NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

Northeast Site Solutions
Denise Sabo
199 Brickyard Rd Farmington, CT 06032
860-209-4690
denise@northeastsitesolutions.com

February 10, 2017

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

RE: Notice of Exempt Modification
237 Godfrey Road, Weston CT 06883
Latitude: 41.24222200
Longitude: -73.36444400
T-Mobile Site#: CT11121C_L700

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 185-foot level of the existing 185-foot self-support tower located at 237 Godfrey Road, Weston CT. The tower is owned by the Town of Weston. The property is owned by the Town of Weston. T-Mobile now intends to install three (3) new 700 MHz antenna. The new antennas would be installed at the 185-foot level of the tower. T-Mobile also intends to make the following modifications.

Planned Modifications:

Remove: None

Remove and Replace: None

Install New:
(3) Commscope LNX-6515DS-A1M Antenna
(3) RRUS11 B12

Existing to Remain:
(3) KRC118023-1B2A_B4P Antenna
(3) KRC118046-1B2P_B4A
(12) 1-5/8" Coax
(1) Hybrid Line
(3) TMA-1B-Twin AWS

This facility was approved by the Connecticut Siting Council. TS-T-MOBILE-157-060907 – Approval was received for the installation of a 185' lattice tower with a 185" T-Mobile RAD center. Please see attached.

NORTHEAST SITE SOLUTIONS

Turnkey Wireless Development

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.SA. § 16-SOj-73, a copy of this letter is being sent to First Selectman Nina Daniel, Elected Official and Tracy Kulikowski, Land Use Director Officer for the Town of Weston, as well as the property owner and the tower 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,

Denise Sabo
Mobile: 860-209-4690
Fax: 413-521-0558
Office: 199 Brickyard Rd, Farmington, CT 06032
Email: denise@northeastsitesolutions.com

Attachments
cc: Nina Daniel – First Selectman - as elected official
Tracy Kulikowski – Land Use Director
Town of Weston - as tower owner & property owner

Exhibit A

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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

October 2, 2006

Karina Fournier
Zoning Dept.
T-Mobile
30 Cold Spring Road
Rocky Hill, CT 06067

RE: **TS-T-MOBILE-157-060907** - Omnipoint Communications, Inc. request for an order to approve tower sharing at an existing telecommunications facility located at 237 Godfrey Road, Weston, Connecticut.

Dear Ms. Fournier:

At a public meeting held September 28, 2006, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility may require an explicit request to this agency pursuant to General Statutes § 16-50aa or notice pursuant to Regulations of Connecticut State Agencies Section 16-50j-73, as applicable. Such request or notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction. Please be advised that the validity of this action shall expire one year from the date of this letter.

The proposed shared use is to be implemented as specified in your letter dated September 7, 2006, including the placement of all necessary equipment and shelters within the tower compound.

Thank you for your attention and cooperation.

Very truly yours,

Daniel F. Caruso
Chairman

DFC/MP/laf

c: The Honorable Woody Bliss, First Selectman, Town of Weston
Robert P. Turner, Zoning Enforcement Officer, Town of Weston
Thomas J. Regan, Esq., Brown Rudnick Berlack Israels, LLP

T-Mobile®

30 Cold Springs Road
Rocky Hill, CT 06067

ORIGINAL

Karina.Fournier@T-mobile.com
860-796-3988

TS-T-MOBILE-157-060907

September 7, 2006

BY HAND

Daniel F. Caruso, Chairman and
Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: **Tower Sharing Request by T-Mobile**
237 Godfrey Road East Weston, CT
Latitude: 41 14 38 / Longitude: 73 21 57

Dear Chairman Caruso and Members of the Siting Council:

Pursuant to Connecticut General Statutes (C.G.S.) § 16-50aa, Omnipoint Communications, Inc. a.k.a. T-Mobile (formerly Voicestream Wireless Corp.) hereby requests an order from the Connecticut Siting Council ("Council") to approve the proposed ("Weston Town Transfer Station"), in Weston, CT owned by the Town of Weston. T-Mobile and the Town of Weston have agreed to the shared use of the Weston Town Transfer Station, as detailed below.

Weston Town Transfer Station

The Weston Town Transfer Station Tower facility consists of a one hundred eighty five (185') foot lattice tower ("Tower") owned and operated by the Town of Weston. T-Mobile proposes to locate antennas at a centerline mounting height of one hundred eighty five (185') feet. The equipment will be located within a compound at the base of the tower.

Weston Town Transfer Station

As shown on the enclosed plans prepared by including a site plan and tower elevation of the August 30, 2006, annexed hereto as Exhibit 1, T-Mobile proposes a shared use of the Facility by placing antennas on the tower and equipment needed to provide personal communications services ("PCS") within the existing site plan. T-Mobile will install six (6) antennas at the one hundred eighty five (185) foot level of the Tower. Three (3) associated unmanned equipment cabinets will be located at the base of the tower.

Connecticut General Statutes § 16-50aa provides that, upon written request for shared use approval, an order approving such use shall be issued, "if the council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns." (C.G.S. § 16-50aa(c)(1).) Further, upon approval of such shared use, it is exclusive and no local zoning or land use approvals are required C.G.S. §16-50x. Shared use of the Weston Town Transfer Station Tower satisfies the approval criteria set forth in C.G.S. § 16-50aa as follows:

A. Technical Feasibility The existing Tower and compound were designed to accommodate multiple carriers. A tower design is attached as Exhibit 2. The tower is designed to accommodate the proposed T-Mobile antennas. The proposed shared use of this Tower is technically feasible. Further there is sufficient room at the base of the facility, thus the site plan will not have to be altered.

B. Legal Feasibility Pursuant to C.G.S. § 16-50aa, the Council has been authorized to issue an order approving shared use of the existing Weston Town Transfer Station. (C.G.S. § 16-50aa (C)(1)). Under the authority vested in the Council by C.G.S. § 16-50aa, an order by the Council approving the shared use of a tower would permit the Applicant to obtain a building permit for the proposed installation.

C. Environmental Feasibility The proposed shared use would have a minimal environmental effect, for the following reasons:

1.) The proposed installation would have a de minimis visual impact, and would not cause any significant change or alteration in the physical or environmental characteristics of the existing facility,

2.) The proposed installation by T-Mobile would not increase the height of the tower nor expand the site plan at the Weston Town Transfer Station and will be of minimal impact to the facility;

3.) The proposed installation would not increase the noise levels at the existing facility boundaries by six decibels or more;

4.) Operation of T-Mobile's antennas at this site would not exceed the total radio frequency electromagnetic radiation power density level adopted by the FCC and Connecticut Department of Health. The "worst case" exposure calculated for the operation of this facility for T-Mobile would be approximately 5.29% of the standard. See Radio Frequency Memo dated September 6, 2006, annexed hereto as Exhibit 3.

5.) The proposed shared use of the Weston Town Transfer Station will not require any water or sanitary facilities, or generate any air emissions or discharges to water bodies. Further, the installation will not generate any traffic other than for periodic maintenance visits.

D. Economic Feasibility The Applicant and the tower owner have agreed to share use of the Weston Town Transfer Station Tower on terms agreeable to both parties. The proposed tower sharing is therefore economically feasible.

E. Public Safety As stated above and evidenced in the Radio Frequency Field Survey annexed hereto as Exhibit 3, the operation of T-Mobile's antennas at this site would not exceed the total radio frequency electromagnetic radiation power density level adopted by the FCC and Connecticut Department of Health. Further, the addition of T-Mobile's telecommunications service in the Weston area through shared use of the Weston Town Transfer Station Tower is expected to enhance the safety and welfare of local residents and travelers through the area resulting in an improvement to public safety in this area.

Conclusion

Weston Town Transfer Station Tower satisfies the criteria set forth in C.G.S. § 16-50aa, and advances the General Assembly's and the Siting Council's goal of preventing the proliferation of tower in the State of Connecticut. T-Mobile therefore requests the Siting Council issue an order approving the proposed shared use of the Weston Town Transfer Station Tower.

Respectfully submitted,

Karina Fournier
Zoning Dept.
T-Mobile
30 Cold Spring Road
Rocky Hill, CT 06067
(860) 796-3988

cc: First Selectmen, Woody Bliss
Town Administrator, Tom Landry

Sabre Communications Corporation ™

Guyed and Self-Supporting Towers, Monopoles, HF Antenna Systems and Turnkey Installations

PROPOSAL

Prepared for: SPRINT PCS
21 Windmill Road
Harwinton, CT 06791
Attn: Mr. Steven Florio

Proposal No.: 06-8653-MJB-R3
Date: 06/20/06 Page 1 of 4
Reference: 185' S3TL/Weston, CT #CT33XC522
FOB: Destination Payment Terms: Net 30

SABRE MODEL S3TL SELF-SUPPORTING TOWER

Quantity of one (1) 185' Sabre Model S3TL self-supporting tower.

The tower will be triangular in design with a base width of 21' - 0" tapering to 5' - 0" at the top. The tower will utilize tubular steel for tower legs and angular steel for bracing.

The tower will be designed for a basic wind speed of 85 mph (105 mph 2003 International Building Code - 3 second gust) with ½" of radial ice in accordance with ANSI/TIA/EIA-222-F-1996 (reduction in wind speed will be considered when ice is applied).

The tower will be designed to support the following equipment:

	ANTENNA MODEL NUMBER (QTY)	RADOME YES	RADOME NO	ELEVATION C.O.R.	TX. LINE SIZE & TYPE	FREQUENCY	AZIMUTH TO NORTH	ANTENNA MOUNT (DESIGN)	MOUNT PROVIDED YES	MOUNT PROVIDED NO
1	(12) 5' x 1' x 6in Panel Antenna		X	185'	(12) 1 5/8"	N/A	Unknown	12' 3T-Boom Sector Mount		X
2	(6) 20' x 3in Whip Antennas		X	185'	(6) 1 5/8"	N/A	Unknown	Same as above		X
3	(12) 5' x 1' x 6in Panel Antenna		X	175'	(12) 1 5/8"	N/A	Unknown	12' 3T-Boom Sector Mount		X
4	(12) 5' x 1' x 6in Panel Antenna		X	165'	(12) 1 5/8"	N/A	Unknown	12' 3T-Boom Sector Mount		X
5	(12) 5' x 1' x 6in Panel Antenna		X	155'	(12) 1 5/8"	N/A	Unknown	12' 3T-Boom Sector Mount		X
6	(6) 10' x 3in Whip Antennas		X	144'	(6) 1 5/8"	N/A	Unknown	(3) 6ft Sidearms		X
7	(1) 6' Solid Dish	X		120'	(1) 1 5/8"	6 GHz	Unknown	(1) 4 1/2" O.D. Leg Dish Mount		X
8	(1) 6' Solid Dish	X		110'	(1) 1 5/8"	6 GHz	Unknown	(1) 4 1/2" O.D. Leg Dish Mount		X
9	(1) 6' Solid Dish	X		100'	(1) 1 5/8"	6 GHz	Unknown	(1) 4 1/2" O.D. Leg Dish Mount		X

ITEM I *TOWER MATERIALS* ..... **$ 34,425.00**

Materials to be provided include:

Complete tower steel and hardware
Anchor bolts and templates
Construction step bolts (see notes)
Outside climbing ladder
Two (2) waveguide support ladders with two (2) stackers (to support twenty-four (24) initial lines)
DBI safety cable kit without harness (200')
EIA standard grounding with one (1) 4' x 5/8" copper-clad steel lightning rod
P.E. certified tower profile and foundation drawings
Final erection drawings

Exhibit B

Town of Weston, CT

Recent Sales in Neighborhood | Previous Parcel | Next Parcel | Field Definitions | Return to Main Search | Weston Home

Owner and Parcel Information

Owner Name	TOWN OF WESTON LANDFILL/TRANSFER STATION	**Today's Date**	February 2, 2017
Mailing Address	237 GODFREY RD	**Parcel ID**	13105 (Account #: E00131)
	WESTON, CT 06883	**Map/Block/Lot**	16/1/35
Location Address	237 GODFREY ROAD		
Subdivision Map / Lot	1957 /	**Acreage**	57.35
Use Class / Description	901 Municipal	**Subdivision**	

Current Appraised Value Information

Building Value	XF Value	OB Value	Land Value	Special Land Value	Total Appraised Value	Net Appraised Value	Current Assessment
$ 27,300	$ 0	$ 71,800	$ 2,007,000		$ 2,106,100	$ 2,106,100	$ 1,474,400

Assessment History

Year	Building	OB/Misc	Land	Total Assessment
2016	$ 19,100	$ 50,400	$ 1,404,900	$ 1,474,400
2015	$ 19,100	$ 50,400	$ 1,404,900	$ 1,474,400
2014	$ 19,100	$ 50,400	$ 1,404,900	$ 1,474,400

Land Information

Use	Class	Area	Value
Municipal	E	2 AC	$ 900,000
Municipal	E	55.35 AC	$ 1,107,000

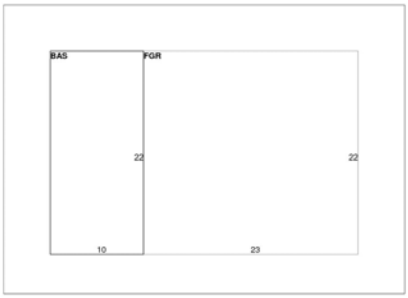
Commercial Building Information

Style	Year Built	Eff Year Built	Gross Area	Stories	Grade	Exterior Wall	Interior Wall	Wall Height	# Units
Warehouse	1980	2002	726	1	C	Concrete	Minimum	10	0
Roof Cover	**Roof Structure**	**Floor Type**	**Heat Type**	**Heat Fuel**	**AC Type**	**Sprinkler**	**Construction**	**Plumbing**	**Comm Walls**
Asphalt Shingl	Gable	Concr Abv Grad	Oil	Forced Air	Heat/AC Split	%	Reinforced Cnc	Light	0%

Building Sub Areas

Code	Description	Living Area	Gross Area
BAS	First Floor	220	220
FGR	Garage	0	506
	Totals	**220**	**726**

Building Sketch Enlarge



Building Photo Enlarge

Out Buildings / Extra Features

Description	Sub Description	Area	Year Built	Value
Garage	Masonary	912 S.F.	1992	$ 21,500
Studio/Office		207 S.F.	1980	$ 12,400
Shed		460 S.F.	1980	$ 2,800
Shed		676 S.F.	1980	$ 3,000
Shed		288 S.F.	1980	$ 1,300
Paving Asph.		19,000 S.F.	1980	$ 30,800

Sale Information

Sale Date	Sale Price	Deed Book/Page	Sale Qualification	Reason	Vacant or Improved	Owner

00/00/0000		74/ 498				TOWN OF WESTON LANDFILL/TRANSFER STATION

Permit Information

Permit ID	Issue Date	Type	Description	Amount	Inspection Date	% Complete	Date Complete	Comments
7486	11/24/2014			$ 25,000	04/30/2015	100	12/15/2014	SEE PERMIT
7392	06/03/2014			$ 10,000	12/24/2014	100	08/01/2014	ANTENNAS & FIBER CABLE
7293	06/03/2014			$ 25,000	12/24/2014	100	08/01/2014	ANTENNAS
7169	03/14/2013			$ 25,000	11/06/2013	100	10/01/2013	SEE PERMIT
7043	06/20/2012			$ 15,000	11/06/2013	100	10/01/2012	ELECTRICAL
6932	08/30/2011			$ 20,000	11/06/2013	100	10/01/2011	SEE PERMIT
6565	04/08/2009				10/30/2009	100	10/01/2009	SEE PERMIT
6547	02/25/2009			$ 50,000	10/30/2009	100	10/01/2009	INSTALL ANTENNAS, EQUIP SHED, GENERATOR
6110	10/24/2006			$ 285,000		100		CELL TOWER

Recent Sales in Neighborhood | Previous Parcel | Next Parcel | Field Definitions | Return to Main Search Page | Weston Home

237 Godfrey Road, Weston

TAX MAP
TOWN OF
WESTON, CONNECTICUT
SCALE: 1"=200' JAN. 5. 1988
COMPILED FROM MAPS OF RECORD, 1988
PREPARED BY B.G. ROOT, SURVEYOR-WESTPORT, CONN.

SCALE IN FEET
0 100 200 400

BLOCK LIMIT

SHEET 16

Exhibit C

ANTENNA UPGRADES
BY

T-Mobile

T-MOBILE NORTHEAST LLC

SITE NUMBER: CT11121C
SITE NAME: CT121/Weston Transfer_FT
SITE ADDRESS: 237 Godfrey Road East
Weston, CT 06883
(702Cu CONFIGURATION)

PROJECT SCOPE:

T-MOBILE, A WIRELESS TELECOMMUNICATIONS PROVIDER PROPOSES TO UPGRADE THEIR EXISTING FACILITY AS FOLLOWS:
ADD: (3) PERIPHERAL REMOTE RADIO UNITS AND (3) ANTENNAS.

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.

APPLICABLE STATE ADOPTION CODES:

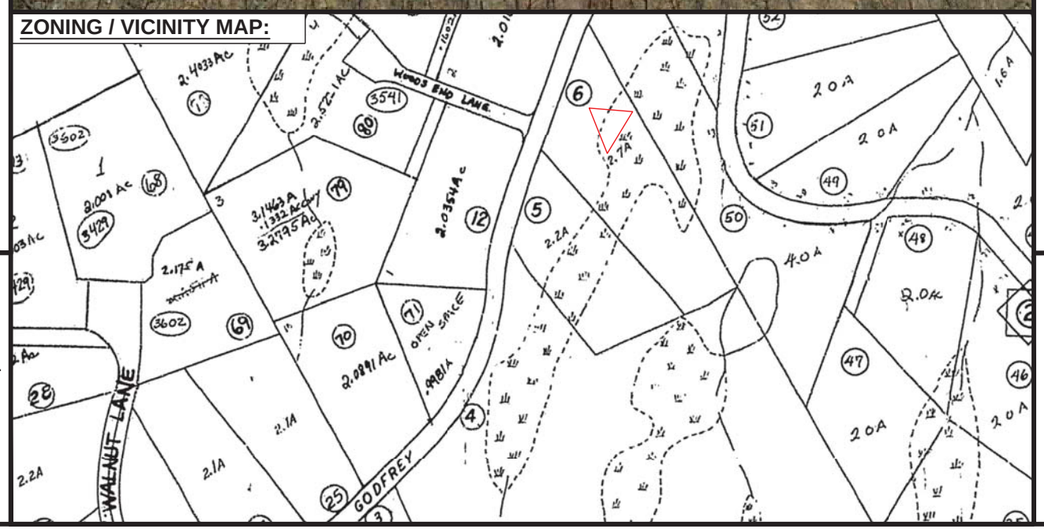
2016 CONNECTICUT STATE BUILDING CODE (CSBC).

ANSI/TIA-222-G-2005 STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.

2014 NATIONAL ELECTRICAL CODE (NFPA 70) FOR POWER AND GROUNDING REQUIREMENTS.

SATELLITE IMAGE:

ZONING / VICINITY MAP:



PROJECT INFORMATION:

ADDRESS:	237 GODFREY ROAD EAST WESTON, CT 06883
STRUCTURE TYPE:	SELF SUPPORT TOWER
COORDINATES:	N 41.24222200 , W -73.36444400
STRUCTURE HEIGHT:	185' AGL

PROJECT TEAM:

APPLICANT:	T-MOBILE NORTHEAST, LLC. 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 860-692-7100
LANDLOARD:	TOWN OF WESTON 56 NORFIELD ROAD WESTON, CT 06883
DEVELOPER:	NORTHEAST SITE SOLUTIONS 199 BRICKYARD RD FARMINGTON, CT 06032 SHELDON FREINCLE SHELDON@NORTHEASTSITE SOLUTIONS.COM 203-376-9186
CONSULTANTS:	FORESITE LLC 462 WALNUT ST NEWTON, MA 02460 SAEED MOSSAVAT SMOSSAVAT@FORESITELLC.COM 617-212-3123

SHEET INDEX:

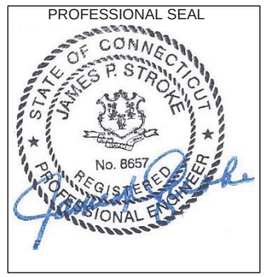
T-1:	TITLE SHEET
N-1:	NOTES AND DISCLAIMERS
A-1:	PLANS AND ELEVATIONS
A-2:	ANTENNAS, EQUIPMENT AND INSTALLATION
E-1:	GROUNDING DETAILS

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

TURNKEY DEVELOPER:
NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
199 Brickyard road
Farmington, CT 06032
203-275-6669

CONSULTANT:
FORESITE LLC
Architects . Engineers . Surveyors
462 Walnut street
Newton, MA 02460
617-212-3123

PROFESSIONAL SEAL



REV	DESCRIPTION	DATE
A	PRELIMINARY	01/18/17

SITE NUMBER: CT11121C
SITE NAME: CT121/Weston Transfer_FT
SITE ADDRESS: 237 Godfrey Road East
Weston, CT 06883

SHEET TITLE:
T-1: TITLE SHEET

NOTES AND DISCLAIMERS:

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. 2009 LIFE SAFETY CODE NFPA – 101.

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

TURNKEY DEVELOPER:
NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
199 Brickyard road
Farmington, CT 06032
203-275-6669

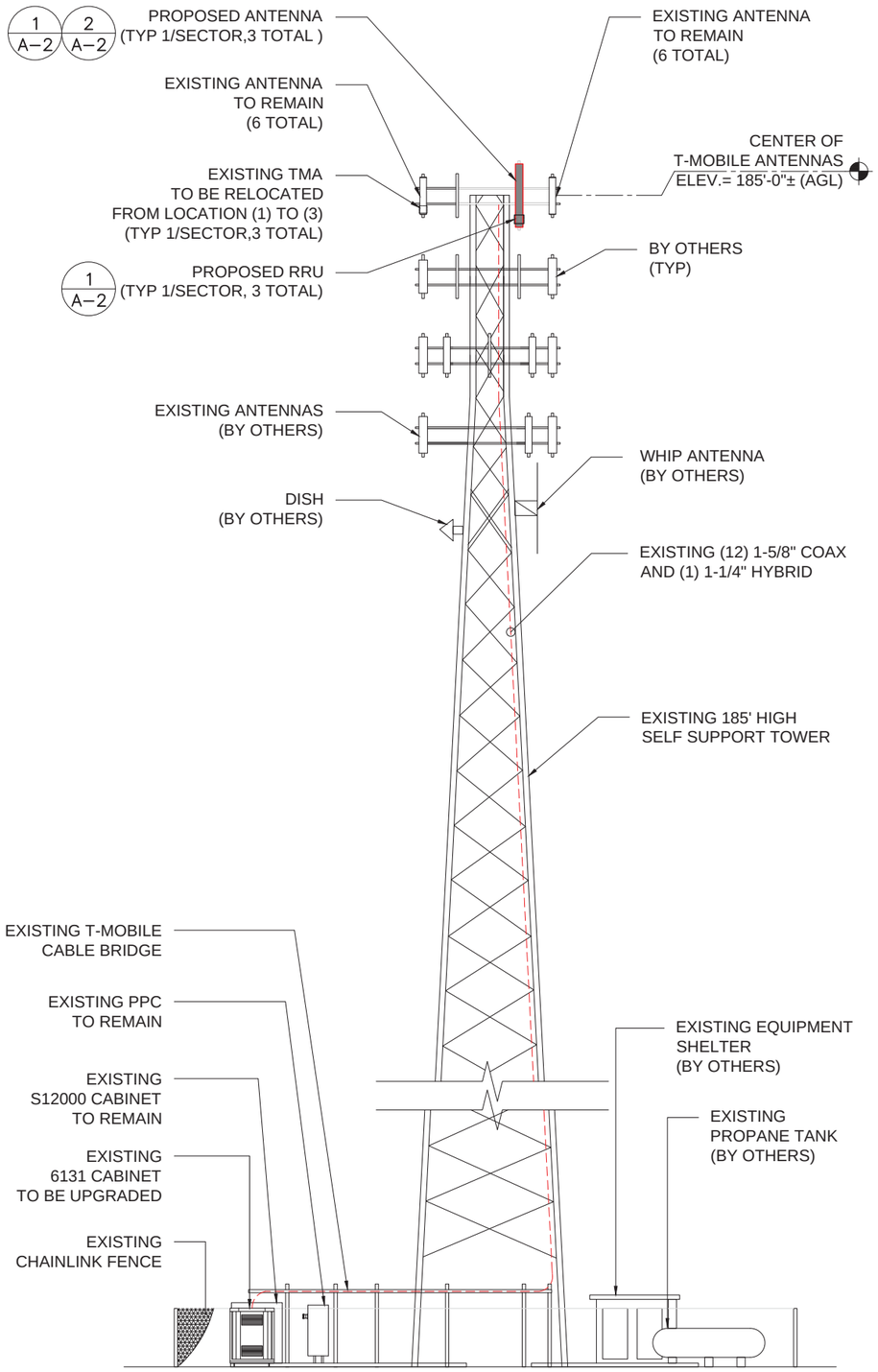
CONSULTANT:
FORESITE LLC
Architects . Engineers . Surveyors
462 Walnut street
Newton, MA 02460
617-212-3123

PROFESSIONAL SEAL

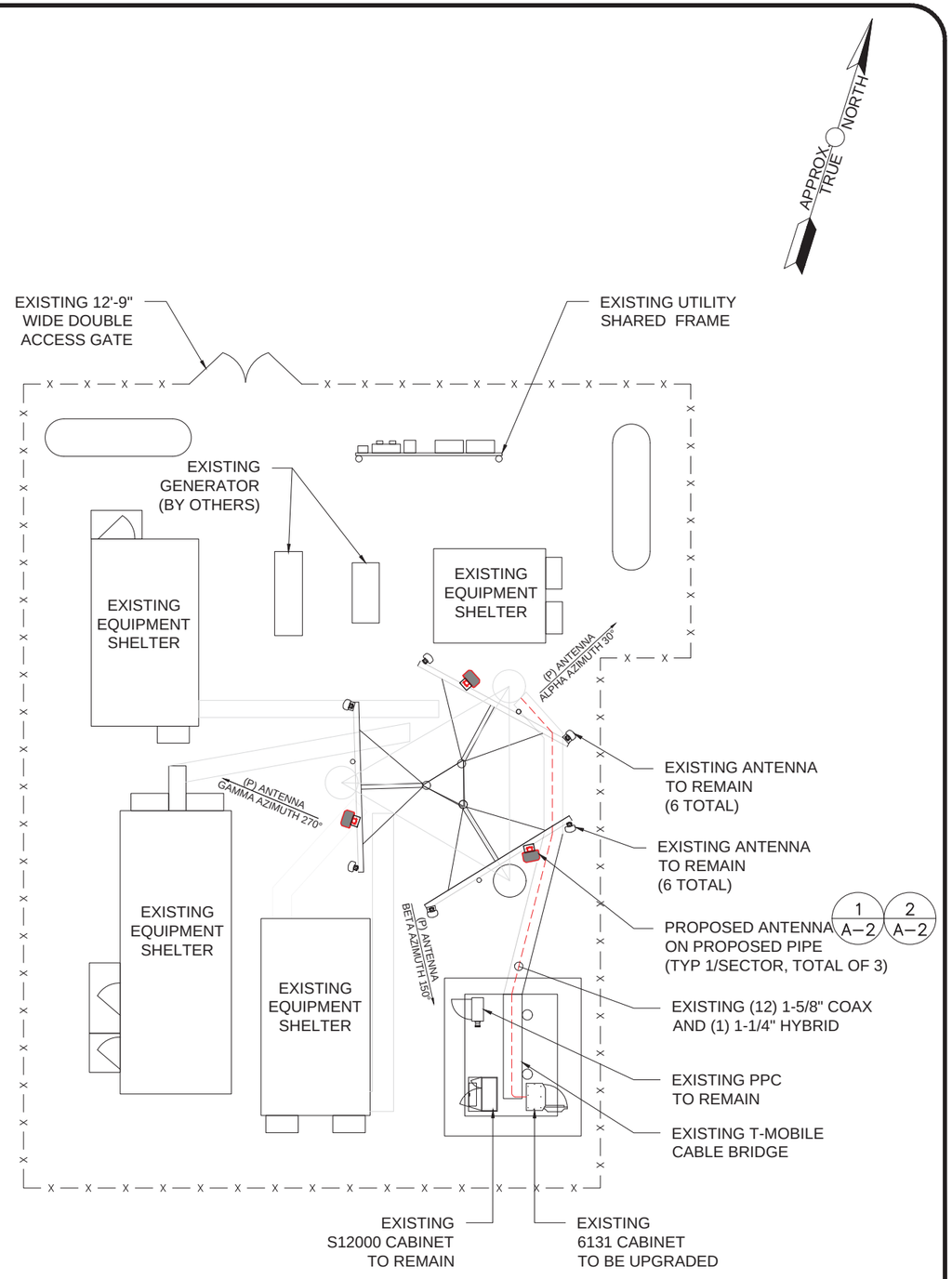
REV	DESCRIPTION	DATE
A	PRELIMINARY	01/18/17

SITE NUMBER: CT11121C
SITE NAME: CT121/Weston Transfer_FT
SITE ADDRESS: 237 Godfrey Road East
Weston, CT 06883

SHEET TITLE:
N-1: NOTES AND DISCLAIMERS



ELEVATION
SCALE 1"=20'
1 A–1



SITE PLAN
SCALE 1"=16'
2 A–1

APPLICANT:

T-MOBILE NORTHEAST LLC

35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

TURNKEY DEVELOPER:

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
199 Brickyard road
Farmington, CT 06032
203-275-6669

CONSULTANT:

FORESITE LLC
Architects . Engineers . Surveyors
462 Walnut street
Newton, MA 02460
617-212-3123

PROFESSIONAL SEAL

STATE OF CONNECTICUT
JAMES P. STROKE
No. 8657
REGISTERED PROFESSIONAL ENGINEER

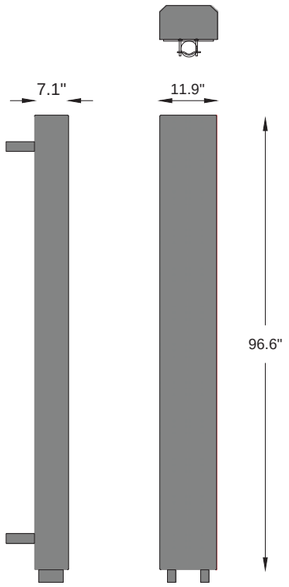
REV	DESCRIPTION	DATE
A	PRELIMINARY	01/18/17

SITE NUMBER: CT11121C
SITE NAME: CT121/Weston Transfer_FT
SITE ADDRESS: 237 Godfrey Road East
Weston, CT 06883

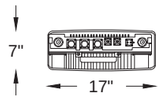
SHEET TITLE:
A-1: PLANS AND ELEVATIONS

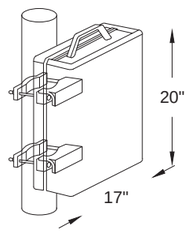
ADD:
(3) ANTENNAS

Manufacturer:	COMMSCOPE
Model	LNX-6515DS-A1M
Footprint:	96.6"Hx11.9"Wx7.1"D
weight:	43.7 lbs
Frequency band	698-896 MHZ
Antenna type	Single Sector
Wind loading lateral	150 km/h
Wind loading rear	150 km/h
Wind loading maximum	241 km/h

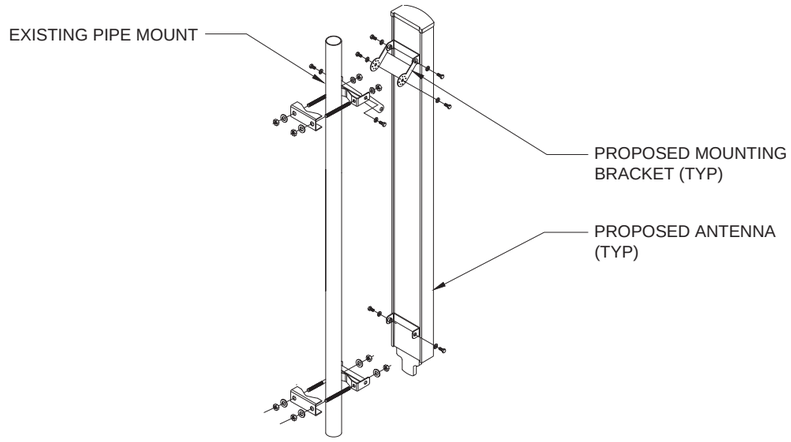


ADD:
(3) RRUS 11B12 DETAILS





ANTENNA AND EQUIPMENT DETAILS (1 / A–2)
N.T.S



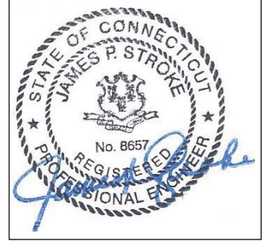
ANTENNA MOUNTING DETAIL (2 / A–2)
N.T.S

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

TURNKEY DEVELOPER:
NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
199 Brickyard road
Farmington, CT 06032
203-275-6669

CONSULTANT:
FORESITE LLC
Architects . Engineers . Surveyors
462 Walnut street
Newton, MA 02460
617-212-3123

PROFESSIONAL SEAL



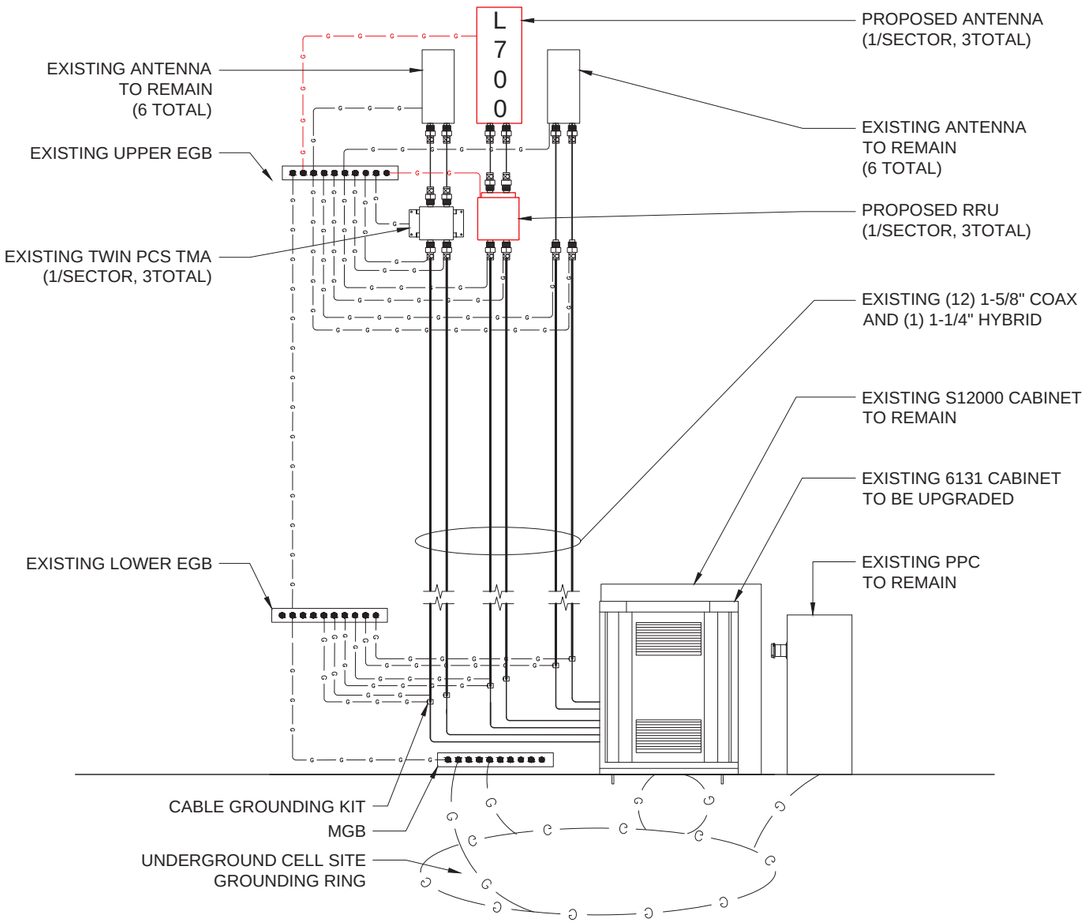
REV	DESCRIPTION	DATE
A	PRELIMINARY	01/18/17

SITE NUMBER: CT11121C
SITE NAME: CT121/Weston Transfer_FT
SITE ADDRESS: 237 Godfrey Road East
Weston, CT 06883

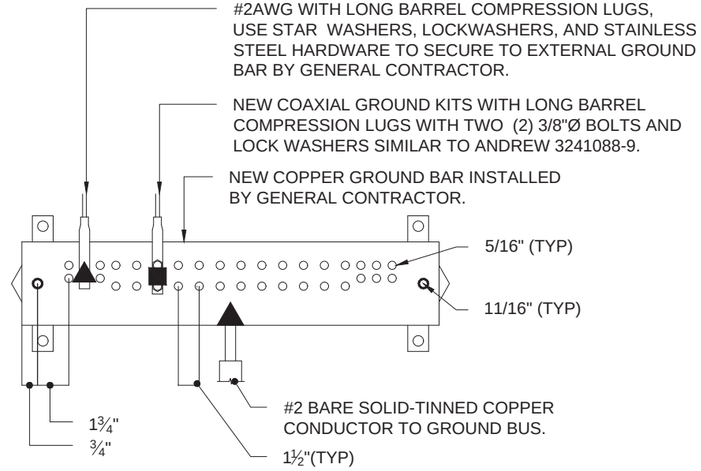
SHEET TITLE:
A-2: ANTENNAS, EQUIPMENT AND DETAILS

NOTES TO CONTRACTOR

1. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY ALL APPLICABLE CODES.
2. ALL GROUNDING WORK SHALL BE IN ACCORDANCE WITH T-MOBILE STANDARD PRACTICE.
3. ALL BUS CONNECTORS SHALL BE TWO-HOLE, LONG-BARREL TYPE COMPRESSION LUGS, T&B OR EQUAL, UNLESS OTHERWISE NOTED ON DRAWINGS. ALL LUGS SHALL BE ATTACHED TO BUSSES USING BOLTS, NUTS, AND LOCK WASHERS. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED.
4. ALL CONNECTORS SHALL BE CRIMPED USING HYDRAULIC CRIMPING TOOLS, T&B #TBM 8 OR EQUIVALENT.
5. ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FILED TO ENSURE PROPER CONTACT . NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS ARE TO HAVE A NON-OXIDIZING AGENT APPLIED PRIOR TO INSTALLAT ION.
6. ALL COPPER BUSSES SHALL BE CLEANED, POLISHED, AND A NON-OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.
7. ALL BENDS SHALL BE AS SHALLOW AS POSSIBLE, WITH NO TURN SHORTER THAN AN 8-INCH NOMINAL
8. GROUNDING CONDUCTORS SHALL BE SOLID TINNED COPPER AND ANNEALED #2. ALL GROUNDING CONDUCTORS SHALL RUN THROUGH PVC SLEEVES WHEREVER CONDUCTORS RUN THROUGH WALLS, FLOORS, OR CEILINGS. IF CONDUCTORS MUST RUN THROUGH EMT, BOTH ENDS OF CONDUIT SHALL BE GROUNDED. SEAL BOTH ENDS OF CONDUIT WITH SILICONE CAULK.
9. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 10 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE PROJECT MANAGER FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE
10. ALL ROOF TOP ANTENNA MOUNTS SHALL BE GROUNDED WITH A #2 GROUND WIRE CONNECTED TO THE NEAREST GROUND BUS. ALL CONNECTIONS ARE TO BE CAD-WELDED IF POSSIBLE.
11. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO THE PROJECT MANAGER.
12. GROUNDING CONNECTION TO TRAVEL IN A DOWNWARD DIRECTION.
13. ALL EXPOSED #2 WIRE MUST BE TINN NOT BTW.

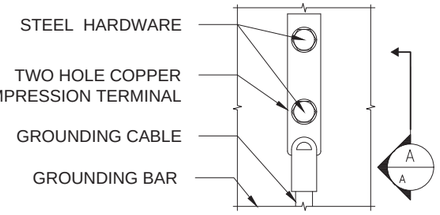


GROUNDING DIAGRAM 1 / E–1
SCALE: N.T.S

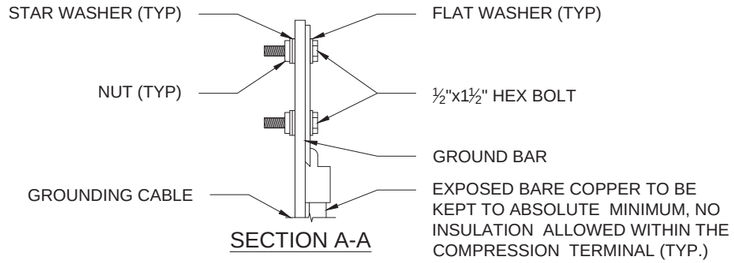


NOTES:
1. ALL HARDWARE STAINLESS STEEL COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH KOPR-SHIELD.
3. ALL HOLES ARE COUNTERSUNK 1/16".

GROUND BAR DETAILS 2 / E–1
SCALE: N.T.S



ELEVATION



SECTION A-A

NOTES:
1. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

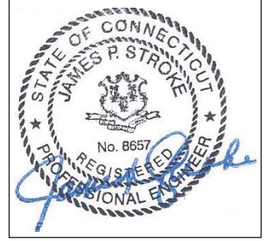
TYPICAL GROUND BAR CONNECTIOS DETAIL 3 / E–1
SCALE: N.T.S

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

TURNKEY DEVELOPER:
NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development
199 Brickyard road
Farmington, CT 06032
203-275-6669

CONSULTANT:
FORESITE LLC
Architects . Engineers . Surveyors
462 Walnut street
Newton, MA 02460
617-212-3123

PROFESSIONAL SEAL



REV	DESCRIPTION	DATE
A	PRELIMINARY	01/18/17

SITE NUMBER: CT11121C
SITE NAME: CT121/Weston Transfer_FT
SITE ADDRESS: 237 Godfrey Road East
Weston, CT 06883

SHEET TITLE:
E-1: GROUNDING DETAILS

Exhibit D

Structural Analysis report

Date: January 11, 2017

Site Number: CT11121C
Site Name: CT121/Weston Transfer_FT

Site Address:
237 Godfrey Road East
Weston, CT 06883

PREPARED FOR:

T-MOBILE NORTHEAST LLC

35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
860-692-7100

CONSULTANT:

FORESITE LLC
Architects . Engineers . Surveyors

462 Walnut street
Newton, MA 02460
Contact: Saeed Mossavat
email:smossavat@Foresitellc.com
617-527-3031

TURNKEY DEVELOPER:

NSS NORTHEAST SITE SOLUTIONS
Turnkey Wireless Development

199 Brickyard road
Farmington, CT 06032
Contact: Sheldon Freincle
sheldon@northeastsitesolution.com
203-275-6669

STRUCTURAL ANALYSIS REPORT – REV. 1
SELF-SUPPORT TOWER

Prepared For:

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

Structure Rating

Self-Support Tower: Pass (91.1%)

Sincerely,
Destek Engineering, LLC
License No: PEC0001429

01/24/2017

Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

Site Name: CT121/Weston Transfer_FT
Site ID: CT11121C
237 Godfrey Road East
Weston, CT 06883

Destek Job No: 1675003 January 24, 2017

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 – CONCLUSION AND RESULTS

APPENDICES

A – SOFTWARE OUTPUT

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 -Tel: (770) 693-0835

1.0 SUBJECT AND REFERENCES

The purpose of this analysis is to evaluate the structural capacity of the the existing 185'-0" tall lattice tower located at 237 Godfrey Road East, Weston, CT 06883 for the additions and alterations proposed by T-Mobile.

The structural analysis is based on the following documentation provided to Destek Engineering, LLC (Destek):

- RFDS provided by T-Mobile, dated 12/01/2016.
- Structural Analysis Report prepared by Hudson Design Group, LLC, dated 04/02/2015.
- Final Loading Scope provide by Foresite LLC, dated 01/04/2017.

1.1 STRUCTURE

The subject structure is a three-sided, 185'-0" tall self-supporting lattice tower formed by nine 20'-0" sections and one 5'-0" section. Pipe legs are braced along the tower height with single angle diagonals. The tower is 21'-0" wide at the base and 5'-0" wide at the top, with a slope change at 160'-0". Please refer to the software output in Appendix A for tower geometry, member sizes, and other details.

2.0 EXISTING AND PROPOSED APPURTENANCES

Existing Configuration of T-Mobile Appurtenances:

Rad Center (ft.)	Antennas & Equipment	Coax	Mount
185	(3) KRC118023-1_B2A_B4P (3) KRC118046-1_B2P_B4A (3) Generic Style 1B - Twin AWS	(12) 1-5/8" (1) 1-1/4"	(3) Sector Mounts

Proposed and Final Configuration of T-Mobile Appurtenances:

Rad Center (ft.)	Antennas & Equipment	Coax	Mount
185	(3) KRC118023-1_B2A_B4P (3) KRC118046-1_B2P_B4A (3) LNX-6515DS-A1M (3) Generic Style 1B - Twin AWS (3) RRUS11 B12	(12) 1-5/8" (1) 1-1/4"	(3) Sector Mounts

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 -Tel: (770) 693-0835

Existing Configuration of Appurtenances by Others:

Rad Center (ft.) Carrier	Antennas & Equipment	Coax	Mount
191.0 Municipal	(1) 12’ Omni	(1) 7/8”	Leg Mounted
185.0 Municipal	(2) 6' Dipole	(2) 7/8”	Leg Mounted
177.0 Sprint	(3) RFS APXVSPP18-C (3) 1900MHz RRH (3) 800MHZ RRH	(3) 1-1/4”	(3) Sector Mounts
163.0 Verizon	(6) Kathrein Scala 742 213 (3) BXA-70063-6CF (4) DB846F65ZAXY (2) DB846H80E-SX	(12) 1-5/8”	(3) Sector Mounts
156.0 AT&T	(6) Powerwave 7770 (3) Powerwave P65-16-XLH-RR (6) Powerwave LGP21401 (3) Powerwave TT19-08BP111-001 (3) Ericsson RRUS-11 (1) Raycap DC6-48-60-18-8F	(12) 1-5/8” (2) 2” Rigid Conduit	(3) Sector Mounts
147.5 Municipal	(1) 15’ Omni	(1) 7/8”	(1) Standoff Mount
140.0 Municipal	(2) 10’ Dipole	(2) 7/8”	(2) Standoff Mounts

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 -Tel: (770) 693-0835

3.0 CODES AND LOADING

The tower was analyzed per *TIA-222-G* as referenced by the *2016 Connecticut State Building Code* with all of the adopted Addendums and Supplements. The following wind loading was used in compliance with the standard for Weston, CT:

- Ultimate wind speed 120 mph converted to a Basic wind speed 93 mph without ice (W_0)
- Basic wind speed 50 mph with 0.75" escalating ice (W_i)
- Exposure Category B
- Topographic Category 1
- Structure Class II (I_w = 1.0)

The following load combinations were used with wind blowing at 0°, 30°, 45°, 60°, and 90° measured from a line normal to the face of the tower.

- 1.2 D + 1.6 W_0
- 0.9 D + 1.6 W_0
- 1.2 D + 1.0 D_i + 1.0 W_i

D: Dead Load of structure and appurtenances
W_0: Wind Load, without ice
W_i: Wind Load, with ice
D_i: Weight of Ice

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 -Tel: (770) 693-0835

4.0 STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES

The analysis is based on the information provided and is assumed to be current and correct. Unless otherwise noted, the structure is 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. Destek 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 appurtenances. Any deviation of the appurtenances and placement, etc., will require Destek 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.

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 -Tel: (770) 693-0835

6.0 CONCLUSION AND RESULTS

Based on a structural analysis per TIA-222-G, the existing tower **has adequate** structural capacity for the proposed changes. For the aforementioned load combinations and as a maximum, the tower legs between 40 feet and 60 feet are stressed to **91.1%** of capacity. Tower diagonals and horizontals are stressed to maximum 79.2% and 17.7% of their respective capacities.

Information regarding the existing foundation was not available at the time of this analysis, thus a qualification of the foundation could not be completed.

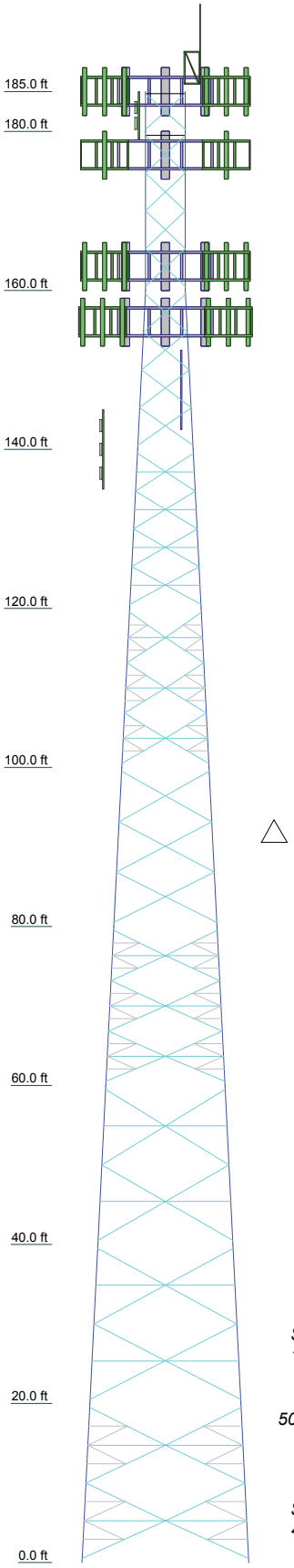
Therefore, the additions and alterations proposed by T-Mobile **can** be implemented as intended and with the conditions outlined in this report.

Should you have any questions about this report or require any additional information, please contact Ahmet Colakoglu at (770) 693-0835 or acolakoglu@destekengineering.com.

DESTEK ENGINEERING, LLC
1281 Kennestone Circle, Suite 100, Marietta, GA 30066 -Tel: (770) 693-0835

APPENDIX A
SOFTWARE OUTPUT

Section	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	P8x.322			P5x.375		P5x.258	P3.5x.318	P2.5x0.375	P2.5x.203	A
Leg Grade	A572-50									
Diagonals	L4x4x1/4	L3 1/2x3 1/2x1/4	L3x3x1/4	L3x3x3/16	L2 1/2x2 1/2x3/16		L2x2x3/16	L2x2x1/8		
Diagonal Grade	A36									
Top Girts	N.A.							L2x2x1/8		
Horizontals	L3 1/2x3 1/2x1/2	N.A.		L3x3x3/8	N.A.	L3x3x1/2		N.A.		
Sec. Horizontals	N.A.	L3x3x1/2			N.A.		L2x2x1/4	N.A.		
Red. Horizontals	L3x3x1/2	N.A.		L3x3x1/2	N.A.	L3x3x1/2		N.A.		
Red. Diagonals	L3x3x1/2	N.A.		L3x3x3/8	N.A.	L3x3x1/2		N.A.		
Face Width (ft) 21	19	17	15	13	11	9	7	5		
# Panels @ (ft)	4 @ 4.75	4 @ 9.5		6 @ 3.16667	3 @ 6.33333	6 @ 3.16667		12 @ 4.75		1 @ 4.5
Weight (K) 30.9	7.5	4.3	3.4	5.6	2.1	4.4	1.7	1.0	0.7	0.2



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Omni 2"x12'	191	PiROD 15' T-Frame	163
PiROD 12' T-Frame	185	PiROD 15' T-Frame	163
PiROD 12' T-Frame	185	PiROD 15' T-Frame	163
PiROD 12' T-Frame	185	BXA-70063-6CF-EDIN-0 w/ Mount Pipe	163
ERICSSON AIR 21 B2P B4A w/ Mount Pipe	185	BXA-70063-6CF-EDIN-0 w/ Mount Pipe	163
ERICSSON AIR 21 B2P B4A w/ Mount Pipe	185	BXA-70063-6CF-EDIN-0 w/ Mount Pipe	163
ERICSSON AIR 21 B2P B4A w/ Mount Pipe	185	(2) 742 213 w/ Mount Pipe	163
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	185	(2) 742 213 w/ Mount Pipe	163
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	185	(2) 742 213 w/ Mount Pipe	163
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	185	(2) DB846H80E-SX w/ Mount Pipe	163
KRY 112 71/2	185	(2) DB846F65ZAXY w/ Mount Pipe	163
KRY 112 71/2	185	(2) DB846F65ZAXY w/ Mount Pipe	163
KRY 112 71/2	185	PiROD 15' T-Frame	156
LNX-6515DS-A1M w/ Mount Pipe	185	PiROD 15' T-Frame	156
LNX-6515DS-A1M w/ Mount Pipe	185	PiROD 15' T-Frame	156
LNX-6515DS-A1M w/ Mount Pipe	185	(2) 7770.00 w/ Mount Pipe	156
RRUS 11 B12	185	(2) 7770.00 w/ Mount Pipe	156
RRUS 11 B12	185	(2) 7770.00 w/ Mount Pipe	156
RRUS 11 B12	185	(2) LGP21401	156
6' Dipole	182	(2) LGP21401	156
6' Dipole	182	(2) LGP21401	156
PiROD 12' T-Frame	177	P65-16-XLH-RR w/ Mount Pipe	156
PiROD 12' T-Frame	177	P65-16-XLH-RR w/ Mount Pipe	156
PiROD 12' T-Frame	177	P65-16-XLH-RR w/ Mount Pipe	156
APXVSPP18-C w/ Mount Pipe	177	RRUS 11	156
APXVSPP18-C w/ Mount Pipe	177	RRUS 11	156
APXVSPP18-C w/ Mount Pipe	177	RRUS 11	156
RRH 800	177	TT19-08BP111-001	156
RRH 800	177	TT19-08BP111-001	156
RRH 800	177	TT19-08BP111-001	156
1900MHz RRH	177	DC6-48-60-0-8F	156
1900MHz RRH	177	Omni 3"x15'	147.5
1900MHz RRH	177	PiROD 5' Side Mount Standoff	145
		PiROD 5' Side Mount Standoff	145
		10' Dipole	140
		10' Dipole	140

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	P2x.154		

MATERIAL STRENGTH

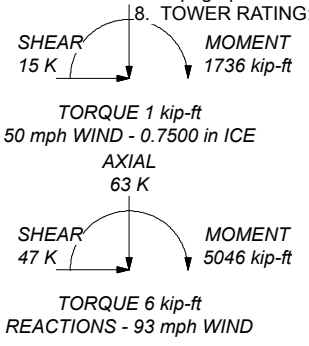
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

ALL REA
ARE FAC

MAX. CORNER REACTIONS AT BASE:
DOWN:
SHEA
UPLIF
SHEAR:
AXI
161

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 93 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 91.1%



Destek Engineering, LLC
1281 Kennestone Circle, Suite 100
Marietta, GA 30066
Phone: (770) 693-0835
FAX:

Job: ***1675003***			
Project: ***CT11121C***			
Client: Foresite LLC	Drawn by: Ahmet Coakoglu	App'd:	
Code: TIA-222-G	Date: 01/25/17	Scale: NTS	
Path: Z:\Projects\2016\75 - Foresite LLC\003 - CT11121C (Lattice Tower)\Tnx\CT11121C G code Rev 1.eri		Dwg No. E-1	

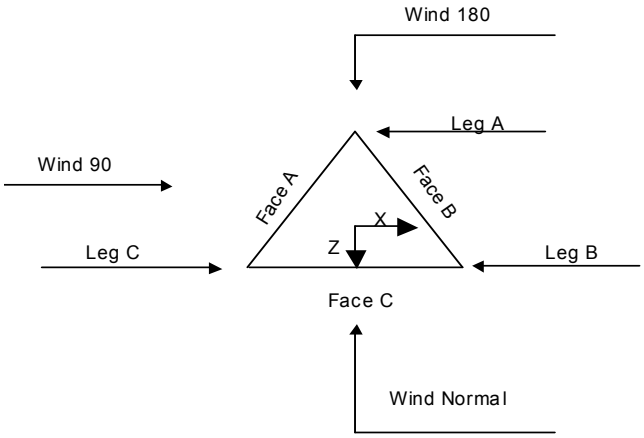
Tower Input Data

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 5.00 ft at the top and 21.00 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Fairfield County, Connecticut.
Basic wind speed of 93 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 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.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals	√	Assume Legs Pinned	√	Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area	√	SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys	√	Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
√	Include Bolts In Member Capacity	√	Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
√	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric				



Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	185.00-180.00			5.00	1	5.00
T2	180.00-160.00			5.00	1	20.00
T3	160.00-140.00			5.00	1	20.00
T4	140.00-120.00			7.00	1	20.00
T5	120.00-100.00			9.00	1	20.00
T6	100.00-80.00			11.00	1	20.00
T7	80.00-60.00			13.00	1	20.00
T8	60.00-40.00			15.00	1	20.00
T9	40.00-20.00			17.00	1	20.00
T10	20.00-0.00			19.00	1	20.00

Tower Section Geometry *(cont'd)*

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	4.50	X Brace	No	No	3.0000	3.0000
T2	180.00-160.00	4.75	X Brace	No	No	6.0000	6.0000
T3	160.00-140.00	4.75	X Brace	No	No	6.0000	6.0000
T4	140.00-120.00	4.75	X Brace	No	Yes	6.0000	6.0000
T5	120.00-100.00	3.17	Double K1	No	Yes	6.0000	6.0000

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
T6	100.00-80.00	6.33	X Brace	No	No	6.0000	6.0000
T7	80.00-60.00	3.17	Double K1	No	Yes	6.0000	6.0000
T8	60.00-40.00	9.50	X Brace	No	Yes	6.0000	6.0000
T9	40.00-20.00	9.50	X Brace	No	Yes	6.0000	6.0000
T10	20.00-0.00	4.75	Double K1	No	Yes	6.0000	6.0000

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	P2x.154	A572-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T2 180.00-160.00	Pipe	P2.5x.203	A572-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T3 160.00-140.00	Pipe	P2.5x0.375	A572-50 (50 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T4 140.00-120.00	Pipe	P3.5x.318	A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T5 120.00-100.00	Pipe	P5x.258	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T6 100.00-80.00	Pipe	P5x.375	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T7 80.00-60.00	Pipe	P5x.375	A572-50 (50 ksi)	Equal Angle	L3x3x3/16	A36 (36 ksi)
T8 60.00-40.00	Pipe	P5x.375	A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T9 40.00-20.00	Pipe	P8x.322	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)
T10 20.00-0.00	Pipe	P8x.322	A572-50 (50 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)

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	Single Angle	L2x2x1/8	A36 (36 ksi)	Flat Bar		A36 (36 ksi)
T2 180.00-160.00	Single Angle	L2x2x1/8	A36 (36 ksi)	Flat Bar		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
T5 120.00-100.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L3x3x1/2	A36 (36 ksi)
T7 80.00-60.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L3x3x3/8	A36 (36 ksi)
T10 20.00-0.00	None	Flat Bar		A36 (36 ksi)	Equal Angle	L3 1/2x3 1/2x1/2	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T4 140.00-120.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T8 60.00-40.00	Single Angle	L3x3x1/2	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T9 40.00-20.00	Equal Angle	L3x3x1/2	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T5 120.00-100.00	A36 (36 ksi)	Horizontal (1)	Equal Angle	L3x3x1/2	1
		Diagonal (1)	Equal Angle	L3x3x1/2	1
T7 80.00-60.00	A36 (36 ksi)	Horizontal (1)	Equal Angle	L3x3x1/2	1
		Diagonal (1)	Equal Angle	L3x3x3/8	1
T10 20.00-0.00	A36 (36 ksi)	Horizontal (1)	Equal Angle	L3x3x1/2	1
		Diagonal (1)	Equal Angle	L3x3x1/2	1

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 185.00-180.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T2 180.00-160.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T3 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T4 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T5 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T6 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T7 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T8 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T9 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt
T10 20.00-0.00	0.00	0.0000	A36 (36 ksi)	1.03	1	1.05	Mid-Pt	Mid-Pt	Mid-Pt

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1 185.00-180.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 180.00-160.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 160.00-140.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 140.00-120.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 120.00-100.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 100.00-80.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 80.00-60.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8 60.00-40.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T9 40.00-20.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T10 20.00-0.00	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

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
T1 185.00-180.00	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
T2 180.00-160.00	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
T3 160.00-140.00	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
T4 140.00-120.00	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
T5 120.00-100.00	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
T6 100.00-80.00	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
T7 80.00-60.00	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
T8 60.00-40.00	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
T9 40.00-20.00	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
T10 20.00-0.00	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

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
LDF5-50A(7/8")	B	No	Ar (CaAa)	185.00 - 10.00	-1.0000	0.14	1	1	0.0000	1.0900		0.00
LDF5-50A(7/8")	B	No	Ar (CaAa)	179.00 - 10.00	-1.0000	0.15	2	2	0.0000	1.0900		0.00
LDF7-50A(1-5/8")	B	No	Ar (CaAa)	182.00 - 10.00	0.0000	0.15	12	6	0.0000	1.9800		0.00
VXL6-50(1-1/4")	B	No	Ar (CaAa)	182.00 - 10.00	0.0000	0.1	1	1	1.5500	1.5500		0.00
VXL6-50(1-1/4")	C	No	Ar (CaAa)	175.00 - 10.00	0.0000	-0.1	3	3	0.0000	1.5500		0.00
LDF7-50A(1-5/8")	A	No	Ar (CaAa)	163.00 - 10.00	-4.0000	-0.2	12	6	0.0000	1.9800		0.00
LDF7-50A(1-5/8")	A	No	Ar (CaAa)	155.00 - 10.00	0.0000	0.2	12	6	0.0000	1.9800		0.00
2" Rigid Conduit	A	No	Ar (CaAa)	155.00 - 10.00	0.0000	0.25	2	2	2.0000	2.0000		0.00
LDF5-50A(7/8") ***	B	No	Ar (CaAa)	145.00 - 10.00	-2.0000	0.15	3	3	0.0000	1.0900		0.00
Feedline Ladder (Rail)	A	No	Af (CaAa)	155.00 - 0.00	0.0000	-0.2	2	2	36.0000	1.7500		0.00
Feedline Ladder (Rail)	B	No	Af (CaAa)	185.00 - 0.00	0.0000	0.15	2	2	36.0000	1.7500		0.00
Climbing Ladder (Rail)	A	No	Af (CaAa)	185.00 - 0.00	0.0000	0.5	2	2	24.0000	0.2500		0.00
Climbing Ladder (Rungs)	A	No	Ar (CaAa)	185.00 - 0.00	0.0000	0.5	1	1	0.6250	0.6250		0.00
Climbing Ladder (Rail)	B	No	Af (CaAa)	185.00 - 0.00	0.0000	0.5	2	2	24.0000	0.2500		0.00

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
Climbing Ladder (Rungs)	B	No	Ar (CaAa)	185.00 - 0.00	0.0000	0.5	1	1	0.6250	0.6250		0.00
Climbing Ladder (Rail)	C	No	Af (CaAa)	185.00 - 0.00	0.0000	0.5	2	2	24.0000	0.2500		0.00
Climbing Ladder (Rungs)	C	No	Ar (CaAa)	185.00 - 0.00	0.0000	0.5	1	1	0.6250	0.6250		0.00

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	185.00-180.00	A	0.000	0.000	0.729	0.000	0.04
		B	0.000	0.000	9.253	0.000	0.09
		C	0.000	0.000	0.729	0.000	0.04
T2	180.00-160.00	A	0.000	0.000	10.045	0.000	0.19
		B	0.000	0.000	71.525	0.000	0.51
		C	0.000	0.000	9.892	0.000	0.18
T3	160.00-140.00	A	0.000	0.000	100.827	0.000	0.68
		B	0.000	0.000	73.378	0.000	0.51
		C	0.000	0.000	12.217	0.000	0.19
T4	140.00-120.00	A	0.000	0.000	117.623	0.000	0.79
		B	0.000	0.000	78.283	0.000	0.53
		C	0.000	0.000	12.217	0.000	0.19
T5	120.00-100.00	A	0.000	0.000	117.623	0.000	0.79
		B	0.000	0.000	78.283	0.000	0.53
		C	0.000	0.000	12.217	0.000	0.19
T6	100.00-80.00	A	0.000	0.000	117.623	0.000	0.79
		B	0.000	0.000	78.283	0.000	0.53
		C	0.000	0.000	12.217	0.000	0.19
T7	80.00-60.00	A	0.000	0.000	117.623	0.000	0.79
		B	0.000	0.000	78.283	0.000	0.53
		C	0.000	0.000	12.217	0.000	0.19
T8	60.00-40.00	A	0.000	0.000	117.623	0.000	0.79
		B	0.000	0.000	78.283	0.000	0.53
		C	0.000	0.000	12.217	0.000	0.19
T9	40.00-20.00	A	0.000	0.000	117.623	0.000	0.79
		B	0.000	0.000	78.283	0.000	0.53
		C	0.000	0.000	12.217	0.000	0.19
T10	20.00-0.00	A	0.000	0.000	66.103	0.000	0.53
		B	0.000	0.000	46.433	0.000	0.41
		C	0.000	0.000	7.567	0.000	0.18

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_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	185.00-180.00	A	1.780	0.000	0.000	6.069	0.000	0.14
		B		0.000	0.000	20.185	0.000	0.39
		C		0.000	0.000	6.069	0.000	0.14
T2	180.00-160.00	A	1.767	0.000	0.000	30.550	0.000	0.69

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	129.653	0.000	2.27
		C		0.000	0.000	42.189	0.000	0.77
T3	160.00-140.00	A	1.745	0.000	0.000	138.368	0.000	2.56
		B		0.000	0.000	134.759	0.000	2.30
		C		0.000	0.000	47.796	0.000	0.83
T4	140.00-120.00	A	1.720	0.000	0.000	161.306	0.000	2.93
		B		0.000	0.000	148.864	0.000	2.41
		C		0.000	0.000	47.327	0.000	0.81
T5	120.00-100.00	A	1.692	0.000	0.000	160.161	0.000	2.89
		B		0.000	0.000	147.477	0.000	2.37
		C		0.000	0.000	46.789	0.000	0.80
T6	100.00-80.00	A	1.658	0.000	0.000	158.811	0.000	2.84
		B		0.000	0.000	145.842	0.000	2.32
		C		0.000	0.000	46.155	0.000	0.78
T7	80.00-60.00	A	1.617	0.000	0.000	157.159	0.000	2.78
		B		0.000	0.000	143.841	0.000	2.26
		C		0.000	0.000	45.378	0.000	0.76
T8	60.00-40.00	A	1.564	0.000	0.000	155.011	0.000	2.70
		B		0.000	0.000	141.240	0.000	2.18
		C		0.000	0.000	44.369	0.000	0.73
T9	40.00-20.00	A	1.486	0.000	0.000	151.888	0.000	2.59
		B		0.000	0.000	137.455	0.000	2.08
		C		0.000	0.000	42.901	0.000	0.69
T10	20.00-0.00	A	1.331	0.000	0.000	93.452	0.000	1.59
		B		0.000	0.000	85.578	0.000	1.33
		C		0.000	0.000	29.440	0.000	0.52

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	2.2723	-0.1792	1.7972	-0.1289
T2	180.00-160.00	2.6390	0.1519	1.7934	-0.0314
T3	160.00-140.00	0.1706	-0.7403	0.3487	-0.3611
T4	140.00-120.00	0.0398	-1.1723	0.1798	-0.5413
T5	120.00-100.00	0.0217	-1.2649	0.1656	-0.5645
T6	100.00-80.00	0.0102	-1.7126	0.2513	-0.8293
T7	80.00-60.00	-0.0032	-1.6177	0.2054	-0.7502
T8	60.00-40.00	-0.0172	-2.1540	0.2933	-1.0752
T9	40.00-20.00	-0.0279	-2.2158	0.2950	-1.1696
T10	20.00-0.00	-0.0644	-1.3339	0.0804	-0.6912

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	1	LDF5-50A(7/8")	180.00 - 185.00	0.6000	0.5179
T1	3	LDF7-50A(1-5/8")	180.00 - 182.00	0.6000	0.5179

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	4	VXL6-50(1-1/4")	180.00 - 182.00	0.6000	0.5179
T1	12	Feedline Ladder (Rail)	180.00 - 185.00	0.6000	0.5179
T1	13	Climbing Ladder (Rail)	180.00 - 185.00	0.6000	0.5179
T1	14	Climbing Ladder (Rungs)	180.00 - 185.00	0.6000	0.5179
T1	15	Climbing Ladder (Rail)	180.00 - 185.00	0.6000	0.5179
T1	16	Climbing Ladder (Rungs)	180.00 - 185.00	0.6000	0.5179
T1	17	Climbing Ladder (Rail)	180.00 - 185.00	0.6000	0.5179
T1	18	Climbing Ladder (Rungs)	180.00 - 185.00	0.6000	0.5179
T2	1	LDF5-50A(7/8")	160.00 - 180.00	0.6000	0.5657
T2	2	LDF5-50A(7/8")	160.00 - 179.00	0.6000	0.5657
T2	3	LDF7-50A(1-5/8")	160.00 - 180.00	0.6000	0.5657
T2	4	VXL6-50(1-1/4")	160.00 - 180.00	0.6000	0.5657
T2	5	VXL6-50(1-1/4")	160.00 - 175.00	0.6000	0.5657
T2	6	LDF7-50A(1-5/8")	160.00 - 163.00	0.6000	0.5657
T2	12	Feedline Ladder (Rail)	160.00 - 180.00	0.6000	0.5657
T2	13	Climbing Ladder (Rail)	160.00 - 180.00	0.6000	0.5657
T2	14	Climbing Ladder (Rungs)	160.00 - 180.00	0.6000	0.5657
T2	15	Climbing Ladder (Rail)	160.00 - 180.00	0.6000	0.5657
T2	16	Climbing Ladder (Rungs)	160.00 - 180.00	0.6000	0.5657
T2	17	Climbing Ladder (Rail)	160.00 - 180.00	0.6000	0.5657
T2	18	Climbing Ladder (Rungs)	160.00 - 180.00	0.6000	0.5657
T3	1	LDF5-50A(7/8")	140.00 - 160.00	0.6000	0.6000
T3	2	LDF5-50A(7/8")	140.00 - 160.00	0.6000	0.6000
T3	3	LDF7-50A(1-5/8")	140.00 - 160.00	0.6000	0.6000
T3	4	VXL6-50(1-1/4")	140.00 - 160.00	0.6000	0.6000
T3	5	VXL6-50(1-1/4")	140.00 - 160.00	0.6000	0.6000
T3	6	LDF7-50A(1-5/8")	140.00 - 160.00	0.6000	0.6000
T3	7	LDF7-50A(1-5/8")	140.00 - 155.00	0.6000	0.6000
T3	8	2" Rigid Conduit	140.00 - 155.00	0.6000	0.6000
T3	9	LDF5-50A(7/8")	140.00 - 145.00	0.6000	0.6000
T3	11	Feedline Ladder (Rail)	140.00 - 155.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T3	12	Feedline Ladder (Rail)	140.00 - 160.00	0.6000	0.6000
T3	13	Climbing Ladder (Rail)	140.00 - 160.00	0.6000	0.6000
T3	14	Climbing Ladder (Rungs)	140.00 - 160.00	0.6000	0.6000
T3	15	Climbing Ladder (Rail)	140.00 - 160.00	0.6000	0.6000
T3	16	Climbing Ladder (Rungs)	140.00 - 160.00	0.6000	0.6000
T3	17	Climbing Ladder (Rail)	140.00 - 160.00	0.6000	0.6000
T3	18	Climbing Ladder (Rungs)	140.00 - 160.00	0.6000	0.6000
T4	1	LDF5-50A(7/8")	120.00 - 140.00	0.6000	0.5847
T4	2	LDF5-50A(7/8")	120.00 - 140.00	0.6000	0.5847
T4	3	LDF7-50A(1-5/8")	120.00 - 140.00	0.6000	0.5847
T4	4	VXL6-50(1-1/4")	120.00 - 140.00	0.6000	0.5847
T4	5	VXL6-50(1-1/4")	120.00 - 140.00	0.6000	0.5847
T4	6	LDF7-50A(1-5/8")	120.00 - 140.00	0.6000	0.5847
T4	7	LDF7-50A(1-5/8")	120.00 - 140.00	0.6000	0.5847
T4	8	2" Rigid Conduit	120.00 - 140.00	0.6000	0.5847
T4	9	LDF5-50A(7/8")	120.00 - 140.00	0.6000	0.5847
T4	11	Feedline Ladder (Rail)	120.00 - 140.00	0.6000	0.5847
T4	12	Feedline Ladder (Rail)	120.00 - 140.00	0.6000	0.5847
T4	13	Climbing Ladder (Rail)	120.00 - 140.00	0.6000	0.5847
T4	14	Climbing Ladder (Rungs)	120.00 - 140.00	0.6000	0.5847
T4	15	Climbing Ladder (Rail)	120.00 - 140.00	0.6000	0.5847
T4	16	Climbing Ladder (Rungs)	120.00 - 140.00	0.6000	0.5847
T4	17	Climbing Ladder (Rail)	120.00 - 140.00	0.6000	0.5847
T4	18	Climbing Ladder (Rungs)	120.00 - 140.00	0.6000	0.5847
T5	1	LDF5-50A(7/8")	100.00 - 120.00	0.6000	0.4834
T5	2	LDF5-50A(7/8")	100.00 - 120.00	0.6000	0.4834
T5	3	LDF7-50A(1-5/8")	100.00 - 120.00	0.6000	0.4834
T5	4	VXL6-50(1-1/4")	100.00 - 120.00	0.6000	0.4834
T5	5	VXL6-50(1-1/4")	100.00 - 120.00	0.6000	0.4834
T5	6	LDF7-50A(1-5/8")	100.00 - 120.00	0.6000	0.4834
T5	7	LDF7-50A(1-5/8")	100.00 - 120.00	0.6000	0.4834

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T5	8	2" Rigid Conduit	100.00 - 120.00	0.6000	0.4834
T5	9	LDF5-50A(7/8")	100.00 - 120.00	0.6000	0.4834
T5	11	Feedline Ladder (Rail)	100.00 - 120.00	0.6000	0.4834
T5	12	Feedline Ladder (Rail)	100.00 - 120.00	0.6000	0.4834
T5	13	Climbing Ladder (Rail)	100.00 - 120.00	0.6000	0.4834
T5	14	Climbing Ladder (Rungs)	100.00 - 120.00	0.6000	0.4834
T5	15	Climbing Ladder (Rail)	100.00 - 120.00	0.6000	0.4834
T5	16	Climbing Ladder (Rungs)	100.00 - 120.00	0.6000	0.4834
T5	17	Climbing Ladder (Rail)	100.00 - 120.00	0.6000	0.4834
T5	18	Climbing Ladder (Rungs)	100.00 - 120.00	0.6000	0.4834
T6	1	LDF5-50A(7/8")	80.00 - 100.00	0.6000	0.6000
T6	2	LDF5-50A(7/8")	80.00 - 100.00	0.6000	0.6000
T6	3	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.6000
T6	4	VXL6-50(1-1/4")	80.00 - 100.00	0.6000	0.6000
T6	5	VXL6-50(1-1/4")	80.00 - 100.00	0.6000	0.6000
T6	6	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.6000
T6	7	LDF7-50A(1-5/8")	80.00 - 100.00	0.6000	0.6000
T6	8	2" Rigid Conduit	80.00 - 100.00	0.6000	0.6000
T6	9	LDF5-50A(7/8")	80.00 - 100.00	0.6000	0.6000
T6	11	Feedline Ladder (Rail)	80.00 - 100.00	0.6000	0.6000
T6	12	Feedline Ladder (Rail)	80.00 - 100.00	0.6000	0.6000
T6	13	Climbing Ladder (Rail)	80.00 - 100.00	0.6000	0.6000
T6	14	Climbing Ladder (Rungs)	80.00 - 100.00	0.6000	0.6000
T6	15	Climbing Ladder (Rail)	80.00 - 100.00	0.6000	0.6000
T6	16	Climbing Ladder (Rungs)	80.00 - 100.00	0.6000	0.6000
T6	17	Climbing Ladder (Rail)	80.00 - 100.00	0.6000	0.6000
T6	18	Climbing Ladder (Rungs)	80.00 - 100.00	0.6000	0.6000
T7	1	LDF5-50A(7/8")	60.00 - 80.00	0.6000	0.5211
T7	2	LDF5-50A(7/8")	60.00 - 80.00	0.6000	0.5211
T7	3	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.5211
T7	4	VXL6-50(1-1/4")	60.00 - 80.00	0.6000	0.5211
T7	5	VXL6-50(1-1/4")	60.00 - 80.00	0.6000	0.5211
T7	6	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.5211
T7	7	LDF7-50A(1-5/8")	60.00 - 80.00	0.6000	0.5211
T7	8	2" Rigid Conduit	60.00 - 80.00	0.6000	0.5211
T7	9	LDF5-50A(7/8")	60.00 - 80.00	0.6000	0.5211
T7	11	Feedline Ladder (Rail)	60.00 - 80.00	0.6000	0.5211
T7	12	Feedline Ladder (Rail)	60.00 - 80.00	0.6000	0.5211
T7	13	Climbing Ladder (Rail)	60.00 - 80.00	0.6000	0.5211
T7	14	Climbing Ladder (Rungs)	60.00 - 80.00	0.6000	0.5211
T7	15	Climbing Ladder (Rail)	60.00 - 80.00	0.6000	0.5211
T7	16	Climbing Ladder (Rungs)	60.00 - 80.00	0.6000	0.5211
T7	17	Climbing Ladder (Rail)	60.00 - 80.00	0.6000	0.5211
T7	18	Climbing Ladder (Rungs)	60.00 - 80.00	0.6000	0.5211
T8	1	LDF5-50A(7/8")	40.00 - 60.00	0.6000	0.6000
T8	2	LDF5-50A(7/8")	40.00 - 60.00	0.6000	0.6000
T8	3	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.6000
T8	4	VXL6-50(1-1/4")	40.00 - 60.00	0.6000	0.6000
T8	5	VXL6-50(1-1/4")	40.00 - 60.00	0.6000	0.6000
T8	6	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.6000
T8	7	LDF7-50A(1-5/8")	40.00 - 60.00	0.6000	0.6000
T8	8	2" Rigid Conduit	40.00 - 60.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T8	9	LDF5-50A(7/8")	40.00 - 60.00	0.6000	0.6000
T8	11	Feedline Ladder (Rail)	40.00 - 60.00	0.6000	0.6000
T8	12	Feedline Ladder (Rail)	40.00 - 60.00	0.6000	0.6000
T8	13	Climbing Ladder (Rail)	40.00 - 60.00	0.6000	0.6000
T8	14	Climbing Ladder (Rungs)	40.00 - 60.00	0.6000	0.6000
T8	15	Climbing Ladder (Rail)	40.00 - 60.00	0.6000	0.6000
T8	16	Climbing Ladder (Rungs)	40.00 - 60.00	0.6000	0.6000
T8	17	Climbing Ladder (Rail)	40.00 - 60.00	0.6000	0.6000
T8	18	Climbing Ladder (Rungs)	40.00 - 60.00	0.6000	0.6000
T9	1	LDF5-50A(7/8")	20.00 - 40.00	0.6000	0.6000
T9	2	LDF5-50A(7/8")	20.00 - 40.00	0.6000	0.6000
T9	3	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T9	4	VXL6-50(1-1/4")	20.00 - 40.00	0.6000	0.6000
T9	5	VXL6-50(1-1/4")	20.00 - 40.00	0.6000	0.6000
T9	6	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T9	7	LDF7-50A(1-5/8")	20.00 - 40.00	0.6000	0.6000
T9	8	2" Rigid Conduit	20.00 - 40.00	0.6000	0.6000
T9	9	LDF5-50A(7/8")	20.00 - 40.00	0.6000	0.6000
T9	11	Feedline Ladder (Rail)	20.00 - 40.00	0.6000	0.6000
T9	12	Feedline Ladder (Rail)	20.00 - 40.00	0.6000	0.6000
T9	13	Climbing Ladder (Rail)	20.00 - 40.00	0.6000	0.6000
T9	14	Climbing Ladder (Rungs)	20.00 - 40.00	0.6000	0.6000
T9	15	Climbing Ladder (Rail)	20.00 - 40.00	0.6000	0.6000
T9	16	Climbing Ladder (Rungs)	20.00 - 40.00	0.6000	0.6000
T9	17	Climbing Ladder (Rail)	20.00 - 40.00	0.6000	0.6000
T9	18	Climbing Ladder (Rungs)	20.00 - 40.00	0.6000	0.6000
T10	1	LDF5-50A(7/8")	10.00 - 20.00	0.6000	0.6000
T10	2	LDF5-50A(7/8")	10.00 - 20.00	0.6000	0.6000
T10	3	LDF7-50A(1-5/8")	10.00 - 20.00	0.6000	0.6000
T10	4	VXL6-50(1-1/4")	10.00 - 20.00	0.6000	0.6000
T10	5	VXL6-50(1-1/4")	10.00 - 20.00	0.6000	0.6000
T10	6	LDF7-50A(1-5/8")	10.00 - 20.00	0.6000	0.6000
T10	7	LDF7-50A(1-5/8")	10.00 - 20.00	0.6000	0.6000
T10	8	2" Rigid Conduit	10.00 - 20.00	0.6000	0.6000
T10	9	LDF5-50A(7/8")	10.00 - 20.00	0.6000	0.6000
T10	11	Feedline Ladder (Rail)	0.00 - 20.00	0.6000	0.6000
T10	12	Feedline Ladder (Rail)	0.00 - 20.00	0.6000	0.6000
T10	13	Climbing Ladder (Rail)	0.00 - 20.00	0.6000	0.6000
T10	14	Climbing Ladder (Rungs)	0.00 - 20.00	0.6000	0.6000
T10	15	Climbing Ladder (Rail)	0.00 - 20.00	0.6000	0.6000
T10	16	Climbing Ladder (Rungs)	0.00 - 20.00	0.6000	0.6000
T10	17	Climbing Ladder (Rail)	0.00 - 20.00	0.6000	0.6000
T10	18	Climbing Ladder (Rungs)	0.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement		C_AA_A Front	C_AA_A Side	Weight
			ft ft ft	°	ft		ft^2	ft^2	K
6' Dipole	A	From Leg	1.00 0.00	0.0000	182.00	No Ice 1/2" Ice	0.90 1.52	0.90 1.52	0.01 0.02

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	2.14	2.14	0.03
6' Dipole	C	From Leg	1.00	0.0000	182.00	No Ice	0.90	0.90	0.01
			0.00			1/2" Ice	1.52	1.52	0.02
			0.00			1" Ice	2.14	2.14	0.03
Omni 2"x12'	B	From Leg	1.00	0.0000	191.00	No Ice	2.40	2.40	0.03
			0.00			1/2" Ice	3.63	3.63	0.05
			0.00			1" Ice	4.86	4.86	0.07
***									
PiROD 12' T-Frame	A	From Leg	1.00	0.0000	185.00	No Ice	12.20	12.20	0.36
			0.00			1/2" Ice	17.60	17.60	0.49
			0.00			1" Ice	23.00	23.00	0.62
PiROD 12' T-Frame	B	From Leg	1.00	0.0000	185.00	No Ice	12.20	12.20	0.36
			0.00			1/2" Ice	17.60	17.60	0.49
			0.00			1" Ice	23.00	23.00	0.62
PiROD 12' T-Frame	C	From Leg	1.00	0.0000	185.00	No Ice	12.20	12.20	0.36
			0.00			1/2" Ice	17.60	17.60	0.49
			0.00			1" Ice	23.00	23.00	0.62
ERICSSON AIR 21 B2P B4A w/ Mount Pipe	A	From Leg	2.00	0.0000	185.00	No Ice	6.32	5.63	0.11
			0.00			1/2" Ice	6.76	6.41	0.17
			0.00			1" Ice	7.20	7.12	0.23
ERICSSON AIR 21 B2P B4A w/ Mount Pipe	B	From Leg	2.00	0.0000	185.00	No Ice	6.32	5.63	0.11
			0.00			1/2" Ice	6.76	6.41	0.17
			0.00			1" Ice	7.20	7.12	0.23
ERICSSON AIR 21 B2P B4A w/ Mount Pipe	C	From Leg	2.00	0.0000	185.00	No Ice	6.32	5.63	0.11
			0.00			1/2" Ice	6.76	6.41	0.17
			0.00			1" Ice	7.20	7.12	0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	2.00	0.0000	185.00	No Ice	6.33	5.64	0.11
			0.00			1/2" Ice	6.78	6.43	0.17
			0.00			1" Ice	7.21	7.13	0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	2.00	0.0000	185.00	No Ice	6.33	5.64	0.11
			0.00			1/2" Ice	6.78	6.43	0.17
			0.00			1" Ice	7.21	7.13	0.23
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	2.00	0.0000	185.00	No Ice	6.33	5.64	0.11
			0.00			1/2" Ice	6.78	6.43	0.17
			0.00			1" Ice	7.21	7.13	0.23
KRY 112 71/2	A	From Leg	2.00	0.0000	185.00	No Ice	0.58	0.45	0.01
			0.00			1/2" Ice	0.69	0.54	0.02
			0.00			1" Ice	0.80	0.64	0.03
KRY 112 71/2	B	From Leg	2.00	0.0000	185.00	No Ice	0.58	0.45	0.01
			0.00			1/2" Ice	0.69	0.54	0.02
			0.00			1" Ice	0.80	0.64	0.03
KRY 112 71/2	C	From Leg	2.00	0.0000	185.00	No Ice	0.58	0.45	0.01
			0.00			1/2" Ice	0.69	0.54	0.02
			0.00			1" Ice	0.80	0.64	0.03
LNX-6515DS-A1M w/ Mount Pipe	A	From Leg	2.00	0.0000	185.00	No Ice	11.68	9.84	0.08
			0.00			1/2" Ice	12.40	11.37	0.17
			0.00			1" Ice	13.14	12.91	0.27
LNX-6515DS-A1M w/ Mount Pipe	B	From Leg	2.00	0.0000	185.00	No Ice	11.68	9.84	0.08
			0.00			1/2" Ice	12.40	11.37	0.17
			0.00			1" Ice	13.14	12.91	0.27
LNX-6515DS-A1M w/ Mount Pipe	C	From Leg	2.00	0.0000	185.00	No Ice	11.68	9.84	0.08
			0.00			1/2" Ice	12.40	11.37	0.17
			0.00			1" Ice	13.14	12.91	0.27
RRUS 11 B12	A	From Leg	2.00	0.0000	185.00	No Ice	2.83	1.18	0.05
			0.00			1/2" Ice	3.04	1.33	0.07
			0.00			1" Ice	3.26	1.48	0.10
RRUS 11 B12	B	From Leg	2.00	0.0000	185.00	No Ice	2.83	1.18	0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	3.04	1.33	0.07
			0.00			1" Ice	3.26	1.48	0.10
RRUS 11 B12	C	From Leg	2.00	0.0000	185.00	No Ice	2.83	1.18	0.05
			0.00			1/2" Ice	3.04	1.33	0.07
			0.00			1" Ice	3.26	1.48	0.10
***									
PiROD 12' T-Frame	A	From Leg	1.50	0.0000	177.00	No Ice	12.20	12.20	0.36
			0.00			1/2" Ice	17.60	17.60	0.49
			0.00			1" Ice	23.00	23.00	0.62
PiROD 12' T-Frame	B	From Leg	1.50	0.0000	177.00	No Ice	12.20	12.20	0.36
			0.00			1/2" Ice	17.60	17.60	0.49
			0.00			1" Ice	23.00	23.00	0.62
PiROD 12' T-Frame	C	From Leg	1.50	0.0000	177.00	No Ice	12.20	12.20	0.36
			0.00			1/2" Ice	17.60	17.60	0.49
			0.00			1" Ice	23.00	23.00	0.62
APXVSPP18-C w/ Mount Pipe	A	From Leg	2.50	0.0000	177.00	No Ice	8.26	6.95	0.08
			0.00			1/2" Ice	8.82	8.13	0.15
			0.00			1" Ice	9.35	9.02	0.23
APXVSPP18-C w/ Mount Pipe	B	From Leg	2.50	0.0000	177.00	No Ice	8.26	6.95	0.08
			0.00			1/2" Ice	8.82	8.13	0.15
			0.00			1" Ice	9.35	9.02	0.23
APXVSPP18-C w/ Mount Pipe	C	From Leg	2.50	0.0000	177.00	No Ice	8.26	6.95	0.08
			0.00			1/2" Ice	8.82	8.13	0.15
			0.00			1" Ice	9.35	9.02	0.23
RRH 800	A	From Leg	2.50	0.0000	177.00	No Ice	1.72	1.43	0.05
			0.00			1/2" Ice	1.90	1.60	0.06
			0.00			1" Ice	2.07	1.76	0.08
RRH 800	B	From Leg	2.50	0.0000	177.00	No Ice	1.72	1.43	0.05
			0.00			1/2" Ice	1.90	1.60	0.06
			0.00			1" Ice	2.07	1.76	0.08
RRH 800	C	From Leg	2.50	0.0000	177.00	No Ice	1.72	1.43	0.05
			0.00			1/2" Ice	1.90	1.60	0.06
			0.00			1" Ice	2.07	1.76	0.08
1900MHz RRH	A	From Leg	2.50	0.0000	177.00	No Ice	2.49	3.26	0.04
			0.00			1/2" Ice	2.70	3.48	0.08
			0.00			1" Ice	2.91	3.72	0.11
1900MHz RRH	B	From Leg	2.50	0.0000	177.00	No Ice	2.49	3.26	0.04
			0.00			1/2" Ice	2.70	3.48	0.08
			0.00			1" Ice	2.91	3.72	0.11
1900MHz RRH	C	From Leg	2.50	0.0000	177.00	No Ice	2.49	3.26	0.04
			0.00			1/2" Ice	2.70	3.48	0.08
			0.00			1" Ice	2.91	3.72	0.11
***									
PiROD 15' T-Frame	A	From Leg	2.00	0.0000	163.00	No Ice	15.00	15.00	0.50
			0.00			1/2" Ice	20.60	20.60	0.65
			0.00			1" Ice	26.20	26.20	0.80
PiROD 15' T-Frame	B	From Leg	2.00	0.0000	163.00	No Ice	15.00	15.00	0.50
			0.00			1/2" Ice	20.60	20.60	0.65
			0.00			1" Ice	26.20	26.20	0.80
PiROD 15' T-Frame	C	From Leg	2.00	0.0000	163.00	No Ice	15.00	15.00	0.50
			0.00			1/2" Ice	20.60	20.60	0.65
			0.00			1" Ice	26.20	26.20	0.80
BXA-70063-6CF-EDIN-0 w/ Mount Pipe	A	From Leg	2.00	0.0000	163.00	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
BXA-70063-6CF-EDIN-0 w/ Mount Pipe	B	From Leg	2.00	0.0000	163.00	No Ice	7.81	5.80	0.04
			0.00			1/2" Ice	8.36	6.95	0.10

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	8.87	7.82	0.17
BXA-70063-6CF-EDIN-0 w/ Mount Pipe	C	From Leg	2.00 0.00 0.00	0.0000	163.00	No Ice 1/2" Ice 1" Ice	7.81 8.36 8.87	5.80 6.95 7.82	0.04 0.10 0.17
(2) 742 213 w/ Mount Pipe	A	From Leg	2.00 0.00 0.00	0.0000	163.00	No Ice 1/2" Ice 1" Ice	5.37 5.95 6.50	4.62 6.00 6.98	0.05 0.09 0.15
(2) 742 213 w/ Mount Pipe	B	From Leg	2.00 0.00 0.00	0.0000	163.00	No Ice 1/2" Ice 1" Ice	5.37 5.95 6.50	4.62 6.00 6.98	0.05 0.09 0.15
(2) 742 213 w/ Mount Pipe	C	From Leg	2.00 0.00 0.00	0.0000	163.00	No Ice 1/2" Ice 1" Ice	5.37 5.95 6.50	4.62 6.00 6.98	0.05 0.09 0.15
(2) DB846H80E-SX w/ Mount Pipe	A	From Leg	2.00 0.00 0.00	0.0000	163.00	No Ice 1/2" Ice 1" Ice	5.33 5.89 6.41	7.74 8.93 9.84	0.04 0.10 0.16
(2) DB846F65ZAXY w/ Mount Pipe	B	From Leg	2.00 0.00 0.00	0.0000	163.00	No Ice 1/2" Ice 1" Ice	7.27 7.83 8.35	7.82 9.01 9.91	0.05 0.11 0.19
(2) DB846F65ZAXY w/ Mount Pipe	C	From Leg	2.00 0.00 0.00	0.0000	163.00	No Ice 1/2" Ice 1" Ice	7.27 7.83 8.35	7.82 9.01 9.91	0.05 0.11 0.19
***									
PiROD 15' T-Frame	A	From Leg	2.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	15.00 20.60 26.20	15.00 20.60 26.20	0.50 0.65 0.80
PiROD 15' T-Frame	B	From Leg	2.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	15.00 20.60 26.20	15.00 20.60 26.20	0.50 0.65 0.80
PiROD 15' T-Frame	C	From Leg	2.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	15.00 20.60 26.20	15.00 20.60 26.20	0.50 0.65 0.80
(2) 7770.00 w/ Mount Pipe	A	From Leg	2.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
(2) 7770.00 w/ Mount Pipe	B	From Leg	2.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
(2) 7770.00 w/ Mount Pipe	C	From Leg	2.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
(2) LGP21401	A	From Leg	2.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
(2) LGP21401	B	From Leg	2.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
(2) LGP21401	C	From Leg	2.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
P65-16-XLH-RR w/ Mount Pipe	A	From Leg	2.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	8.37 8.93 9.46	6.36 7.54 8.43	0.08 0.14 0.22
P65-16-XLH-RR w/ Mount Pipe	B	From Leg	2.00 0.00 0.00	0.0000	156.00	No Ice 1/2" Ice 1" Ice	8.37 8.93 9.46	6.36 7.54 8.43	0.08 0.14 0.22
P65-16-XLH-RR w/ Mount	C	From Leg	2.00	0.0000	156.00	No Ice	8.37	6.36	0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Pipe			0.00				1/2" Ice	8.93	7.54	0.14
			0.00				1" Ice	9.46	8.43	0.22
RRUS 11	A	From Leg	2.00	0.0000	156.00		No Ice	2.78	1.19	0.05
			0.00				1/2" Ice	2.99	1.33	0.07
			0.00				1" Ice	3.21	1.49	0.10
RRUS 11	B	From Leg	2.00	0.0000	156.00		No Ice	2.78	1.19	0.05
			0.00				1/2" Ice	2.99	1.33	0.07
			0.00				1" Ice	3.21	1.49	0.10
RRUS 11	C	From Leg	2.00	0.0000	156.00		No Ice	2.78	1.19	0.05
			0.00				1/2" Ice	2.99	1.33	0.07
			0.00				1" Ice	3.21	1.49	0.10
TT19-08BP111-001	A	From Leg	2.00	0.0000	156.00		No Ice	0.55	0.45	0.02
			0.00				1/2" Ice	0.65	0.53	0.02
			0.00				1" Ice	0.75	0.63	0.03
TT19-08BP111-001	B	From Leg	2.00	0.0000	156.00		No Ice	0.55	0.45	0.02
			0.00				1/2" Ice	0.65	0.53	0.02
			0.00				1" Ice	0.75	0.63	0.03
TT19-08BP111-001	C	From Leg	2.00	0.0000	156.00		No Ice	0.55	0.45	0.02
			0.00				1/2" Ice	0.65	0.53	0.02
			0.00				1" Ice	0.75	0.63	0.03
DC6-48-60-0-8F	C	From Leg	2.00	0.0000	156.00		No Ice	2.20	2.20	0.02
			0.00				1/2" Ice	2.40	2.40	0.04
			0.00				1" Ice	2.60	2.60	0.07
***										
PiROD 5' Side Mount Standoff	A	From Leg	3.00	0.0000	145.00		No Ice	3.85	3.85	0.06
			0.00				1/2" Ice	5.20	5.20	0.11
			0.00				1" Ice	6.55	6.55	0.44
PiROD 5' Side Mount Standoff	C	From Leg	3.00	0.0000	145.00		No Ice	3.85	3.85	0.06
			0.00				1/2" Ice	5.20	5.20	0.11
			0.00				1" Ice	6.55	6.55	0.44
Omni 3"x15'	A	From Leg	5.00	0.0000	147.50		No Ice	4.00	4.00	0.07
			0.00				1/2" Ice	4.97	4.97	0.10
			0.00				1" Ice	5.94	5.94	0.14
10' Dipole	A	From Leg	5.00	0.0000	140.00		No Ice	4.00	4.00	0.03
			0.00				1/2" Ice	4.97	4.97	0.05
			0.00				1" Ice	5.94	5.94	0.08
10' Dipole	C	From Leg	5.00	0.0000	140.00		No Ice	4.00	4.00	0.03
			0.00				1/2" Ice	4.97	4.97	0.05
			0.00				1" Ice	5.94	5.94	0.08

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice

Comb. No.	Description
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 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	7	3.27	-0.07	0.05
			Max. Compression	10	-5.05	-0.08	-0.05
			Max. Mx	18	-3.19	-0.29	0.15
			Max. My	2	-5.00	-0.01	-0.33
			Max. Vy	8	1.46	-0.09	0.00
			Max. Vx	2	-1.66	-0.00	0.09
		Diagonal	Max Tension	12	1.69	0.00	0.00
			Max. Compression	24	-1.75	0.00	0.00
			Max. Mx	33	0.37	0.01	0.00
			Max. My	12	-1.74	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	29	-0.02	0.01	-0.00
			Max. Vx	12	-0.00	0.00	0.00
		Top Girt	Max Tension	18	1.02	0.00	0.00
			Max. Compression	23	-0.96	0.00	0.00
			Max. Mx	26	0.05	-0.04	0.00
			Max. My	10	-0.47	0.00	-0.00
			Max. Vy	26	0.03	0.00	0.00
			Max. Vx	10	-0.00	0.00	0.00
T2	180 - 160	Leg	Max Tension	7	32.56	1.13	-0.63
			Max. Compression	10	-38.67	-1.25	-0.72
			Max. Mx	20	-27.92	-1.45	0.51
			Max. My	2	-32.44	-0.04	-1.55
			Max. Vy	18	-5.21	1.25	-0.71
			Max. Vx	2	-5.95	0.00	1.43
		Diagonal	Max Tension	24	4.78	0.00	0.00
			Max. Compression	12	-4.73	0.00	0.00
			Max. Mx	32	1.58	0.03	0.00
			Max. My	2	-4.46	-0.02	-0.01
			Max. Vy	32	-0.02	0.03	0.00
			Max. Vx	2	-0.00	-0.02	-0.01
		Top Girt	Max Tension	2	0.23	0.00	0.00
			Max. Compression	14	-0.22	0.00	0.00
			Max. Mx	26	-0.01	-0.04	0.00
			Max. My	10	-0.09	0.00	-0.00
			Max. Vy	26	0.03	0.00	0.00
			Max. Vx	10	-0.00	0.00	0.00
T3	160 - 140	Leg	Max Tension	7	69.94	1.08	-0.03
			Max. Compression	2	-80.22	1.54	-0.00
			Max. Mx	18	-38.62	3.29	0.04
			Max. My	16	-3.17	-0.01	1.64
			Max. Vy	18	-5.44	1.55	-0.01
			Max. Vx	8	-2.13	0.01	0.63
		Diagonal	Max Tension	16	4.78	0.00	0.00
			Max. Compression	18	-4.87	0.00	0.00
			Max. Mx	30	1.11	0.03	-0.00
			Max. My	12	-4.78	-0.01	0.02
			Max. Vy	27	-0.03	0.03	0.00
			Max. Vx	12	-0.01	0.00	0.00
T4	140 - 120	Leg	Max Tension	23	101.81	2.44	0.03
			Max. Compression	2	-115.42	0.13	0.01
			Max. Mx	18	-80.18	4.28	-0.10
			Max. My	20	-5.35	-0.01	-1.76
			Max. Vy	10	-5.73	0.13	0.01
			Max. Vx	8	-2.61	-0.07	1.03
		Diagonal	Max Tension	16	5.95	0.00	0.00
			Max. Compression	16	-6.06	-0.01	-0.01
			Max. Mx	27	1.38	0.04	0.00
			Max. My	18	-4.43	-0.01	-0.01
			Max. Vy	37	0.04	0.04	-0.00
			Max. Vx	18	-0.00	0.00	0.00
		Secondary Horizontal	Max Tension	2	1.91	0.00	0.00
			Max. Compression	2	-1.91	0.01	-0.00
			Max. Mx	37	-0.30	0.03	0.01
			Max. My	20	0.50	0.02	0.01
			Max. Vy	37	0.04	0.03	0.01
			Max. Vx	38	-0.00	0.00	0.00
T5	120 - 100	Leg	Max Tension	23	129.84	4.33	0.04
			Max. Compression	2	-149.04	-1.21	-0.00
			Max. Mx	10	-148.88	-5.10	-0.06
			Max. My	20	-6.69	-0.09	-2.34

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	10	-7.77	-1.21	-0.00
			Max. Vx	8	-2.62	-0.09	2.34
		Diagonal	Max Tension	7	7.73	0.03	-0.00
			Max. Compression	18	-8.66	0.00	0.00
			Max. Mx	18	3.61	0.10	0.00
			Max. My	36	-1.04	0.01	-0.01
			Max. Vy	18	-0.04	0.10	0.00
			Max. Vx	28	-0.00	0.00	0.00
		Horizontal	Max Tension	2	2.43	0.00	0.00
			Max. Compression	2	-2.43	0.03	0.01
			Max. Mx	33	0.82	0.08	0.03
			Max. My	27	0.01	0.08	0.04
			Max. Vy	31	-0.08	0.08	0.04
			Max. Vx	27	-0.01	0.00	0.00
		Redund Horz 1 Bracing	Max Tension	18	5.75	0.00	0.00
			Max. Compression	7	-5.05	0.00	0.00
			Max. Mx	29	1.78	-0.02	0.00
			Max. My	29	1.94	0.00	0.00
			Max. Vy	29	0.03	0.00	0.00
			Max. Vx	29	-0.00	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	7	3.08	0.00	0.00
			Max. Compression	18	-3.60	0.00	0.00
			Max. Mx	28	0.35	-0.03	0.00
			Max. My	27	0.01	0.00	-0.00
			Max. Vy	28	0.03	0.00	0.00
			Max. Vx	27	-0.00	0.00	0.00
T6	100 - 80	Leg	Max Tension	23	156.16	2.97	0.04
			Max. Compression	2	-179.44	0.61	0.00
			Max. Mx	10	-179.20	-3.38	-0.05
			Max. My	8	-9.34	-0.08	1.93
			Max. Vy	10	-7.99	0.62	0.01
			Max. Vx	8	-2.88	-0.03	1.08
		Diagonal	Max Tension	16	6.24	0.00	0.00
			Max. Compression	16	-6.27	0.00	0.00
			Max. Mx	29	1.70	0.09	-0.01
			Max. My	30	-0.94	0.08	0.01
			Max. Vy	29	0.06	0.09	-0.01
			Max. Vx	30	0.00	0.00	0.00
T7	80 - 60	Leg	Max Tension	23	181.03	5.37	0.04
			Max. Compression	2	-211.20	-1.58	0.00
			Max. Mx	10	-210.88	-6.50	-0.05
			Max. My	8	-10.70	-0.02	2.52
			Max. Vy	10	-9.82	-1.58	0.01
			Max. Vx	8	-3.08	-0.14	0.93
		Diagonal	Max Tension	17	8.36	0.00	0.00
			Max. Compression	18	-9.31	0.00	0.00
			Max. Mx	18	5.20	0.12	0.00
			Max. My	33	-2.09	0.02	-0.01
			Max. Vy	27	-0.05	0.07	-0.01
			Max. Vx	28	-0.00	0.00	0.00
		Horizontal	Max Tension	2	3.53	0.00	0.00
			Max. Compression	2	-3.53	0.05	0.02
			Max. Mx	28	-0.61	0.13	0.06
			Max. My	27	0.03	0.12	0.07
			Max. Vy	35	-0.09	0.12	0.06
			Max. Vx	27	-0.01	0.00	0.00
		Redund Horz 1 Bracing	Max Tension	18	4.98	0.00	0.00
			Max. Compression	7	-4.34	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	26	0.67	-0.04	0.00
			Max. My	30	2.08	0.00	0.00
			Max. Vy	26	0.04	0.00	0.00
			Max. Vx	30	0.00	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	7	2.42	0.00	0.00
			Max. Compression	18	-2.94	0.00	0.00
			Max. Mx	28	0.29	-0.04	0.00
			Max. My	27	0.02	0.00	-0.00
			Max. Vy	28	-0.04	0.00	0.00
			Max. Vx	27	0.00	0.00	0.00
T8	60 - 40	Leg	Max Tension	23	205.24	2.96	0.02
			Max. Compression	2	-240.88	1.49	0.01
			Max. Mx	10	-232.07	-3.57	-0.03
			Max. My	9	-10.47	0.03	2.48
			Max. Vy	10	-10.14	1.51	0.03
			Max. Vx	8	-3.60	0.01	1.37
		Diagonal	Max Tension	17	7.94	0.09	0.00
			Max. Compression	16	-8.36	0.00	0.00
			Max. Mx	27	2.30	0.19	0.02
			Max. My	4	-7.55	0.01	0.03
			Max. Vy	28	0.09	0.18	-0.01
			Max. Vx	28	0.00	0.00	0.00
		Secondary Horizontal	Max Tension	2	4.03	0.00	0.00
			Max. Compression	2	-4.03	0.12	-0.01
			Max. Mx	37	1.38	0.20	0.03
			Max. My	28	0.07	0.19	0.04
			Max. Vy	29	-0.12	0.20	0.03
			Max. Vx	38	-0.01	0.00	0.00
T9	40 - 20	Leg	Max Tension	23	228.51	6.72	0.05
			Max. Compression	2	-270.25	-2.86	0.00
			Max. Mx	10	-269.75	-8.03	-0.07
			Max. My	9	-11.72	0.07	3.17
			Max. Vy	10	-10.35	-2.85	0.00
			Max. Vx	8	-4.17	-0.15	1.17
		Diagonal	Max Tension	17	8.97	0.11	0.01
			Max. Compression	16	-9.56	0.00	0.00
			Max. Mx	29	1.28	0.25	0.02
			Max. My	4	-8.14	0.03	0.03
			Max. Vy	28	0.11	0.22	-0.02
			Max. Vx	28	0.01	0.00	0.00
		Secondary Horizontal	Max Tension	2	4.53	0.00	0.00
			Max. Compression	2	-4.53	0.13	0.00
			Max. Mx	38	0.14	0.24	0.04
			Max. My	28	0.13	0.24	0.04
			Max. Vy	29	-0.13	0.22	0.03
			Max. Vx	38	-0.01	0.00	0.00
T10	20 - 0	Leg	Max Tension	23	249.65	5.67	0.05
			Max. Compression	2	-299.59	-0.00	-0.00
			Max. Mx	2	-286.84	-10.11	-0.00
			Max. My	20	-18.87	-1.34	-4.97
			Max. Vy	10	-13.72	-0.00	0.00
			Max. Vx	8	-4.18	-0.11	3.27
		Diagonal	Max Tension	7	9.96	0.08	-0.01
			Max. Compression	18	-11.97	0.00	0.00
			Max. Mx	18	4.74	0.24	0.01
			Max. My	35	-1.10	0.00	-0.02
			Max. Vy	27	-0.08	0.18	-0.02
			Max. Vx	34	-0.01	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
		Horizontal	Max Tension	2	5.01	0.00	0.00
			Max. Compression	2	-5.01	0.20	0.07
			Max. Mx	27	-0.60	0.36	0.14
			Max. My	31	-0.19	0.34	0.14
			Max. Vy	27	-0.15	0.36	0.14
			Max. Vx	35	0.02	0.00	0.00
		Redund Horz 1 Bracing	Max Tension	18	7.36	0.00	0.00
			Max. Compression	7	-6.09	0.00	0.00
			Max. Mx	34	2.27	-0.07	0.00
			Max. My	27	2.59	0.00	0.00
			Max. Vy	34	0.05	0.00	0.00
			Max. Vx	27	-0.00	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	7	3.39	0.00	0.00
			Max. Compression	18	-4.39	0.00	0.00
			Max. Mx	28	0.63	-0.08	0.00
			Max. My	35	0.17	0.00	0.00
			Max. Vy	28	0.05	0.00	0.00
			Max. Vx	35	0.00	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	298.14	26.54	-15.51
	Max. H_x	18	298.14	26.54	-15.51
	Max. H_z	7	-248.33	-22.32	13.04
	Min. Vert	7	-248.33	-22.32	13.04
	Min. H_x	7	-248.33	-22.32	13.04
	Min. H_z	18	298.14	26.54	-15.51
Leg B	Max. Vert	10	297.84	-26.55	-15.48
	Max. H_x	23	-248.56	22.33	13.02
	Max. H_z	23	-248.56	22.33	13.02
	Min. Vert	23	-248.56	22.33	13.02
	Min. H_x	10	297.84	-26.55	-15.48
	Min. H_z	10	297.84	-26.55	-15.48
Leg A	Max. Vert	2	298.32	-0.03	30.71
	Max. H_x	21	16.10	2.53	1.34
	Max. H_z	2	298.32	-0.03	30.71
	Min. Vert	15	-247.18	0.03	-25.79
	Min. H_x	9	16.10	-2.53	1.34
	Min. H_z	15	-247.18	0.03	-25.79

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	52.12	0.00	0.00	-9.18	2.59	-0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	62.55	0.00	-47.21	-5046.29	3.13	-1.01

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
0.9 Dead+1.6 Wind 0 deg - No Ice	46.91	-0.00	-47.21	-5033.25	2.34	-1.00
1.2 Dead+1.6 Wind 30 deg - No Ice	62.55	22.53	-38.95	-4219.10	-2433.45	-3.45
0.9 Dead+1.6 Wind 30 deg - No Ice	46.91	22.53	-38.95	-4207.68	-2429.23	-3.43
1.2 Dead+1.6 Wind 60 deg - No Ice	62.55	38.29	-22.06	-2410.06	-4164.22	-5.14
0.9 Dead+1.6 Wind 60 deg - No Ice	46.91	38.29	-22.06	-2402.32	-4156.42	-5.12
1.2 Dead+1.6 Wind 90 deg - No Ice	62.55	45.06	-0.00	-11.15	-4870.04	-5.64
0.9 Dead+1.6 Wind 90 deg - No Ice	46.91	45.06	-0.00	-8.35	-4860.83	-5.62
1.2 Dead+1.6 Wind 120 deg - No Ice	62.55	40.96	23.61	2506.47	-4369.79	-4.61
0.9 Dead+1.6 Wind 120 deg - No Ice	46.91	40.96	23.61	2504.13	-4361.66	-4.59
1.2 Dead+1.6 Wind 150 deg - No Ice	62.55	22.53	38.95	4196.88	-2433.46	-1.72
0.9 Dead+1.6 Wind 150 deg - No Ice	46.91	22.53	38.95	4191.05	-2429.25	-1.71
1.2 Dead+1.6 Wind 180 deg - No Ice	62.55	0.00	44.12	4786.75	3.13	1.05
0.9 Dead+1.6 Wind 180 deg - No Ice	46.91	0.00	44.12	4779.66	2.35	1.05
1.2 Dead+1.6 Wind 210 deg - No Ice	62.55	-22.53	38.95	4196.88	2439.72	3.45
0.9 Dead+1.6 Wind 210 deg - No Ice	46.91	-22.53	38.95	4191.04	2433.94	3.43
1.2 Dead+1.6 Wind 240 deg - No Ice	62.55	-40.96	23.61	2506.46	4376.04	5.45
0.9 Dead+1.6 Wind 240 deg - No Ice	46.91	-40.96	23.61	2504.13	4366.35	5.42
1.2 Dead+1.6 Wind 270 deg - No Ice	62.55	-45.06	-0.00	-11.15	4876.29	5.64
0.9 Dead+1.6 Wind 270 deg - No Ice	46.91	-45.06	-0.00	-8.35	4865.51	5.62
1.2 Dead+1.6 Wind 300 deg - No Ice	62.55	-38.29	-22.06	-2410.05	4170.47	4.26
0.9 Dead+1.6 Wind 300 deg - No Ice	46.91	-38.29	-22.06	-2402.32	4161.10	4.24
1.2 Dead+1.6 Wind 330 deg - No Ice	62.55	-22.53	-38.95	-4219.09	2439.70	1.72
0.9 Dead+1.6 Wind 330 deg - No Ice	46.91	-22.53	-38.95	-4207.67	2433.92	1.71
1.2 Dead+1.0 Ice+1.0 Temp	161.32	-0.00	0.00	-32.65	-1.27	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	161.32	-0.00	-15.12	-1736.23	-1.28	-0.18
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	161.32	7.37	-12.75	-1479.55	-837.93	-0.78
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	161.32	12.71	-7.33	-867.22	-1448.95	-1.18
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	161.32	14.73	-0.00	-32.72	-1674.57	-1.28
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	161.32	13.10	7.56	819.03	-1478.85	-1.04
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	161.32	7.37	12.75	1414.11	-837.93	-0.45
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	161.32	-0.00	14.66	1636.27	-1.28	0.19

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	161.32	-7.37	12.75	1414.11	835.36	0.78
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	161.32	-13.10	7.56	819.03	1476.28	1.20
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	161.32	-14.73	-0.00	-32.72	1672.01	1.28
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	161.32	-12.71	-7.33	-867.22	1446.39	1.01
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	161.32	-7.37	-12.75	-1479.55	835.36	0.45
Dead+Wind 0 deg - Service	52.12	0.00	-12.28	-1317.39	2.60	-0.26
Dead+Wind 30 deg - Service	52.12	5.86	-10.13	-1102.47	-630.41	-0.90
Dead+Wind 60 deg - Service	52.12	9.96	-5.74	-632.49	-1080.08	-1.33
Dead+Wind 90 deg - Service	52.12	11.72	-0.00	-9.24	-1263.44	-1.46
Dead+Wind 120 deg - Service	52.12	10.66	6.14	644.83	-1133.49	-1.20
Dead+Wind 150 deg - Service	52.12	5.86	10.13	1083.99	-630.42	-0.45
Dead+Wind 180 deg - Service	52.12	0.00	11.48	1237.24	2.60	0.27
Dead+Wind 210 deg - Service	52.12	-5.86	10.13	1084.00	635.63	0.90
Dead+Wind 240 deg - Service	52.12	-10.66	6.14	644.83	1138.69	1.41
Dead+Wind 270 deg - Service	52.12	-11.72	-0.00	-9.24	1268.64	1.46
Dead+Wind 300 deg - Service	52.12	-9.96	-5.74	-632.48	1085.28	1.11
Dead+Wind 330 deg - Service	52.12	-5.86	-10.13	-1102.47	635.62	0.45

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-52.12	0.00	0.00	52.12	0.00	0.000%
2	-0.00	-62.55	-47.21	-0.00	62.55	47.21	0.000%
3	-0.00	-46.91	-47.21	0.00	46.91	47.21	0.000%
4	22.53	-62.55	-38.95	-22.53	62.55	38.95	0.000%
5	22.53	-46.91	-38.95	-22.53	46.91	38.95	0.000%
6	38.29	-62.55	-22.06	-38.29	62.55	22.06	0.000%
7	38.29	-46.91	-22.06	-38.29	46.91	22.06	0.000%
8	45.06	-62.55	0.00	-45.06	62.55	0.00	0.000%
9	45.06	-46.91	0.00	-45.06	46.91	0.00	0.000%
10	40.96	-62.55	23.61	-40.96	62.55	-23.61	0.000%
11	40.96	-46.91	23.61	-40.96	46.91	-23.61	0.000%
12	22.53	-62.55	38.95	-22.53	62.55	-38.95	0.000%
13	22.53	-46.91	38.95	-22.53	46.91	-38.95	0.000%
14	0.00	-62.55	44.12	-0.00	62.55	-44.12	0.000%
15	0.00	-46.91	44.12	-0.00	46.91	-44.12	0.000%
16	-22.53	-62.55	38.95	22.53	62.55	-38.95	0.000%
17	-22.53	-46.91	38.95	22.53	46.91	-38.95	0.000%
18	-40.96	-62.55	23.61	40.96	62.55	-23.61	0.000%
19	-40.96	-46.91	23.61	40.96	46.91	-23.61	0.000%
20	-45.06	-62.55	0.00	45.06	62.55	0.00	0.000%
21	-45.06	-46.91	0.00	45.06	46.91	0.00	0.000%
22	-38.29	-62.55	-22.06	38.29	62.55	22.06	0.000%
23	-38.29	-46.91	-22.06	38.29	46.91	22.06	0.000%
24	-22.53	-62.55	-38.95	22.53	62.55	38.95	0.000%
25	-22.53	-46.91	-38.95	22.53	46.91	38.95	0.000%
26	0.00	-161.32	-0.00	0.00	161.32	-0.00	0.000%
27	0.00	-161.32	-15.12	0.00	161.32	15.12	0.000%
28	7.37	-161.32	-12.75	-7.37	161.32	12.75	0.000%
29	12.71	-161.32	-7.33	-12.71	161.32	7.33	0.000%
30	14.73	-161.32	-0.00	-14.73	161.32	0.00	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
31	13.10	-161.32	7.56	-13.10	161.32	-7.56	0.000%
32	7.37	-161.32	12.75	-7.37	161.32	-12.75	0.000%
33	0.00	-161.32	14.66	0.00	161.32	-14.66	0.000%
34	-7.37	-161.32	12.75	7.37	161.32	-12.75	0.000%
35	-13.10	-161.32	7.56	13.10	161.32	-7.56	0.000%
36	-14.73	-161.32	0.00	14.73	161.32	0.00	0.000%
37	-12.71	-161.32	-7.33	12.71	161.32	7.33	0.000%
38	-7.37	-161.32	-12.75	7.37	161.32	12.75	0.000%
39	0.00	-52.12	-12.28	0.00	52.12	12.28	0.000%
40	5.86	-52.12	-10.13	-5.86	52.12	10.13	0.000%
41	9.96	-52.12	-5.74	-9.96	52.12	5.74	0.000%
42	11.72	-52.12	0.00	-11.72	52.12	0.00	0.000%
43	10.66	-52.12	6.14	-10.66	52.12	-6.14	0.000%
44	5.86	-52.12	10.13	-5.86	52.12	-10.13	0.000%
45	0.00	-52.12	11.48	0.00	52.12	-11.48	0.000%
46	-5.86	-52.12	10.13	5.86	52.12	-10.13	0.000%
47	-10.66	-52.12	6.14	10.66	52.12	-6.14	0.000%
48	-11.72	-52.12	0.00	11.72	52.12	0.00	0.000%
49	-9.96	-52.12	-5.74	9.96	52.12	5.74	0.000%
50	-5.86	-52.12	-10.13	5.86	52.12	10.13	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00000442
3	Yes	4	0.00000001	0.00000465
4	Yes	4	0.00000001	0.00000876
5	Yes	4	0.00000001	0.00000778
6	Yes	4	0.00000001	0.00001139
7	Yes	4	0.00000001	0.00000982
8	Yes	4	0.00000001	0.00000889
9	Yes	4	0.00000001	0.00000791
10	Yes	4	0.00000001	0.00000445
11	Yes	4	0.00000001	0.00000468
12	Yes	4	0.00000001	0.00000863
13	Yes	4	0.00000001	0.00000769
14	Yes	4	0.00000001	0.00001120
15	Yes	4	0.00000001	0.00000966
16	Yes	4	0.00000001	0.00000864
17	Yes	4	0.00000001	0.00000769
18	Yes	4	0.00000001	0.00000442
19	Yes	4	0.00000001	0.00000466
20	Yes	4	0.00000001	0.00000883
21	Yes	4	0.00000001	0.00000787
22	Yes	4	0.00000001	0.00001131
23	Yes	4	0.00000001	0.00000976
24	Yes	4	0.00000001	0.00000870
25	Yes	4	0.00000001	0.00000774
26	Yes	4	0.00000001	0.00000178
27	Yes	4	0.00000001	0.00004357
28	Yes	4	0.00000001	0.00004354
29	Yes	4	0.00000001	0.00004362
30	Yes	4	0.00000001	0.00004331
31	Yes	4	0.00000001	0.00004317

32	Yes	4	0.00000001	0.00004293
33	Yes	4	0.00000001	0.00004299
34	Yes	4	0.00000001	0.00004287
35	Yes	4	0.00000001	0.00004306
36	Yes	4	0.00000001	0.00004315
37	Yes	4	0.00000001	0.00004345
38	Yes	4	0.00000001	0.00004342
39	Yes	4	0.00000001	0.00000001
40	Yes	4	0.00000001	0.00000001
41	Yes	4	0.00000001	0.00000001
42	Yes	4	0.00000001	0.00000001
43	Yes	4	0.00000001	0.00000001
44	Yes	4	0.00000001	0.00000001
45	Yes	4	0.00000001	0.00000001
46	Yes	4	0.00000001	0.00000001
47	Yes	4	0.00000001	0.00000001
48	Yes	4	0.00000001	0.00000001
49	Yes	4	0.00000001	0.00000001
50	Yes	4	0.00000001	0.00000001

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	P2x.154	5.00	0.25	3.8 K=1.00	1.0745	-5.05	48.30	0.105 [1] ✔
T2	180 - 160	P2.5x.203	20.00	4.75	60.2 K=1.00	1.7040	-32.67	58.85	0.555 [1] ✔
T3	160 - 140	P2.5x0.375	20.03	4.76	63.9 K=1.00	2.9452	-75.31	98.34	0.766 [1] ✔
T4	140 - 120	P3.5x.318	20.03	0.50	4.6 K=1.00	3.6784	-115.42	165.27	0.698 [1] ✔
T5	120 - 100	P5x.258	20.03	0.50	3.2 K=1.00	4.2999	-149.04	193.35	0.771 [1] ✔
T6	100 - 80	P5x.375	20.03	6.34	41.4 K=1.00	6.1120	-173.90	242.65	0.717 [1] ✔
T7	80 - 60	P5x.375	20.03	0.50	3.3 K=1.00	6.1120	-211.20	274.82	0.768 [1] ✔
T8	60 - 40	P5x.375	20.03	4.90	31.9 K=1.00	6.1120	-232.50	255.27	0.911 [1] ✔
T9	40 - 20	P8x.322	20.03	0.50	2.0 K=1.00	8.3993	-270.25	377.85	0.715 [1] ✔
T10	20 - 0	P8x.322	20.03	0.50	2.0 K=1.00	8.3993	-299.59	377.85	0.793 [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	L2x2x1/8	6.73	3.23	103.1 K=1.06	0.4844	-1.75	8.83	0.198 [1] ✔
T2	180 - 160	L2x2x1/8	6.90	3.28	104.3 K=1.05	0.4844	-4.73	8.72	0.542 [1] ✔
T3	160 - 140	L2x2x1/8	8.22	4.11	123.2 K=0.99	0.4844	-4.71	7.01	0.672 [1] ✔
T4	140 - 120	L2x2x3/16	9.92	4.91	142.5 K=0.95	0.7150	-5.64	7.96	0.708 [1] ✔
T5	120 - 100	L2 1/2x2 1/2x3/16	6.33	6.06	106.7 K=1.14	0.9020	-8.66	16.05	0.540 [1] ✔
T6	100 - 80	L2 1/2x2 1/2x3/16	14.13	6.98	157.6 K=0.93	0.9020	-6.27	8.20	0.765 [1] ✔
T7	80 - 60	L3x3x3/16	8.12	7.87	110.3 K=1.10	1.0900	-9.31	18.38	0.506 [1] ✔
T8	60 - 40	L3x3x1/4	19.02	9.52	175.6 K=0.91	1.4400	-8.36	10.55	0.792 [1] ✔
T9	40 - 20	L3 1/2x3 1/2x1/4	20.78	10.25	163.7 K=0.92	1.6900	-9.56	14.25	0.670 [1] ✔
T10	20 - 0	L4x4x1/4	11.50	11.11	113.3 K=1.06	1.9400	-11.97	31.60	0.379 [1] ✔

[1] $P_u / \phi P_n$ 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 $\frac{P_u}{\phi P_n}$
T5	120 - 100	L3x3x1/2	10.63	5.08	112.2 K=1.07	2.7500	-2.43	45.90	0.053 [1] ✔
T7	80 - 60	L3x3x3/8	14.63	7.08	139.0 K=0.96	2.1100	-3.53	24.68	0.143 [1] ✔
T10	20 - 0	L3 1/2x3 1/2x1/2	20.47	9.88	160.8 K=0.93	3.2500	-5.01	28.38	0.177 [1] ✔

[1] $P_u / \phi P_n$ controls

Secondary 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 $\frac{P_u}{\phi P_n}$
T4	140 - 120	L2x2x1/4	8.71	8.37	147.7 K=0.90	0.9380	-1.91	9.72	0.197 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T8	60 - 40	L3x3x1/2	16.46	16.00	177.7 K=0.83	2.7500	-4.03	19.68	0.205 [1] ✔
T9	40 - 20	L3x3x1/2	18.46	17.74	192.0 K=0.81	2.7500	-4.53	16.85	0.269 [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	L2x2x1/8	5.00	4.80	135.3 K=0.93	0.4844	-0.96	5.97	0.160 [1] ✔
T2	180 - 160	L2x2x1/8	5.00	4.76	134.6 K=0.94	0.4844	-0.22	6.04	0.036 [1] ✔

[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 $\frac{P_u}{\phi P_n}$
T5	120 - 100	L3x3x1/2	2.66	2.43	84.9 K=1.70	2.7500	-5.05	60.95	0.083 [1] ✔
T7	80 - 60	L3x3x1/2	3.66	3.43	95.2 K=1.35	2.7500	-4.34	55.29	0.078 [1] ✔
T10	20 - 0	L3x3x1/2	5.12	4.76	108.9 K=1.11	2.7500	-6.09	47.73	0.128 [1] ✔

[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 $\frac{P_u}{\phi P_n}$
T5	120 - 100	L3x3x1/2	3.03	2.75	88.3 K=1.56	2.7500	-3.60	59.10	0.061 [1] ✔
T7	80 - 60	L3x3x3/8	3.91	3.66	97.4 K=1.30	2.1100	-2.94	41.48	0.071 [1] ✔
T10	20 - 0	L3x3x1/2	5.75	5.35	115.0 K=1.05	2.7500	-4.39	44.41	0.099 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$

[1] P_u / ϕP_n controls

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	P2x.154	5.00	0.25	3.8	1.0745	3.27	48.35	0.068 [1]
T2	180 - 160	P2.5x.203	20.00	0.50	6.3	1.7040	32.56	76.68	0.425 [1]
T3	160 - 140	P2.5x0.375	20.03	0.50	6.7	2.9452	69.94	132.54	0.528 [1]
T4	140 - 120	P3.5x.318	20.03	0.50	4.6	3.6784	101.81	165.53	0.615 [1]
T5	120 - 100	P5x.258	20.03	0.50	3.2	4.2999	129.84	193.49	0.671 [1]
T6	100 - 80	P5x.375	20.03	0.50	3.3	6.1120	156.16	275.04	0.568 [1]
T7	80 - 60	P5x.375	20.03	0.50	3.3	6.1120	181.03	275.04	0.658 [1]
T8	60 - 40	P5x.375	20.03	0.50	3.3	6.1120	205.24	275.04	0.746 [1]
T9	40 - 20	P8x.322	20.03	0.50	2.0	8.3993	228.51	377.97	0.605 [1]
T10	20 - 0	P8x.322	20.03	0.50	2.0	8.3993	249.65	377.97	0.661 [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	L2x2x1/8	6.73	3.23	61.9	0.4844	1.69	15.69	0.107 [1]
T2	180 - 160	L2x2x1/8	6.90	3.28	62.9	0.4844	4.78	15.69	0.304 [1]
T3	160 - 140	L2x2x1/8	8.22	4.11	78.8	0.4844	4.78	15.69	0.305 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	140 - 120	L2x2x3/16	8.70	4.30	83.7	0.7150	5.95	23.17	0.257 [1] ✔
T5	120 - 100	L2 1/2x2 1/2x3/16	6.33	6.06	93.4	0.9020	7.73	29.22	0.264 [1] ✔
T6	100 - 80	L2 1/2x2 1/2x3/16	14.13	6.98	107.7	0.9020	6.24	29.22	0.213 [1] ✔
T7	80 - 60	L3x3x3/16	8.12	7.87	100.5	1.0900	8.36	35.32	0.237 [1] ✔
T8	60 - 40	L3x3x1/4	19.02	9.52	122.8	1.4400	7.94	46.66	0.170 [1] ✔
T9	40 - 20	L3 1/2x3 1/2x1/4	20.78	10.25	112.9	1.6900	8.97	54.76	0.164 [1] ✔
T10	20 - 0	L4x4x1/4	11.50	11.11	106.6	1.9400	9.96	62.86	0.158 [1] ✔

[1] P_u / ϕP_n controls

Horizontal 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 $\frac{P_u}{\phi P_n}$
T5	120 - 100	L3x3x1/2	10.63	5.08	101.9	2.7500	2.43	89.10	0.027 [1] ✔
T7	80 - 60	L3x3x3/8	14.63	7.08	139.7	2.1100	3.53	68.36	0.052 [1] ✔
T10	20 - 0	L3 1/2x3 1/2x1/2	20.47	9.88	167.7	3.2500	5.01	105.30	0.048 [1] ✔

[1] P_u / ϕP_n controls

Secondary Horizontal 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 $\frac{P_u}{\phi P_n}$
T4	140 - 120	L2x2x1/4	8.71	8.37	165.0	0.9380	1.91	30.39	0.063 [1] ✔
T8	60 - 40	L3x3x1/2	16.46	16.00	213.8	2.7500	4.03	89.10	0.045 [1] ✔
T9	40 - 20	L3x3x1/2	18.46	17.74	237.1	2.7500	4.53	89.10	0.051 [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	L2x2x1/8	5.00	4.80	92.0	0.4844	1.02	15.69	0.065 [1] ✔
T2	180 - 160	L2x2x1/8	5.00	4.76	91.2	0.4844	0.23	15.69	0.015 [1] ✔

[1] $P_u / \phi P_n$ 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 $\frac{P_u}{\phi P_n}$
T5	120 - 100	L3x3x1/2	2.50	2.27	30.3	2.7500	5.75	89.10	0.065 [1] ✔
T7	80 - 60	L3x3x1/2	3.50	3.27	43.7	2.7500	4.98	89.10	0.056 [1] ✔
T10	20 - 0	L3x3x1/2	5.12	4.76	63.6	2.7500	7.36	89.10	0.083 [1] ✔

[1] $P_u / \phi P_n$ 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 $\frac{P_u}{\phi P_n}$
T5	120 - 100	L3x3x1/2	3.03	2.75	36.8	2.7500	3.08	89.10	0.035 [1] ✔
T7	80 - 60	L3x3x3/8	3.91	3.66	48.1	2.1100	2.42	68.36	0.035 [1] ✔
T10	20 - 0	L3x3x1/2	5.75	5.35	71.5	2.7500	3.39	89.10	0.038 [1] ✔

[1] $P_u / \phi P_n$ controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	185 - 180	Leg	P2x.154	2	-5.05	48.30	10.5	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T2	180 - 160	Leg	P2.5x.203	14	-32.67	58.85	55.5	Pass
T3	160 - 140	Leg	P2.5x0.375	45	-75.31	98.34	76.6	Pass
T4	140 - 120	Leg	P3.5x.318	72	-115.42	165.27	69.8	Pass
T5	120 - 100	Leg	P5x.258	111	-149.04	193.35	77.1	Pass
T6	100 - 80	Leg	P5x.375	231	-173.90	242.65	71.7	Pass
T7	80 - 60	Leg	P5x.375	252	-211.20	274.82	76.8	Pass
T8	60 - 40	Leg	P5x.375	372	-232.50	255.27	91.1	Pass
T9	40 - 20	Leg	P8x.322	393	-270.25	377.85	71.5	Pass
T10	20 - 0	Leg	P8x.322	414	-299.59	377.85	79.3	Pass
T1	185 - 180	Diagonal	L2x2x1/8	10	-1.75	8.83	19.8	Pass
T2	180 - 160	Diagonal	L2x2x1/8	21	-4.73	8.72	54.2	Pass
T3	160 - 140	Diagonal	L2x2x1/8	51	-4.71	7.01	67.2	Pass
T4	140 - 120	Diagonal	L2x2x3/16	78	-5.64	7.96	70.8	Pass
T5	120 - 100	Diagonal	L2 1/2x2 1/2x3/16	130	-8.66	16.05	54.0	Pass
T6	100 - 80	Diagonal	L2 1/2x2 1/2x3/16	237	-6.27	8.20	76.5	Pass
T7	80 - 60	Diagonal	L3x3x3/16	271	-9.31	18.38	50.6	Pass
T8	60 - 40	Diagonal	L3x3x1/4	378	-8.36	10.55	79.2	Pass
T9	40 - 20	Diagonal	L3 1/2x3 1/2x1/4	399	-9.56	14.25	67.0	Pass
T10	20 - 0	Diagonal	L4x4x1/4	433	-11.97	31.60	37.9	Pass
T5	120 - 100	Horizontal	L3x3x1/2	126	-2.43	45.90	5.3	Pass
T7	80 - 60	Horizontal	L3x3x3/8	267	-3.53	24.68	14.3	Pass
T10	20 - 0	Horizontal	L3 1/2x3 1/2x1/2	429	-5.01	28.38	17.7	Pass
T4	140 - 120	Secondary Horizontal	L2x2x1/4	80	-1.91	9.72	19.7	Pass
T8	60 - 40	Secondary Horizontal	L3x3x1/2	380	-4.03	19.68	20.5	Pass
T9	40 - 20	Secondary Horizontal	L3x3x1/2	401	-4.53	16.85	26.9	Pass
T1	185 - 180	Top Girt	L2x2x1/8	6	-0.96	5.97	16.0	Pass
T2	180 - 160	Top Girt	L2x2x1/8	16	-0.22	6.04	3.6	Pass
T5	120 - 100	Redund Horz 1 Bracing	L3x3x1/2	149	-5.05	60.95	8.3	Pass
T7	80 - 60	Redund Horz 1 Bracing	L3x3x1/2	290	-4.34	55.29	7.8	Pass
T10	20 - 0	Redund Horz 1 Bracing	L3x3x1/2	452	-6.09	47.73	12.8	Pass
T5	120 - 100	Redund Diag 1 Bracing	L3x3x1/2	189	-3.60	59.10	6.1	Pass
T7	80 - 60	Redund Diag 1 Bracing	L3x3x3/8	330	-2.94	41.48	7.1	Pass
T10	20 - 0	Redund Diag 1 Bracing	L3x3x1/2	453	-4.39	44.41	9.9	Pass

	Summary	
Leg (T8)	91.1	Pass
Diagonal (T8)	79.2	Pass
Horizontal (T10)	17.7	Pass
Secondary Horizontal (T9)	26.9	Pass
Top Girt (T1)	16.0	Pass
Redund Horz 1 Bracing (T10)	12.8	Pass
Redund Diag 1 Bracing (T10)	9.9	Pass
RATING =	**91.1**	**Pass**

Exhibit E