Structure Type	Self-Support Tower
Exposure Category	B
Ultimate Wind Speed	125 mph
Ice Loading	1.5" with 50 mph Wind
Risk Category	II
Topographic Factor	Kzt = 1.38

Table 1.1 – Existing Appurtenance Configuration

Qty	Model
6	RFS APXV18-206516S-CA20 – Antennas
3	Andrew LNX-6515DS-A1M – Antennas
3	Radio 2217 B66A – RRUs
3	RRUS11 B12 – RRUs
1	IBR 1300 – RRUs

Table 1.2 – Proposed and Final Appurtenance Configuration

Qty	Model
6	RFS APXV18-206516S-CA20 – Antennas
3	RFS APXVAALL24_43-UNA20 – Antennas
3	Radio 2217 B66A – RRUs*
3	Radio 4449 B71 + B85 – RRUs*

*To be mounted behind antennas

Table 1.3 – Assumed Material Properties

Member Type	ASTM Material Designation	Fy (ksi)	Fu (ksi)
Pipes	A53 Gr. B	35	60
Angles/Channels	A36	36	58
Rectangular HSS	A500 Gr. B - 46	46	58
Round HSS	A500 Gr. B - 42	42	58
Others (UNO)	A572 Gr. 50	50	65

2) ANALYSIS PROCEDURE

The analysis is based on the following information:

Table 2 – Documents

Document	Provided By	Date
RFDS	T-Mobile	09/17/2020
Construction Drawings	Black & Veatch Corp.	09/25/2020
Structural Analysis Report	Black & Veatch Corp.	08/10/2020
Construction Drawings	Northeast Site Solutions	01/29/2019
Construction Drawings	Northeast Site Solutions	10/03/2017

2.1) Analysis Method

Risa-3D, a commercially available analysis software package, was used to create a three-dimensional model of the mount and calculate member stresses for various loading cases. Selected output from the analysis is included in the Appendix.

2.2) Analysis Conditions and Assumptions

- 1) The mount was built and installed in accordance with the manufacturer's specifications.
- 2) The mount has been maintained and will be maintained in accordance with the manufacturer's specifications. All structural members and connections of the mount are in good condition and can achieve theoretical strength.
- 3) The configuration of antennas is as specified in "1) Analysis Criteria".
- 4) The analysis was performed for the subject mount only. It does not include an evaluation of the other mounts or the tower, which should be analyzed by others.
- 5) The evaluation does not include any antenna rigging loads. The equipment should not be rigged using the subject antenna mount as the support.
- 6) The analysis includes a minimum 250 lbf maintenance point load at the worst-case location on the mount, as well as a minimum 500 lbf maintenance point load at each antenna location in conjunction with a 30 mph wind load.
- 7) Any steel grating represented in this model is for loading purposes only and it is not considered to provide any structural restraint or support.
- 8) Member sizes per the available mount specifications and assumed based on our experience with similar structures. Please refer to calculation output in the appendix of this report for sizes and lengths assumed.
- 9) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.

EFI Global, Inc. (EFI), must be notified immediately if any of these assumptions are discovered to be incorrect. The results of this analysis may be affected if any of the assumptions are not valid or have been made in error.

3) ANALYSIS RESULTS AND CONCLUSION

The analysis results are shown on the table below.

Table 3.1 – Mount Component Stresses vs. Capacity

Component	% Capacity	Pass / Fail
Horizontal Face Pipe	30.6	Pass
Horizontal Standoff Pipe	89.4	Pass
Vertical Standoff Solid Rod	24.0	Pass
Diagonal Standoff Solid Rod	76.6	Pass
Antenna Mount Pipe	74.0	Pass
Pipe Kicker	< 20.0	Pass

Table 3.2 – Tieback Connection Data Table

Component	Resultant End Reaction (lbs)	Connected Member Size	Member Compressive Capacity (lb)
Pipe Kicker	1,790	L5x5x5/16	40,390

Sector Mounts: The existing sector mounts have **adequate** capacity for the proposed changes by T-Mobile. For the code specified load combinations and as a maximum, the mount members are stressed to **89.4%** of their structural capacity. The maximum force at the tieback connection point is **1,790 lbs**, less than 5% of the connected member compressive capacity.

EFI Global, Inc. has assumed that Valmont/Site Pro 1 10'-6" V-Frame Assembly (P/N: VFA10-U) has been or will be installed per the Construction Drawings prepared by Northeast Site Solutions, dated 10/03/2017, prior to the equipment upgrade proposed in this report. The analysis also assumes the following:

- The mount centerline is equal to the RAD centerline.
- The four (4) 96" long 2.0 STD mount pipes are equally spaced along the face of mount.
- The (1) tieback arm is attached directly to the adjacent tower diagonal from 140' to 150', within 6' of either end of the diagonal.

APPENDIX
INPUT LOADS
ANALYSIS OUTPUT

CLIENT: Foresite LLC

PROJECT: CTHA142G

SUBJECT: Antenna Loads - TIA 222 H Standard

Tower Height	185.00	ft	Type of Mount	Sector
Ultimate Wind Speed, V	125	mph		
Basic Wind Speed w/ Ice, V _i	50	mph		
Maintenance Load Factor, L _{FM}	0.0576	Load Factor for Maint. Load Cases (Basic Wind Speed=30 mph)		
Ultimate Ice Thickness, t _i	1.5	inches		

Table 2-3 Importance Factors

Structure Classification	Wind Load Without Ice	Wind Load With Ice	Ice Thickness	Earthquake
II	1	1	1	1

Table 2-4 Exposure Category Coefficients

Exposure Category	Z _g	α	K _{zmin}	K _e	m
B	1200	7	0.7	0.9	0.55

Ground elevation factor, K_e
 Z_s 418 ft
 K_e 0.98

Table 2-5 Topographic Categories
K_{zt} 1.380

Table 2-2 Wind Directionality Factor, K_d

Structure Type	K _d
Lattice Tower	0.95

DOES NOT CHANGE

Gust Effect Factor G_h

Structure Type	G _h
Lattice Tower	1.00

DOES NOT CHANGE

Shielding Factor, K_a

Structure Type	K _a
Lattice Tower	0.90

DOES NOT CHANGE

Seismic Factors

S _s	0.057
S ₁	0.024
F _a	1.6
F _v	2.4
R	3

CLIENT: Foresite LLC
 PROJECT: CTHA142G
 SUBJECT: Antenna Loads - TIA 222 H Standard

Rad Center 140.00 ft

Antenna AND Mount Without Ice

Mounting Pole	Height (ft)	Model Number	#	Weight (lbs)	H (in)	*W (in)	D (in)	Ka	**A _N (ft ²)	***A _T (ft ²)	Aspect (FRONT)	Aspect (SIDE)	Ca (FRONT)	Ca (SIDE)	K _z	q _z (psf)	Pounds							
																	Wind Load (Front)	Wind Load (Side)	Dead Load	Total Wind Load (Front)	Total Wind Load (Side)	Total Dead Load	Lateral Load (Seismic)	Vertical Load (Seismic)
Pos. 1	140.00	APXV18-2065165-C-A20	1	18.7	53.1	6.9	3.2	0.90	2.54	1.18	7.70	16.59	1.42	1.72	1.088	56.2	183.1	102.6	18.7	183	134	47	1	1
	140.00	RADIO 2217	1	28.2	13.8	N/A	5.4	0.90	-	0.52	-	2.56	-	1.20	1.088	56.2	0.0	31.5	28.2					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
Pos. 2	140.00	RFS APXVAALL24_43-UNA20	1	122.8	95.9	24.0	8.5	0.90	15.98	5.66	4.00	11.28	1.27	1.54	1.088	56.2	1023.7	441.6	122.8	1024	522	196	6	2
	140.00	RADIO 4449 B71+B85	1	73.2	17.9	N/A	10.6	0.90	-	1.32	-	1.69	-	1.20	1.088	56.2	0.0	80.0	73.2					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
Pos. 3		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0	0	0	0	0	0
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
Pos. 4	140.00	APXV18-2065165-C-A20	1	18.7	53.1	6.9	3.2	0.90	2.54	1.18	7.70	16.59	1.42	1.72	1.088	56.2	183.1	102.6	18.7	183	103	19	1	0
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
Pos. 5		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0	0	0	0	0	0
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					
		Empty		0.0	-	-	-	0.90	-	-	-	-	-	-	-	-	0.0	0.0	0					

* Enter N/A in the W column for front shielded appurtenances.

** A_N is the product of H and W

*** A_T is the product of H and D

DL 262

Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	Weight (lb/ft)	*** Ca	K _z	q _z (psf)	Wind Load (PLF)	Lateral Load (Seismic)	Vertical Load (Seismic)
	140.00	2 STD Pipe	12.00	2.38	0.00		1.20	1.088	50.6	12	-	-
	140.00	1.25 STD Pipe	12.00	1.66	0.00		1.20	1.088	50.6	8	-	-
	140.00	5/8" SR	12.00	0.63	0.00		1.20	1.088	50.6	3	-	-
	140.00	Pipe	0.00	0.00	0.00		-	-	-	-	-	-
	140.00	(L2x2)	0.00	0.00	0.00		-	-	-	-	-	-
	140.00	Angle Diagonal	0.00	0.00	0.00		-	-	-	-	-	-
	140.00	Plate Horizontal (PL0.625x3 1/2)	0.00	0.00	0.00		-	-	-	-	-	-
	140.00	Plate Horizontal (PL0.625x2)	0.00	0.00	0.00		-	-	-	-	-	-
	140.00	Double Angle	0.00	0.00	0.00		-	-	-	-	-	-
	140.00	Channel (Weak Axis Bending)	0.00	0.00	0.00		-	-	-	-	-	-
	140.00	Channel	0.00	0.00	0.00		-	-	-	-	-	-

* The dimension L is the longest dimension of the member

** The dimension W is the height or width of the member that resists wind load

*** Ca will equal 1.2 for round members and 2.0 for flat members

CLIENT: Foresite LLC
 PROJECT: CTHA142G
 SUBJECT: Antenna Loads - TIA 222 H Standard

ti (in) 1.940039 Kiz 1.1554773 reduction 0.16

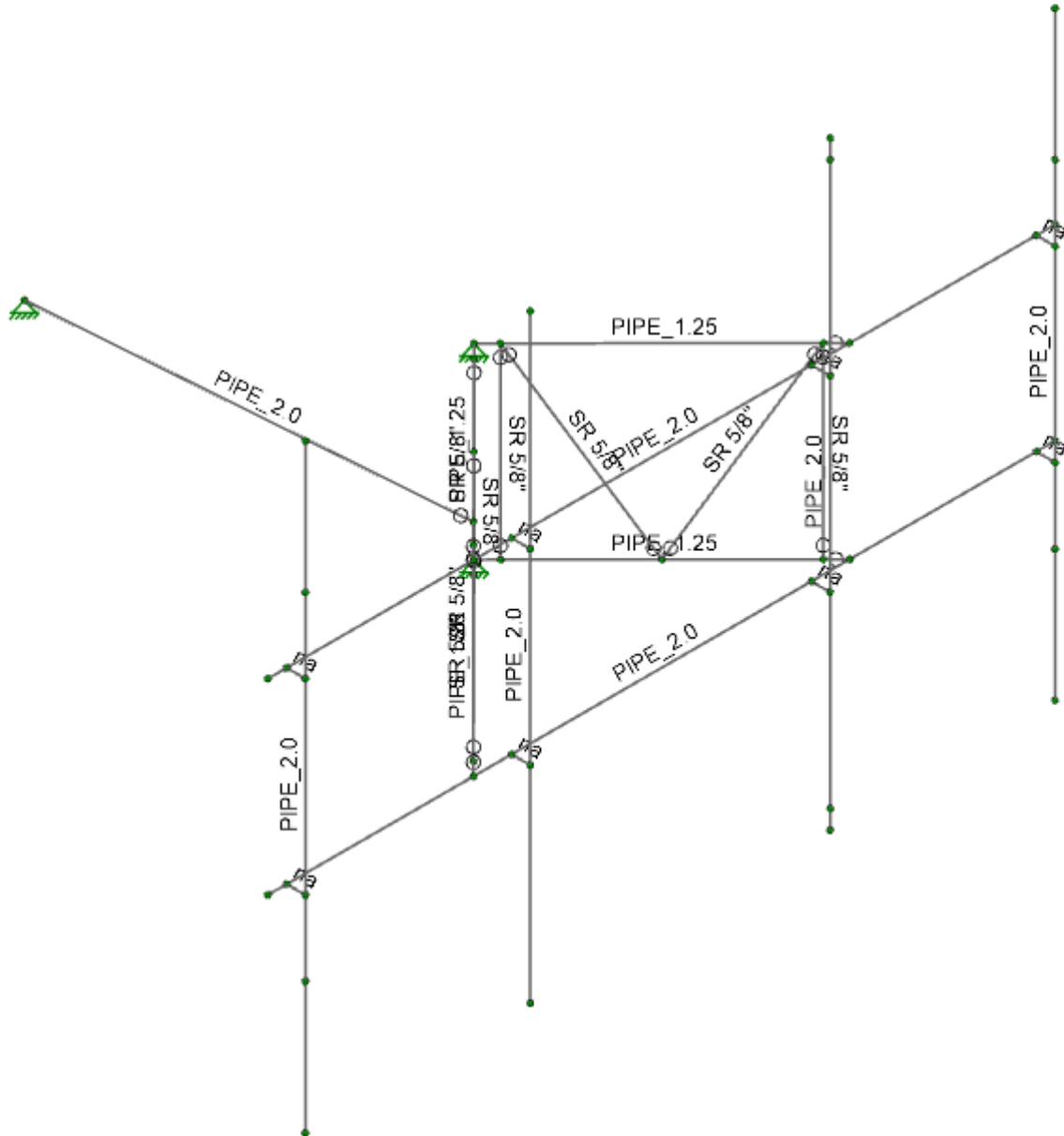
Antenna AND Mount With Ice

Mounting Pole	Height (ft)	Model Number	#	H (in)	W (in)	D (in)	Ka	*A _N (ft ²)	*A _T (ft ²)	*Volume Ice (ft ³)	*Weight Ice (lbs)	**Ca (FRONT)	**Ca (SIDE)	Kz	q _z (psf)	Pounds							
																Ice Wind Load (Front)	Ice Wind Load (Side)	Combined Wind Load (Front)	Combined Wind Load (Side)	Ice Dead Load	**Total Wind Load (Front)	**Total Wind Load (Side)	Total Ice Load
Pos. 1	140.00	APXV18-2065165-C-A20	1	53.1	6.9	3.2	0.90	1.72	1.62	1.84	102.94	0.76	0.82	1.088	9.0	10.6	10.8	39.9	27.2	103	40	36	158
	140.00	RADIO 2217	1	13.8	11.7	5.4	0.90	-	0.62	0.97	54.59	0.70	0.70	1.088	9.0	0.0	3.5	0.0	8.6	55			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
Pos.2	140.00	RFS APXVAALL24_43-UNA20	1	95.9	24.0	8.5	0.90	3.34	2.92	8.61	482.10	0.72	0.82	1.088	9.0	19.5	19.4	183.3	90.1	482	183	108	576
	140.00	RADIO 4449 B71+B85	1	17.9	13.2	10.6	0.90	-	0.87	1.67	93.40	0.70	0.70	1.088	9.0	0.0	4.9	0.0	17.7	93			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
Pos.3		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0	0	0	0
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
Pos.4	140.00	APXV18-2065165-C-A20	1	53.1	6.9	3.2	0.90	1.72	1.62	1.84	102.94	0.76	0.82	1.088	9.0	10.6	10.8	39.9	27.2	103	40	27	103
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
Pos.5		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0	0	0	0
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			
		Empty		-	-	-	0.90	-	-	-	0.00	-	-	-	-	0.0	0.0	0.0	0.0	0			

* A_N, A_T, Volume Ice and Weight Ice are calculated per unit
 ** Ca will equal 1.2 for all ice load calculations

Mount	Height (ft)	Member	*L (in)	**W (in)	D (in)	***A _N (ft ²)	Volume Ice (ft ³)	Weight Ice (lbs)	****Ca (FRONT)	Kz	q _z (psf)	PLF		
												Ice Wind Load (Front)	Combined Wind Load (Front)	Ice Dead Load
	140.00	2 STD Pipe	12.00	2.38	0.00	0.49	0.18	10.23	1.20	1.088	8.1	4.8	6.7	10
	140.00	1.25 STD Pipe	12.00	1.66	0.00	0.47	0.15	8.53	1.20	1.088	8.1	4.6	5.9	9
	140.00	5/8" SR	12.00	0.63	0.00	0.44	0.11	6.08	1.20	1.088	8.1	4.3	4.8	6
	140.00	Pipe	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	140.00	(L2x2)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	140.00	Angle Diagonal	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	140.00	Plate Horizontal (PL0.625x3 1/2)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	140.00	Plate Horizontal (PL0.625x2)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	140.00	Double Angle	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	140.00	Channel (Weak Axis Bending)	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-
	140.00	Channel	0.00	0.00	0.00	-	-	-	-	-	-	-	-	-

* The dimension L is the longest dimension of the member
 ** The dimension W is the height or width of the member that resists wind load
 *** A_N is the area of ice built up on the LW plane
 **** Ca will equal 1.2 for all ice load calculations

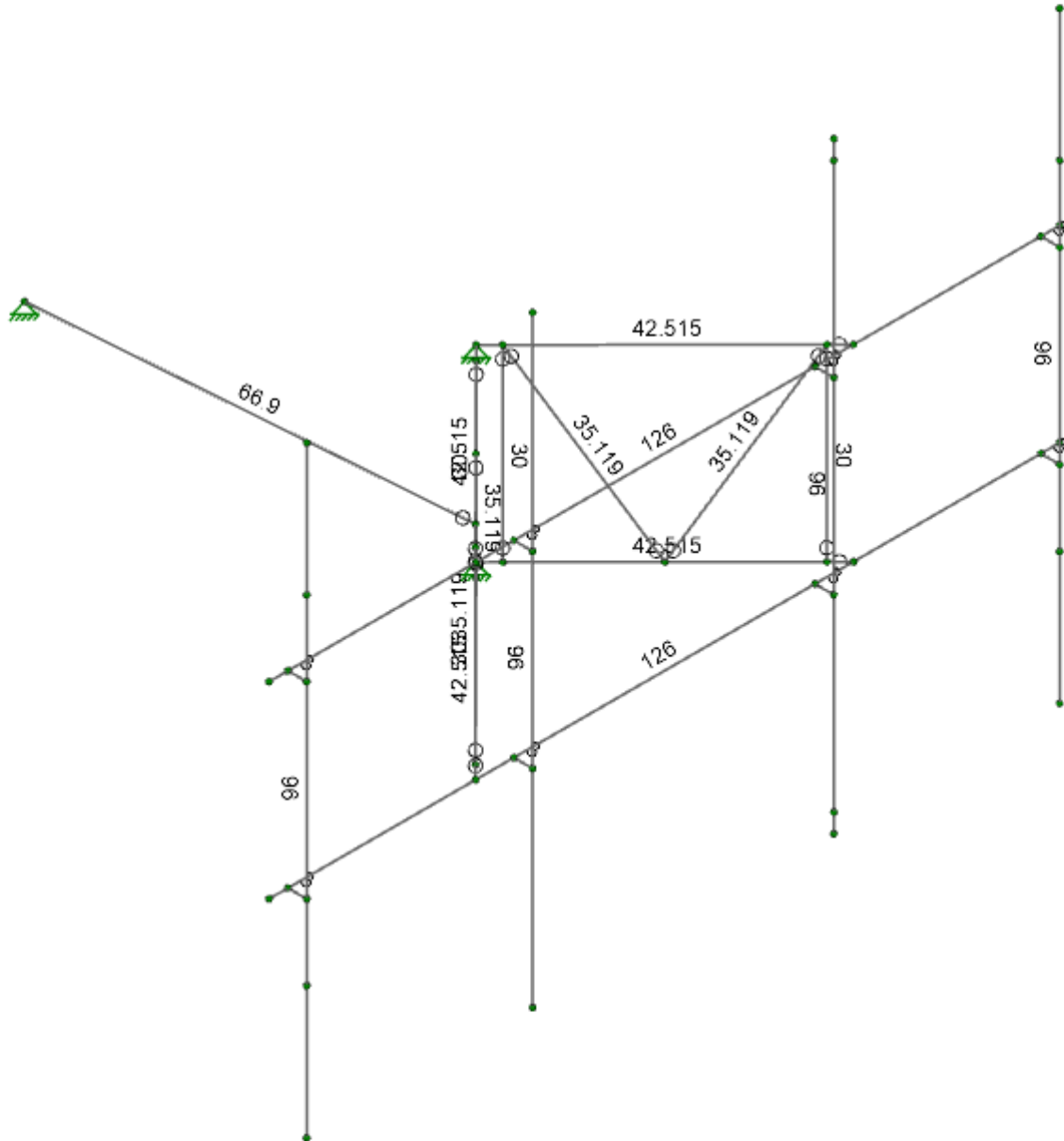


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 049.00933 - 2075086

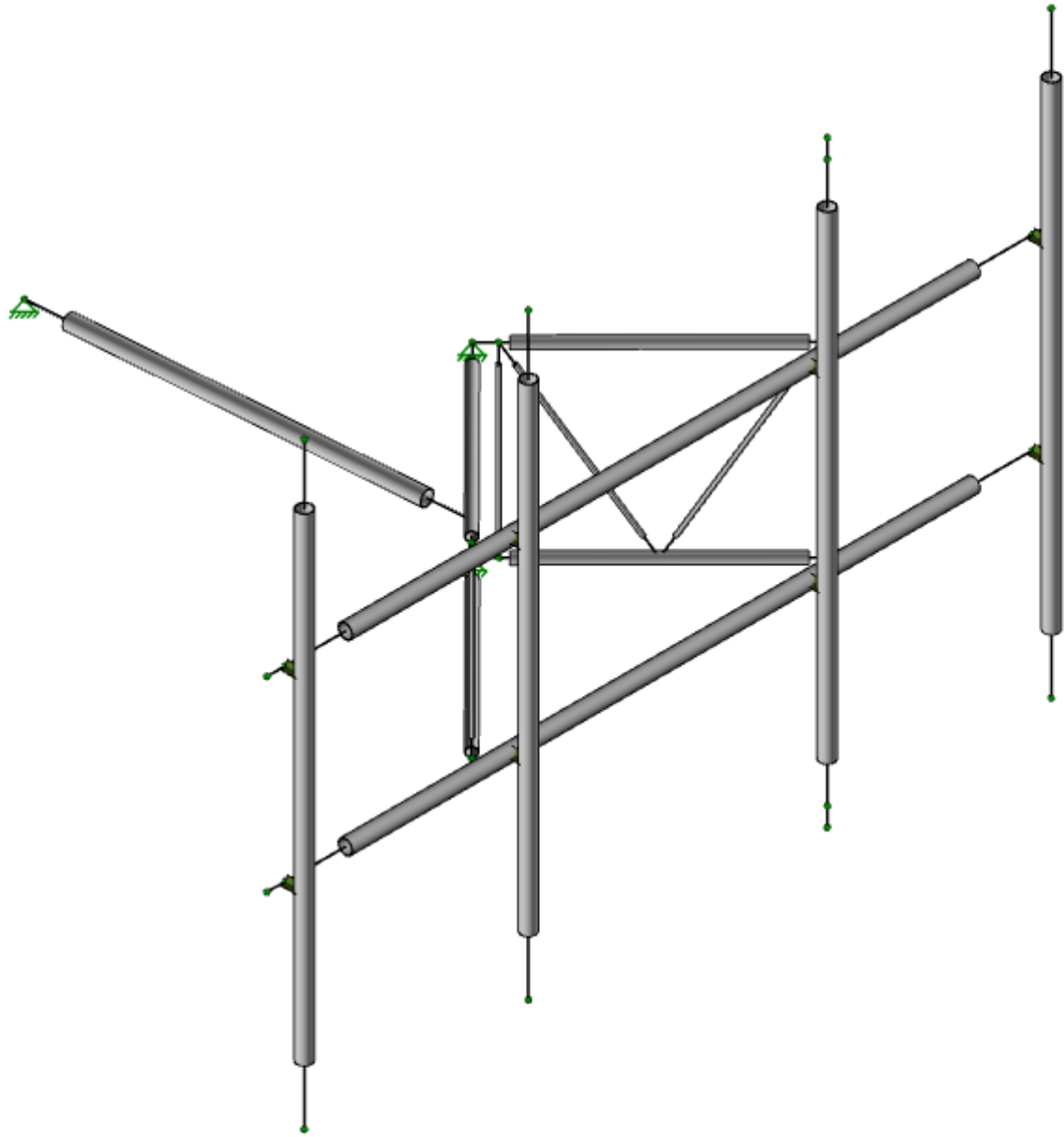
CTHA142G

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 Mar 01, 2021
 CTHA142G.r3d



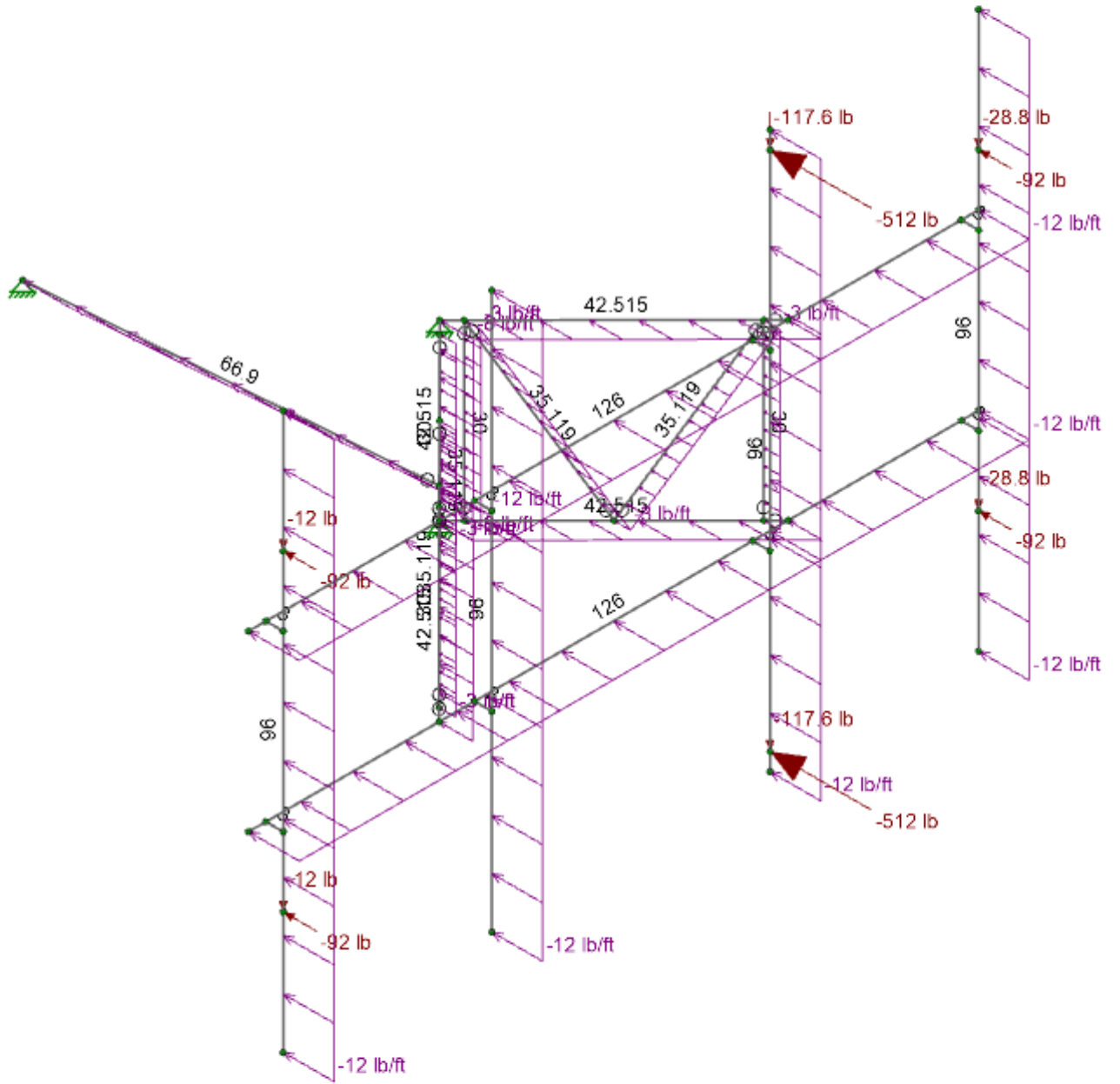
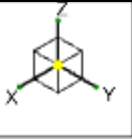
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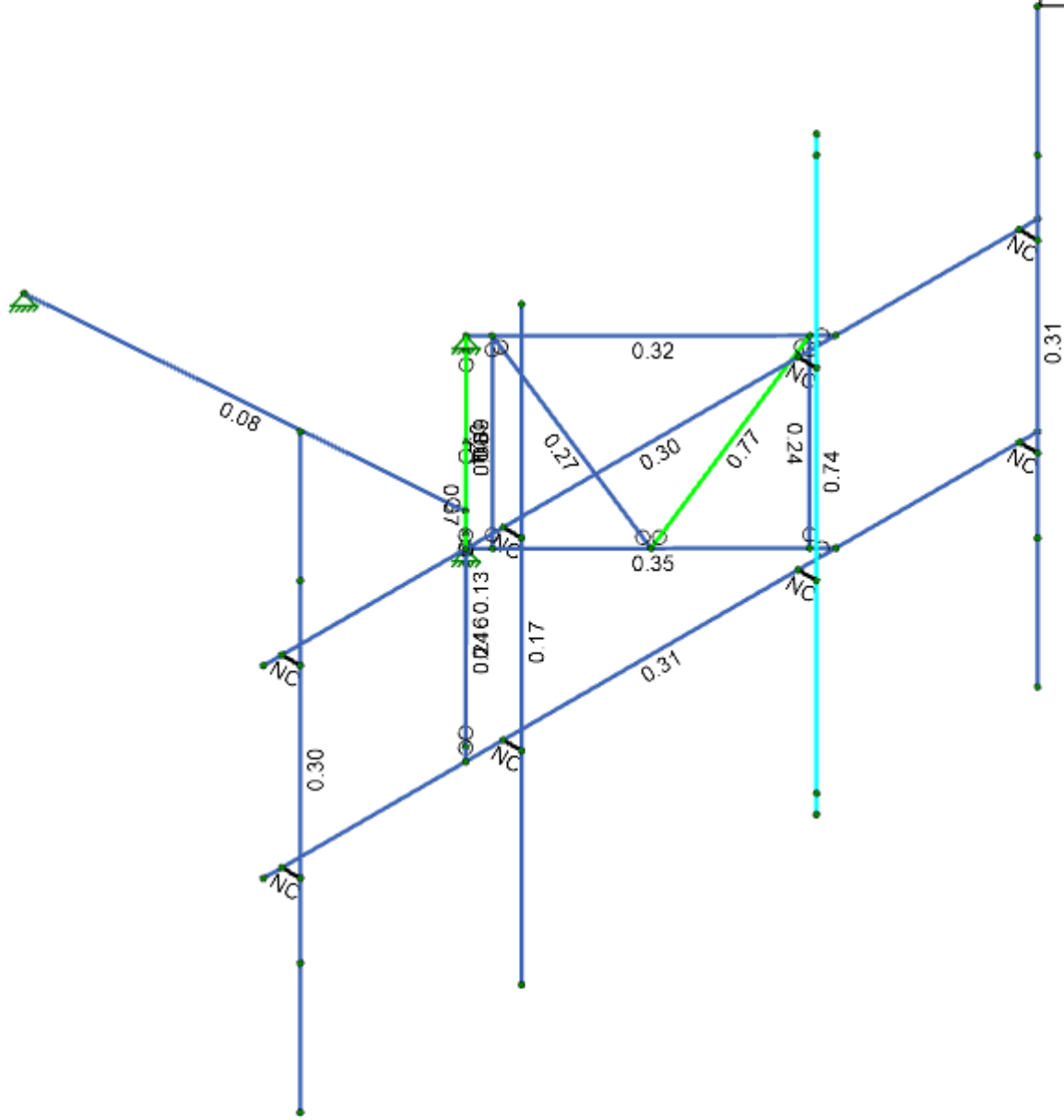
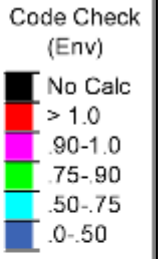


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Envelope Only Solution

Foresite/EFI	CTHA142G	3
YT		Mar 01, 2021
049.00933 - 2075086		CTHA142G.r3d



Foresite/EFI	CTHA142G	4
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Member Code Checks Displayed (Enveloped)
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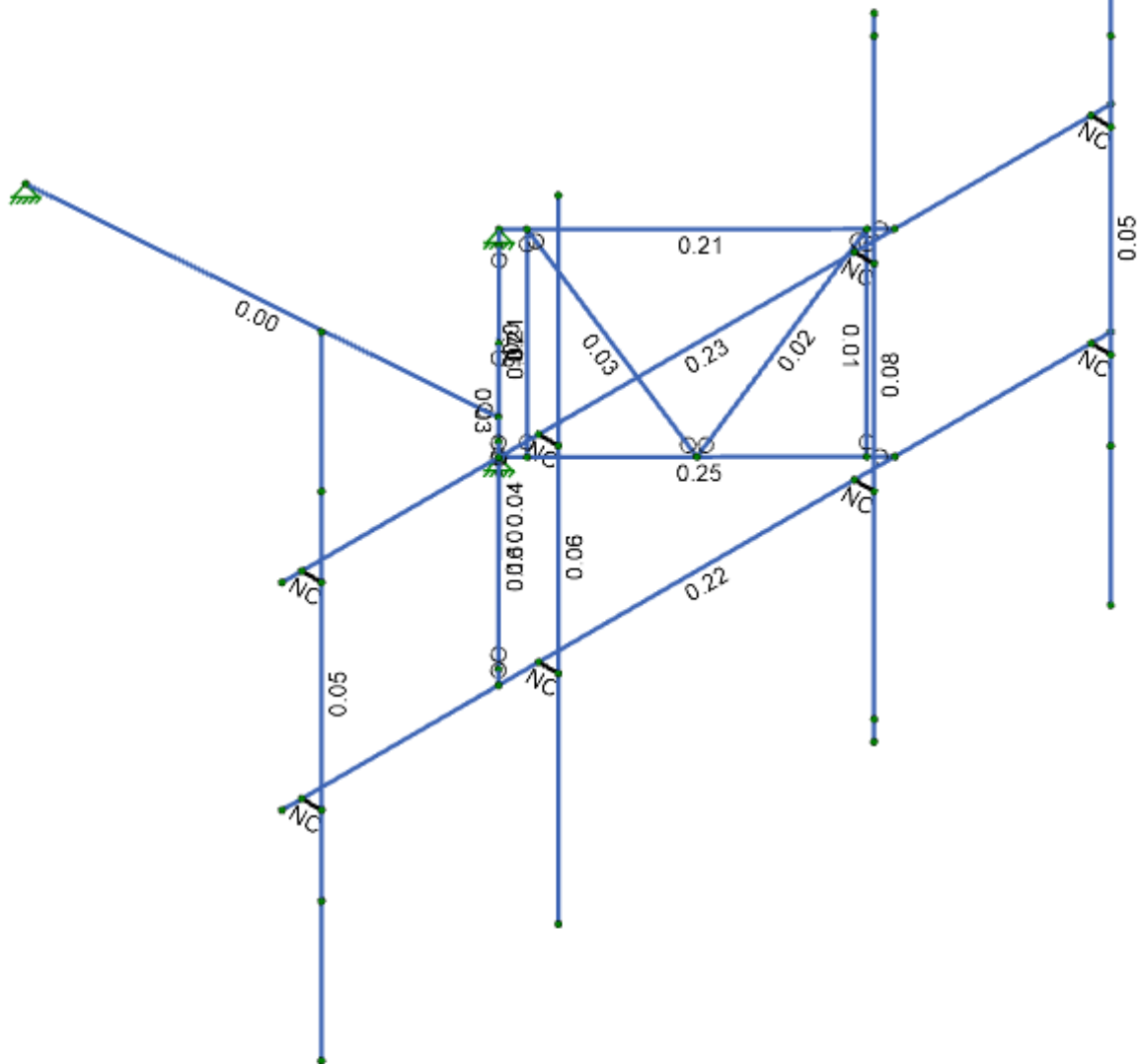
CTHA142G

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Mar 01, 2021
CTHA142G.r3d



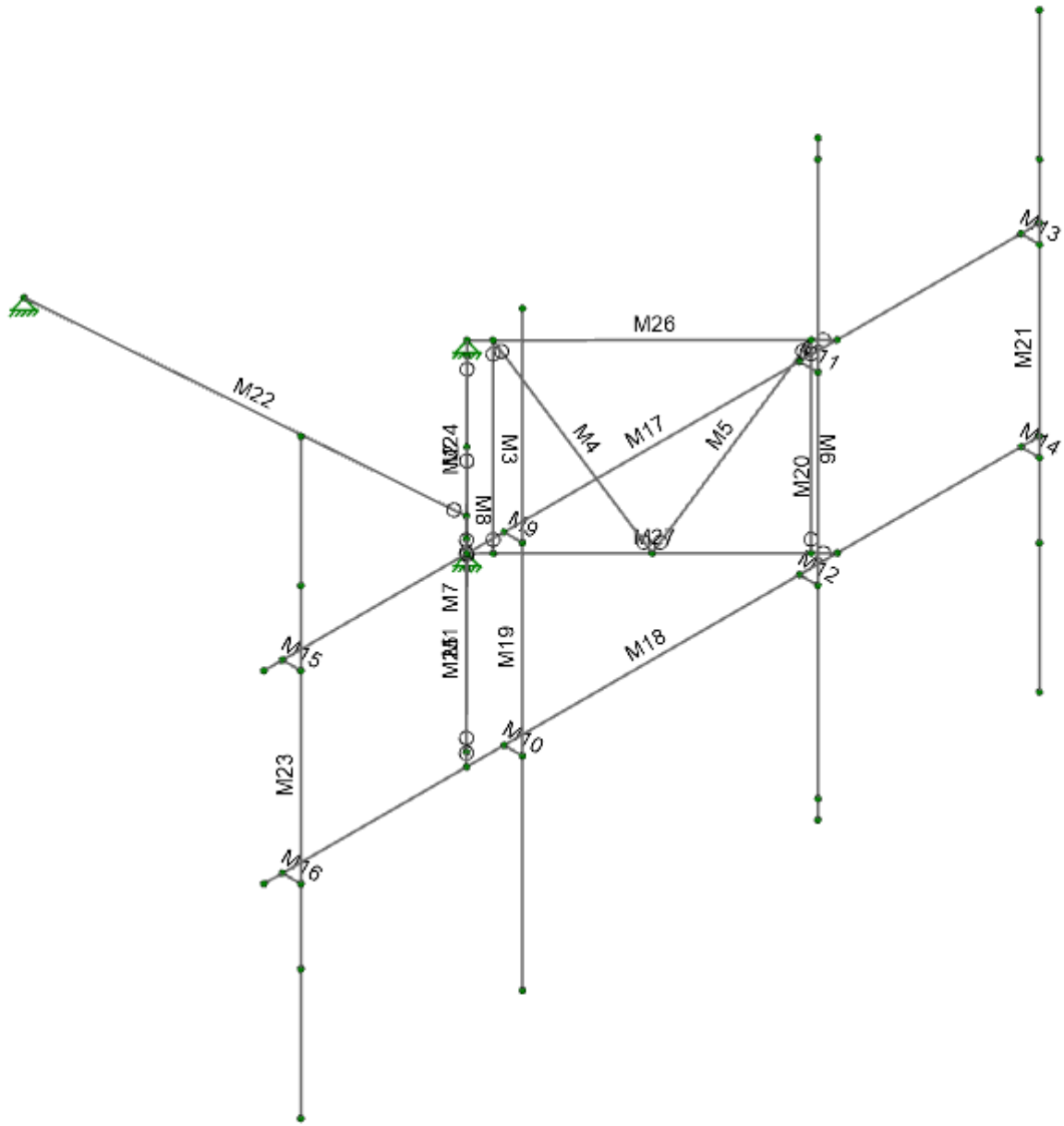
Shear Check (Env)

- No Calc
- > 1.0
- .90-1.0
- 75-90
- .50-.75
- .0-.50



Member Shear Checks Displayed (Enveloped)
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CTHA142G

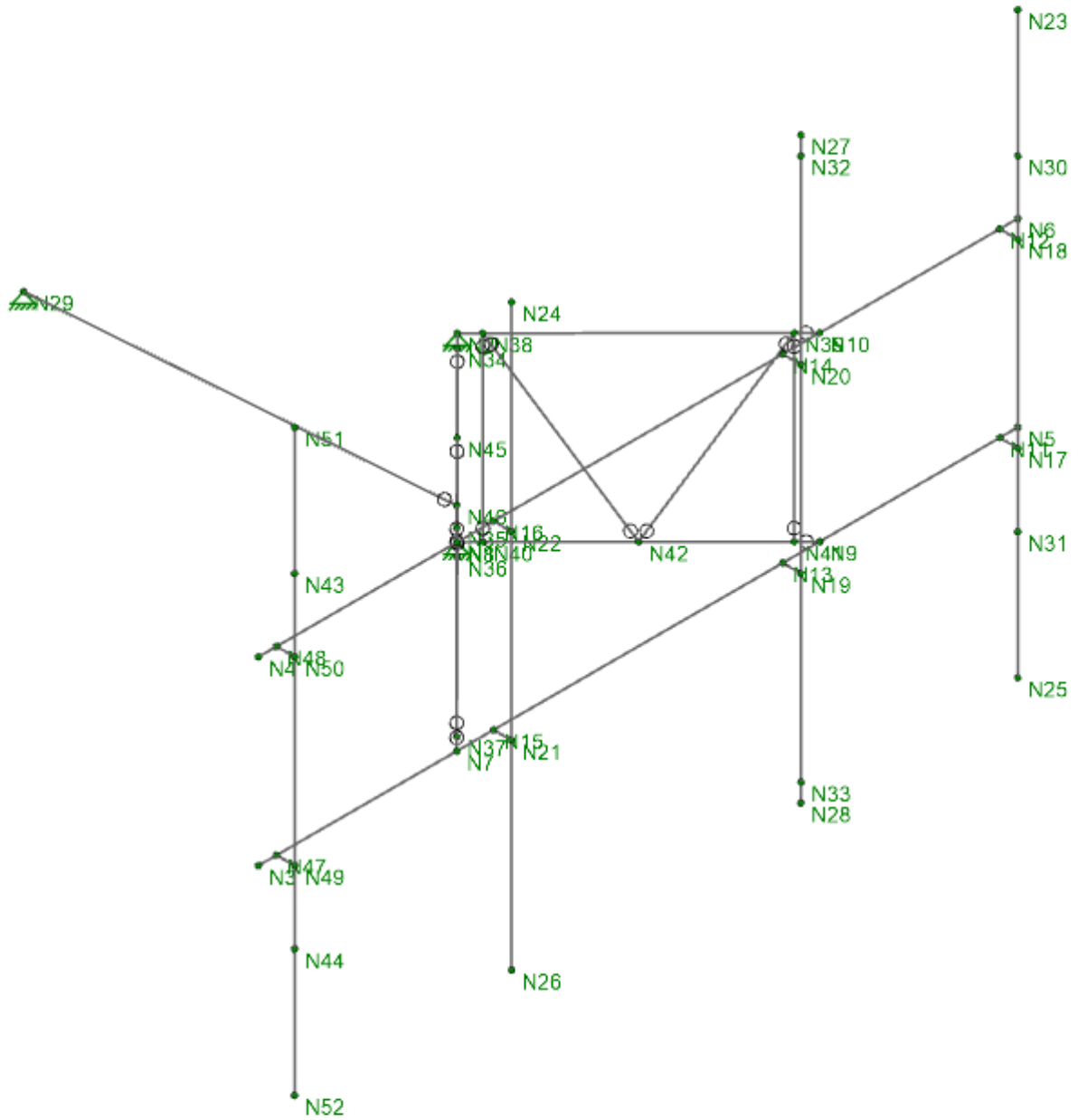
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CTHA142G

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Model Settings

Number of Reported Sections	5
Number of Internal Sections	97
Member Area Load Mesh Size (in ²)	144
Consider Shear Deformation	Yes
Consider Torsional Warping	Yes

Approximate Mesh Size (in)	12
Transfer Forces Between Intersecting Wood Walls	No
Increase Wood Wall Nailing Capacity for Wind Loads	Yes
Include P-Delta for Walls	Yes
Optimize Masonry and Wood Walls	Yes
Maximum Number of Iterations	3

Single	No
Multiple (Optimum)	Yes
Maximum	No

Global Axis corresponding to vertical direction	Z
Convert Existing Data	Yes

Default Global Plane for z-axis	XZ
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Plate Local Axis Orientation	Nodal
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Hot Rolled Steel	AISC 14th (360-10): LRFD
Stiffness Adjustment	Yes (iterative)
Notional Annex	None
Connections	AISC 14th (360-10): LRFD
Cold Formed Steel	AISI NAS-01: ASD
Stiffness Adjustment	Yes (iterative)
Wood	AF&PA NDS-05/08: ASD
Temperature	< 100F
Concrete	ACI 318-05
Masonry	ACI 530-05: ASD
Aluminum	AA ADM1-05: ASD
Structure Type	Building
Stiffness Adjustment	Yes (iterative)
Stainless	AISC 14th (360-10): ASD
Stiffness Adjustment	Yes (iterative)

Analysis Methodology	Exact Integration Method
Paralle Beta Factor	0.65
Compression Stress Block	Rectangular Stress Block
Analyze using Cracked Sections	Yes
Leave room for horizontal rebar splices (2*d bar spacing)	No
List forces which were ignored for design in the Detail Report	Yes

Column Min Steel	1
Column Max Steel	8
Rebar Material Spec	ASTM A615
Warn if beam-column framing arrangement is not understood	No
Number of Shear Regions	4
Region 2 & 3 Spacing Increase Increment (in)	4

Code	ASCE 7-05
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Model Settings (Continued)

Risk Category	I
Drift Cat	Other
Base Elevation (ft)	-999999
Include the weight of the structure in base shear calcs	Yes

$S_x(g)$	1
$SD_x(g)$	1
$SD_y(g)$	1
$T_x(sec)$	-1

$T(sec)$	
$T(sec)$	
C_r	0.035
C_r	0.035
C_{Exp}	0.75
C_{Exp}	0.75
R	8.5
R	8.5
Ω_x	1
Ω_y	1
C_w	4
C_w	4
ρ	1
ρ	1

Line Project Grid

No Data to Print...

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. C...	Density [k...	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.2
3	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.2
4	A500 Gr.42	29000	11154	0.3	0.65	0.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	0.3	0.65	0.49	46	1.2	58	1.1
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.5	60	1.2
7	A529 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.2

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff...	Density [k/ft³]	Yield [ksi]	Fu [ksi]
1	A570_33	29500	11346	0.3	0.65	0.49	33	52
2	A607_C1_55	29500	11346	0.3	0.65	0.49	55	70

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	HR1A	C15X50	Beam	None	A36 Gr.36	Typical	14.7	11	404	2.65

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	CF1A	1.5CU1.2...	Beam	None	A570_33	Typical	0.131	0.022	0.052	5.4e-05

Primary Member Properties

	Label	I Node	J Node	K Node	Rotate(deg)	Section/S...	Type	Design List	Material	Design Rule
1	M1	N37	N35			SR 5/8"	Beam	None	A36 Gr.36	Typical
2	M2	N36	N34			SR 5/8"	Beam	None	A36 Gr.36	Typical
3	M3	N38	N40			SR 5/8"	Beam	None	A36 Gr.36	Typical
4	M4	N38	N42			SR 5/8"	Beam	None	A36 Gr.36	Typical
5	M5	N42	N39			SR 5/8"	Beam	None	A36 Gr.36	Typical
6	M6	N39	N41			SR 5/8"	Beam	None	A36 Gr.36	Typical
7	M7	N37	N45			SR 5/8"	Beam	None	A36 Gr.36	Typical
8	M8	N36	N45			SR 5/8"	Beam	None	A36 Gr.36	Typical
9	M9	N16	N22			RIGID	None	None	LINK	Typical
10	M10	N15	N21			RIGID	None	None	LINK	Typical
11	M11	N14	N20			RIGID	None	None	LINK	Typical
12	M12	N13	N19			RIGID	None	None	LINK	Typical
13	M13	N12	N18			RIGID	None	None	LINK	Typical
14	M14	N11	N17			RIGID	None	None	LINK	Typical
15	M15	N48	N50			RIGID	None	None	LINK	Typical
16	M16	N47	N49			RIGID	None	None	LINK	Typical
17	M17	N6	N4			PIPE_2.0	Beam	None	A53 Gr.B	Typical
18	M18	N5	N3			PIPE_2.0	Beam	None	A53 Gr.B	Typical
19	M19	N26	N24			PIPE_2.0	Beam	None	A53 Gr.B	Typical
20	M20	N28	N27			PIPE_2.0	Beam	None	A53 Gr.B	Typical
21	M21	N25	N23			PIPE_2.0	Beam	None	A53 Gr.B	Typical
22	M22	N46	N29			PIPE_2.0	Beam	None	A53 Gr.B	Typical
23	M23	N52	N51			PIPE_2.0	Beam	None	A53 Gr.B	Typical
24	M24	N2	N8			PIPE_1.25	Beam	None	A53 Gr.B	Typical
25	M25	N1	N7			PIPE_1.25	Beam	None	A53 Gr.B	Typical
26	M26	N2	N10			PIPE_1.25	Beam	None	A53 Gr.B	Typical
27	M27	N1	N9			PIPE_1.25	Beam	None	A53 Gr.B	Typical

Advanced Member Properties

	Label	I Release	J Release	I Offset [in]	J Offset [in]	T/C Only	Physical	Deflectio...	Analysis...	Activation	Seismic...
1	M1	BenPIN	BenPIN				Yes				None
2	M2	BenPIN	BenPIN				Yes				None
3	M3	BenPIN	BenPIN				Yes				None
4	M4	BenPIN	BenPIN				Yes				None
5	M5	BenPIN	BenPIN				Yes				None
6	M6	BenPIN	BenPIN				Yes				None
7	M7	BenPIN	BenPIN				Yes				None
8	M8	BenPIN	BenPIN				Yes				None
9	M9						Yes	** NA **			None
10	M10						Yes	** NA **			None
11	M11						Yes	** NA **			None
12	M12						Yes	** NA **			None
13	M13						Yes	** NA **			None
14	M14						Yes	** NA **			None
15	M15						Yes	** NA **			None
16	M16						Yes	** NA **			None
17	M17						Yes				None
18	M18						Yes				None
19	M19						Yes				None
20	M20						Yes				None
21	M21						Yes				None
22	M22	BenPIN					Yes				None
23	M23						Yes				None
24	M24		BenPIN				Yes				None
25	M25		BenPIN				Yes				None
26	M26		BenPIN				Yes				None
27	M27		BenPIN				Yes				None

Hot Rolled Member Properties

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Lcomp t...	Lcomp...	L-Torqu...	K y-y	K z-z	Cb	Function
1	M1	SR 5/8"	30						0.7	0.7		Lateral
2	M2	SR 5/8"	30						0.7	0.7		Lateral
3	M3	SR 5/8"	30						0.7	0.7		Lateral
4	M4	SR 5/8"	35.119						0.7	0.7		Lateral
5	M5	SR 5/8"	35.119						0.7	0.7		Lateral
6	M6	SR 5/8"	30						0.7	0.7		Lateral
7	M7	SR 5/8"	35.119						0.7	0.7		Lateral
8	M8	SR 5/8"	35.119						0.7	0.7		Lateral
9	M17	PIPE_2.0	126			Lbyy						Lateral
10	M18	PIPE_2.0	126			Lbyy						Lateral
11	M19	PIPE_2.0	96			Lbyy						Lateral
12	M20	PIPE_2.0	96			Lbyy						Lateral
13	M21	PIPE_2.0	96			Lbyy						Lateral
14	M22	PIPE_2.0	66.9			Lbyy						Lateral
15	M23	PIPE_2.0	96			Lbyy						Lateral
16	M24	PIPE_1....	42.515			Lbyy						Lateral
17	M25	PIPE_1....	42.515			Lbyy						Lateral
18	M26	PIPE_1....	42.515			Lbyy						Lateral
19	M27	PIPE_1....	42.515			Lbyy						Lateral

Cold Formed Member Properties

No Data to Print...

Nodes

	Label	X [in]	Y [in]	Z [in]	Temp [deg F]	Detach From Dia...
1	N1	0	0	0		
2	N2	0	0	30		

Nodes (Continued)

	Label	X [in]	Y [in]	Z [in]	Temp [deg F]	Detach From Dia...
3	N3	63	30	0		
4	N4	63	30	30		
5	N5	-63	30	0		
6	N6	-63	30	30		
7	N7	30.125	30	0		
8	N8	30.125	30	30		
9	N9	-30.125	30	0		
10	N10	-30.125	30	30		
11	N11	-60	30	0		
12	N12	-60	30	30		
13	N13	-24	30	0		
14	N14	-24	30	30		
15	N15	24	30	0		
16	N16	24	30	30		
17	N17	-60	33	0		
18	N18	-60	33	30		
19	N19	-24	33	0		
20	N20	-24	33	30		
21	N21	24	33	0		
22	N22	24	33	30		
23	N23	-60	33	63		
24	N24	24	33	63		
25	N25	-60	33	-33		
26	N26	24	33	-33		
27	N27	-24	33	63		
28	N28	-24	33	-33		
29	N29	30	-42	30		
30	N30	-60	33	42		
31	N31	-60	33	-12		
32	N32	-24	33	60		
33	N33	-24	33	-30		
34	N34	2.125726	2.116906	30		
35	N35	27.999354	27.883174	30		
36	N36	2.125726	2.116906	0		
37	N37	27.999354	27.883174	0		
38	N38	-2.125726	2.116906	30		
39	N39	-27.999354	27.883174	30		
40	N40	-2.125726	2.116906	0		
41	N41	-27.999354	27.883174	0		
42	N42	-15.0625	15	0		
43	N43	60	33	42		
44	N44	60	33	-12		
45	N45	15.0625	15	30		
46	N46	24.800136	24.697231	30		
47	N47	60	30	0		
48	N48	60	30	30		
49	N49	60	33	0		
50	N50	60	33	30		
51	N51	60	33	63		
52	N52	60	33	-33		

Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	N2	Reaction	Reaction	Reaction			
2	N1	Reaction	Reaction	Reaction			
3	N29	Reaction	Reaction	Reaction			

Basic Load Cases

	BLC Desc...	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed	Area(Me...	Surface(P...
1	DEAD LO...	None			-1	6				
2	DEAD LO...	None				6		19		
3	WIND LO...	None				6		19		
4	WIND LO...	None				6		19		
5	WIND LO...	None				6		19		
6	WIND LO...	None				6		19		
7	LIVE LOA...	None				1				
8	LIVE LOA...	None				1				
9	LIVE LOA...	None								
10	MAINTEN...	None				1				
11	MAINTEN...	None				1				
12	MAINTEN...	None				1				
13	MAINTEN...	None				1				

Node Loads and Enforced Displacements (BLC 1 : DEAD LOAD)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N30	L	Z	-24	Active
2	N31	L	Z	-24	Active
3	N32	L	Z	-98	Active
4	N33	L	Z	-98	Active
5	N43	L	Z	-10	Active
6	N44	L	Z	-10	Active

Node Loads and Enforced Displacements (BLC 2 : DEAD LOAD ICE)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N30	L	Z	-79	Active
2	N31	L	Z	-79	Active
3	N32	L	Z	-288	Active
4	N33	L	Z	-288	Active
5	N43	L	Z	-52	Active
6	N44	L	Z	-52	Active

Node Loads and Enforced Displacements (BLC 3 : WIND LOAD (NO ICE) FRONT)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N30	L	Y	-92	Active
2	N31	L	Y	-92	Active
3	N32	L	Y	-512	Active
4	N33	L	Y	-512	Active
5	N43	L	Y	-92	Active
6	N44	L	Y	-92	Active

Node Loads and Enforced Displacements (BLC 4 : WIND LOAD (NO ICE) SIDE)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N30	L	X	-68	Active
2	N31	L	X	-68	Active
3	N32	L	X	-261	Active
4	N33	L	X	-261	Active
5	N43	L	X	-52	Active
6	N44	L	X	-52	Active

Node Loads and Enforced Displacements (BLC 5 : WIND LOAD (ICE) FRONT)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N30	L	Y	-20	Active
2	N31	L	Y	-20	Active
3	N32	L	Y	-92	Active
4	N33	L	Y	-92	Active

Node Loads and Enforced Displacements (BLC 5 : WIND LOAD (ICE) FRONT) (Continued)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
5	N43	L	Y	-20	Active
6	N44	L	Y	-20	Active

Node Loads and Enforced Displacements (BLC 6 : WIND LOAD (ICE) SIDE)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N30	L	X	-18	Active
2	N31	L	X	-18	Active
3	N32	L	X	-54	Active
4	N33	L	X	-54	Active
5	N43	L	X	-14	Active
6	N44	L	X	-14	Active

Node Loads and Enforced Displacements (BLC 7 : LIVE LOAD1)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N5	L	Z	-250	Active

Node Loads and Enforced Displacements (BLC 8 : LIVE LOAD2)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N3	L	Z	-250	Active

Node Loads and Enforced Displacements (BLC 10 : MAINTENANCE LOAD 1)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N25	L	Z	-500	Active

Node Loads and Enforced Displacements (BLC 11 : MAINTENANCE LOAD 2)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N28	L	Z	-500	Active

Node Loads and Enforced Displacements (BLC 12 : MAINTENANCE LOAD 3)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N26	L	Z	-500	Active

Node Loads and Enforced Displacements (BLC 13 : MAINTENANCE LOAD 4)

	Node Label	L, D, M	Direction	Magnitude [(lb, k-ft),...]	Inactive [(lb, k-ft), (in,...)]
1	N52	L	Z	-500	Active

Member Distributed Loads (BLC 2 : DEAD LOAD ICE)

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [(...]	Inactive [(lb, k-...
1	M1	Z	-6	-6	0	%100	Active
2	M2	Z	-6	-6	0	%100	Active
3	M3	Z	-6	-6	0	%100	Active
4	M4	Z	-6	-6	0	%100	Active
5	M5	Z	-6	-6	0	%100	Active
6	M6	Z	-6	-6	0	%100	Active
7	M7	Z	-6	-6	0	%100	Active
8	M8	Z	-6	-6	0	%100	Active
9	M17	Z	-10	-10	0	%100	Active
10	M18	Z	-10	-10	0	%100	Active
11	M19	Z	-10	-10	0	%100	Active
12	M20	Z	-10	-10	0	%100	Active
13	M21	Z	-10	-10	0	%100	Active
14	M22	Z	-10	-10	0	%100	Active
15	M23	Z	-10	-10	0	%100	Active
16	M24	Z	-9	-9	0	%100	Active

Member Distributed Loads (BLC 2 : DEAD LOAD ICE) (Continued)

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [(...]	Inactive [(lb, k-...
17	M25	Z	-9	-9	0	%100	Active
18	M26	Z	-9	-9	0	%100	Active
19	M27	Z	-9	-9	0	%100	Active

Member Distributed Loads (BLC 3 : WIND LOAD (NO ICE) FRONT)

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [(...]	Inactive [(lb, k-...
1	M1	PY	-3	-3	0	%100	Active
2	M2	PY	-3	-3	0	%100	Active
3	M3	PY	-3	-3	0	%100	Active
4	M4	PY	-3	-3	0	%100	Active
5	M5	PY	-3	-3	0	%100	Active
6	M6	PY	-3	-3	0	%100	Active
7	M7	PY	-3	-3	0	%100	Active
8	M8	PY	-3	-3	0	%100	Active
9	M17	PY	-12	-12	0	%100	Active
10	M18	PY	-12	-12	0	%100	Active
11	M19	PY	-12	-12	0	%100	Active
12	M20	PY	-12	-12	0	%100	Active
13	M21	PY	-12	-12	0	%100	Active
14	M22	PY	-12	-12	0	%100	Active
15	M23	PY	-12	-12	0	%100	Active
16	M24	PY	-8	-8	0	%100	Active
17	M25	PY	-8	-8	0	%100	Active
18	M26	PY	-8	-8	0	%100	Active
19	M27	PY	-8	-8	0	%100	Active

Member Distributed Loads (BLC 4 : WIND LOAD (NO ICE) SIDE)

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [(...]	Inactive [(lb, k-...
1	M1	PX	-3	-3	0	%100	Active
2	M2	PX	-3	-3	0	%100	Active
3	M3	PX	-3	-3	0	%100	Active
4	M4	PX	-3	-3	0	%100	Active
5	M5	PX	-3	-3	0	%100	Active
6	M6	PX	-3	-3	0	%100	Active
7	M7	PX	-3	-3	0	%100	Active
8	M8	PX	-3	-3	0	%100	Active
9	M17	PX	-12	-12	0	%100	Active
10	M18	PX	-12	-12	0	%100	Active
11	M19	PX	-12	-12	0	%100	Active
12	M20	PX	-12	-12	0	%100	Active
13	M21	PX	-12	-12	0	%100	Active
14	M22	PX	-12	-12	0	%100	Active
15	M23	PX	-12	-12	0	%100	Active
16	M24	PX	-8	-8	0	%100	Active
17	M25	PX	-8	-8	0	%100	Active
18	M26	PX	-8	-8	0	%100	Active
19	M27	PX	-8	-8	0	%100	Active

Member Distributed Loads (BLC 5 : WIND LOAD (ICE) FRONT)

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [(...]	Inactive [(lb, k-...
1	M1	PY	-4.8	-4.8	0	%100	Active
2	M2	PY	-4.8	-4.8	0	%100	Active
3	M3	PY	-4.8	-4.8	0	%100	Active
4	M4	PY	-4.8	-4.8	0	%100	Active
5	M5	PY	-4.8	-4.8	0	%100	Active
6	M6	PY	-4.8	-4.8	0	%100	Active
7	M7	PY	-4.8	-4.8	0	%100	Active

Member Distributed Loads (BLC 5 : WIND LOAD (ICE) FRONT) (Continued)

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [(...]	Inactive [(lb, k-...
8	M8	PY	-4.8	-4.8	0	%100	Active
9	M17	PY	-6.7	-6.7	0	%100	Active
10	M18	PY	-6.7	-6.7	0	%100	Active
11	M19	PY	-6.7	-6.7	0	%100	Active
12	M20	PY	-6.7	-6.7	0	%100	Active
13	M21	PY	-6.7	-6.7	0	%100	Active
14	M22	PY	-6.7	-6.7	0	%100	Active
15	M23	PY	-6.7	-6.7	0	%100	Active
16	M24	PY	-5.9	-5.9	0	%100	Active
17	M25	PY	-5.9	-5.9	0	%100	Active
18	M26	PY	-5.9	-5.9	0	%100	Active
19	M27	PY	-5.9	-5.9	0	%100	Active

Member Distributed Loads (BLC 6 : WIND LOAD (ICE) SIDE)

	Member Label	Direction	Start Magnitud...	End Magnitude...	Start Location [...]	End Location [(...]	Inactive [(lb, k-...
1	M1	PX	-4.8	-4.8	0	%100	Active
2	M2	PX	-4.8	-4.8	0	%100	Active
3	M3	PX	-4.8	-4.8	0	%100	Active
4	M4	PX	-4.8	-4.8	0	%100	Active
5	M5	PX	-4.8	-4.8	0	%100	Active
6	M6	PX	-4.8	-4.8	0	%100	Active
7	M7	PX	-4.8	-4.8	0	%100	Active
8	M8	PX	-4.8	-4.8	0	%100	Active
9	M17	PX	-6.7	-6.7	0	%100	Active
10	M18	PX	-6.7	-6.7	0	%100	Active
11	M19	PX	-6.7	-6.7	0	%100	Active
12	M20	PX	-6.7	-6.7	0	%100	Active
13	M21	PX	-6.7	-6.7	0	%100	Active
14	M22	PX	-6.7	-6.7	0	%100	Active
15	M23	PX	-6.7	-6.7	0	%100	Active
16	M24	PX	-5.9	-5.9	0	%100	Active
17	M25	PX	-5.9	-5.9	0	%100	Active
18	M26	PX	-5.9	-5.9	0	%100	Active
19	M27	PX	-5.9	-5.9	0	%100	Active

Load Combinations

	De...	So...	PD...	SR...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...
1	DL...	Yes	Y		1	1.2		3	1					
2	DL...	Yes	Y		1	1.2		3	0.8...	4	0.5			
3	DL...	Yes	Y		1	1.2		3	0.5	4	0.8...			
4	DL...	Yes	Y		1	1.2				4	1			
5	DL...	Yes	Y		1	1.2		3	-0.5	4	0.8...			
6	DL...	Yes	Y		1	1.2		3	-0....	4	0.5			
7	DL...	Yes	Y		1	1.2		3	-1					
8	DL...	Yes	Y		1	1.2		3	-0....	4	-0.5			
9	DL...	Yes	Y		1	1.2		3	-0.5	4	-0....			
10	DL...	Yes	Y		1	1.2				4	-1			
11	DL...	Yes	Y		1	1.2		3	0.5	4	-0....			
12	DL...	Yes	Y		1	1.2		3	0.8...	4	-0.5			
13	DL...	Yes	Y		1	1.2	2	1	5	1				
14	DL...	Yes	Y		1	1.2	2	1	5	0.8...	6	0.5		
15	DL...	Yes	Y		1	1.2	2	1	5	0.5	6	0.8...		
16	DL...	Yes	Y		1	1.2	2	1		6	1			
17	DL...	Yes	Y		1	1.2	2	1	5	-0.5	6	0.8...		
18	DL...	Yes	Y		1	1.2	2	1	5	-0....	6	0.5		
19	DL...	Yes	Y		1	1.2	2	1	5	-1				
20	DL...	Yes	Y		1	1.2	2	1	5	-0....	6	-0.5		

Load Combinations (Continued)

De...	So...	PD...	SR...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...	BLC Fa...
21	DL...	Yes	Y	1	1.2	2	1	5	-0.5	6	-0.0...				
22	DL...	Yes	Y	1	1.2	2	1			6	-1				
23	DL...	Yes	Y	1	1.2	2	1	5	0.5	6	-0.0...				
24	DL...	Yes	Y	1	1.2	2	1	5	0.8...	6	-0.5				
25	DE...	Yes	Y	1	1.2					7	1.5				
26	DE...	Yes	Y	1	1.2					8	1.5				
27	DE...	Yes	Y	1	1.2					9	1.5				
28	DL...	Yes	Y	1	1.2	10	1.5	3	0.0...						
29	DL...	Yes	Y	1	1.2	11	1.5	3	0.0...						
30	DL...	Yes	Y	1	1.2	12	1.5	3	0.0...						
31	DL...	Yes	Y	1	1.2	13	1.5	3	0.0...						
32	DL...	Yes	Y	1	1.2	10	1.5	4	0.0...						
33	DL...	Yes	Y	1	1.2	11	1.5	4	0.0...						
34	DL...	Yes	Y	1	1.2	12	1.5	4	0.0...						
35	DL...	Yes	Y	1	1.2	13	1.5	4	0.0...						
36	DL...	Yes	Y	1	1.2	10	1.5	3	-0.0...						
37	DL...	Yes	Y	1	1.2	11	1.5	3	-0.0...						
38	DL...	Yes	Y	1	1.2	12	1.5	3	-0.0...						
39	DL...	Yes	Y	1	1.2	13	1.5	3	-0.0...						
40	DL...	Yes	Y	1	1.2	10	1.5	4	-0.0...						
41	DL...	Yes	Y	1	1.2	11	1.5	4	-0.0...						
42	DL...	Yes	Y	1	1.2	12	1.5	4	-0.0...						
43	DL...	Yes	Y	1	1.2	13	1.5	4	-0.0...						

Node Reactions

Node...		X [lbs]	LC	Y [lbs]	LC	Z [lbs]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC	
1	N2	max	1772.7...	32	1887.6...	2	1296.2...	13	0	43	0	43	0	43
2		min	-1281.0...	43	-3122.0...	8	-38.832	7	0	1	0	1	0	1
3	N1	max	1285.25	35	2645.8...	13	1127.1...	19	0	43	0	43	0	43
4		min	-1776.0...	40	-455.939	7	-90.234	1	0	1	0	1	0	1
5	N29	max	168.22	3	1776.1...	9	39.652	15	0	43	0	43	0	43
6		min	-167.153	9	-1782.0...	3	11.572	11	0	1	0	1	0	1
7	Totals:	max	1355.3...	4	2176.2...	1	2305.6...	15						
8		min	-1355.0...	10	-2176.0...	7	624.123	9						

Node Displacements

Node...		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rota...	LC	Y Rota...	LC	Z Rota...	LC	
1	N1	max	0	40	0	7	0	1	-8.311...	2	3.136e...	31	7.278e...	3
2		min	0	35	0	13	0	19	-4.377...	20	-3.39e...	36	-7.163...	9
3	N2	max	0	43	0	8	0	7	-1.138...	2	2.528e...	31	2.819e...	9
4		min	0	32	0	2	0	13	-4.878...	20	-3.973...	36	-3.39e...	3
5	N3	max	0.21	9	0.341	5	0.06	9	2.503e...	4	4.555e...	35	9.473e...	6
6		min	-0.214	3	-0.349	11	-0.268	35	-2.905...	10	-2.725...	9	-9.477...	12
7	N4	max	0.129	9	0.302	5	0.063	9	3.999e...	2	4.446e...	35	9.467e...	6
8		min	-0.135	3	-0.3	11	-0.267	35	-4.333...	8	-2.061...	9	-9.494...	12
9	N5	max	0.211	9	0.618	8	0.054	3	5.405e...	8	2.291e...	3	1.434e...	2
10		min	-0.215	3	-0.632	2	-0.285	40	-5.822...	2	-4.612...	40	-1.424...	8
11	N6	max	0.131	9	0.548	8	0.042	3	2.814e...	11	2.015e...	3	1.447e...	2
12		min	-0.138	3	-0.551	2	-0.284	40	-3.214...	5	-4.744...	40	-1.438...	8
13	N7	max	0.21	9	0.212	3	0.005	40	2.129e...	5	4.884e...	31	5.774e...	5
14		min	-0.214	3	-0.21	9	-0.047	35	-2.503...	11	-1.626...	8	-5.861...	11
15	N8	max	0.128	9	0.128	3	0.006	36	3.684e...	2	5.003e...	35	5.222e...	5
16		min	-0.135	3	-0.121	9	-0.049	31	-3.989...	8	-1.558...	9	-5.231...	11
17	N9	max	0.211	9	0.212	9	0.015	2	9.081e...	7	1.816e...	4	1.056e...	2
18		min	-0.215	3	-0.218	3	-0.065	21	-9.505...	1	-5.196...	40	-1.043...	8
19	N10	max	0.131	9	0.137	9	-0.004	39	7.048e...	12	2.056e...	1	9.41e-03	2
20		min	-0.137	3	-0.14	3	-0.059	23	-7.513...	6	-5.043...	36	-9.31e...	8

Node Displacements (Continued)

Node...		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rota...	LC	Y Rota...	LC	Z Rota...	LC	
79	N40	max	0.015	9	0.015	9	0.003	2	-8.967...	8	2.914e...	31	7.341e...	3
80		min	-0.015	3	-0.016	3	-0.013	21	-3.97e...	15	-3.206...	36	-7.223...	9
81	N41	max	0.197	9	0.197	9	0.004	2	8.065e...	8	6.553e...	2	6.896e...	3
82		min	-0.2	3	-0.203	3	-0.05	21	-2.903...	14	-7.967...	8	-6.712...	9
83	N42	max	0.109	9	0.108	9	0	3	3.354e...	8	2.435e...	2	7.24e-03	3
84		min	-0.11	3	-0.112	3	-0.03	21	-3.691...	2	-1.914...	8	-7.07e...	9
85	N43	max	0.11	10	0.276	5	0.044	9	4.659e...	2	4.443e...	31	9.467e...	6
86		min	-0.113	3	-0.27	11	-0.25	35	-4.993...	8	-1.908...	36	-9.493...	12
87	N44	max	0.247	9	0.354	4	0.044	9	2.554e...	5	4.511e...	35	9.472e...	6
88		min	-0.255	3	-0.36	10	-0.251	35	-2.951...	11	-3.212...	9	-9.477...	12
89	N45	max	0.068	3	0.064	9	0.003	40	1.893e...	2	1.52e-03	31	4.214e...	9
90		min	-0.06	9	-0.071	3	-0.023	35	-2.787...	8	-2.412...	36	-3.187...	3
91	N46	max	0.012	9	0.004	3	0.003	40	1.768e...	2	3.753e...	31	1.848e...	3
92		min	-0.011	3	-0.004	9	-0.028	35	-2.396...	8	-2.747...	8	-1.723...	9
93	N47	max	0.21	9	0.324	4	0.052	9	2.503e...	4	4.555e...	35	9.472e...	6
94		min	-0.214	3	-0.325	10	-0.254	35	-2.905...	10	-2.725...	9	-9.477...	12
95	N48	max	0.129	9	0.276	5	0.056	9	3.999e...	2	4.446e...	35	9.467e...	6
96		min	-0.135	3	-0.275	11	-0.254	35	-4.333...	8	-2.062...	9	-9.493...	12
97	N49	max	0.211	9	0.324	4	0.044	9	2.503e...	4	4.555e...	35	9.472e...	6
98		min	-0.215	3	-0.325	10	-0.251	35	-2.905...	10	-2.725...	9	-9.477...	12
99	N50	max	0.13	9	0.276	5	0.044	9	3.999e...	2	4.446e...	35	9.467e...	6
100		min	-0.137	3	-0.275	11	-0.25	35	-4.333...	8	-2.062...	9	-9.493...	12
101	N51	max	0.152	43	0.316	6	0.044	9	4.751e...	2	4.443e...	31	9.467e...	6
102		min	-0.087	4	-0.302	12	-0.25	35	-5.085...	8	-1.908...	36	-9.493...	12
103	N52	max	0.316	9	0.407	4	0.044	9	2.607e...	5	4.466e...	35	9.472e...	6
104		min	-0.33	3	-0.421	10	-0.252	35	-3.004...	11	-3.304...	9	-9.477...	12

LRFD

Member	Shape	Code...	Loc [in]	LC	Shear...	Loc [in]	Dir	LC	phi*P...	phi*P...	phi*M...	phi*M...	Cb	Eqn
1	M1	SR 5/8"	0.162	0	31	0.103	30	3	3836...	9940.19	0.104	0.104	1.136	H1-1b*
2	M2	SR 5/8"	0.059	15	14	0.073	30	3	3836...	9940.19	0.104	0.104	1.136	H1-1b
3	M3	SR 5/8"	0.237	15.625	21	0.055	30	3	3836...	9940.19	0.104	0.104	1.136	H1-1a
4	M4	SR 5/8"	0.271	17.559	23	0.034	35.119	3	2799...	9940.19	0.104	0.104	1.136	H1-1a
5	M5	SR 5/8"	0.766	17.194	20	0.017	35.119	1	2799...	9940.19	0.104	0.104	1.136	H1-1a
6	M6	SR 5/8"	0.240	15	2	0.013	30	43	3836...	9940.19	0.104	0.104	1.136	H1-1a
7	M7	SR 5/8"	0.128	17.559	15	0.036	35.119	9	2799...	9940.19	0.104	0.104	1.136	H1-1b
8	M8	SR 5/8"	0.571	16.462	35	0.032	35.119	9	2799...	9940.19	0.104	0.104	1.136	H1-1a
9	M17	PIPE...	0.300	32.813	40	0.234	34.125	1	8922...	32130	1.872	1.872	2.009	H1-1b
10	M18	PIPE...	0.306	3.938	32	0.221	34.125	7	8922...	32130	1.872	1.872	2.046	H1-1b
11	M19	PIPE...	0.169	33	3	0.060	63	3	14916...	32130	1.872	1.872	2.67	H1-1b
12	M20	PIPE...	0.740	33	7	0.084	63	8	14916...	32130	1.872	1.872	1.404	H1-1b
13	M21	PIPE...	0.306	33	28	0.053	63	32	14916...	32130	1.872	1.872	3	H1-1b
14	M22	PIPE...	0.081	66.9	9	0.005	66.9	22	22134...	32130	1.872	1.872	1.136	H1-1b*
15	M23	PIPE...	0.299	33	35	0.051	63	43	14916...	32130	1.872	1.872	3	H1-1b
16	M24	PIPE...	0.894	34.986	3	0.213	39.858	3	14378...	19687.5	0.801	0.801	1.697	H1-1b
17	M25	PIPE...	0.238	2.657	35	0.159	0	39	14378...	19687.5	0.801	0.801	1.767	H1-1b
18	M26	PIPE...	0.319	39.415	1	0.208	39.858	1	14378...	19687.5	0.801	0.801	1.809	H1-1b
19	M27	PIPE...	0.346	39.415	8	0.246	39.858	8	14378...	19687.5	0.801	0.801	1.745	H1-1b

Cold Formed Steel Code Checks

No Data to Print...														
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Exhibit F

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

T-Mobile Existing Facility

Site ID: CTHA142G

7 Hoskins Road
Bloomfield, Connecticut 06002

November 11, 2020

EBI Project Number: 6220005838

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	6.01%

November 11, 2020

T-Mobile

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

Emissions Analysis for Site: CTHA142G

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **7 Hoskins Road in Bloomfield, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

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

General population/uncontrolled exposure limits apply to situations in which the general 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 ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately $400 \mu\text{W}/\text{cm}^2$ and $467 \mu\text{W}/\text{cm}^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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 7 Hoskins Road in Bloomfield, 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) 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.
- 5) 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.

- 6) 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.
- 7) 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.
- 8) The antennas used in this modeling are the RFS APXV18-206516S-C-A20 for the 2100 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s) in Sector A, the RFS APXV18-206516S-C-A20 for the 2100 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s) in Sector B, the RFS APXV18-206516S-C-A20 for the 2100 MHz / 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 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.
- 9) The antenna mounting height centerline of the proposed antennas is 140 feet above ground level (AGL).
- 10) 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.
- 11) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXV18-206516S-C-A20	Make / Model:	RFS APXV18-206516S-C-A20	Make / Model:	RFS APXV18-206516S-C-A20
Frequency Bands:	2100 MHz / 2100 MHz	Frequency Bands:	2100 MHz / 2100 MHz	Frequency Bands:	2100 MHz / 2100 MHz
Gain:	16.3 dBd / 16.3 dBd	Gain:	16.3 dBd / 16.3 dBd	Gain:	16.3 dBd / 16.3 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts
ERP (W):	7,678.43	ERP (W):	7,678.43	ERP (W):	7,678.43
Antenna A1 MPE %:	1.41%	Antenna B1 MPE %:	1.41%	Antenna C1 MPE %:	1.41%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	5	Channel Count:	5	Channel Count:	5
Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts
ERP (W):	4,151.83	ERP (W):	4,151.83	ERP (W):	4,151.83
Antenna A2 MPE %:	1.81%	Antenna B2 MPE %:	1.81%	Antenna C2 MPE %:	1.81%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	3.22%
Cingular	0.29%
Verizon	2.5%
Site Total MPE % :	6.01%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	3.22%
T-Mobile Sector B Total:	3.22%
T-Mobile Sector C Total:	3.22%
Site Total MPE % :	6.01%

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 ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 2100 MHz UMTS	2	1279.74	140.0	4.69	2100 MHz UMTS	1000	0.47%
T-Mobile 2100 MHz LTE	2	2559.48	140.0	9.39	2100 MHz LTE	1000	0.94%
T-Mobile 600 MHz LTE	2	591.73	140.0	2.17	600 MHz LTE	400	0.54%
T-Mobile 600 MHz NR	1	1577.94	140.0	2.89	600 MHz NR	400	0.72%
T-Mobile 700 MHz LTE	2	695.22	140.0	2.55	700 MHz LTE	467	0.55%
						Total:	3.22%

• 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:	3.22%
Sector B:	3.22%
Sector C:	3.22%
T-Mobile Maximum MPE % (Sector A):	3.22%
Site Total:	6.01%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **6.01%** 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 G

April 26, 2021

Mr. Sheldon Freinle
Northeast Site Solutions (Agent for T-Mobile Wireless).

RE: Letter of Authorization

**Project: T-Mobile Site ID: CTHA142G, (Eversource).
7 Hoskins Road
Bloomfield, CT.**

Owner: Eversource Energy

Dear Mr. Freinle,

Eversource Energy, owner of the tower facility located at the address identified above, do hereby authorize, T-Mobile Wireless, and/ or it's agent, to use this authorization letter for the sole purpose of filing and consummating any land-use or building permit application(s) as may be required by the applicable permitting authorities for the Licensee's telecommunication's installation.


Sincerely, *Steven J Florio*

Steven J. Florio
Eversource Energy

REF: T-Mobile Site (Eversource), Bloomfield, Ct.

**REF: EFI Global Inc.
Structural Analysis Project # CTHA142G.
Rev. Date 03/01/2021**

Exhibit H



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 CT SITING COUNCIL
 10 FRANKLIN SQ
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Ship Date: 05/15/2021	
Expected Delivery Date: 05/18/2021	

From: DEBORAH CHASE Ref#: HA142G-AN
 NORTHEAST SITE SOLUTIONS, LLC
 420 MAIN ST STE 2
 STURBRIDGE MA 01566-1359

To: LISA MATTHEWS
 CT SITING COUNCIL
 10 FRANKLIN SQ
 NEW BRITAIN CT 06051-2655

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